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

Appendix 9
Deerfield River Basin
Assessment and Listing Decision Summary

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Massachusetts Department of Environmental Protection

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

Watershed Planning Program

The Watershed Planning Program is a statewide program in the Division of Watershed Management, Bureau of Water Resources, at MassDEP. We are stewards of the water resources of Massachusetts. Together with other state environmental agencies, we share in the duty and responsibility to protect, enhance, and restore the quality and value of the waters of the Commonwealth. We are guided by the federal Clean Water Act and work to secure the environmental, recreational, and public health benefits of clean water for the residents of Massachusetts. The Watershed Planning Program is organized into five Sections that each have a different technical focus under the Clean Water Act: (1) Surface Water Quality Standards; (2) Surface Water Quality Monitoring; (3) Data Management and Water Quality Assessment; (4) Total Maximum Daily Load; and (5) Nonpoint Source Pollution.

Disclaimer

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

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Notice of Availability

This report is available on the Massachusetts Department of Environmental Protection website: https://www.mass.gov/lists/integrated-lists-of-waters-related-reports.

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Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Albee Brook	MA33-33	2	2	None		Unchanged
Allen Brook	MA33-34	2	2	None		Unchanged
Ashfield Pond	MA33001	4a	4a	(Water Chestnut*)		Added
Ashfield Pond	MA33001	4a	4a	Mercury in Fish Tissue	42397	Unchanged
Avery Brook	MA33-35	2	2	None		Unchanged
Basin Brook	MA33-36	2	2	None		Unchanged
Bear River	MA33-17	5	5	Temperature		Unchanged
Black Brook	MA33-37	2	2	None		Unchanged
Bog Pond	MA33003	3	3	None		Unchanged
Borden Brook	MA33-38	2	2	None		Unchanged
Bozrah Brook	MA33-13	2	2	None		Unchanged
Brandy Brook	MA33-117	2	2	None		Unchanged
Brown Brook	MA33-39	2	2	None		Unchanged
Burnett Pond	MA33005	3	3	None		Unchanged
Burrington Brook	MA33-40	2	2	None		Unchanged
Burton Brook	MA33-41	2	2	None		Unchanged
Cary Brook	MA33-42	2	2	None		Unchanged
Cascade Brook	MA33-43	2	2	None		Unchanged
Chapel Brook	MA33-44	2	2	None		Unchanged
Cherry Rum Brook	MA33-97	5	5	Benthic Macroinvertebrates		Unchanged
Chickley River	MA33-11	2	5	Escherichia Coli (E. Coli)		Added
Clark Brook	MA33-16	2	2	None		Unchanged
Clesson Brook	MA33-15	2	2	None		Unchanged
Cold River	MA33-05	2	2	None		Unchanged
Cooley Brook	MA33-45	2	2	None		Unchanged
Creamery Brook	MA33-46	2	2	None		Unchanged
Davenport Brook	MA33-111	2	2	None		Unchanged
Davis Mine Brook	MA33-18	5	5	Fish Bioassessments		Unchanged
Davis Mine Brook	MA33-18	5	5	pH, Low		Unchanged
Deerfield River	MA33-01	4c	4c	(Flow Regime Modification*)		Unchanged
Deerfield River	MA33-02	2	2	None		Unchanged
Deerfield River	MA33-03	5	2	Escherichia Coli (E. Coli)		Removed
Deerfield River	MA33-04	5	5	Escherichia Coli (E. Coli)		Unchanged
Dickenson Brook	MA33-120	2	2	None		Unchanged
Dragon Brook	MA33-20	5	5	Temperature		Unchanged
Drakes Brook	MA33-23	2	2	None		Unchanged
Dunbar Brook	MA33-48	2	2	None		Unchanged
East Branch North River	MA33-19	5	5	Escherichia Coli (E. Coli)		Unchanged
East Branch North River	MA33-19	5	5	Temperature		Added
East Glen Brook	MA33-49	2	2	None		Unchanged
East Oxbow Brook	MA33-72	2	2	None		Unchanged
Fife Brook	MA33-50	2	2	None		Unchanged
Foundry Brook	MA33-25	2	2	None		Unchanged
Fox Brook	MA33-51	2	2	None		Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Fox Brook Upper Reservoir	MA33006	3	3	None		Unchanged
Fuller Brook	MA33-118	2	2	None		Unchanged
Glen Brook	MA33-52	2	2	None		Unchanged
Glen Brook	MA33-96	2	2	None		Unchanged
Goodnow Road Pond	MA33007	3	3	None		Unchanged
Granger Brook	MA33-53	2	2	None		Unchanged
Great Brook	MA33-54	2	2	None		Unchanged
Green River	MA33-28	2	5	Temperature		Added
Green River	MA33-29	2	2	None		Unchanged
Green River	MA33-30	5	5	Escherichia Coli (E. Coli)		Unchanged
Green River	MA33-30	5	5	Fecal Coliform		Unchanged
Green River	MA33-30	5	5	Lack of a Coldwater Assemblage		Added
Green River	MA33-30	5	5	Temperature		Added
Green River	MA33-30	5	5	Turbidity		Unchanged
Green River	MA33-55	2	2	None		Unchanged
Gulf Brook	MA33-56	2	2	None		Unchanged
Haley Brook	MA33-57	2	2	None		Unchanged
Hallockville Pond	MA33009	3	3	None		Unchanged
Hartwell Brook	MA33-58	2	2	None		Unchanged
Hawkes Brook	MA33-112	2	2	None		Unchanged
Heath Brook	MA33-59	2	2	None		Unchanged
Hibbard Brook	MA33-60	2	2	None		Unchanged
Highland Pond	MA33032	3	3	None		Unchanged
Hinsdale Brook	MA33-21	5	5	Escherichia Coli (E. Coli)		Unchanged
Hinsdale Brook	MA33-21	5	5	Temperature		Added
Horsefords Brook	MA33-62	2	2	None		Unchanged
Houghton Brook	MA33-135	--	3	None		Unchanged
Johnny Bean Brook	MA33-63	2	2	None		Unchanged
Johnson Brook	MA33-131	4c	4c	(Dewatering*)		Unchanged
Katley Brook	MA33-99	2	2	None		Unchanged
King Brook	MA33-64	2	2	None		Unchanged
Kinsman Brook	MA33-124	3	3	None		Unchanged
Legate Hill Brook	MA33-65	2	2	None		Unchanged
Manning Brook	MA33-66	2	2	None		Unchanged
Maxwell Brook	MA33-67	2	2	None		Unchanged
Maynard Pond	MA33011	3	3	None		Unchanged
Mccard Brook	MA33-68	2	2	None		Unchanged
Mcleod Pond	MA33012	3	3	None		Unchanged
Meadow Brook	MA33-130	2	2	None		Unchanged
Mill Brook	MA33-14	2	2	None		Unchanged
Mill Brook	MA33-69	2	2	None		Unchanged
Mill Brook	MA33-70	5	5	Benthic Macroinvertebrates		Unchanged
Mt. Brook Reservoir	MA33024	3	3	None		Unchanged
Newell Pond	MA33013	3	3	None		Unchanged
North Brook	MA33-126	3	3	None		Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
North Pond	MA33014	2	2	None		Unchanged
North River	MA33-06	2	5	Lack of a Coldwater Assemblage		Added
North River	MA33-06	2	5	Temperature		Added
Nye Brook	MA33-71	2	2	None		Unchanged
Papoose Lake	MA33023	3	3	None		Unchanged
Parsonage Brook	MA33-123	2	2	None		Unchanged
Pelham Brook	MA33-12	2	2	None		Unchanged
Pelham Lake	MA33016	5	5	Mercury in Fish Tissue		Unchanged
Phelps Brook	MA33-73	2	2	None		Unchanged
Phelps Brook Reservoir	MA33030	3	3	None		Unchanged
Plainfield Pond	MA33017	4a	4a	Mercury in Fish Tissue	33880	Unchanged
Poland Brook	MA33-74	2	2	None		Unchanged
Potash Brook	MA33-75	2	2	None		Unchanged
Pumpkin Hollow Brook	MA33-32	2	2	None		Unchanged
Punch Brook	MA33-100	2	2	None		Unchanged
Rice Brook	MA33-125	3	3	None		Unchanged
Rice Brook	MA33-76	2	2	None		Unchanged
Roberts Brook	MA33-77	2	2	None		Unchanged
Ross Brook	MA33-78	2	2	None		Unchanged
Ruddock Brook	MA33-79	2	2	None		Unchanged
Sanders Brook	MA33-80	2	2	None		Unchanged
Schneck Brook	MA33-113	2	2	None		Unchanged
Sheldon Brook	MA33-81	2	2	None		Unchanged
Sherman Reservoir	MA33018	5	5	Mercury in Fish Tissue		Unchanged
Shingle Brook	MA33-22	2	2	None		Unchanged
Sids Brook	MA33-82	2	2	None		Unchanged
Sluice Brook	MA33-83	2	2	None		Unchanged
Smead Brook	MA33-84	2	2	None		Unchanged
Smith Brook	MA33-26	2	2	None		Unchanged
South Pond	MA33019	2	2	None		Unchanged
South River	MA33-07	5	5	Temperature		Unchanged
South River	MA33-101	5	5	Escherichia Coli (E. Coli)		Unchanged
South River	MA33-101	5	5	Fecal Coliform		Unchanged
South River	MA33-102	5	5	(Physical Substrate Habitat Alterations*)		Unchanged
South River	MA33-102	5	5	Escherichia Coli (E. Coli)		Unchanged
South River	MA33-102	5	5	Fecal Coliform		Unchanged
South River	MA33-102	5	5	Temperature		Added
Spur Brook	MA33-106	2	2	None		Unchanged
Stafford Brook	MA33-98	2	2	None		Unchanged
Staples Brook	MA33-121	2	2	None		Unchanged
Steele Brook	MA33-85	2	2	None		Unchanged
Stewart Brook	MA33-132	2	2	None		Unchanged
Tannery Brook	MA33-86	2	2	None		Unchanged
Tannery Pond	MA33020	3	3	None		Unchanged
Taylor Brook	MA33-31	2	2	None		Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Tilton Brook	MA33-119	2	2	None		Unchanged
Tissdell Brook	MA33-24	2	2	None		Unchanged
Todd Brook	MA33-127	3	3	None		Unchanged
Tower Brook	MA33-87	2	2	None		Unchanged
Trout Brook	MA33-88	2	2	None		Unchanged
Tuttle Brook	MA33-129	2	2	None		Unchanged
Unnamed Tributary	MA33-103	2	2	None		Unchanged
Unnamed Tributary	MA33-104	2	2	None		Unchanged
Unnamed Tributary	MA33-105	2	2	None		Unchanged
Unnamed Tributary	MA33-107	2	2	None		Unchanged
Unnamed Tributary	MA33-108	2	2	None		Unchanged
Unnamed Tributary	MA33-109	2	2	None		Unchanged
Unnamed Tributary	MA33-110	2	2	None		Unchanged
Unnamed Tributary	MA33-114	2	2	None		Unchanged
Unnamed Tributary	MA33-115	2	2	None		Unchanged
Unnamed Tributary	MA33-116	2	2	None		Unchanged
Unnamed Tributary	MA33-128	3	3	None		Unchanged
Unnamed Tributary	MA33-133	2	2	None		Unchanged
Unnamed Tributary	MA33-134	2	2	None		Unchanged
Unnamed Tributary	MA33-137	--	5	Escherichia Coli (E. Coli)		Added
Unnamed Tributary	MA33-137	--	5	Temperature		Added
Unnamed Tributary	MA33-61	2	2	None		Unchanged
Upper Greenfield Reservoir	MA33021	3	3	None		Unchanged
Upper Highland Springs Reservoir	MA33025	3	3	None		Unchanged
Upper Reservoir Bear Swamp	MA33026	3	3	None		Unchanged
Vincent Brook	MA33-89	2	2	None		Unchanged
West Branch Brook	MA33-90	2	2	None		Unchanged
West Branch North River	MA33-27	2	5	Temperature		Added
Wheeler Brook	MA33-136	--	3	None		Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Wheeler Brook	MA33-95	2	2	None		Unchanged
Whitcomb Brook	MA33-91	2	2	None		Unchanged
White Brook	MA33-122	2	2	None		Unchanged
Wilder Brook	MA33-92	2	2	None		Unchanged
Willis Brook	MA33-93	2	2	None		Unchanged
Workman Brook	MA33-94	2	2	None		Unchanged

Albee Brook (MA33-33)

Location:	Headwaters, north of Dodge Corner Road, Hawley to confluence with Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Albee Brook (MA33-33) 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

Allen Brook (MA33-34)

Location:	Headwaters, east of the Shelburne Colrain Road and Route 2 intersection, Shelburne to confluence with Green River, Greenfield.
AU Type:	RIVER
AU Size:	3.6 MILES
Classification/Qualifier:	B

No usable data were available for Allen Brook (MA33-34) 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

Ashfield Pond (MA33001)

Location:	Ashfield.
AU Type:	FRESHWATER LAKE
AU Size:	38 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	Mercury in Fish Tissue	42397	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				
Mercury in Fish Tissue	Atmospheric Deposition - Toxics (Y)		X			
Mercury in Fish Tissue	Source Unknown (N)		X			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
USFWS staff observed an infestation of the non-native aquatic macrophyte, water chestnut (*Trapa natans*), in Ashfield Pond from 2007-2009 and in 2013. The Aquatic Life Use for Ashfield Pond is assessed as Not Supporting because of the infestation of the non-native aquatic macrophyte water chestnut (*T. natans*).	

Biological Monitoring Information

Non-native Aquatic Species Presence

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

Summary Statement
USFWS staff observed an infestation of the non-native aquatic macrophyte, water chestnut (*Trapa natans*), in Ashfield Pond from 2007-2009 and in 2013, and posted reports on the USGS Nonindigenous Aquatic Species website which informs the MassDEP Freshwater Aquatic Invasive Species database.

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Fish toxics monitoring has been conducted in Ashfield Pond as part of the MassDEP ORS mercury monitoring project. 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 largemouth bass from this water body and the general public should limit consumption of largemouth bass to two meals per month. The Fish Consumption Use for Ashfield Pond will continue to be assessed as Not Supporting since there is a site-specific MA DPH advisory for elevated mercury in fish tissue.	

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 Ashfield 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 Ashfield Pond, so it is Not Assessed.	

Secondary Contact Recreation

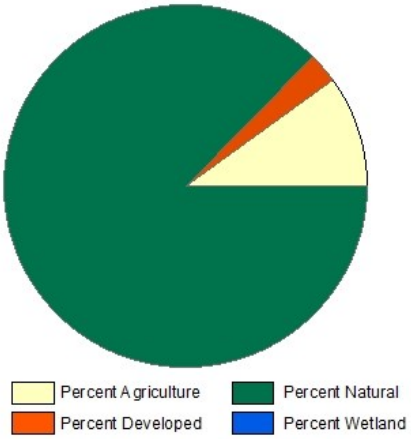
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Ashfield Pond, so it is Not Assessed.	

Avery Brook (MA33-35)

Location:	Headwaters, perennial portion south of Colrain Brook Road, Heath to confluence with Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	3.7 MILES
Classification/Qualifier:	B: CWF

AVERY BROOK - MA33-35

Watershed Area: 4.37 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	4.37	3.19	0.97	0.72
Agriculture	9.9%	10.1%	4.9%	3.9%
Developed	2.7%	2.4%	4.2%	4.2%
Natural	86.7%	86.8%	89.6%	90.4%
Wetland	0.7%	0.6%	1.4%	1.5%
Impervious Cover	1.3%			

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	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing in Avery Brook at Avery Brook Road in Charlemont in September 2015. The sample was comprised entirely by fluvial fish including multiple age classes of Eastern brook trout as well as slimy sculpin. The Aquatic Life Use will continue to be assessed as Fully Supporting based on the presence of cold water fish species which are indicate of excellent habitat and water quality conditions.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5521	MassDFG	Fish Community	Avery Brook	Avery Brook Rd, Charlemont	42.64924	-72.81428

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]

[Species List: BND = Blacknose Dace, EBT = Brook Trout, LND = Longnose Dace, RT = Rainbow Trout, SC = Slimy Sculpin]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5521	09/02/15	BP	TP	5	402	142	50	187	128	106	82%	100%	Yes	Yes	BND, EBT, LND, RT, SC,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Avery Brook, 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 Avery Brook, 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 Avery Brook, 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 Avery Brook, so it is Not Assessed.	

Basin Brook (MA33-36)

Location:	Headwaters, Kenneth M. Dubuque Memorial State Forest, Hawley to confluence with King Brook, Hawley.
AU Type:	RIVER
AU Size:	2.2 MILES
Classification/Qualifier:	B

No usable data were available for Basin Brook (MA33-36) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

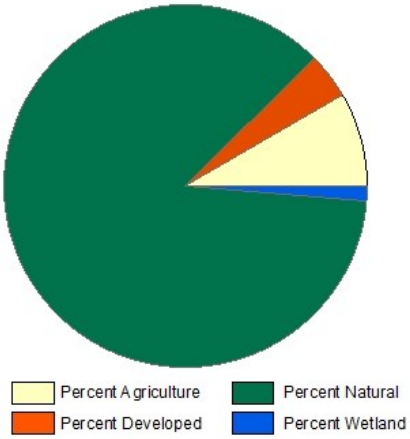
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Bear River (MA33-17)

Location:	Headwaters, perennial portion west of Barnes Road, Ashfield to confluence with Deerfield River, Conway.
AU Type:	RIVER
AU Size:	6.9 MILES
Classification/Qualifier:	B: CWF

Bear River - MA33-17

Watershed Area: 11.77 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	11.77	6.37	2.91	1.55
Agriculture	8.4%	7%	7.6%	4.8%
Developed	4%	2.8%	6%	2.9%
Natural	86.4%	88.7%	83%	88%
Wetland	1.3%	1.6%	3.5%	4.2%
Impervious Cover	1.3%			

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

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

Recommendations

2022 Recommendations
ALU: Additional long-term temperature data should be collected in the Bear River to better evaluate the thermal regime and potentially target areas for improved riparian corridor health to provide additional shading.

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 the Bear River under the powerlines @ S. Shirkshire Road crossing in Conway in August 2014, 2015, 2016, 2017, and September 2018. All of the samples (Sample IDs 5161, 5674, 6244, 6625, and 7614) contained multiple age classes of Eastern brook trout as well as slimy sculpin and other cold water fluvial species. No other recent water quality data are available.
The Aquatic Life Use for the Bear River will continue to be assessed as Not supporting with the Temperature impairment being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5161	MassDFG	Fish Community	Bear River	Under powerlines @ S. Shirkshire Rd xing, Conway	42.54071	-72.72716
5674	MassDFG	Fish Community	Bear River	Under powerlines on S. Shirkshire Rd, Conway	42.54067	-72.72722
6244	MassDFG	Fish Community	Bear River	Shirshine Rd @ power lines, Conway	42.54094	-72.72730
6625	MassDFG	Fish Community	Bear River	Under powerlines on S. Shirkshire Rd., Conway	42.54088	-72.72720
7614	MassDFG	Fish Community	Bear River	Under power lines on S. Shirkshire Rd. , Conway	42.54083	-72.72722

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]

[Species List: AS = Atlantic Salmon, B = Bluegill, BB = Brown Bullhead, BND = Blacknose Dace, CRC = Creek Chub, EBT = Brook Trout, LND = Longnose Dace, P = Pumpkinseed, RT = Rainbow Trout, SC = Slimy Sculpin]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5161	08/19/14	BP	TP	5	143	31	74	245	21	12	43%	100%	No	Yes	AS, BND, EBT, LND, SC,
5674	08/05/15	BP	TP	5	253	72	36	185	58	38	44%	100%	No	Yes	AS, BND, EBT, LND, SC,
6244	08/23/16	BP	TP	4	904	161	61	185	141	84	27%	100%	No	Yes	BND, EBT, LND, SC,
6625	08/17/17	BP	TP	8	357	44	62	272	28	42	24%	94%	No	Yes	B, BB, BND, CRC, EBT, LND, P, SC,
7614	09/17/18	BP	TP	6	302	11	70	217	2	20	11%	100%	No	Yes	BND, CRC, EBT, LND, RT, SC,

Fish Consumption

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

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available to assess the status of the Aesthetics Use for the Bear River, so it is Not Assessed.	

Primary Contact Recreation

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

Secondary Contact Recreation

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

Black Brook (MA33-37)

Location:	Headwaters, west of Chapel Road, Savoy to confluence with Cold River, Savoy.
AU Type:	RIVER
AU Size:	3.3 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Black Brook (MA33-37) 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

Bog Pond (MA33003)

Location:	Savoy.
AU Type:	FRESHWATER LAKE
AU Size:	35 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 in Bog Pond when flowering heads are present to determine whether any of the non-native species of *Myriophyllum* are infesting the pond. Confirmation of any non-native species should be made by a qualified state agency/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 noted, MassDEP staff listed "*Myriophyllum* sp." on the field sheet for a September 1995 synoptic survey of Bog Pond. No recent data are available, so the Aquatic Life Use for Bog Pond is Not Assessed. The Alert for the potential presence of a non-native aquatic macrophyte species of *Myriophyllum* is being carried forward with a recommendation to conduct an aquatic macrophyte survey in Bog 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 1995)

Summary Statement	Assessment Recommendation
As was previously noted, MassDEP staff listed "Myriophyllum sp." on the field sheet for a September 1995 synoptic survey of Bog Pond. DEP biologists should conduct an aquatic macrophyte survey when flowering heads are present to determine whether any of the non-native species of *Myriophyllum* are infesting the pond. The Alert status should be retained in the interim.	Conduct an aquatic macrophyte survey in Bog Pond when flowering heads are present to determine whether any of the non-native species of *Myriophyllum* are infesting the pond.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO

2022 Use Attainment Summary
No recent fish toxics sampling has been conducted in Bog Pond, 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 Bog 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 Bog 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 Bog Pond, so it is Not Assessed.	

Borden Brook (MA33-38)

Location:	Vermont-Massachusetts stateline, Colrain to confluence with Green River, Colrain.
AU Type:	RIVER
AU Size:	0.6 MILES
Classification/Qualifier:	A: PWS, ORW, HQW, CWF (Tributary)

No usable data were available for Borden Brook (MA33-38) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Bozrah Brook (MA33-13)

Location:	Headwaters, located west of East Hawley Road, Hawley (drains wetland) to confluence with Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	3 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Bozrah Brook (MA33-13) 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

Brandy Brook (MA33-117)

Location:	Headwaters east of North County Road, Leyden to confluence with Glen Brook, Leyden.
AU Type:	RIVER
AU Size:	1.6 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Brandy Brook (MA33-117) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

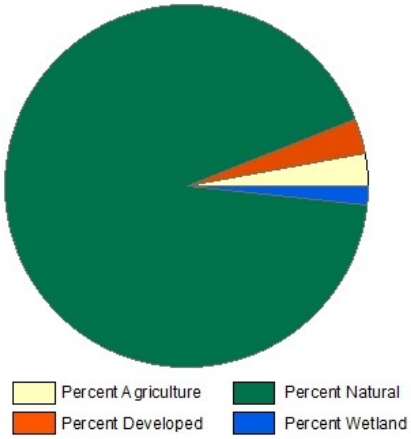
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Brown Brook (MA33-39)

Location:	Headwaters, perennial portion east of Scott Road, Savoy to confluence with Chickley River, Savoy.
AU Type:	RIVER
AU Size:	0.5 MILES
Classification/Qualifier:	B: CWF

BROWN BROOK - MA33-39

Watershed Area: 0.96 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	0.96	0.96	0.23	0.23
Agriculture	2.9%	2.9%	0.9%	0.9%
Developed	3.1%	3.1%	0.5%	0.5%
Natural	92.2%	92.2%	98.5%	98.5%
Wetland	1.7%	1.7%	0%	0%
Impervious Cover	1%			

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	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing in Brown Brook upstream of Savoy Road in Savoy in September 2015. The sample (Sample ID 7494) was comprised entirely of multiple age classes of Eastern brook trout. The Aquatic Life Use for Brown Brook is assessed as Fully Supporting based on the presence of multiple age classes of Eastern brook trout which is indicative of excellent habitat and water quality conditions.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7494	MassDFG	Fish Community	Brown Brook	Upstream of Savoy Rd. , Savoy	42.57924	-72.97618

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]

[Species List: EBT = Brook Trout]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
7494	09/09/15	BP	TP	1	181	181	52	177	173	0	100%	100%	No	Yes	EBT,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Brown Brook, 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 Brown Brook, 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 Brown Brook, 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 Brown Brook, so it is Not Assessed.	

Burnett Pond (MA33005)

Location:	Savoy.
AU Type:	FRESHWATER LAKE
AU Size:	18 ACRES
Classification/Qualifier:	B

No usable data were available for Burnett Pond (MA33005) 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

Burrington Brook (MA33-40)

Location:	Headwaters, east of Sadoga Road, Heath to confluence with West Branch Brook (forming headwaters West Branch North River), Heath.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Burrington Brook (MA33-40) 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

Burton Brook (MA33-41)

Location:	Vermont-Massachusetts stateline, Rowe to confluence with West Branch Brook, Heath.
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B

No usable data were available for Burton Brook (MA33-41) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Cary Brook (MA33-42)

Location:	Perennial portion north of East Catamount Hill Road, Colrain to confluence with West Branch North River, Colrain.
AU Type:	RIVER
AU Size:	0.5 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Cary Brook (MA33-42) 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

Cascade Brook (MA33-43)

Location:	Headwaters, perennial portion southeast of Moore Road, Florida to confluence with Deerfield River, Florida.
AU Type:	RIVER
AU Size:	1.8 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Cascade Brook (MA33-43) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

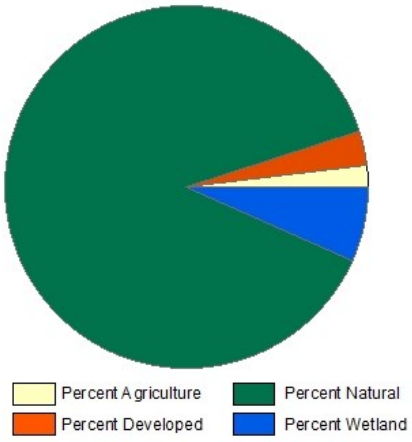
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Chapel Brook (MA33-44)

Location:	Outlet of unnamed pond, Ashfield to confluence with Poland Brook, Conway.
AU Type:	RIVER
AU Size:	3.4 MILES
Classification/Qualifier:	B: CWF

CHAPEL BROOK - MA33-44

Watershed Area: 3.4 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	3.4	3.4	0.82	0.82
Agriculture	1.9%	1.9%	0.3%	0.3%
Developed	3.1%	3.1%	3.3%	3.3%
Natural	88.3%	88.3%	83.4%	83.4%
Wetland	6.7%	6.7%	13%	13%
Impervious Cover	1.3%			

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	NO
2022 Use Attainment Summary	

MassDEP biologists conducted biological and water quality sampling in Chapel Brook upstream of Main Poland Road in Conway during the summers of 2013, 2014, 2015 as part of the Reference Site Network (RSN) monitoring project. Survey results of this Cold Water high gradient habitat can be briefly summarized as follows: the benthic community (Station B0826) IBI scores were all indicative of excellent/satisfactory conditions (64 to 82, n=3), multiple age classes of Eastern brook trout and slimy sculpin documented during backpack electrofishing sampling in October 2013 [Sample ID 5100], August 2014 [SampleID 6337], and September 2015 [SampleID 6379]), most water quality sampling data including both deployed probe and discrete sampling efforts (Station W1362) were indicative of excellent conditions (minimum dissolved oxygen from the deployed probes in place from May through September 2013 – 2015 was 8.4mg/L, pH measurements ranged from 7.2 to 7.6SU (n=11), there were no indications of any nutrient enrichment problems (seasonal average total phosphorus concentrations 0.007 to 0.008mg/L, max diel DO shift 1.3mg/L, maximum saturation 101%, maximum pH 7.6SU), and low concentrations of total ammonia-nitrogen (0.4mg/L) and chloride (maximum 5mg/L, n=13) were found. The maximum temperature recorded during the probe deployments was 22.9°C during the probe deployments 1 June to early/mid-September in summers 2013, 2014, and 2015. The maximum 24-hour rolling average was 21.8°C (below the acute threshold of 23.5°C), however the 7DADM temperatures were above 20.0°C 16 times in 2013 during the 100 day deployment, 0 times in 2014, and one time in 2015. The watershed area has little very development and the exceedances of the chronic thresholds are considered to result from naturally occurring conditions (beaver dams throughout the subwatershed area which is 95% natural and the % Impervious Cover is 1.3%).
The Aquatic Life Use for Chapel Brook is assessed as Fully Supporting based on the biological and water quality data collected during the summers of 2013, 2014, and 2015.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5100	MassDEP	Fish Community	Chapel Brook	~300 ft US of Moun Poland Rd	42.48417	-72.75421
6337	MassDEP	Fish Community	Chapel Brook	~300 ft US of Main Poland Rd, Conway	42.48417	-72.75421
6379	MassDEP	Fish Community	Chapel Brook	, Conway	42.48417	-72.75421
B0826	MassDEP	Benthic	Chapel Brook/	[approximately 90 meters upstream of Main Poland Road, Conway, MA]	42.484172	-72.754212
W1362	MassDEP	Water Quality	Chapel Brook	[approximately 300 feet upstream of Main Poland Road, Conway]	42.484172	-72.754212

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
B0826	08/05/13	RBP kicknet	Western_Highlands_300ct	291	79	E
B0826	08/05/14	RBP kicknet	Western_Highlands_300ct	328	64	S
B0826	07/28/15	RBP kicknet	Western_Highlands_300ct	329	82	E

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]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, LNS = Longnose Sucker, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5100	10/03/13	NS	TP	6	115	52	58	190	42	24	70%	100%	No	Yes	AS, BND, EBT, LND, SC, WS,
6337	08/29/14	BP	TP	7	86	37	52	190	25	16	69%	100%	No	Yes	AS, BND, CRC, EBT, LND, LNS, SC,
6379	09/01/15	BP	TP	5	126	48	56	185	39	13	48%	100%	No	Yes	BND, CS, EBT, LND, SC,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[7DADMin= 7-Day Average of the Daily Minima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W1362	05/08/13	09/08/13	119	99	85	8.4	8.8	9	1.2	0	0	0	0	0	0	0	0
W1362	05/22/14	09/08/14	110	104	81	8.7	9	9.3	1	0	0	0	0	0	0	0	0
W1362	05/22/15	09/15/15	117	111	88	8.6	8.8	9.1	1.3	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W1362	05/07/13	09/09/13	4	8.9	9.9	0	0	0
W1362	06/18/14	09/09/14	4	9.2	9.5	0	0	0
W1362	06/18/15	09/16/15	4	8.8	9.3	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W1362	06/01/13	09/08/13	95	78	21.5	22.5	20.7	19.9	8	0	0	0	0	0
W1362	06/01/13	09/08/13	100	97	21.7	22.9	21.7	20.8	16	0	0	0	0	0
W1362	06/01/14	09/08/14	100	97	20.1	21.8	19.9	18.7	0	0	0	0	0	0
W1362	06/01/15	09/15/15	107	104	19.9	21.1	20.1	19.3	1	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 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
W1362	06/01/13	09/09/13	100	4820	21.8	0	0	0
W1362	06/01/13	09/09/13	100	4812	21.8	0	0	0
W1362	06/01/15	09/15/15	107	5136	20.0	0	0	0
W1362	06/01/14	09/09/14	100	4821	20.2	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (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
W1362	05/07/13	09/09/13	6	5	19.0	13.7	0	0	0	0
W1362	06/18/14	09/09/14	4	4	17.4	16.2	0	0	0	0
W1362	06/18/15	09/16/15	4	3	19.8	16.8	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (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
W1362	05/07/13	09/09/13	3	7.3	7.5	0	0
W1362	06/18/14	09/09/14	4	7.2	7.3	0	0
W1362	06/18/15	09/16/15	4	7.4	7.6	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (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
W1362	2013	5	0.005	0.009	0.007	1.2	0.5	100.9	7.5	5	0
W1362	2014	4	0.005	0.011	0.008	1.0	0.5	98.8	7.3	4	0
W1362	2015	4	0.005	0.012	0.007	1.3	0.6	99.2	7.6	4	0

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

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (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
W1362	2013	5	0.020	0.020	0.020	0	0
W1362	2014	4	0.020	0.020	0.020	0	0
W1362	2015	4	0.040	0.400	0.130	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (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
W1362	2013	5	3	4	4	0	0
W1362	2014	4	3	4	4	0	0
W1362	2015	4	4	5	5	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (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
W1362	05/07/13	09/09/13	3	57	75	0	0	0	0	0	0
W1362	06/18/14	09/09/14	4	52	76	0	0	0	0	0	0
W1362	06/18/15	09/16/15	4	64	75	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 Chapel Brook, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary
MassDEP staff surveyed Chapel Brook upstream of Main Poland Road in Conway MA (W1362) during the summers of 2013, 2014, and 2015 as part of the Reference Site Network monitoring project. There were generally no objectionable conditions (i.e., odors, deposits, growths, or turbidity) observed during the surveys. The Aesthetics Use for Chapel Brook is assessed as Fully Supporting based on the general lack of any objectionable conditions documented by MassDEP staff during the summers of 2013, 2014, and 2015.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W1362	MassDEP	Water Quality	Chapel Brook	[approximately 300 feet upstream of Main Poland Road, Conway]	42.484172	-72.754212

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W1362	Chapel Brook	2013	5	MassDEP aesthetics observations for station W1362 on Chapel 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 2013.
W1362	Chapel Brook	2014	4	MassDEP aesthetics observations for station W1362 on Chapel 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 2014.
W1362	Chapel Brook	2015	4	MassDEP aesthetics observations for station W1362 on Chapel 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 2015.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W1362	2013	5	5	0
W1362	2014	4	4	0
W1362	2015	4	4	0

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

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W1362	Chapel Brook	2013	Color	Light Yellow/Tan	2	5
W1362	Chapel Brook	2013	Color	None	3	5
W1362	Chapel Brook	2013	Objectionable Deposits	No	5	5
W1362	Chapel Brook	2013	Odor	None	5	5

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W1362	Chapel Brook	2013	Scum	No	5	5
W1362	Chapel Brook	2013	Turbidity	None	5	5
W1362	Chapel Brook	2014	Color	Light Yellow/Tan	1	4
W1362	Chapel Brook	2014	Color	None	3	4
W1362	Chapel Brook	2014	Objectionable Deposits	No	4	4
W1362	Chapel Brook	2014	Odor	None	4	4
W1362	Chapel Brook	2014	Scum	No	2	4
W1362	Chapel Brook	2014	Scum	Yes	2	4
W1362	Chapel Brook	2014	Turbidity	None	4	4
W1362	Chapel Brook	2015	Color	Light Yellow/Tan	2	4
W1362	Chapel Brook	2015	Color	None	2	4
W1362	Chapel Brook	2015	Objectionable Deposits	No	4	4
W1362	Chapel Brook	2015	Odor	None	4	4
W1362	Chapel Brook	2015	Scum	No	4	4
W1362	Chapel Brook	2015	Turbidity	None	4	4

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 Chapel Brook, so it is Not Assessed.	

Secondary Contact Recreation

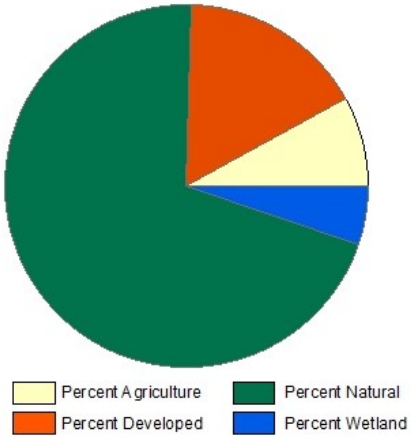
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Chapel Brook, so it is Not Assessed.	

Cherry Rum Brook (MA33-97)

Location:	Headwaters, northeast of Stoneleigh Burnham Drive, Greenfield to confluence with Green River, Greenfield.
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B

CHERRY RUM BROOK - MA33-97

Watershed Area: 10.92 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	10.92	5.62	2.76	1.72
Agriculture	8%	9.1%	4.7%	4.3%
Developed	16.5%	24.4%	16%	20.3%
Natural	70.2%	58.8%	65.8%	58.6%
Wetland	5.2%	7.7%	13.5%	16.9%
Impervious Cover	6.3%			

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MA DFG biologists conducted backpack electrofishing in Cherry Rum Brook at the upstream crossing of the brook on Cherry St, Greenfield (SampleID 5401) and further downstream US of Arbor Rd dam to I-91 crossing in Greenfield (SampleID 5403) in August 2014. Both samples were dominated by fluvial fishes. No other recent water quality data have been collected.
The Aquatic Life Use for Cherry Rum Brook will continue to be assessed as Not Supporting with the Benthic Macroinvertebrates impairment being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5401	MassDFG	Fish Community	Cherry Rum Brook	US crossing on Cherry St, Greenfield	42.61062	-72.58893
5403	MassDFG	Fish Community	Cherry Rum Brook	US of Arbor Rd dam to I-91 xing, Greenfield	42.60877	-72.60720

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, BND = Blacknose Dace, CP = Chain Pickerel, CRC = Creek Chub, CS = Common Shiner, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
5401	08/18/14	BP	TP	L	2	9	0%	1	89%	0%	1	11%	No	No	CP, TD,
5403	08/18/14	BP	TP	L	6	53	0%	5	98%	0%	0	0%	No	Yes	B, BND, CRC, CS, TD, WS,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Cherry Rum Brook, 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 Cherry Rum Brook, 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 Cherry Rum Brook, so it is Not Assessed.

Secondary Contact Recreation

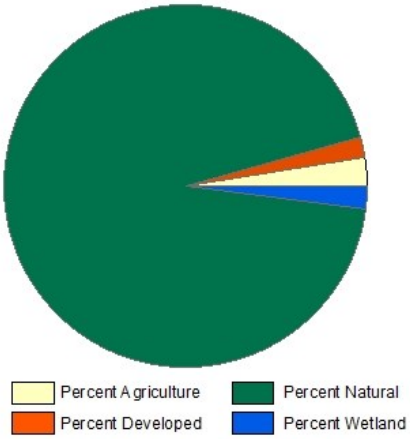
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Cherry Rum Brook, so it is Not Assessed.	

Chickley River (MA33-11)

Location:	Headwaters Savoy Mountain State Forest, Savoy to confluence with Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	11.1 MILES
Classification/Qualifier:	B: CWF

Chickley River - MA33-11

Watershed Area: 27.54 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	27.54	6.6	6.98	1.72
Agriculture	2.5%	5%	2.6%	8%
Developed	1.9%	2.5%	3.3%	6.5%
Natural	93.5%	92%	89.8%	84.2%
Wetland	2%	0.5%	4.3%	1.3%
Impervious Cover	0.9%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	5	Escherichia Coli (E. Coli)		Added

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MA DFG biologists conducted backpack electrofishing along three general reaches of the Chickley River in September of 2014 through 2017 from up to downstream as follows: near Brown and Fuller Brooks near Hawley/Savoy Road in Savoy and Hawley (Sample IDs 5447, 5448, 7489, and 8143), downstream from the confluence with North Brook along West Hawley Road in Hawley (SampleIDs 6721, 5723, 8142, 5449, 5450, 6722, 5103, 5722), and further downstream from the confluence with Mill Brook also along West Hawley Road in Hawley (SampleIDs 5451, 6723, 7490, 6102, 6724, 6101, 5724, 5452). All 20 samples collected contained only fluvial fishes including multiple age classes of Eastern brook trout and/or slimy sculpin although the most upstream reach was noted to have the highest percentage of cold water fish in the samples.
The Aquatic Life Use for the Chickley River is assessed as Fully Supporting based on the presence of cold water fish species which are indicate of excellent habitat and water quality conditions.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5447	MassDFG	Fish Community	Chickley River	3rd bridge US off of Hawley Rd, Savoy	42.57848	-72.97475
5448	MassDFG	Fish Community	Chickley River	Savoy Rd farm road ford, Hawley	42.57565	-72.95698
5449	MassDFG	Fish Community	Chickley River	Index site "No Trespassing" sign unnamed road to brook. 0.1mi N of West Hill Rd, Hawley	42.59225	-72.93536
5450	MassDFG	Fish Community	Chickley River	DS of Forge Hill Rd, Hawley	42.59518	-72.93249
5451	MassDFG	Fish Community	Chickley River	Adj to Rt 8A, 1/2mi N of Pudding Hollow Rd, Hawley	42.61286	-72.91230
5452	MassDFG	Fish Community	Chickley River	US of 1st bridge on Rt 8A (green bridge), Hawley	42.61905	-72.90833
5722	MassDFG	Fish Community	Chickley River	DS of bridge on Forge Hill Rd, Hawley	42.59531	-72.93241
5723	MassDFG	Fish Community	Chickley River	Behind DPW off Rt 8A, Hawley	42.59209	-72.93546
5724	MassDFG	Fish Community	Chickley River	Green bridge on Rt 8A, Hawley	42.61926	-72.90816
6101	MassDFG	Fish Community	Chickley River	RT 8A (Lowest site/green bridge), Charlemont/Hawley	42.61908	-72.90817
6102	MassDFG	Fish Community	Chickley River	RT 8A, Hawley	42.61197	-72.91145
6103	MassDFG	Fish Community	Chickley River	8A Forge Hill Rd Bridge Site 3, Hawley	42.59519	-72.93250
6721	MassDFG	Fish Community	Chickley River	Behind DPW building along Rt 8, Hawley	42.58968	-72.93610
6722	MassDFG	Fish Community	Chickley River	DS of Forge Hill Rd, Hawley	42.59518	-72.93246
6723	MassDFG	Fish Community	Chickley River	Along Rt 8 A @ pulloff, Hawley	42.61219	-72.91175
6724	MassDFG	Fish Community	Chickley River	Along Rt 8A US of Green Bridge, Hawley	42.61838	-72.90815
7489	MassDFG	Fish Community	Chickley River	Savoy Road Downstream, Downstream of Brown Brook, Reference site is marked with flagging, Savoy	42.57863	-72.97479
7490	MassDFG	Fish Community	Chickley River	8A downstream of Pudding Hallow, Hawley	42.61270	-72.91222

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
8142	MassDFG	Fish Community	Chickley River	8A near DPW (Hawley) - Index Site (DS), Hawley	42.59207	-72.93543
8143	MassDFG	Fish Community	Chickley River	8A Past Bridge Construction - Index Site (US), Hawley	42.57574	-72.95700

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]

[Species List: AS = Atlantic Salmon, BB = Brown Bullhead, BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, GS = Golden Shiner, LND = Longnose Dace, LNS = Longnose Sucker, RT = Rainbow Trout, SC = Slimy Sculpin, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5447	09/17/14	BP	TP	5	116	62	55	146	61	36	85%	100%	Yes	Yes	BND, BT, EBT, LND, SC,
5448	09/18/14	BP	TP	6	122	28	70	155	27	45	63%	100%	No	Yes	BND, BT, EBT, LND, SC, WS,
5449	09/18/14	BP	TP	5	51	6	87	173	5	0	39%	100%	No	Yes	BND, BT, EBT, LND, LNS,
5450	09/18/14	BP	TP	8	83	1	95	95	1	7	28%	100%	No	Yes	AS, BND, BT, EBT, LND, LNS, RT, SC,
5451	09/18/14	BP	TP	9	261	1	141	141	0	47	29%	100%	No	Yes	AS, BND, BT, CRC, EBT, LND, LNS, SC, WS,
5452	09/18/14	BP	TP	10	110	8	80	172	7	17	35%	100%	No	Yes	AS, BND, BT, CRC, EBT, LND, LNS, RT, SC, WS,
5722	09/15/15	BP	TP	10	287	7	88	207	2	81	49%	99%	No	Yes	BB, BND, BT, CRC, EBT, GS, LND, LNS, SC, WS,
5723	09/15/15	BP	TP	6	102	8	78	174	7	6	44%	100%	No	Yes	BND, BT, EBT, LND, LNS, SC,
5724	09/15/15	BP	TP	8	333	21	65	238	15	32	20%	100%	Yes	Yes	BND, BT, CRC, EBT, LND, LNS, RT, SC,
6101	09/16/16	BP	TP	7	169	0	NA	NA	0	3	6%	100%	No	Yes	BND, BT, CRC, LND, RT, SC, WS,
6102	09/26/16	BP	TP	7	334	0	NA	NA	0	13	4%	100%	No	Yes	BND, BT, CRC, CS, LND, SC, WS,
6103	09/26/16	BP	TP	8	155	0	NA	NA	0	11	14%	100%	No	Yes	BND, BT, CRC, CS, LND, RT, SC, WS,
6721	09/21/17	BP	TP	7	222	1	164	164	0	6	7%	100%	No	Yes	BND, BT, EBT, LND, LNS, SC, WS,

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
6722	09/21/17	BP	TP	8	250	0	NA	NA	0	48	27%	100%	Yes	Yes	BND, BT, CRC, LND, LNS, RT, SC, WS,
6723	09/21/17	BP	TP	3	156	0	NA	NA	0	8	5%	100%	No	Yes	BND, LND, SC,
6724	09/21/17	BP	TP	8	191	3	69	201	2	3	6%	100%	No	Yes	BND, BT, CRC, EBT, LND, LNS, SC, WS,
7489	09/09/15	BP	TP	5	157	50	41	181	44	49	82%	100%	Yes	Yes	BND, BT, EBT, LND, SC,
7490	09/15/15	BP	TP	7	392	10	63	87	10	32	14%	100%	No	Yes	BND, BT, CRC, EBT, LND, LNS, SC,
8142	09/27/16	BP	TP	10	354	11	79	160	9	18	19%	100%	No	Yes	BND, BT, CS, EBT, LND, LNS, RT, SC, TD, WS,
8143	09/27/16	BP	TP	6	223	61	59	155	59	60	55%	100%	No	Yes	BND, BT, EBT, LND, LNS, SC,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in the Chickley River, 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 the Chickley River, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Connecticut River Conservancy volunteers collected *E. coli* bacteria samples near the mouth of the Chickley River at Tower Road in Charlemont (Station CRC_MA-CHI_00.1) between June and September 2019 (n=6). Data analysis indicated 100% of the intervals had GMs >126 cfu/100ml, and all samples exceeded the 410 cfu/100ml STV. The seasonal GM was 2420 cfu/100ml. Since the *E. coli* concentrations exceeded the use attainment impairment thresholds for this single year limited frequency dataset, the Primary Contact Recreational Use for the Chickley River is assessed as Not Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-CHI_00.1	Connecticut River Conservancy	Water Quality	Chickley River	Chickley River, Tower Rd, Charlemont	42.63005	-72.90162

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4)

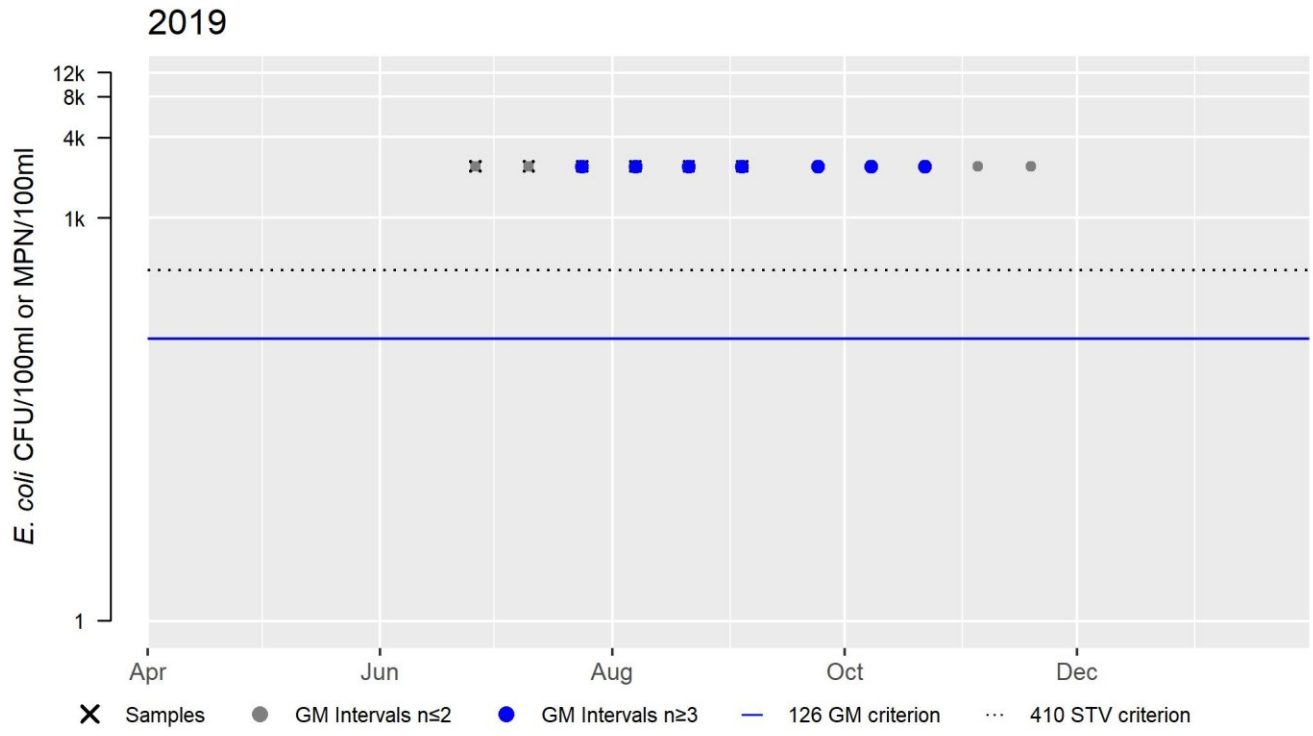
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
CRC_MA-CHI_00.1	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	2419.6	2419.6	2420

CRC_MA-CHI_00.1 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	2420
#GMI	7
#GMI Ex	7
%GMI Ex	100
n>STV	6
%n>STV	100

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

Not Supporting	NO
2022 Use Attainment Summary	
Connecticut River Conservancy volunteers collected *E. coli* bacteria samples near the mouth of the Chickley River at Tower Road in Charlemont (Station CRC_MA-CHI_00.1) between June and September 2019 (n=6). Data analysis indicated 100% of the intervals had GMs >630 cfu/100ml, and all samples exceeded the 1260 cfu/100ml STV. The seasonal GM was 2420 cfu/100ml. Since the *E. coli* concentrations exceeded the use attainment impairment thresholds for this single year limited frequency dataset, the Secondary Contact Recreational Use for the Chickley River is assessed as Not Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-CHI_00.1	Connecticut River Conservancy	Water Quality	Chickley River	Chickley River, Tower Rd, Charlemont	42.63005	-72.90162

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4)

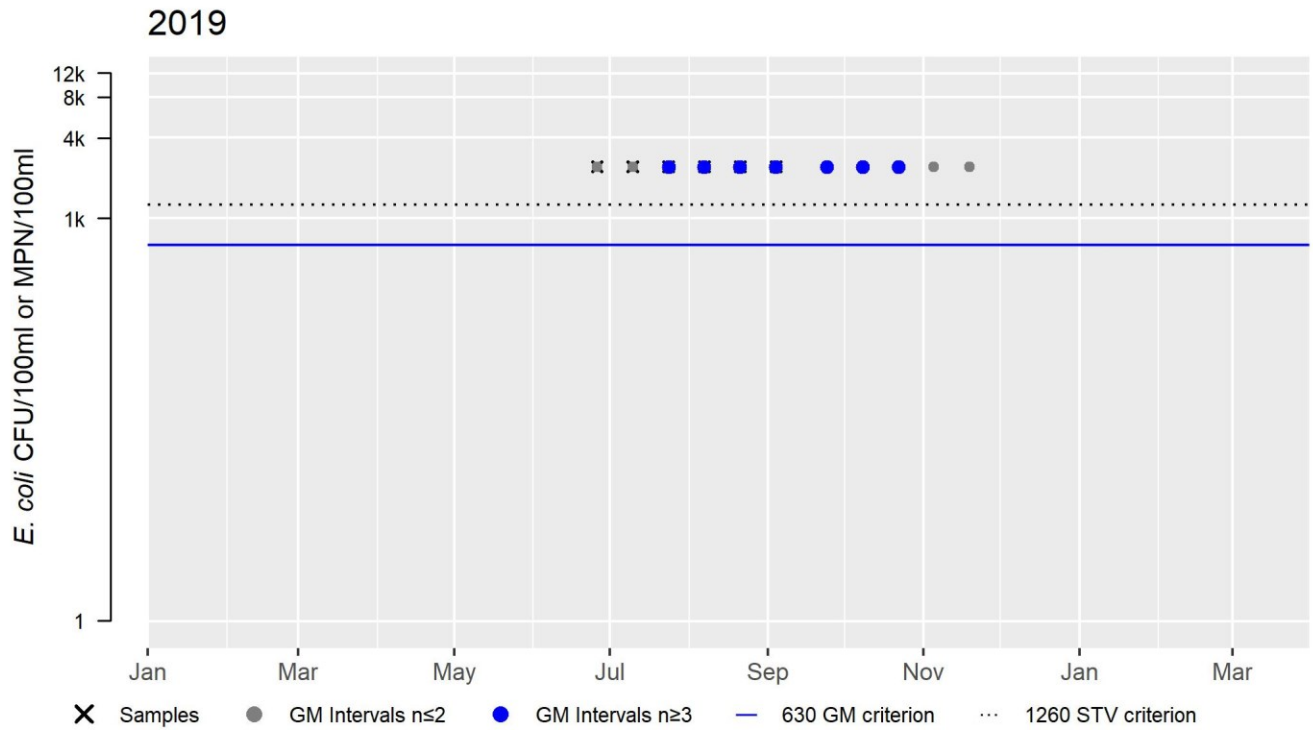
[Result units are CFU/100ml or MPN/100ml]

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)
CRC_MA-CHI_00.1	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	2419.6	2419.6	2420

CRC_MA-CHI_00.1 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	2420
#GMI	7
#GMI Ex	7
%GMI Ex	100
n>STV	6
%n>STV	100

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



Clark Brook (MA33-16)

Location:	Headwaters, near Moonshine Road (Howes Road)/East Buckland Road, Buckland to confluence with Clesson Brook, Buckland.
AU Type:	RIVER
AU Size:	3.8 MILES
Classification/Qualifier:	B

No usable data were available for Clark Brook (MA33-16) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

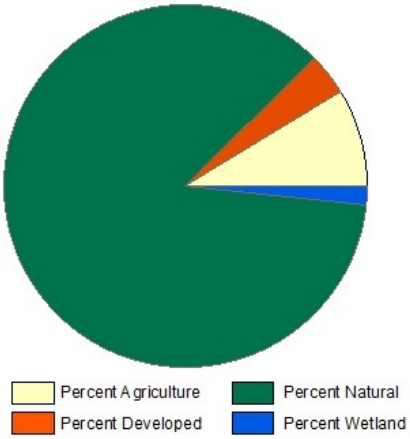
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Clesson Brook (MA33-15)

Location:	Outlet of unnamed pond south of Forget Road, Hawley through Cox Pond to confluence with Deerfield River, Buckland.
AU Type:	RIVER
AU Size:	10.3 MILES
Classification/Qualifier:	B: CWF

Clesson Brook - MA33-15

Watershed Area: 21.27 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	21.27	6.39	5.45	1.55
Agriculture	8.7%	9.3%	10.3%	14.8%
Developed	3.8%	5%	7%	9.3%
Natural	85.8%	84.2%	78.7%	71%
Wetland	1.7%	1.5%	4%	4.9%
Impervious Cover	1.6%			

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
Not Assessed	NO
2022 Use Attainment Summary	
No biological or water quality data are available to assess the Aquatic Life Use for Clesson Brook so it is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Clesson Brook, 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 Clesson Brook, so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
Connecticut River Conservancy volunteers collected *E. coli* bacteria samples near the mouth of Clesson Brook, behind Buckland Rec in Buckland between June and September 2019 (n=6) and between July and September 2020 (n=4). Data analysis of this low frequency multi-year dataset indicated only one of two years with GMs that exceeded>20% and only one year with two samples that exceeded the STV of 410cfu/100mls. The seasonal GMs were 255 and 83cfu/100ml in 2019 and 2020, respectively. Since the *E. coli* concentrations were below the use attainment impairment thresholds for this multi-year low frequency dataset, the Primary Contact Recreational Use for Clesson Brook is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-CLS_00.3	Connecticut River Conservancy	Water Quality	Clesson Brook	Clesson Brook, Behind Buckland Rec, Buckland	42.615533	-72.766982

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (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
CRC_MA-CLS_00.3	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	135.4	980.4	255
CRC_MA-CLS_00.3	Connecticut River Conservancy	E. coli	07/22/20	09/16/20	4	47.3	178.5	83

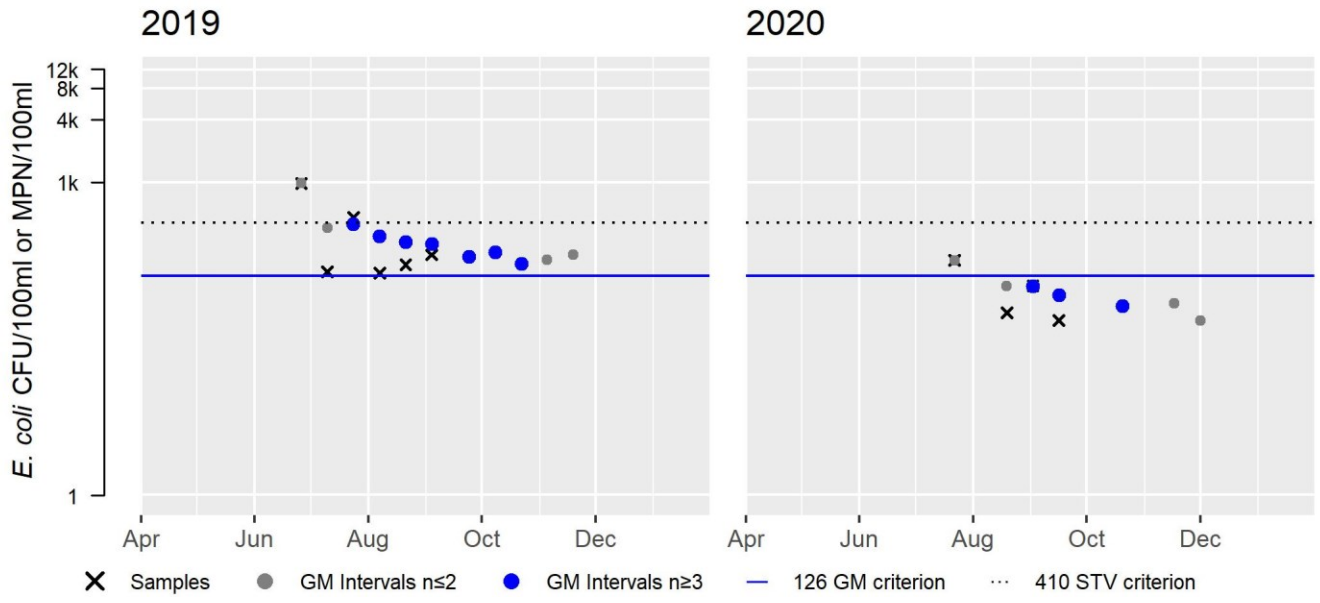
CRC_MA-CLS_00.3 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	255
#GMI	7
#GMI Ex	7
%GMI Ex	100
n>STV	2
%n>STV	33

Var	Res
Samples	4
SeasGM	83
#GMI	3
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI 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	70



Secondary Contact Recreation

2022 Use Attainment	**Alert**
Fully Supporting	NO
2022 Use Attainment Summary	
Connecticut River Conservancy volunteers collected E. coli bacteria samples near the mouth of Clesson Brook, behind Buckland Rec in Buckland between June and September 2019 (n=6) and between July and September 2020 (n=4). Data analysis of this low frequency multi-year dataset indicated none of the intervals had GMs >630 and no samples exceeded the STV of 1260cfu/100mls. The seasonal GMs were 255 and 83cfu/100ml in 2019 and 2020, respectively. Since the E. coli concentrations were below the use attainment impairment thresholds for this multi-year low frequency dataset, the Secondary Contact Recreational Use for Clesson Brook is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-CLS_00.3	Connecticut River Conservancy	Water Quality	Clesson Brook	Clesson Brook, Behind Buckland Rec, Buckland	42.615533	-72.766982

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (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)
CRC_MA-CLS_00.3	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	135.4	980.4	255
CRC_MA-CLS_00.3	Connecticut River Conservancy	E. coli	07/22/20	09/16/20	4	47.3	178.5	83

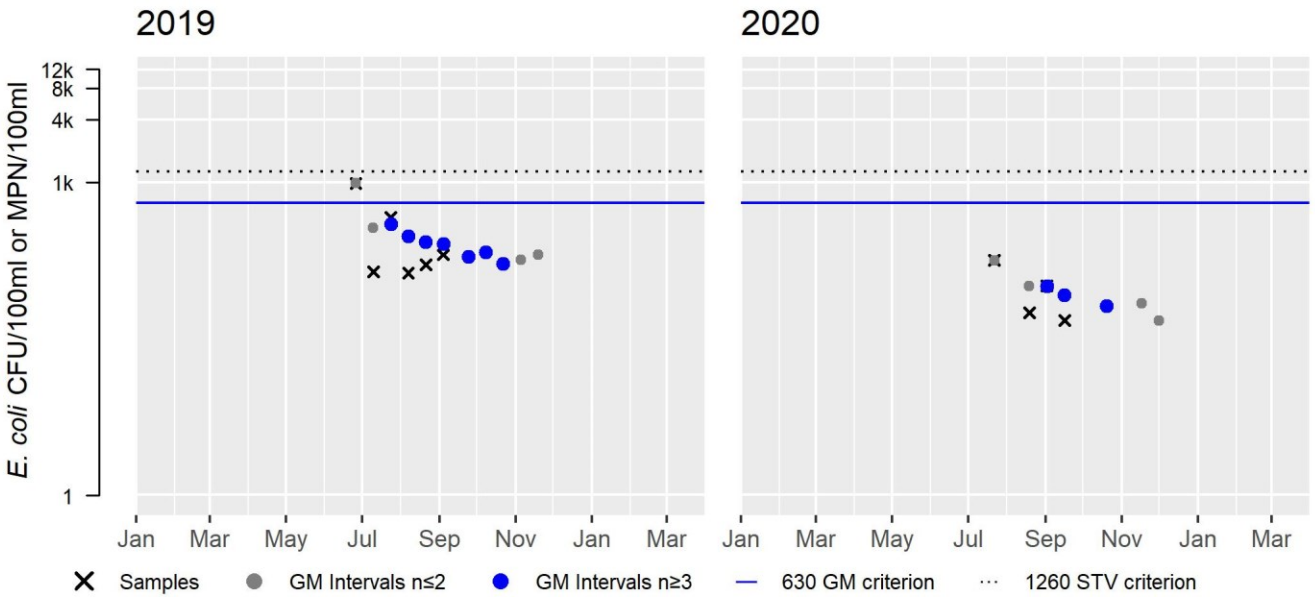
CRC_MA-CLS_00.3 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	255
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	4
SeasGM	83
#GMI	3
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

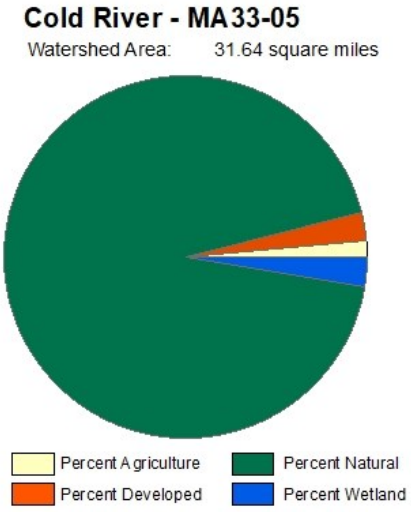
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exeedances; %GMI Ex = percent GMI Exeedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV

Variable	Cumulative %GMI Ex (all years)
Result	0



Cold River (MA33-05)

Location:	Source in Florida to confluence with Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	13.7 MILES
Classification/Qualifier:	B: CWF



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	31.64	6.34	7.55	1.39
Agriculture	1.4%	0.3%	1%	0.4%
Developed	2.6%	1.4%	4%	6.1%
Natural	93.5%	97.9%	90.2%	92%
Wetland	2.6%	0.3%	4.9%	1.5%
Impervious Cover	1.1%			

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	NO
2022 Use Attainment Summary	

MassDEP biologists conducted biological and/or water quality sampling in the Cold River as part of three different monitoring projects between 2011 and 2018. Between White and Tower brooks confluences (upstream South County Road Florida), long-term sampling is conducted as part of the RMNet project. Benthic sampling here (B0824) is five kick samples not standard 10 kicks so IBIs were not calculated. Long-term temperature data (W2467) can be summarized as follows: during the summer index periods (1 June to 15 September) of 2012, 2013, 2014, 2015, 2016, 2017 the maximum temperature was 24.7°C, the 7DADMs >20.0°C 19 times in 2013 and 31 times in 2016 with no exceedances in any other year and the maximum 24-hour rolling average was 22.4°C in 2013. The single DO and specific conductance measurement in December 2017 was 13.6mg/L (95% saturation) and 111µs/cm, respectively. Further downstream just upstream from the confluence with Black Brook (upstream of Mohawk Trail (Route 2), Florida/Savoy biological and water quality sampling was conducted as part of the Reference Site Network monitoring project during summers 2011, 2012, 2013, 2014, 2015, and 2017. Survey results can be briefly summarized as follows: the benthic community (Station B0739) IBI scores were satisfactory in the sample conducted in July 2011 (pre–Hurricane Irene IBI score 66), moderately degraded in July 2012, August 2013 and 2014 (IBI scores 51, 51, and 48, respectively), and back to satisfactory in July 2015 and 2017 (IBI scores 73 and 63R). Backpack electrofishing in September 2012, October 2013, and Septembers 2014, 2015, 2017 (Sample IDs 5044, 5096, 6319, 6392, and 7066, respectively) documented all fluvial species including slimy sculpin and a few Eastern brook trout. Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2222) were, with the exception of temperature, indicative of excellent conditions (minimum dissolved oxygen 8.5mg/L, pH 7.3 to 7.6SU (n=13), no indications of any nutrient enrichment problems (seasonal average total phosphorus concentrations 0.005 – 0.007mg/L, max diel DO shift 1.7mg/L, maximum saturation 102%, maximum pH 7.6SU), and low concentrations of total ammonia-nitrogen (0.078mg/L maximum) and chloride (maximum 19mg/L, n=24). Temperature monitoring can be summarized as follows: during the summer index periods (1 June to 15 September) of 2012, 2013, 2014, 2015, and 2017 maximum temperature was 25.9°C, 7DADMs >20.0°C 23 times in 2012, 23 times in 2013 and 20 times in 2015 with no exceedances in any other year and the maximum 24-hour rolling average was 23.4°C in 2013. MassDFG biologists also conducted backpack electrofishing further downstream near the DCR picnic site (off Rt 2), Charlemont (SampleIDs 5189, 5716, and 6234) in September 2014, 2015, and 2016. The fish samples also documented all fluvial species including slimy sculpin and a few Eastern brook trout. Further downstream near Cold River Road, Charlemont MassDEP MAP2 Project sampling in summer 2012 (shortly post Hurricane Irene) benthic sample IBI score (B0788) severely degraded (33), fish sample (SampleID 5045) all fluvial fishes including slimy sculpin, and excluding temperature other water quality data were indicative of good conditions (min DO 7.8mg/L, pH 7.5-8.3SU, seasonal average total phosphorus 0.007mg/L with no indication of any enrichment issues or observations dense/very dense algae), and no toxicant issues (max total ammonia-nitrogen 0.02mg/L, chloride 24mg/L (n=5), no exceedances of any of clean metals samples, n=3). Temperature max was 28.4°C, 7DADM >20°C 85 times, and 24-hour rolling average max was 24.9°C.

The Aquatic Life Use of the Cold River is assessed as Fully Supporting based on benthic, fish, and water quality data collected by MassDEP and MA DFG biologists between 2011 and 2018. Temperature exceedances are considered natural since watershed area is 96% natural/wetland and there are no dams.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5044	MassDEP	Fish Community	Cold River	325ft US of Rt 2 (Mohawk Trail), US of Black Brk confluence @ Black Brk Rd	42.63257	-72.97440
5045	MassDEP	Fish Community	Cold River	0.2mi US of Cold River Rd, adj to Mohawk SP campground	42.63920	-72.93808
5096	MassDEP	Fish Community	Cold River	~325 ft US of Mohawk Trail (Rt 2), US of Black Brook Confluence.	42.63257	-72.97440
5189	MassDFG	Fish Community	Cold River	DCR picnic site (off Rt 2), Charlemont	42.64266	-72.94980
5716	MassDFG	Fish Community	Cold River	Rt 2 campground, Charlemont	42.64252	-72.95000
6234	MassDFG	Fish Community	Cold River	Rt 2 DCR Picnic area, Florida	42.64294	-72.94965

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
6319	MassDEP	Fish Community	Cold River	Approx 325 ft US of Mohawk Trail (Rt 2), US of Black Brook confluence, Florida/Savoy	42.63257	-72.97440
6392	MassDEP	Fish Community	Cold River	, Savoy, Florida	42.63257	-72.97440
7066	MassDEP	Fish Community	Cold River	US of Black Brook Rd, Florida	42.63257	-72.97440
B0739	MassDEP	Benthic	Cold River/	[approximately 100 meters upstream of Mohawk Trail (Route 2), Florida/Savoy, MA (upstream of Black Brook confluence)]	42.632569	-72.974395
B0788	MassDEP	Benthic	Cold River/	[approximately 350 meters upstream of Cold River Road, Charlemont, MA]	42.639199	-72.938084
W2222	MassDEP	Water Quality	Cold River	[approximately 325 feet upstream of Mohawk Trail (Route 2), Florida/Savoy (upstream of Black Brook confluence)]	42.632569	-72.974395
W2251	MassDEP	Water Quality	Cold River	[approximately 1150 feet upstream of Cold River Road, Charlemont]	42.639199	-72.938084
W2467	MassDEP	Water Quality	Cold River	[approximately 235 feet north of South County Road, Florida]	42.666973	-73.030210

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
B0739	07/27/11	RBP kicknet	Western_Highlands_100ct	97	66	S
B0739	07/26/12	RBP kicknet	Western_Highlands_300ct	330	51	MD
B0739	08/06/13	RBP kicknet	Western_Highlands_300ct	322	51	MD
B0739	08/11/14	RBP kicknet	Western_Highlands_300ct	336	48	MD
B0739	07/30/15	RBP kicknet	Western_Highlands_300ct	320	73	S
B0739	07/20/17	RBP kicknet	Western_Highlands_300ct	308	63R	S
B0788	09/04/12	RBP kicknet	Western_Highlands_300ct	313	33	SD

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]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, BT = Brown Trout, EBT = Brook Trout, LMB = Largemouth Bass, LND = Longnose Dace, LNS = Longnose Sucker, RT = Rainbow Trout, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5044	09/27/12	BP	TP	6	35	1	80	80	1	9	43%	100%	Yes	Yes	AS, BND, BT, EBT, LND, SC,
5045	09/27/12	BP	TP	5	148	0	0	0	0	16	16%	100%	No	Yes	AS, BND, LND, SC, WS,
5096	10/02/13	BP	TP	3	65	0	0	0	0	5	8%	100%	No	Yes	BND, LND, SC,
5189	09/25/14	BP	TP	4	193	1	224	224	0	30	16%	100%	No	Yes	BND, EBT, LND, SC,
5716	09/02/15	BP	TP	7	251	4	83	220	1	19	13%	100%	No	Yes	BND, BT, EBT, LND, LNS, RT, SC,
6234	09/06/16	BP	TP	8	270	2	123	132	2	22	13%	99%	No	Yes	BND, BT, EBT, LMB, LND, LNS, RT, SC,
6319	09/16/14	NS	TP	4	84	3	94	103	3	48	61%	100%	No	Yes	BND, EBT, LND, SC,
6392	09/15/15	BP	TP	5	103	5	81	174	4	46	53%	100%	No	Yes	BND, BT, EBT, LND, SC,
7066	08/10/17	BP	TP	4	23	0	NA	NA	0	7	35%	100%	No	Yes	BND, LND, RT, SC,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)
[7DADMin= 7-Day Average of the Daily Minima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2222	05/08/13	05/28/13	21	15	0	9.3	10	10.4	1.6	0	0	0	0	0	0	0	0
W2222	05/22/14	09/08/14	110	104	81	8.5	8.9	9.2	1.5	0	0	0	0	0	0	0	0
W2222	05/20/15	09/09/15	113	107	84	8.7	8.9	9.3	1.7	0	0	0	0	0	0	0	0
W2222	05/18/17	06/18/17	32	26	3	8.6	9.1	9.5	1.2	0	0	0	0	0	0	0	0

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2251	2012	3	11	7.8	8	8.5	1.3	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2222	05/07/13	09/09/13	1	10.6	10.6	0	0	0
W2222	06/18/14	09/09/14	4	9.2	9.5	0	0	0
W2222	06/16/15	09/10/15	4	8.6	9.1	0	0	0
W2222	06/28/17	09/27/17	4	9	9.2	0	0	0
W2251	05/17/12	09/20/12	3	8.7	9	0	0	0
W2467	04/19/17	12/18/17	1	13.6	13.6	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2222	07/19/12	09/15/12	59	56	21.3	23.9	22.3	20.1	23	0	0	0	0	0
W2222	06/01/13	09/08/13	100	97	23.3	25.9	24.0	22.0	23	0	6	0	0	0
W2222	06/01/14	09/08/14	100	97	19.4	21.4	19.6	17.9	0	0	0	0	0	0
W2222	06/01/15	09/09/15	101	98	20.5	22.2	21.3	19.6	20	0	0	0	0	0
W2222	06/01/17	06/18/17	18	15	18.0	20.3	17.8	16.0	0	0	0	0	0	0
W2251	06/01/12	09/15/12	107	107	24.5	28.4	27.2	23.7	85	5	36	2	0	0
W2467	06/11/13	09/15/13	97	94	22.2	24.7	23.5	21.1	19	0	2	0	0	0
W2467	06/01/14	09/15/14	107	107	18.6	20.6	19.0	17.7	0	0	0	0	0	0
W2467	06/01/15	07/08/15	37	28	16.5	18.6	16.6	14.9	0	0	0	0	0	0
W2467	06/01/16	09/15/16	106	100	20.0	24.4	22.3	19.5	31	0	0	0	0	0
W2467	06/01/17	09/15/17	67	55	18.1	20.7	18.4	16.8	0	0	0	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2251	2012	3	11	21.9	26.0	24.0	21.1	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 8) (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
W2222	07/18/12	09/15/12	59	2803	21.8	0	0	0
W2222	06/01/13	09/09/13	100	4823	23.4	0	0	0
W2222	06/01/15	09/10/15	101	4870	20.5	0	0	0
W2222	06/01/14	09/09/14	100	4824	19.7	0	0	0
W2222	06/01/17	06/19/17	19	901	18.1	0	0	0
W2251	06/01/12	09/15/12	107	5136	24.9	218	76	0
W2251*	06/21/12	08/27/12	67*	530*	22.1*	0	0	0
W2467	06/10/13	09/15/13	97	4629	22.4	0	0	0
W2467	06/01/14	09/15/14	107	5136	18.7	0	0	0
W2467	06/01/15	07/08/15	38	1775	16.5	0	0	0
W2467	06/01/16	09/15/16	107	5087	20.3	0	0	0
W2467	06/01/17	09/15/17	107	3166	18.7	0	0	0

* Note this represents summary of three shorter length DO/Temp probe deployments, for temperature evaluation use the longer term 107 day thermistor deployment.

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (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
W2222	06/13/11	10/13/11	1	1	13.6	13.6	0	0	0	0
W2222	07/18/12	11/16/12	3	1	23.7	9.4	1	1	0	0
W2222	05/07/13	09/09/13	4	2	14.0	13.2	0	0	0	0
W2222	06/18/14	09/09/14	4	4	17.9	16.6	0	0	0	0
W2222	06/16/15	09/10/15	4	4	20.5	18.4	1	0	0	0
W2222	06/28/17	09/27/17	4	3	18.6	17.6	0	0	0	0
W2251	05/17/12	09/20/12	5	3	24.4	18.0	2	2	0	0
W2467	06/10/13	10/24/13	3	1	11.8	8.2	0	0	0	0
W2467	01/16/14	12/11/14	7	0	13.3	5.5	0	0	0	0
W2467	04/16/15	12/08/15	8	2	12.6	7.3	0	0	0	0
W2467	04/13/16	12/14/16	8	2	14.4	7.3	0	0	0	0
W2467	04/19/17	12/18/17	6	0	12.4	6.0	0	0	0	0
W2467	05/23/18	10/24/18	3	0	13.4	10.9	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (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
W2222	05/07/13	09/09/13	1	7.3	7.3	0	0
W2222	06/18/14	09/09/14	4	7.3	7.6	0	0
W2222	06/16/15	09/10/15	4	7.3	7.6	0	0
W2222	06/28/17	09/27/17	4	7.5	7.5	0	0
W2251	05/17/12	09/20/12	3	7.5	8.3	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (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
W2222	2011	3	0.005	0.005	0.005	--	--	--	--	3	0
W2222	2012	3	0.005	0.011	0.007	--	--	--	--	4	0
W2222	2013	5	0.005	0.009	0.006	1.6	0.9	102.3	7.3	5	0
W2222	2014	4	0.005	0.007	0.006	1.5	0.7	99.5	7.6	4	0
W2222	2015	4	0.005	0.009	0.006	1.7	0.8	98.5	7.6	4	0
W2222	2017	4	0.0065	0.008	0.007	1.2	0.7	99.4	7.5	5	0
W2251	2012	5	0.005	0.011	0.007	1.3	1.1	107.1	8.3	6	0
W2467	2017	--	--	--	--	--	--	94.7	--	--	--

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (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
W2251	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2251	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (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
W2251	2012	3	0.010	0.023	0.015	0.1	0.1	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (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
W2222	2011	3	0.020	0.020	0.020	0	0
W2222	2012	4	0.020	0.020	0.020	0	0
W2222	2013	5	0.020	0.020	0.020	0	0
W2222	2014	4	0.020	0.020	0.020	0	0
W2222	2015	4	0.040	0.078	0.050	0	0
W2222	2017	4	0.040	0.040	0.040	0	0
W2251	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (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
W2222	2011	3	11	16	14	0	0
W2222	2012	4	13	18	15	0	0
W2222	2013	5	7	14	12	0	0
W2222	2014	4	8	16	11	0	0
W2222	2015	4	9	17	14	0	0
W2222	2017	4	9	19	15	0	0
W2251	2012	5	9	24	16	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (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
W2222	05/07/13	09/09/13	1	51	51	0	0	0	0	0	0
W2222	06/18/14	09/09/14	4	60	101	0	0	0	0	0	0
W2222	06/16/15	09/10/15	4	62	114	0	0	0	0	0	0
W2222	06/28/17	09/27/17	4	62	100	0	0	0	0	0	0
W2251	05/17/12	09/20/12	3	93	170	0	0	0	0	0	0
W2467	04/19/17	12/18/17	1	111	111	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 the Cold River, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff surveyed the Cold River upstream of the confluence of Black Brook in Florida/Savoy (W2222) during the summers of 2011, 2012, 2013, 2014, 2015, and 2017 as part of the Reference Site Network monitoring project and further downstream near the Mohawk Trail State Forest/Campground ~1150 feet upstream of Cold River Road, Charlemont as part of the MAP2 monitoring project in the summer of 2012. No objectionable conditions (i.e., odors, deposits, growths, or turbidity) were observed during any of the surveys.
The Aesthetics Use for the Cold River is assessed as Fully Supporting based on the lack of any objectionable conditions documented by MassDEP staff during the summers of 2011, 2012, 2013, 2014, 2015, and 2017.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2222	MassDEP	Water Quality	Cold River	[approximately 325 feet upstream of Mohawk Trail (Route 2), Florida/Savoy (upstream of Black Brook confluence)]	42.632569	-72.974395
W2251	MassDEP	Water Quality	Cold River	[approximately 1150 feet upstream of Cold River Road, Charlemont]	42.639199	-72.938084

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2222	Cold River	2011	3	MassDEP aesthetics observations for station W2222 on Cold 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.
W2222	Cold River	2012	4	MassDEP aesthetics observations for station W2222 on Cold 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.
W2222	Cold River	2013	5	MassDEP aesthetics observations for station W2222 on Cold 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.
W2222	Cold River	2014	4	MassDEP aesthetics observations for station W2222 on Cold 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 2014.
W2222	Cold River	2015	4	MassDEP aesthetics observations for station W2222 on Cold 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 2015.
W2222	Cold River	2017	5	MassDEP aesthetics observations for station W2222 on Cold 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 2017.

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2251	Cold River	2012	6	MassDEP aesthetics observations for station W2251/MAP2-173 on Cold 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.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2222	2011	3	3	0
W2222	2012	4	4	0
W2222	2013	5	5	0
W2222	2014	4	4	0
W2222	2015	4	4	0
W2222	2017	5	5	0
W2251	2012	6	6	0

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

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2222	Cold River	2011	Color	None	3	3
W2222	Cold River	2011	Objectionable Deposits	No	3	3
W2222	Cold River	2011	Odor	None	3	3
W2222	Cold River	2011	Scum	No	3	3
W2222	Cold River	2011	Turbidity	None	3	3
W2222	Cold River	2012	Color	Light Yellow/Tan	1	4
W2222	Cold River	2012	Color	None	3	4
W2222	Cold River	2012	Objectionable Deposits	No	4	4
W2222	Cold River	2012	Odor	None	4	4
W2222	Cold River	2012	Scum	No	4	4
W2222	Cold River	2012	Turbidity	None	2	4
W2222	Cold River	2012	Turbidity	Slightly Turbid	2	4
W2222	Cold River	2013	Color	Light Yellow/Tan	1	5
W2222	Cold River	2013	Color	None	3	5
W2222	Cold River	2013	Color	NR	1	5
W2222	Cold River	2013	Objectionable Deposits	No	5	5
W2222	Cold River	2013	Odor	None	4	5
W2222	Cold River	2013	Odor	NR	1	5
W2222	Cold River	2013	Scum	No	5	5
W2222	Cold River	2013	Turbidity	None	4	5
W2222	Cold River	2013	Turbidity	Slightly Turbid	1	5
W2222	Cold River	2014	Color	None	4	4
W2222	Cold River	2014	Objectionable Deposits	No	4	4
W2222	Cold River	2014	Odor	None	4	4

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2222	Cold River	2014	Scum	No	4	4
W2222	Cold River	2014	Turbidity	Moderately Turbid	1	4
W2222	Cold River	2014	Turbidity	None	3	4
W2222	Cold River	2015	Color	Light Yellow/Tan	1	4
W2222	Cold River	2015	Color	None	3	4
W2222	Cold River	2015	Objectionable Deposits	No	4	4
W2222	Cold River	2015	Odor	None	4	4
W2222	Cold River	2015	Scum	No	4	4
W2222	Cold River	2015	Turbidity	None	4	4
W2222	Cold River	2017	Color	Light Yellow/Tan	1	5
W2222	Cold River	2017	Color	None	4	5
W2222	Cold River	2017	Objectionable Deposits	No	4	5
W2222	Cold River	2017	Objectionable Deposits	Yes	1	5
W2222	Cold River	2017	Odor	None	5	5
W2222	Cold River	2017	Scum	No	5	5
W2222	Cold River	2017	Turbidity	None	4	5
W2222	Cold River	2017	Turbidity	Slightly Turbid	1	5
W2251	Cold River	2012	Color	None	6	6
W2251	Cold River	2012	Objectionable Deposits	No	6	6
W2251	Cold River	2012	Odor	None	6	6
W2251	Cold River	2012	Scum	No	5	6
W2251	Cold River	2012	Scum	Yes	1	6
W2251	Cold River	2012	Turbidity	None	5	6
W2251	Cold River	2012	Turbidity	Slightly Turbid	1	6

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP staff conducted *E. coli* bacteria sampling in the Cold River near the Mohawk Trail State Forest/Campground ~1150 feet upstream of Cold River Road, Charlemont (W2251) between May and September 2012 (n=6). Data analysis indicated none of the intervals had GMs >126 cfu/100ml, none of the samples exceeded the 410 cfu/100ml STV, and the seasonal GM was 12 cfu/100ml.
The Primary Contact Recreational Use for the Cold River is assessed as Fully Supporting based on the low *E. coli* concentrations.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2251	MassDEP	Water Quality	Cold River	[approximately 1150 feet upstream of Cold River Road, Charlemont]	42.639199	-72.938084

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 6)

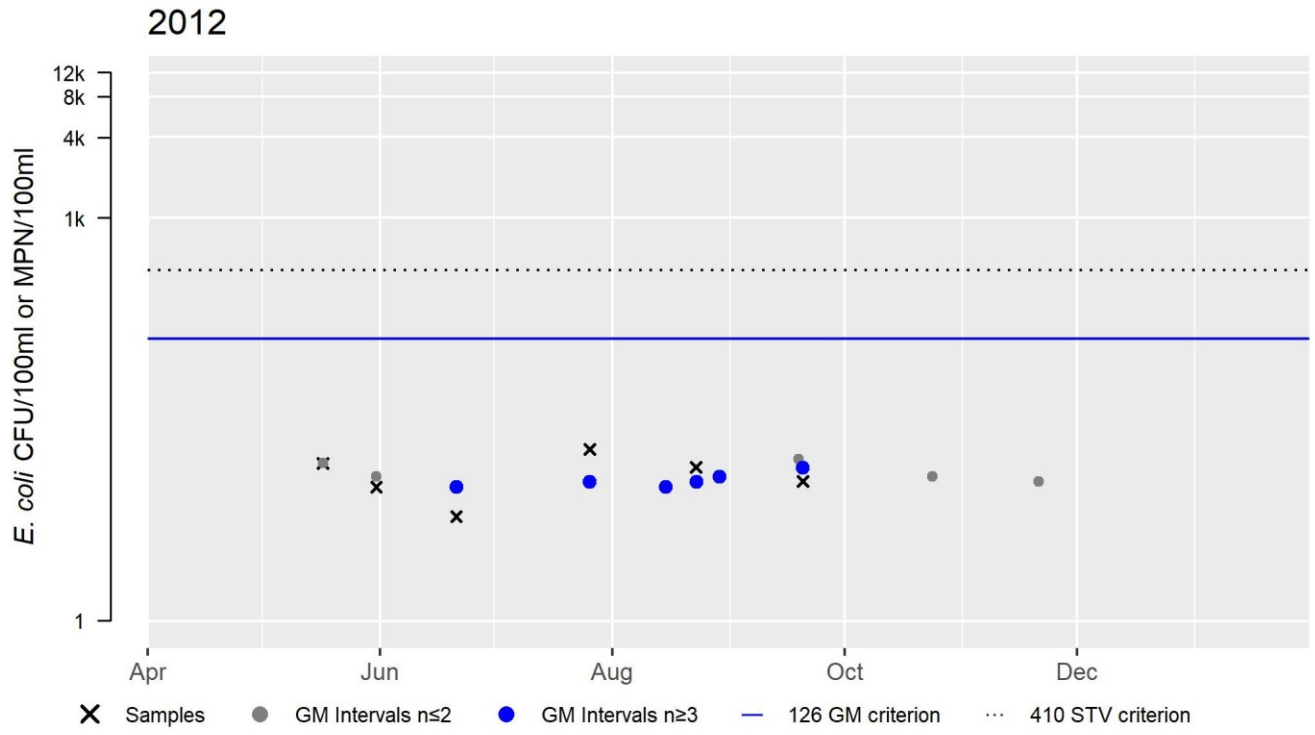
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2251	MassDEP	E. coli	05/17/12	09/20/12	6	6	19	12

W2251 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	12
#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 conducted *E. coli* bacteria sampling in the Cold River near the Mohawk Trail State Forest/Campground ~1150 feet upstream of Cold River Road, Charlemont (W2251) between May and September 2012 (n=6). Data analysis indicated none of the intervals had GMs >630 cfu/100ml, none of the samples exceeded the 1260 cfu/100ml STV, and the seasonal GM was 12 cfu/100ml.
The Secondary Contact Recreational Use for the Cold River is assessed as Fully Supporting based on the low *E. coli* concentrations.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2251	MassDEP	Water Quality	Cold River	[approximately 1150 feet upstream of Cold River Road, Charlemont]	42.639199	-72.938084

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 6)

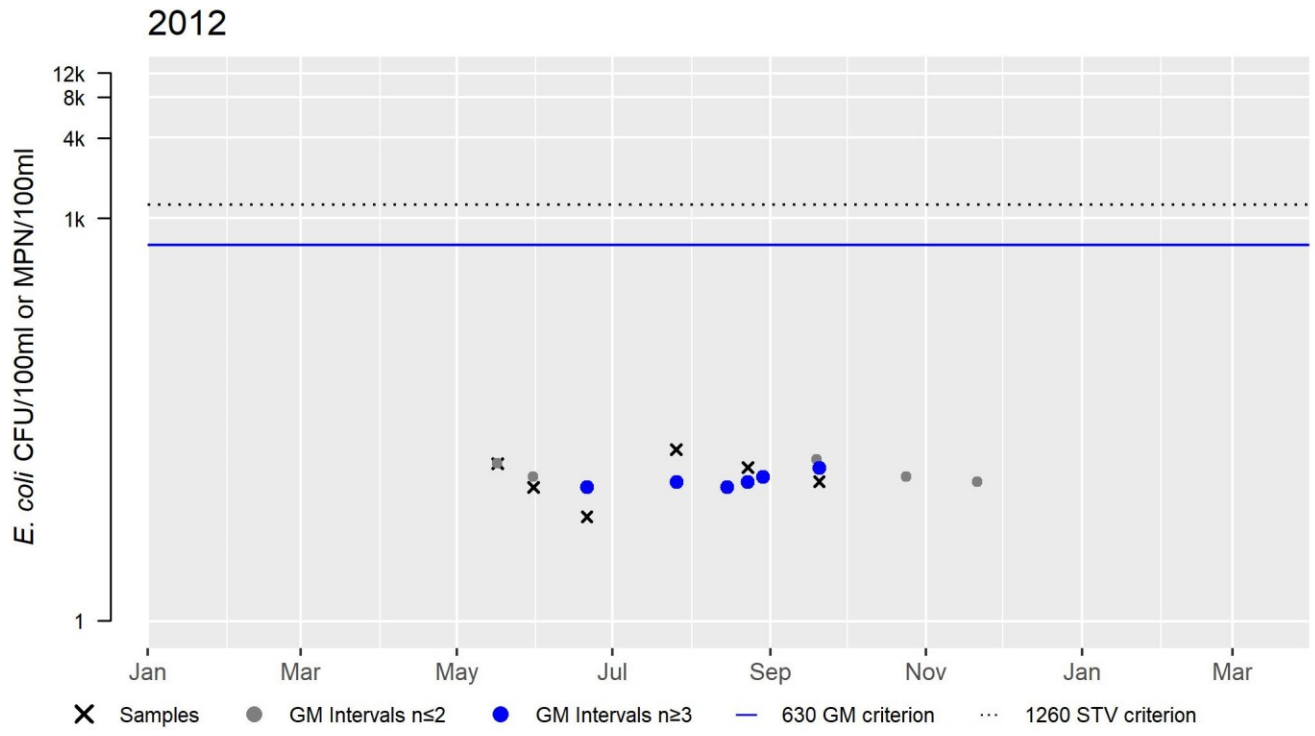
[Result units are CFU/100ml or MPN/100ml]

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)
W2251	MassDEP	E. coli	05/17/12	09/20/12	6	6	19	12

W2251 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	12
#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



Cooley Brook (MA33-45)

Location:	Headwaters, north of La Belle Road, Hawley to confluence with Clesson Brook, Buckland.
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	B

No usable data were available for Cooley Brook (MA33-45) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Creamery Brook (MA33-46)

Location:	Headwaters, perennial portion west of Steady Lane Road, Ashfield to confluence with South River, Ashfield.
AU Type:	RIVER
AU Size:	2.4 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Creamery Brook (MA33-46) 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

Davenport Brook (MA33-111)

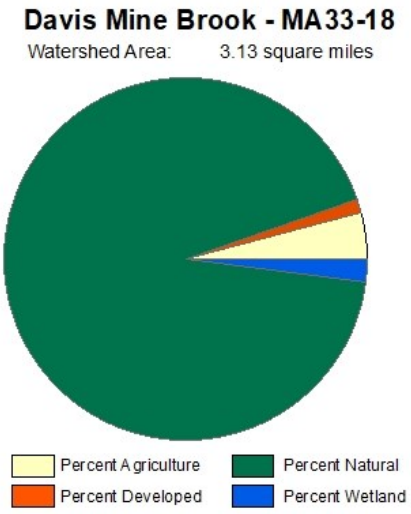
Location:	Headwaters outlet Papoose Lake, Heath to confluence with Kinsman Brook forming headwaters Taylor Brook, Heath.
AU Type:	RIVER
AU Size:	0.9 MILES
Classification/Qualifier:	B

No usable data were available for Davenport Brook (MA33-111) 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

Davis Mine Brook (MA33-18)

Location:	Headwaters, south of Dell Road, Rowe to confluence with Mill Brook, Charlemont.
AU Type:	RIVER
AU Size:	3.3 MILES
Classification/Qualifier:	B



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	3.13	2.86	0.78	0.78
Agriculture	4.1%	3.2%	1.7%	1.7%
Developed	1.2%	1.1%	0.5%	0.5%
Natural	92.7%	94%	93.6%	93.6%
Wetland	2%	1.6%	4.2%	4.2%
Impervious Cover	0.7%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Fish Bioassessments		Unchanged
5	5	pH, Low		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Fish Bioassessments	Acid Mine Drainage (Y)	X				
pH, Low	Acid Mine Drainage (Y)	X				

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 Davis Mine Brook off of Davis Mine Road in Rowe (SampleID 6094) in September 2016. The sample was comprised entirely of multiple age classes of Eastern brook trout. This sampling reach is located upstream of the Davis Mine drainage.
Although multiple age classes of Eastern brook trout are present in Davis Mine Brook upstream of the Davis Mine drainage, no recent data have been collected downstream from the mine drainage so the Fish Bioassessments and pH, Low impairments are being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
6094	MassDFG	Fish Community	Davis Mine Brook	Off Davis Mine Rd, Rowe	42.69155	-72.86361

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]
[Species List: EBT = Brook Trout]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
6094	09/01/16	BP	TP	1	93	93	43	194	91	0	100%	100%	Yes	Yes	EBT,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Davis Mine Brook, 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 Davis Mine Brook, 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 Davis Mine Brook, so it is Not Assessed.	

Secondary Contact Recreation

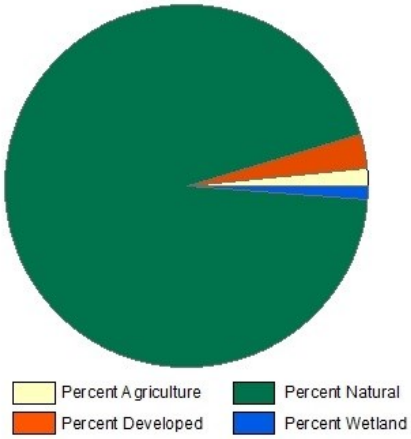
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Davis Mine Brook, so it is Not Assessed.	

Deerfield River (MA33-01)

Location:	Outlet Sherman Reservoir Monroe/Rowe, to confluence with Cold River, Charlemont (through former 2008 segment: Lower Reservoir MA33028).
AU Type:	RIVER
AU Size:	13.1 MILES
Classification/Qualifier:	B: CWF

Deerfield River - MA33-01

Watershed Area: 134.99 sq Miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	43.38	8.04	10	1.96
Agriculture	1.6%	1%	0.8%	0.6%
Developed	3%	2.4%	5.6%	6.3%
Natural	94.2%	95.7%	90.9%	90.3%
Wetland	1.2%	0.9%	2.7%	2.9%
Impervious Cover	1.2%			

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

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

Recommendations

2022 Recommendations
ALU: Conduct additional benthic macroinvertebrate sampling along the upper reaches of this Deerfield River AU (MA33-01) -- below Fife Brook Dam, above Bridge to nowhere, upstream Cold River confluence, and downstream Charlemont. These sample data should be evaluated using High Gradient IBI thresholds to confirm flow regime modification impairment using updated benthic analysis methology.

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 (five sites) and snorkeling surveys (five sites) along this Deerfield River AU (MA33-01) between the confluences with Fife and Pelham brooks in September 2016 (SampleIDs 6009 through 6019). All samples were comprised entirely by fluvial fishes including slimy sculpin. Multiple ages of Eastern brook trout were found in one sample. These and a few additional backpack samples (total of 11 in all including Sample IDs 5927, 5928, 5929, 5930, 6012, 6013, 6016, 6017, 6019, 6021, 6022) were collected by MA DFG biologists in the Deerfield River (AUs MA33-01, MA33-02, MA33-03) in September 2016. The overall percent similarity with the Deerfield Target Fish Community was 66.12% (note that the percent similarity was 60.37% for MA33-01, the 1st coldwater AU, when evaluated alone, and it was 50.83% for MA33-02, the 2nd coldwater AU). Of the 4 most common species (blacknose dace, longnose dace, common shiner, slimy sculpin) in the TFC, all made it to the top 5 positions among the study samples (combined among AUs), although at slightly different ranks (additionally, white sucker came in at #4). This comparison of fish community data with the Deerfield TFC model is an indicator of good water quality in these Deerfield River AUs (MA33-01, MA33-02, MA33-03).

Although the fish sample data are indicative of generally good cold water habitat conditions, the Aquatic Life Use for this Deerfield River AU (MA33-01) will continue to be assessed as Not Supporting with the Flow Regime Modification impairment being carried forward. The impacts from the hydropower operations affecting this Deerfield River AU were documented as part of the 2016 IR reporting cycle based on MassDEP's analysis of benthic sampling data collected by ABR, Inc. biologists in September 2006 for the Deerfield River Watershed Association (MassDEP Undated 7).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
6009	MassDFG	Fish Community	Deerfield River	Fife Brook access, DS of fife brook, Florida	42.68141	-72.97614
6010	MassDFG	Fish Community	Deerfield River	Fife Brook acces, below fife brook. This is the next trib US from SID 6009, below dam., Florida	42.68141	-72.97614
6012	MassDFG	Fish Community	Deerfield River	fife brook crossing, Florida	42.68038	-72.97575
6013	MassDFG	Fish Community	Deerfield River	2nd trib below fife dam, Florida	42.67890	-72.98930
6014	MassDFG	Fish Community	Deerfield River	Across whitcomb hill rd along river rd, ds of tunnel bridge, Florida	42.66627	-72.98617
6015	MassDFG	Fish Community	Deerfield River	Pull off on river rd US of bridge, @ kiosk zoar camp., Florida	42.65652	-72.95657
6016	MassDFG	Fish Community	Deerfield River	Whitcomb hill rd, steel bridge, Rowe	42.66560	-72.98569
6017	MassDFG	Fish Community	Deerfield River	Along river rd, US of rapids, Rowe	42.65682	-72.95581
6018	MassDFG	Fish Community	Deerfield River	DS of River Rd bridge, US of Zoar picnic area., Florida	42.65129	-72.95385
6019	MassDFG	Fish Community	Deerfield River	DS of Zoar/River rd xing, rapid section., Florida/Charlemont	42.65161	-72.95411

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
B0232	MassDEP	Benthic	Deerfield River/	[approximately 300 meters upstream/north from Florida Bridge/Zoar Road, Charlemont/Florida, MA]	42.655385	-72.955617

Biological Monitoring Information

Benthic Macroinvertebrate Data

Re-analysis of MassDEP benthic data (station B0232) using Western Highlands IBI score (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
B0232	07/18/88	RBP kicknet	Western_Highlands_100ct	94	20	SD
B0232	09/26/95	RBP kicknet	Western_Highlands_100ct	106	31	SD
B0232	09/22/05	RBP kicknet	Western_Highlands_100ct	94	36	MD

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]
[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, LNS = Longnose Sucker, RT = Rainbow Trout, SC = Slimy Sculpin, TD = Tesselated Darter, WS = White Sucker, YP = Yellow Perch]

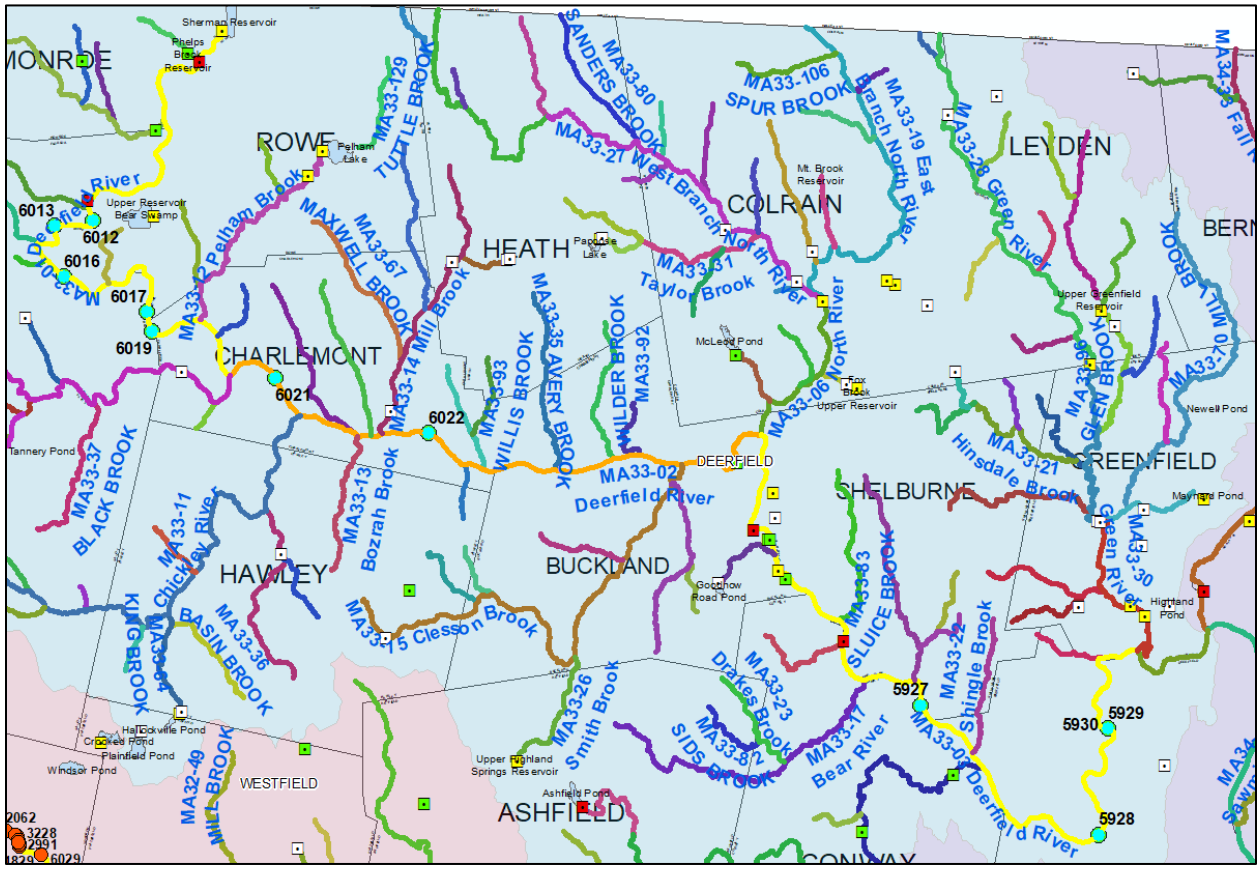
Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
6009	09/20/16	SL	TP	2	100	0	NA	NA	0	38	38%	100%	Yes	Yes	BND, SC,
6010	09/20/16	SL	TP	5	165	0	NA	NA	0	17	12%	100%	Yes	Yes	BND, LND, RT, SC, WS,
6012	09/20/16	BP	TP	4	609	0	NA	NA	0	367	61%	100%	No	Yes	BND, BT, LND, SC,
6013	09/20/16	BP	TP	5	669	0	NA	NA	0	270	42%	100%	No	Yes	BND, BT, LND, SC, TD,
6014	09/21/16	SL	TP	4	1118	0	NA	NA	0	54	5%	100%	Yes	Yes	BND, LND, SC, WS,
6015	09/21/16	SL	TP	4	54	0	NA	NA	0	4	7%	100%	Yes	Yes	BND, LND, SC, WS,
6016	09/21/16	BP	TP	10	342	5	98	204	2	124	43%	100%	No	Yes	AS, BND, BT, CS, EBT, LND, LNS, SC, TD, WS,
6017	09/21/16	BP	TP	5	327	0	NA	NA	0	106	35%	100%	No	Yes	BND, BT, LND, LNS, SC,
6018	09/22/16	SL	TP	6	570	0	NA	NA	0	21	4%	100%	Yes	Yes	BND, CRC, LND, SC, TD, WS,

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
6019	09/22/16	BP	TP	9	434	0	NA	NA	0	106	25%	100%	No	Yes	BND, BT, CRC, CS, LND, SC, TD, WS, YP,

Comparison of fish community samples (2005-2017) to the Deerfield Target Fish Community (TFC) Model.
(MassDFG 2018, MassDEP Undated 2, Kashiwagi and Richards 2009)

Eleven fish community samples (Sample IDs 5927, 5928, 5929, 5930, 6012, 6013, 6016, 6017, 6019, 6021, 6022) were collected in the Deerfield River (AUs MA33-01, MA33-02, MA33-03) in 2016. The overall percent similarity with the Deerfield Target Fish Community was 66.12% (note that the percent similarity was 60.37% for MA33-01, the 1st coldwater AU, when evaluated alone). Of the four most common species (blacknose dace, longnose dace, common shiner, slimy sculpin) in the TFC, all made it to the top five positions among the study samples (combined among AUs), although at slightly different ranks (additionally, white sucker came in at #4). This comparison of fish community data with the Deerfield TFC model is an indicator of good water quality in these Deerfield River AUs (MA33-01, MA33-02, MA33-03).

Fish Community Samples in the Deerfield River (AUs MA33-01, MA33-02, MA33-03):



Deerfield TFC Model:

Table A4. Species percent composition for reference rivers used to develop the Deerfield River target fish community model. Species are ordered by mean rank. Non-native, stocked, and out-of-range species were deleted from the ranking and calculation of expected proportion in the target fish model. The ranks were converted to expected proportions (as a percent) using a rank-weighting technique as outlined by Bain and Meixler (2008).

Species	EB Westfield River	Third Branch White River	Tenmile River	Ashuelot River	Ammonoosuc River	Piscataquog River	Total	Rank	Expected Proportion
Blacknose dace	41.3	25.0	14.9	19.8	24.1	22.5	147.6	1	31.8
Longnose dace	18.7	19.9	9.3	12.7	38.5	15.2	114.2	2	15.9
Common shiner	7.8	2.6	13.8	22.3	1.4	15.8	63.7	3	10.6
Slimy sculpin	9.6	33.1	0.0	0.0	6.0	0.0	48.8	4	7.9
Fallfish	0.5	0.0	18.7	26.8	0.0	2.8	48.8	5	6.4
Atlantic salmon	9.7	0	0	2.2	24.1	3.4	39.4		
White sucker	8.2	0.3	15.8	7.9	0.5	2.8	35.5	7	4.5
Smallmouth bass	0.0	0.0	12.2	1.3	0.0	12.0	25.5		
Longnose sucker	0.0	5.6	0.0	0.0	4.8	2.8	13.2	9	3.5
Tessellated darter	0.0	0.1	7.3	3.8	0.2	0.0	11.4	10	3.2
Rainbow trout	0.1	7.5	0.1	0.0	0.0	0.2	7.8		
Creek chub	2.7	1.4	0.6	0.2	0.0	0.0	4.9	12	2.6
Cutlips minnow	0.0	0	4.6	0	0.0	0	4.6		
Brown trout	0.0	3.3	0.1	0.3	0.0	0.4	4.1		
Yellow bullhead	0.0	0.0	0.0	1.0	0.0	3.0	4.0		
Redbreast sunfish	0.0	0.0	0.0	0.0	0.0	2.7	2.7	16	2.0
Pumpkinseed	0.1	0.0	0.6	0.3	0.0	1.4	2.4	17	1.9
Brook trout	0.5	1.2	0.1	0.0	0.6	0.0	2.3	18	1.8
American eel	0	0	0	0.2	0	1.4	1.6	19	1.7
Bluegill	0.2	0	1.3	0	0.0	0	1.5		
Largemouth bass	0.0	0.0	0.0	0.0	0.0	1.4	1.4		
Golden shiner	0.1	0.0	0.3	0.0	0.0	0.5	0.9	22	1.4
Lake chub	0.6	0.0	0.0	0.0	0.0	0.0	0.6		
Spottail shiner	0.0	0.0	0.0	0.0	0.0	0.5	0.5	24	1.3
Brown bullhead	0.0	0	0.0	0.2	0.0	0.2	0.4	25	1.3
Bluntnose minnow	0.0	0	0.4	0	0.0	0	0.4		
Rock bass	0.0	0.0	0.3	0.1	0.0	0.0	0.4		
Chain pickerel	0.0	0.0	0.0	0.1	0.0	0.2	0.3	28	1.1
Yellow perch	0.0	0.0	0.0	0.3	0.0	0.0	0.3	28	1.1

Fish Community Analysis:

Combined analysis of all 3 AUs (MA33-01, MA33-02, MA33-03)

Watershed	Common Name	Values # of Fish	% of catch	Applicable TFC	TFC Difference	% Sim to TFC
Deerfield	American Brook Lamprey		0.00%	-	-	
Deerfield	American Eel	39	0.89%	2.0	1.1	
Deerfield	Atlantic Salmon	2	0.05%	-	0.0	
Deerfield	Banded Killifish		0.00%	-	-	
Deerfield	Banded Sunfish		0.00%	-	-	
Deerfield	Black Crappie		0.00%	-	-	
Deerfield	Blacknose Dace	1056	24.05%	32.0	8.0	
Deerfield	Bluegill	6	0.14%	-	0.1	
Deerfield	Bluntnose Minnow		0.00%	-	-	
Deerfield	Bridle Shiner		0.00%	-	-	
Deerfield	Brook Trout	6	0.14%	2.0	1.9	
Deerfield	Brown Bullhead		0.00%	1.0	1.0	
Deerfield	Brown Trout	30	0.68%	-	0.7	
Deerfield	Central Mudminnow		0.00%	-	-	
Deerfield	Chain Pickerel		0.00%	1.0	1.0	
Deerfield	Channel Catfish		0.00%	-	-	
Deerfield	Common Carp		0.00%	-	-	
Deerfield	Common Shiner	358	8.15%	11.0	2.8	
Deerfield	Creek Chub	100	2.28%	3.0	0.7	
Deerfield	Creek Chubsucker	9	0.20%	-	0.2	
Deerfield	Cutlips Minnow		0.00%	-	-	
Deerfield	Fallfish	35	0.80%	6.0	5.2	
Deerfield	Fathead Minnow		0.00%	-	-	
Deerfield	Golden Shiner		0.00%	2.0	2.0	
Deerfield	Green Sunfish		0.00%	-	-	
Deerfield	Lake Chub		0.00%	-	-	
Deerfield	Largemouth Bass		0.00%	-	-	
Deerfield	Longnose Dace	828	18.86%	16.0	2.9	
Deerfield	Longnose Sucker	13	0.30%	4.0	3.7	
Deerfield	Northern Pike		0.00%	-	-	
Deerfield	Pumpkinseed		0.00%	2.0	2.0	
Deerfield	Rainbow Trout		0.00%	-	-	
Deerfield	Redbreast Sunfish		0.00%	2.0	2.0	
Deerfield	Redfin Pickerel		0.00%	-	-	
Deerfield	Rock Bass	50	1.14%	-	1.1	
Deerfield	Sea Lamprey	4	0.09%	-	0.1	
Deerfield	Slimy Sculpin	1003	22.84%	8.0	14.8	
Deerfield	Smallmouth Bass	49	1.12%	-	1.1	
Deerfield	Spottail Shiner		0.00%	1.0	1.0	
Deerfield	Swamp Darter		0.00%	-	-	
Deerfield	Tadpole Madtom		0.00%	-	-	
Deerfield	Tesselated Darter	196	4.46%	-	4.5	
Deerfield	White Catfish		0.00%	-	-	
Deerfield	White Perch		0.00%	-	-	
Deerfield	White Sucker	599	13.64%	5.0	8.6	
Deerfield	Yellow Bullhead	7	0.16%	-	0.2	
Deerfield	Yellow Perch	1	0.02%	1.0	1.0	
Deerfield	(blank)		0.00%	-	-	66.12
Grand Total		4391	######	-	100.0	

Row Labels
Deerfield
5927
5928
5929
5930
6012
6013
6016
6017
6019
6021
6022
Grand Total

Analysis of MA33-01 stations alone (6012, 6013, 6016, 6017, 6019)

Watershed	Common Name	Values # of Fish	% of catch	Applicable TFC	TFC Difference	% Sim to TFC
Deerfield	American Brook Lamprey		0.00%	-	-	
Deerfield	American Eel		0.00%	2.0	2.0	
Deerfield	Atlantic Salmon	1	0.04%	-	0.0	
Deerfield	Banded Killifish		0.00%	-	-	
Deerfield	Banded Sunfish		0.00%	-	-	
Deerfield	Black Crappie		0.00%	-	-	
Deerfield	Blacknose Dace	726	30.49%	32.0	1.5	
Deerfield	Bluegill		0.00%	-	-	
Deerfield	Bluntnose Minnow		0.00%	-	-	
Deerfield	Bridle Shiner		0.00%	-	-	
Deerfield	Brook Trout	5	0.21%	2.0	1.8	
Deerfield	Brown Bullhead		0.00%	1.0	1.0	
Deerfield	Brown Trout	29	1.22%	-	1.2	
Deerfield	Central Mudminnow		0.00%	-	-	
Deerfield	Chain Pickerel		0.00%	1.0	1.0	
Deerfield	Channel Catfish		0.00%	-	-	
Deerfield	Common Carp		0.00%	-	-	
Deerfield	Common Shiner	31	1.30%	11.0	9.7	
Deerfield	Creek Chub	48	2.02%	3.0	1.0	
Deerfield	Creek Chubsucker		0.00%	-	-	
Deerfield	Cutlips Minnow		0.00%	-	-	
Deerfield	Fallfish		0.00%	6.0	6.0	
Deerfield	Fathead Minnow		0.00%	-	-	
Deerfield	Golden Shiner		0.00%	2.0	2.0	
Deerfield	Green Sunfish		0.00%	-	-	
Deerfield	Lake Chub		0.00%	-	-	
Deerfield	Largemouth Bass		0.00%	-	-	
Deerfield	Longnose Dace	518	21.76%	16.0	5.8	
Deerfield	Longnose Sucker	13	0.55%	4.0	3.5	
Deerfield	Northern Pike		0.00%	-	-	
Deerfield	Pumpkinseed		0.00%	2.0	2.0	
Deerfield	Rainbow Trout		0.00%	-	-	
Deerfield	Redbreast Sunfish		0.00%	2.0	2.0	
Deerfield	Redfin Pickerel		0.00%	-	-	
Deerfield	Rock Bass		0.00%	-	-	
Deerfield	Sea Lamprey		0.00%	-	-	
Deerfield	Slimy Sculpin	973	40.87%	8.0	32.9	
Deerfield	Smallmouth Bass		0.00%	-	-	
Deerfield	Spottail Shiner		0.00%	1.0	1.0	
Deerfield	Swamp Darter		0.00%	-	-	
Deerfield	Tadpole Madtom		0.00%	-	-	
Deerfield	Tesselated Darter	6	0.25%	-	0.3	
Deerfield	White Catfish		0.00%	-	-	
Deerfield	White Perch		0.00%	-	-	
Deerfield	White Sucker	30	1.26%	5.0	3.7	
Deerfield	Yellow Bullhead		0.00%	-	-	
Deerfield	Yellow Perch	1	0.04%	1.0	1.0	
Deerfield	(blank)		0.00%	-	-	60.37
Grand Total		2381	#####	-	100.0	

Row Labels
Deerfield
5927
5928
5929
5930
6012
6013
6016
6017
6019
6021
6022
Grand Total

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent fish toxics sampling has been conducted in this Deerfield River AU (MA33-01), 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 Deerfield River AU (MA33-01), so it is Not Assessed.

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available to assess the status of the Primary Contact Recreational Use for this Deerfield River AU (MA33-01), so it is Not Assessed.	

Secondary Contact Recreation

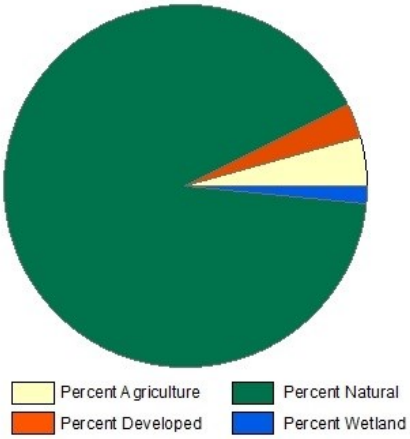
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available to assess the status of the Secondary Contact Recreational Use for this Deerfield River AU (MA33-01), so it is Not Assessed.	

Deerfield River (MA33-02)

Location:	Confluence with Cold River, Charlemont to confluence with North River, Charlemont/Shelburne.
AU Type:	RIVER
AU Size:	11.4 MILES
Classification/Qualifier:	B: CWF

Deerfield River - MA33-02

Watershed Area: 354.06 sq Miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	218.01	19.81	53.21	5.65
Agriculture	4.3%	5.6%	4.4%	7.1%
Developed	3.2%	4.7%	5.5%	8.3%
Natural	91%	88.5%	86.8%	82.1%
Wetland	1.6%	1.2%	3.3%	2.5%
Impervious Cover	1.3%			

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 a snorkeling survey in this Deerfield River AU (MA33-02) behind the Mohawk State Park campground upstream of Route 2 bridge in Charlemont (SampleID 6020), backpack electroshocking upstream of the Route 2 bridge @ the Mohawk State Park campground (SampleID 6021) and off Route 2 west of the USGS gage (SampleID 6022) in Charlemont, as well as boat electrofishing further downstream at Route 2 bridge upstream to behind crabapple in Shelburne Falls (SampleID 6008) in September 2016. Except for the most downstream boat electrofishing site, all samples were comprised entirely by fluvial fishes including slimy sculpin. One small Eastern brook trout was found in one sample. Fluvial fishes dominated the boat electrofishing sample. These and a few additional backpack samples (total of 11 in all including Sample IDs 5927, 5928, 5929, 5930, 6012, 6013, 6016, 6017, 6019, 6021, 6022) were collected by MA DFG biologists in the Deerfield River (AUs MA33-01, MA33-02, MA33-03) in September 2016. The overall percent similarity with the Deerfield Target Fish Community was 66.12% (note that the percent similarity was 50.83% for MA33-02, the 2nd coldwater AU). Of the four most common species (blacknose dace, longnose dace, common shiner, slimy sculpin) in the TFC, all made it to the top five positions among the study samples (combined among AUs), although at slightly different ranks (additionally, white sucker came in at #4). This comparison of fish community data with the Deerfield TFC model is an indicator of good water quality in these Deerfield River AUs (MA33-01, MA33-02, MA33-03).
The Aquatic Life Use for this Deerfield River AU (MA33-02) will continue to be assessed as Fully Supporting based on the fish community sample data collected in September 2016 documenting the presence of slimy sculpin in this Cold Water habitat. The Alert for hydromodification and regulated streamflow is being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
6008	MassDFG	Fish Community	Deerfield River	From rt 2 bridge upstream to behind crabapple, Shelburne Falls	42.62130	-72.75480
6020	MassDFG	Fish Community	Deerfield River	Behind Mohawk campground, US of Rt 2 bridge, Charlemont	42.64092	-72.91052
6021	MassDFG	Fish Community	Deerfield River	US Rt 2 bridge @ mohawk campground, Charlemont	42.63999	-72.91007
6022	MassDFG	Fish Community	Deerfield River	Off Rt 2 west of USGS gage., Charlemont	42.62613	-72.85516

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]

[Species List: BND = Blacknose Dace, BT = Brown Trout, CCS = Creek Chubsucker, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, F = Fallfish, LND = Longnose Dace, RT = Rainbow Trout, SC = Slimy Sculpin, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
6020	09/22/16	SL	TP	7	548	0	NA	NA	0	13	4%	100%	Yes	Yes	BND, BT, LND, RT, SC, TD, WS,
6021	09/22/16	BP	TP	7	154	0	NA	NA	0	19	12%	100%	No	Yes	BND, CRC, CS, LND, SC, TD, WS,

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
6022	09/23/16	BP	TP	11	1295	1	100	100	1	10	1%	100%	No	Yes	BND, BT, CCS, CRC, CS, EBT, F, LND, SC, TD, WS,

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]

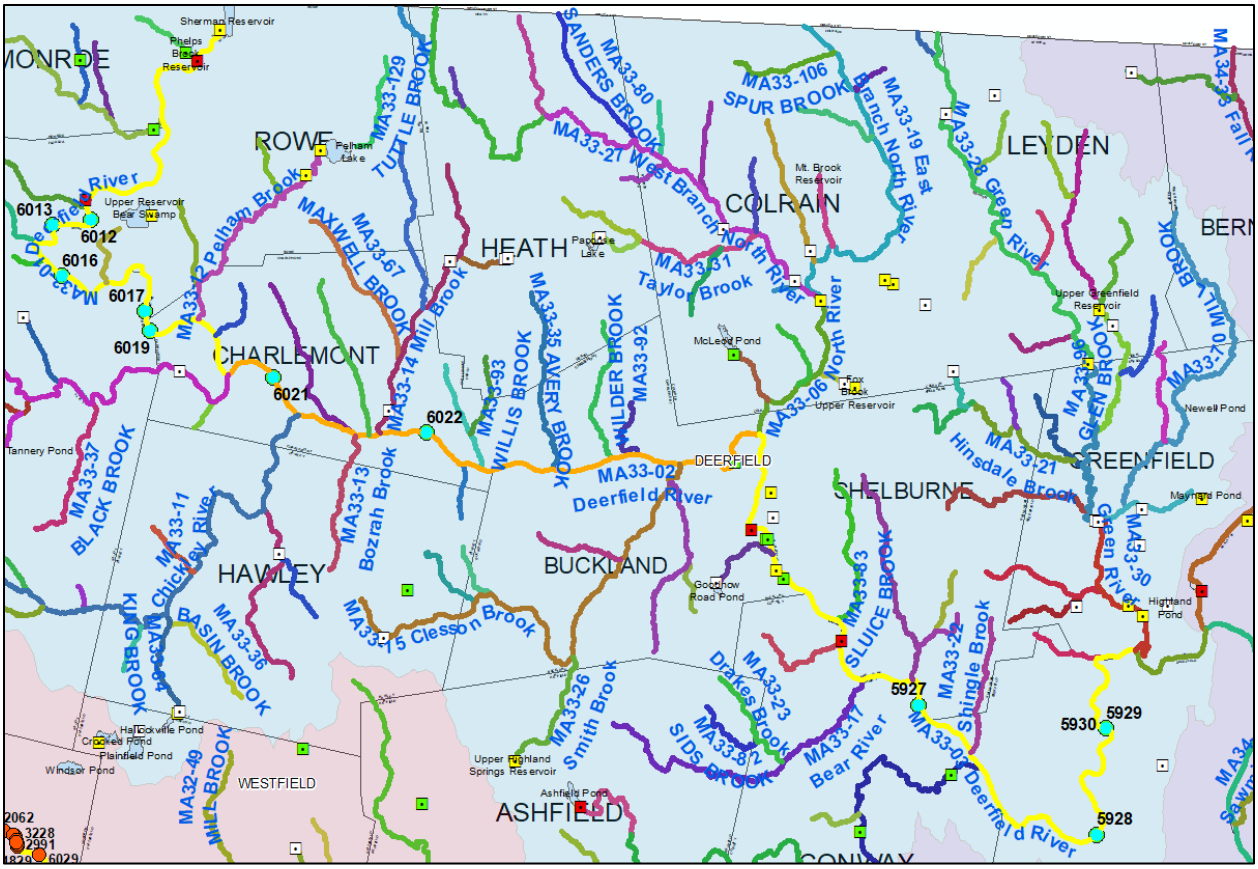
[Species List: BT = Brown Trout, CRC = Creek Chub, CS = Common Shiner, RT = Rainbow Trout, SMB = Smallmouth Bass, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
6008	09/15/16	BT	TP		7	506	1%	6	99%	1%	1	1%	Yes	Yes	BT, CRC, CS, RT, SMB, TD, WS,

Comparison of fish community samples (2005-2017) to the Deerfield Target Fish Community (TFC) Model. (MassDFG 2018, MassDEP Undated 2, Kashiwagi and Richards 2009)

Eleven fish community samples (Sample IDs 5927, 5928, 5929, 5930, 6012, 6013, 6016, 6017, 6019, 6021, 6022) were collected in the Deerfield River (AUs MA33-01, MA33-02, MA33-03) in 2016. The overall percent similarity with the Deerfield Target Fish Community was 66.12% (note that the percent similarity was 60.37% for MA33-01, the 1st coldwater AU, when evaluated alone, and it was 50.83% for MA33-02, the 2nd coldwater AU). Of the 4 most common species (blacknose dace, longnose dace, common shiner, slimy sculpin) in the TFC, all made it to the top 5 positions among the study samples (combined among AUs), although at slightly different ranks (additionally, white sucker came in at #4). This comparison of fish community data with the Deerfield TFC model is an indicator of good water quality in these Deerfield River AUs (MA33-01, MA33-02, MA33-03).

Fish Community Samples in the Deerfield River (AUs MA33-01, MA33-02, MA33-03):



Deerfield TFC Model:

Table A4. Species percent composition for reference rivers used to develop the Deerfield River target fish community model. Species are ordered by mean rank. Non-native, stocked, and out-of-range species were deleted from the ranking and calculation of expected proportion in the target fish model. The ranks were converted to expected proportions (as a percent) using a rank-weighting technique as outlined by Bain and Meixler (2008).

Species	EB Westfield River	Third Branch White River	Tenmile River	Ashuelot River	Ammonoosuc River	Piscataquog River	Total	Rank	Expected Proportion
Blacknose dace	41.3	25.0	14.9	19.8	24.1	22.5	147.6	1	31.8
Longnose dace	18.7	19.9	9.3	12.7	38.5	15.2	114.2	2	15.9
Common shiner	7.8	2.6	13.8	22.3	1.4	15.8	63.7	3	10.6
Slimy sculpin	9.6	33.1	0.0	0.0	6.0	0.0	48.8	4	7.9
Fallfish	0.5	0.0	18.7	26.8	0.0	2.8	48.8	5	6.4
Atlantic salmon	9.7	0	0	2.2	24.1	3.4	39.4		
White sucker	8.2	0.3	15.8	7.9	0.5	2.8	35.5	7	4.5
Smallmouth bass	0.0	0.0	12.2	1.3	0.0	12.0	25.5		
Longnose sucker	0.0	5.6	0.0	0.0	4.8	2.8	13.2	9	3.5
Tessellated darter	0.0	0.1	7.3	3.8	0.2	0.0	11.4	10	3.2
Rainbow trout	0.1	7.5	0.1	0.0	0.0	0.2	7.8		
Creek chub	2.7	1.4	0.6	0.2	0.0	0.0	4.9	12	2.6
Cutlips minnow	0.0	0	4.6	0	0.0	0	4.6		
Brown trout	0.0	3.3	0.1	0.3	0.0	0.4	4.1		
Yellow bullhead	0.0	0.0	0.0	1.0	0.0	3.0	4.0		
Redbreast sunfish	0.0	0.0	0.0	0.0	0.0	2.7	2.7	16	2.0
Pumpkinseed	0.1	0.0	0.6	0.3	0.0	1.4	2.4	17	1.9
Brook trout	0.5	1.2	0.1	0.0	0.6	0.0	2.3	18	1.8
American eel	0	0	0	0.2	0	1.4	1.6	19	1.7
Bluegill	0.2	0	1.3	0	0.0	0	1.5		
Largemouth bass	0.0	0.0	0.0	0.0	0.0	1.4	1.4		
Golden shiner	0.1	0.0	0.3	0.0	0.0	0.5	0.9	22	1.4
Lake chub	0.6	0.0	0.0	0.0	0.0	0.0	0.6		
Spottail shiner	0.0	0.0	0.0	0.0	0.0	0.5	0.5	24	1.3
Brown bullhead	0.0	0	0.0	0.2	0.0	0.2	0.4	25	1.3
Bluntnose minnow	0.0	0	0.4	0	0.0	0	0.4		
Rock bass	0.0	0.0	0.3	0.1	0.0	0.0	0.4		
Chain pickerel	0.0	0.0	0.0	0.1	0.0	0.2	0.3	28	1.1
Yellow perch	0.0	0.0	0.0	0.3	0.0	0.0	0.3	28	1.1

Fish Community Analysis:

Combined analysis of all 3 AUs (MA33-01, MA33-02, MA33-03)

Watershed	Common Name	Values # of Fish	% of catch	Applicable TFC	TFC Difference	% Sim to TFC
Deerfield	American Brook Lamprey		0.00%	-	-	
Deerfield	American Eel	39	0.89%	2.0	1.1	
Deerfield	Atlantic Salmon	2	0.05%	-	0.0	
Deerfield	Banded Killifish		0.00%	-	-	
Deerfield	Banded Sunfish		0.00%	-	-	
Deerfield	Black Crappie		0.00%	-	-	
Deerfield	Blacknose Dace	1056	24.05%	32.0	8.0	
Deerfield	Bluegill	6	0.14%	-	0.1	
Deerfield	Bluntnose Minnow		0.00%	-	-	
Deerfield	Bridle Shiner		0.00%	-	-	
Deerfield	Brook Trout	6	0.14%	2.0	1.9	
Deerfield	Brown Bullhead		0.00%	1.0	1.0	
Deerfield	Brown Trout	30	0.68%	-	0.7	
Deerfield	Central Mudminnow		0.00%	-	-	
Deerfield	Chain Pickerel		0.00%	1.0	1.0	
Deerfield	Channel Catfish		0.00%	-	-	
Deerfield	Common Carp		0.00%	-	-	
Deerfield	Common Shiner	358	8.15%	11.0	2.8	
Deerfield	Creek Chub	100	2.28%	3.0	0.7	
Deerfield	Creek Chubsucker	9	0.20%	-	0.2	
Deerfield	Cutlips Minnow		0.00%	-	-	
Deerfield	Fallfish	35	0.80%	6.0	5.2	
Deerfield	Fathead Minnow		0.00%	-	-	
Deerfield	Golden Shiner		0.00%	2.0	2.0	
Deerfield	Green Sunfish		0.00%	-	-	
Deerfield	Lake Chub		0.00%	-	-	
Deerfield	Largemouth Bass		0.00%	-	-	
Deerfield	Longnose Dace	828	18.86%	16.0	2.9	
Deerfield	Longnose Sucker	13	0.30%	4.0	3.7	
Deerfield	Northern Pike		0.00%	-	-	
Deerfield	Pumpkinseed		0.00%	2.0	2.0	
Deerfield	Rainbow Trout		0.00%	-	-	
Deerfield	Redbreast Sunfish		0.00%	2.0	2.0	
Deerfield	Redfin Pickerel		0.00%	-	-	
Deerfield	Rock Bass	50	1.14%	-	1.1	
Deerfield	Sea Lamprey	4	0.09%	-	0.1	
Deerfield	Slimy Sculpin	1003	22.84%	8.0	14.8	
Deerfield	Smallmouth Bass	49	1.12%	-	1.1	
Deerfield	Spottail Shiner		0.00%	1.0	1.0	
Deerfield	Swamp Darter		0.00%	-	-	
Deerfield	Tadpole Madtom		0.00%	-	-	
Deerfield	Tesselated Darter	196	4.46%	-	4.5	
Deerfield	White Catfish		0.00%	-	-	
Deerfield	White Perch		0.00%	-	-	
Deerfield	White Sucker	599	13.64%	5.0	8.6	
Deerfield	Yellow Bullhead	7	0.16%	-	0.2	
Deerfield	Yellow Perch	1	0.02%	1.0	1.0	
Deerfield	(blank)		0.00%	-	-	66.12
Grand Total		4391	######	-	100.0	

Row Labels
Deerfield
5927
5928
5929
5930
6012
6013
6016
6017
6019
6021
6022
Grand Total

Analysis of MA33-02 stations alone (6021, 6022)

Watershed	Common Name	Values # of Fish	% of catch	Applicable TFC	TFC Difference	% Sim to TFC
Deerfield	American Brook Lamprey		0.00%	-	-	
Deerfield	American Eel		0.00%	2.0	2.0	
Deerfield	Atlantic Salmon		0.00%	-	-	
Deerfield	Banded Killifish		0.00%	-	-	
Deerfield	Banded Sunfish		0.00%	-	-	
Deerfield	Black Crappie		0.00%	-	-	
Deerfield	Blacknose Dace	326	22.50%	32.0	9.5	
Deerfield	Bluegill		0.00%	-	-	
Deerfield	Bluntnose Minnow		0.00%	-	-	
Deerfield	Bridle Shiner		0.00%	-	-	
Deerfield	Brook Trout	1	0.07%	2.0	1.9	
Deerfield	Brown Bullhead		0.00%	1.0	1.0	
Deerfield	Brown Trout	1	0.07%	-	0.1	
Deerfield	Central Mudminnow		0.00%	-	-	
Deerfield	Chain Pickerel		0.00%	1.0	1.0	
Deerfield	Channel Catfish		0.00%	-	-	
Deerfield	Common Carp		0.00%	-	-	
Deerfield	Common Shiner	320	22.08%	11.0	11.1	
Deerfield	Creek Chub	52	3.59%	3.0	0.6	
Deerfield	Creek Chubsucker	9	0.62%	-	0.6	
Deerfield	Cutlips Minnow		0.00%	-	-	
Deerfield	Fallfish	1	0.07%	6.0	5.9	
Deerfield	Fathead Minnow		0.00%	-	-	
Deerfield	Golden Shiner		0.00%	2.0	2.0	
Deerfield	Green Sunfish		0.00%	-	-	
Deerfield	Lake Chub		0.00%	-	-	
Deerfield	Largemouth Bass		0.00%	-	-	
Deerfield	Longnose Dace	97	6.69%	16.0	9.3	
Deerfield	Longnose Sucker		0.00%	4.0	4.0	
Deerfield	Northern Pike		0.00%	-	-	
Deerfield	Pumpkinseed		0.00%	2.0	2.0	
Deerfield	Rainbow Trout		0.00%	-	-	
Deerfield	Redbreast Sunfish		0.00%	2.0	2.0	
Deerfield	Redfin Pickerel		0.00%	-	-	
Deerfield	Rock Bass		0.00%	-	-	
Deerfield	Sea Lamprey		0.00%	-	-	
Deerfield	Slimy Sculpin	29	2.00%	8.0	6.0	
Deerfield	Smallmouth Bass		0.00%	-	-	
Deerfield	Spottail Shiner		0.00%	1.0	1.0	
Deerfield	Swamp Darter		0.00%	-	-	
Deerfield	Tadpole Madtom		0.00%	-	-	
Deerfield	Tesselated Darter	71	4.90%	-	4.9	
Deerfield	White Catfish		0.00%	-	-	
Deerfield	White Perch		0.00%	-	-	
Deerfield	White Sucker	542	37.41%	5.0	32.4	
Deerfield	Yellow Bullhead		0.00%	-	-	
Deerfield	Yellow Perch		0.00%	1.0	1.0	
Deerfield	(blank)		0.00%	-	-	50.83
Grand Total		1449	#####	-	100.0	

Row Labels
Deerfield
5927
5928
5929
5930
6012
6013
6016
6017
6019
6021
6022
Grand Total

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent fish toxics sampling has been conducted in this Deerfield River AU (MA33-02), 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 Deerfield River AU (MA33-02), so it is Not Assessed.

Primary Contact Recreation

2022 Use Attainment	**Alert**
Fully Supporting	NO
2022 Use Attainment Summary	
Connecticut River Conservancy volunteers collected E. coli bacteria samples at four locations along this Deerfield River AU (MA33-02) during the summers of 2019 and/or 2020 from up to downstream as follows: Shunpike Rest Area, Route 2 (CRC_MA-DFR_28.9), Zoar Ramp, Route 2 (CRC_MA-DFR_27.6), Near Academy at Charlemont (CRC_MA-DFR_24.0), and above confluence with North River (CRC_MA-DFR_18.9). None of the limited frequency single or multi-year data sets had any GM intervals above 126 cfu/100mls, nor did any sample exceed the STV of 410 cfu/100mls. The seasonal GMs ranged from 29 to 63cfu/100mls. The Primary Contact Recreational Use for this Deerfield River AU (MA33-02) is assessed as Fully Supporting based on the low *E. coli* bacteria data collected by CRC volunteers during the summers of 2019 and/or 2020.	

Monitoring Stations

Station Code	**Organization**	**Type**	**Water Body**	**Station Description**	**Latitude**	**Longitude**
CRC_MA-DFR_18.9	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, above confluence with North River, Charlemont	42.627166	-72.737652
CRC_MA-DFR_24.0	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, Near Academy at Charlemont	42.618872	-72.822136
CRC_MA-DFR_27.6	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, Zoar Ramp, Rte 2, Charlemont	42.627224	-72.885597
CRC_MA-DFR_28.9	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, Shunpike Rest Area, Rte 2, Charlemont	42.63574	-72.90638

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (30-day Interval Analysis) (CRC 2021) (MassDEP Undated 4)

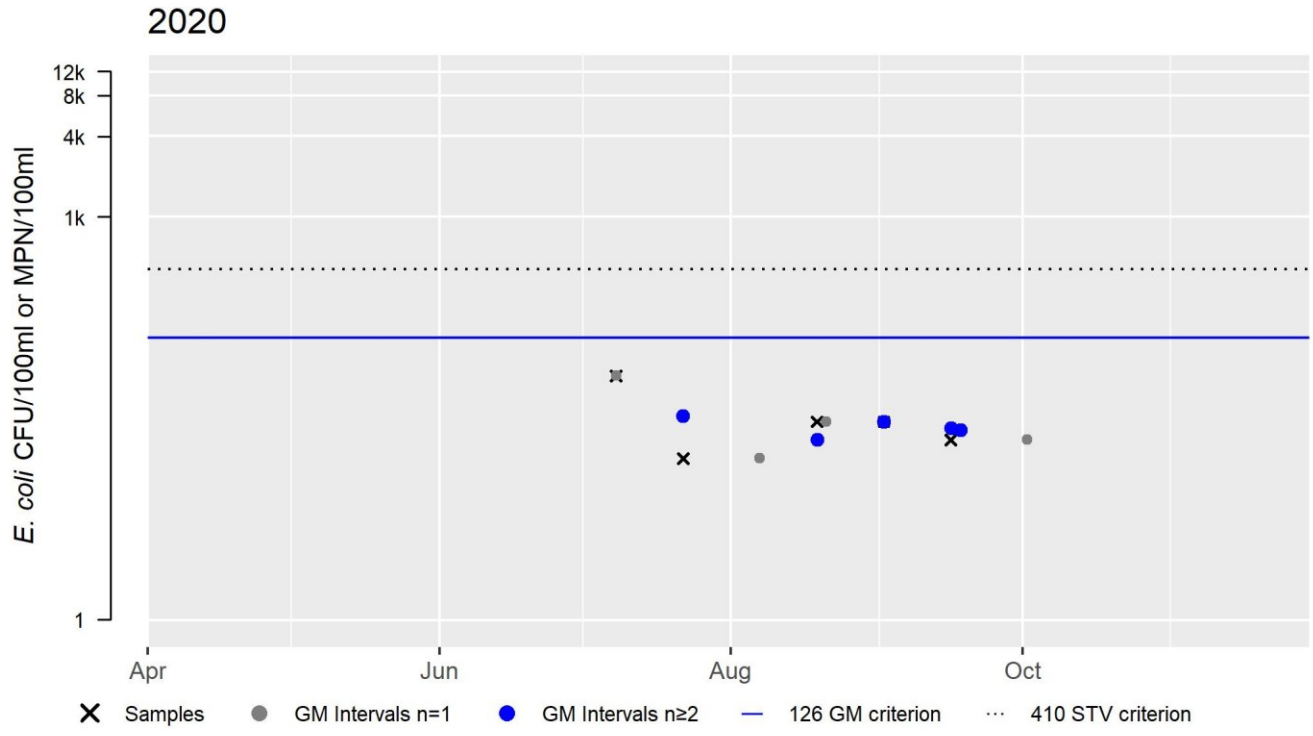
[Result units are CFU/100ml or MPN/100ml]

Station Code	**Organization**	**Indicator**	**Start Date**	**End Date**	**Sample Count**	**Minimum Sample Result**	**Maximum Sample Result**	**Seasonal Geometric Mean**
CRC_MA-DFR_18.9	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	16.1	65.7	29
CRC_MA-DFR_24.0	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	40.4	111.9	63
CRC_MA-DFR_24.0	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	20.3	78.9	39
CRC_MA-DFR_27.6	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	16.1	69.7	35
CRC_MA-DFR_28.9	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	15.5	51.2	29
CRC_MA-DFR_28.9	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	13.4	105.4	39

CRC_MA-DFR_18.9 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	29
#GMI	5
#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



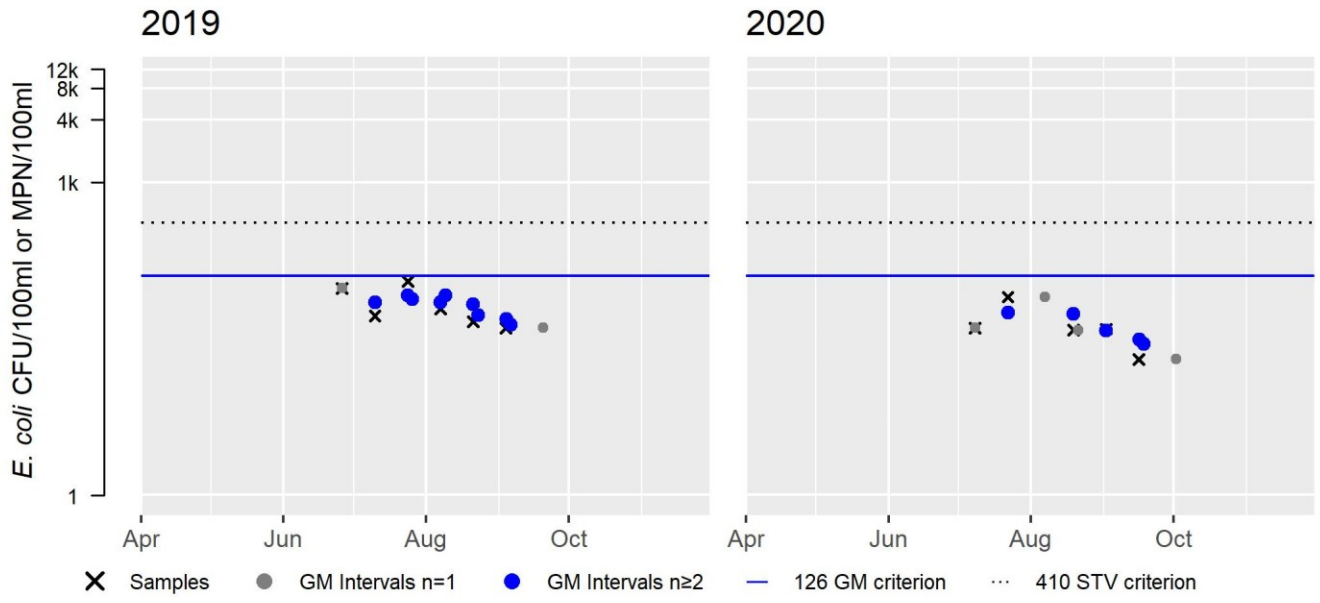
CRC_MA-DFR_24.0 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	63
#GMI	9
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	5
SeasGM	39
#GMI	5
#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

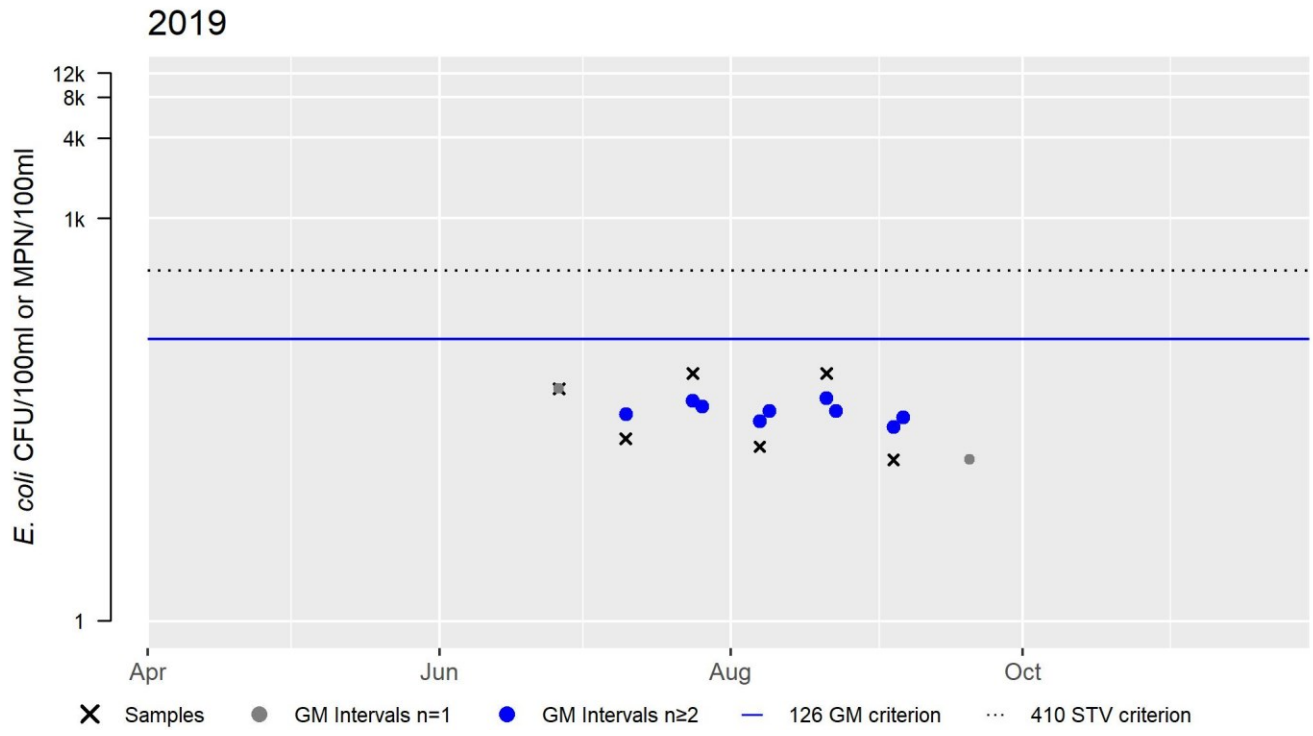
Variable	Cumulative %GMI Ex (all years)
Result	0



CRC_MA-DFR_27.6 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	35
#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



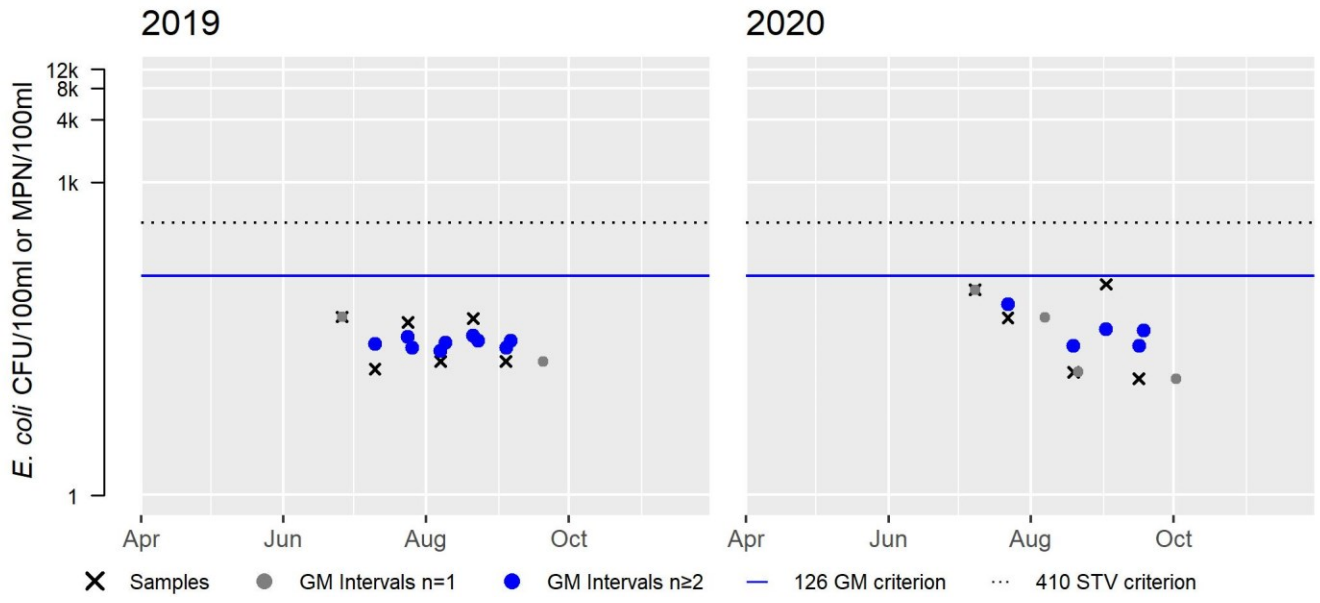
CRC_MA-DFR_28.9 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	29
#GMI	9
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	5
SeasGM	39
#GMI	5
#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	
Connecticut River Conservancy volunteers collected *E. coli* bacteria samples at four locations along this Deerfield River AU (MA33-02) during the summers of 2019 and/or 2020 from up to downstream as follows: Shunpike Rest Area, Route 2 (CRC_MA-DFR_28.9), Zoar Ramp, Route 2 (CRC_MA-DFR_27.6), Near Academy at Charlemont (CRC_MA-DFR_24.0), and above confluence with North River (CRC_MA-DFR_18.9). None of the limited frequency single or multi-year data sets had any GM intervals above 630 cfu/100mls, nor did any sample exceed the STV of 1260 cfu/100mls. The seasonal GMs ranged from 29 to 63cfu/100mls. The Secondary Contact Recreational Use for this Deerfield River AU (MA33-02) is assessed as Fully Supporting based on the low *E. coli* bacteria data collected by CRC volunteers during the summers of 2019 and/or 2020	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-DFR_18.9	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, above confluence with North River, Charlemont	42.627166	-72.737652
CRC_MA-DFR_24.0	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, Near Academy at Charlemont	42.618872	-72.822136
CRC_MA-DFR_27.6	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, Zoar Ramp, Rte 2, Charlemont	42.627224	-72.885597
CRC_MA-DFR_28.9	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, Shunpike Rest Area, Rte 2, Charlemont	42.63574	-72.90638

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4)

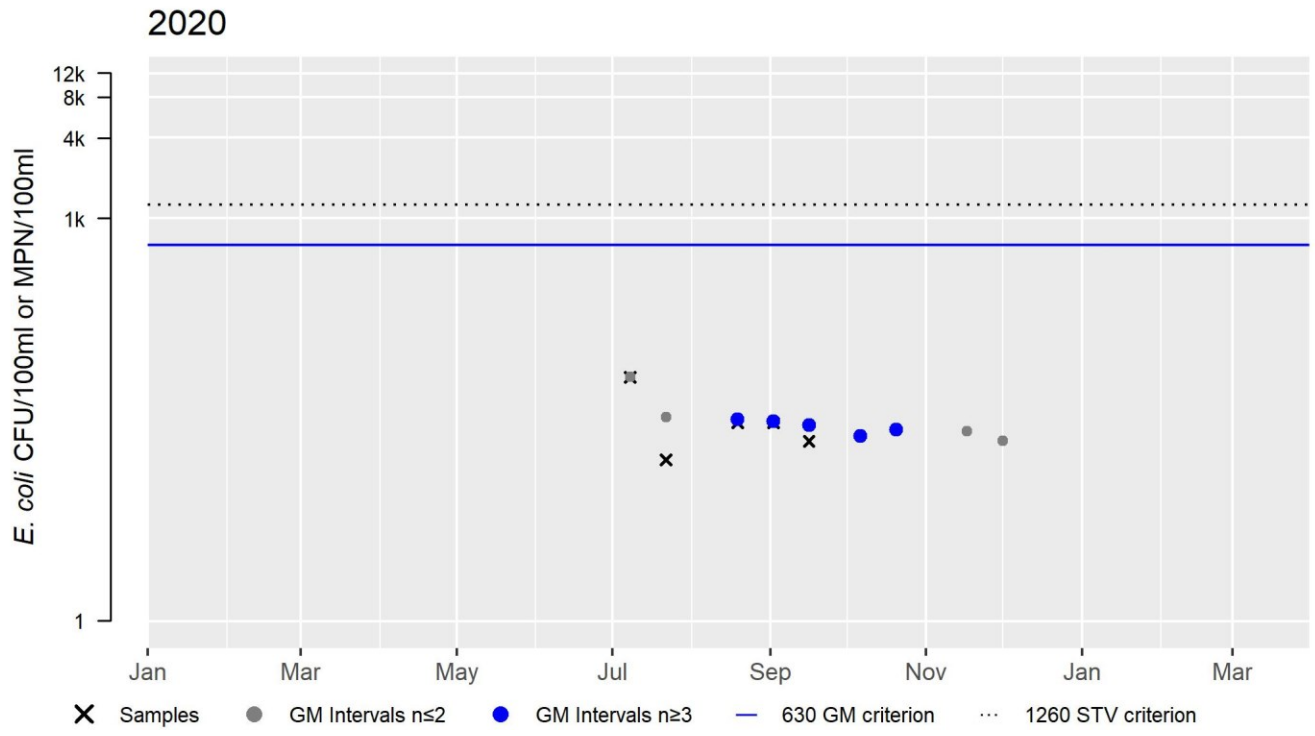
[Result units are CFU/100ml or MPN/100ml]

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)
CRC_MA-DFR_18.9	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	16.1	65.7	29
CRC_MA-DFR_24.0	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	40.4	111.9	63
CRC_MA-DFR_24.0	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	20.3	78.9	39
CRC_MA-DFR_27.6	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	16.1	69.7	35
CRC_MA-DFR_28.9	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	15.5	51.2	29
CRC_MA-DFR_28.9	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	13.4	105.4	39

CRC_MA-DFR_18.9 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	29
#GMI	5
#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



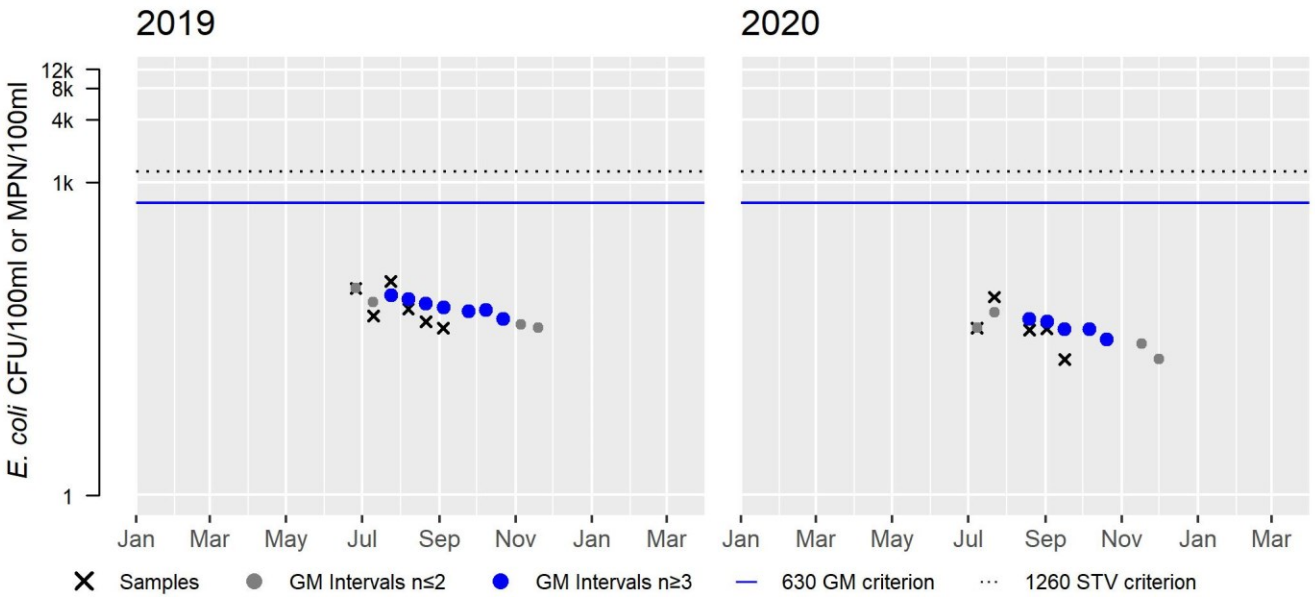
CRC_MA-DFR_24.0 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	63
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	5
SeasGM	39
#GMI	5
#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

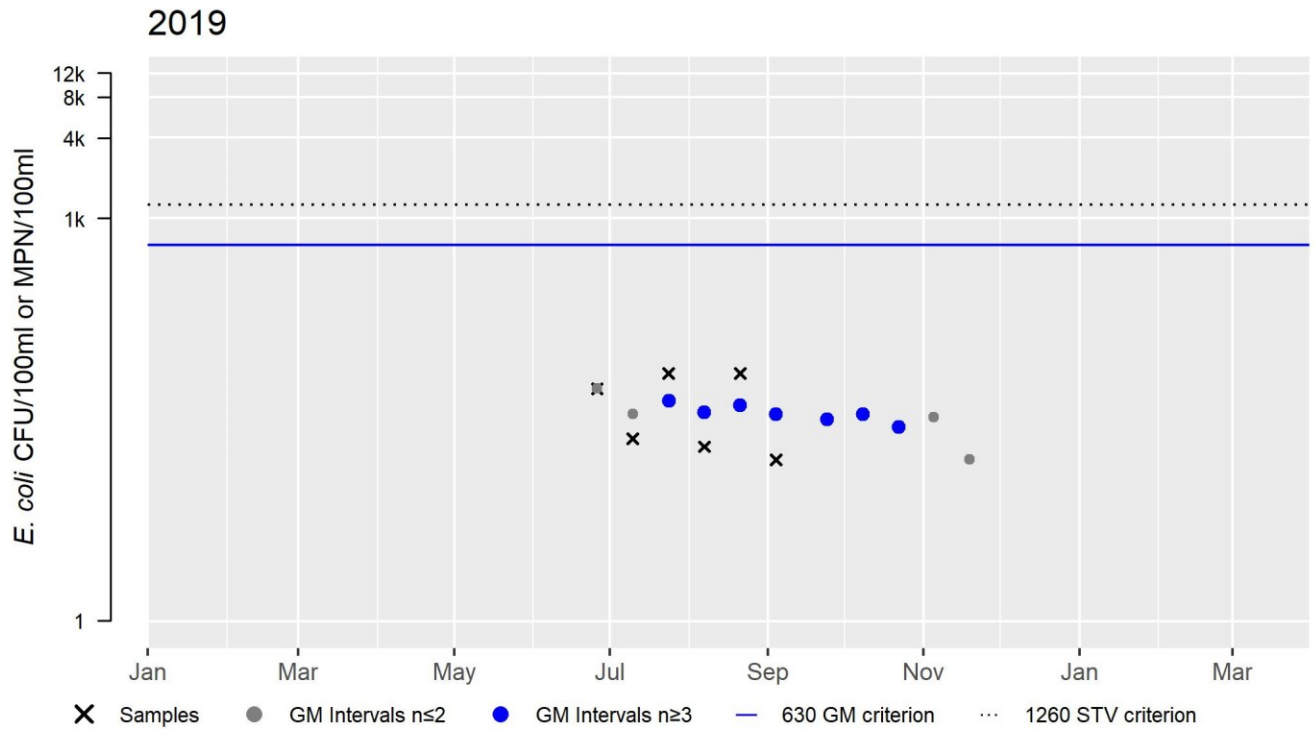
Variable	Cumulative %GMI Ex (all years)
Result	0



CRC_MA-DFR_27.6 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	35
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

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



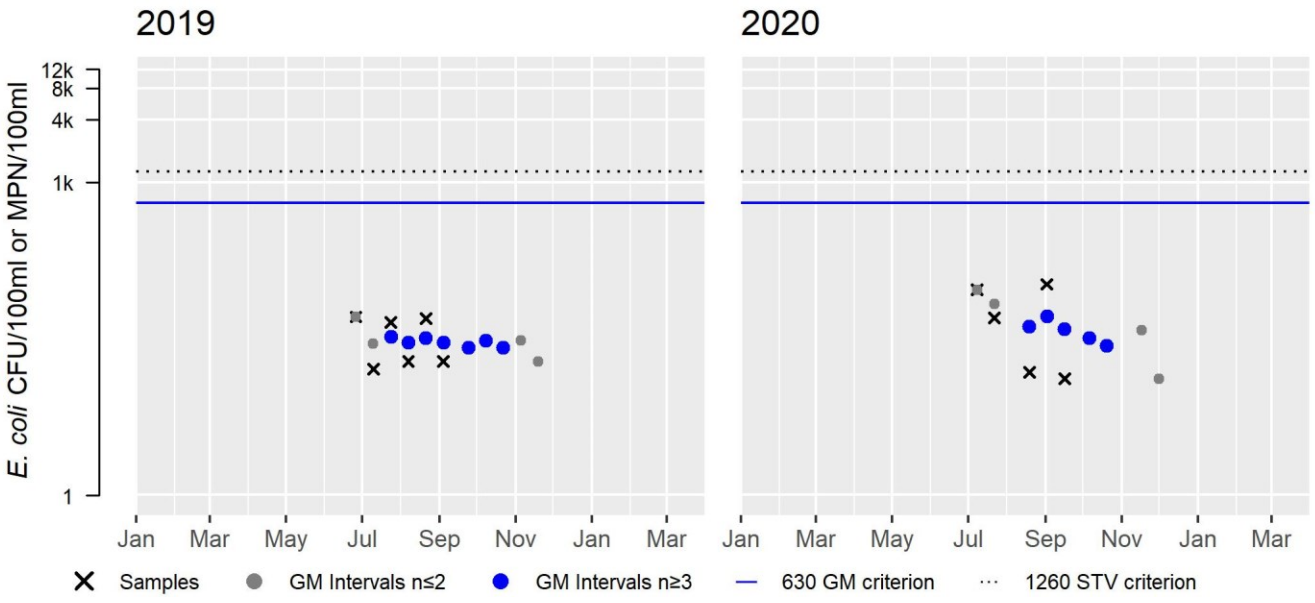
CRC_MA-DFR_28.9 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	29
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	5
SeasGM	39
#GMI	5
#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

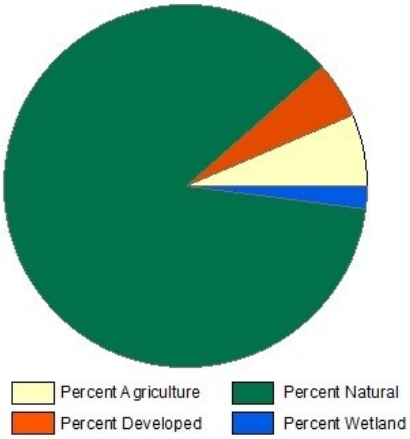


Deerfield River (MA33-03)

Location:	Confluence with North River, Charlemont/Shelburne to confluence with Green River, Greenfield.
AU Type:	RIVER
AU Size:	16.9 MILES
Classification/Qualifier:	B: WWF

Deerfield River - MA33-03

Watershed Area: 516.92 sq Miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	343.59	18.68	89.24	4.9
Agriculture	6.4%	11.3%	6.6%	14.7%
Developed	5.1%	22.4%	6.5%	15%
Natural	86.5%	61.4%	82.5%	57.3%
Wetland	2%	4.9%	4.4%	13.1%
Impervious Cover	2.2%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	2	Escherichia Coli (E. Coli)		Removed

Supporting Information for Removed Impairments

2018/20 Removed Impairment	Removal Reason	Removal Comment
Escherichia Coli (E. Coli)	Applicable WQS attained; based on new data	This Deerfield River AU (MA33-03) was first listed as impaired for E. coli in the 2016 reporting cycle. The impairment decision was based on MassDEP WPP E. coli bacteria sample data collected in the river ~200 feet upstream of the south bound lane of Route 91, Deerfield (Station LD, W0002) five times between 17 May and 21 September 2005 since the geometric mean (GM) of the results was 187 cfu/100ml (exceeded the standard of 126 cfu/100ml). Between July and September 2020, CRC staff/volunteers collected five E. coli bacteria samples at each of two additional sites in this Deerfield River AU: at Stillwater Bridge, Deerfield (CRC_MA-DFR_08.0) and near Deerfield Academy, Deerfield (CRC_MA-DRF_0.5.1). These two sites bracket the location of W0002. E. coli concentrations did not exceed the use attainment impairment thresholds described in the 2022 CALM Guidance Manual for single year, low frequency datasets at either site sampled in 2020: none of the intervals had GMs > 126 cfu/100ml, and no samples exceeded the 410 cfu/100ml statistical threshold value (STV), with overall seasonal GMs of 35 and 40 at sites CRC_MA-DFR_08.0 and CRC_MA-DFR_05.1, respectively. Both precipitation data from the Greenfield Weather Station (USC00190120) and discharge data from the nearby Deerfield River gage in West Deerfield (01170000) indicate generally similar conditions during the two summer survey periods. Based on this analysis and since E. coli collected by CRC staff/volunteers during the summer of 2020 at two sites along this Deerfield River AU did not exceed use attainment impairment thresholds, the E. coli impairment for this Deerfield River AU is being delisted.

Escherichia Coli (E. Coli)

Original data used to make impairment decision.

E. coli was first listed as an impairment for the Primary Contact Recreational Use for this Deerfield River AU in the 2016 reporting cycle based on E. coli data collected by MassDEP staff as part of the 2005 water quality survey in the Deerfield River ~200 feet upstream of the south bound lane of Route 91, Deerfield (Station LD, W0002) between 17 May and 21 September 2005 (n=5) (geo mean=187) MassDEP.

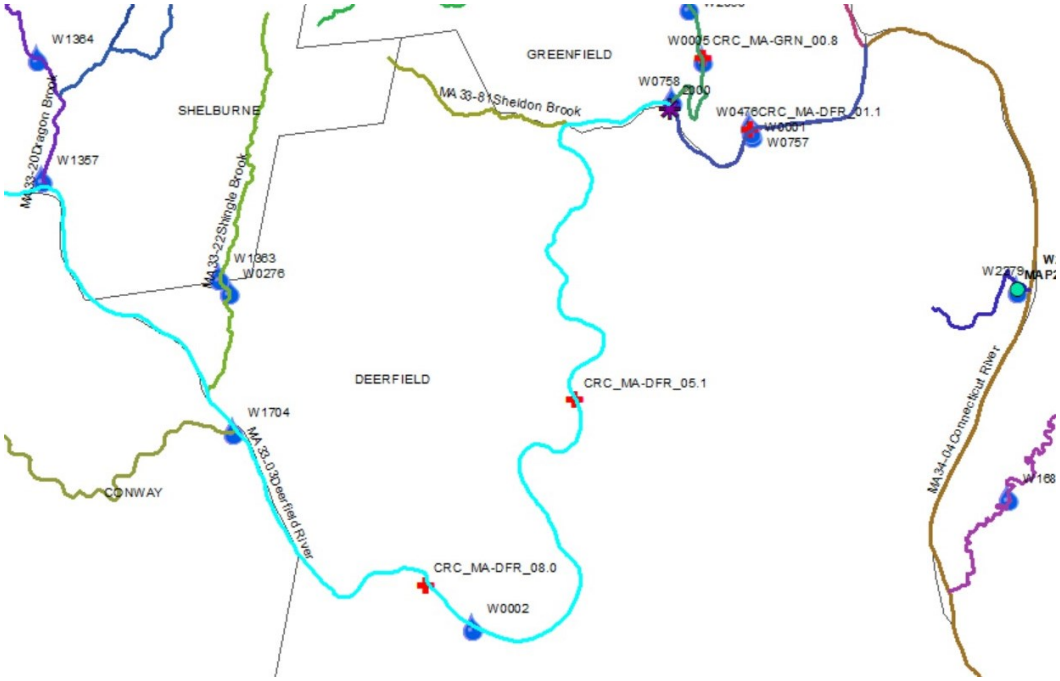
Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W0002	MassDEP	E. coli	05/17/05	09/21/05	5	9	2046	187

New Data Supporting the E. coli delisting:

Connecticut River Conservancy volunteers collected *E. coli* bacteria samples at two locations along this Deerfield River AU (MA33-01) during the summer of 2020 from up to downstream as follows: Stillwater Bridge, Deerfield (CRC_MA-DFR_08.0) and near Deerfield Academy, Deerfield (CRC_MA-DFR_05.1). None of the limited frequency single data sets had any GM intervals above 126 cfu/100mls, nor did any sample exceed the STV of 410 cfu/100mls. The seasonal GMs were 35 and 40cfu/100mls.

The Primary Contact Recreational Use for this Deerfield River AU (MA33-03) is assessed as Fully Supporting based on the low *E. coli* bacteria data collected by CRC volunteers during the summer of 2020.

Spatial locations of sampling stations (CRC sites bracket the MassDEP site):



Discharge data from the nearby Deerfield River gage in West Deerfield (01170000) for both years that data were available seem to generally be similar to the median conditions at the gaging station based on available historical records.

Weather summary from Greenfield Weather Station (USC00190120) indicated precipitation in the region in 2005 and 2020 were similar. October 2005 had high precipitation but was outside sampling season timeframe so did not influence analysis.

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 four sites along this Deerfield River AU (MA33-03) in September 2016 from up to downstream as follows: ~120m upstream from Bardwells Ferry Road bridge, Shelburne Falls (SampleID 5927), Melnik Farm., Deerfield (SampleID 5928), and two sites near the Old Deerfield WWTP (SampleIDs 5929 and 5930). Three of the four samples were dominated by fluvial fishes including intolerant/moderately tolerant species. These and a few additional backpack samples (total of 11 in all including Sample IDs 5927, 5928, 5929, 5930, 6012, 6013, 6016, 6017, 6019, 6021, 6022) were collected by MA DFG biologists in the Deerfield River (AUs MA33-01, MA33-02, MA33-03) in September 2016. The overall percent similarity with the Deerfield Target Fish Community was 66.12% (note that the percent similarity was 31.45% when the data from MA33-03, a designated warmwater fishery AU, were evaluated alone). Of the four most common species (blacknose dace, longnose dace, common shiner, slimy sculpin) in the TFC, all made it to the top five positions among the study samples (combined among AUs), although at slightly different ranks (additionally, white sucker came in at #4). This overall comparison of fish community data with the Deerfield TFC model was an indicator of good water quality in these Deerfield River AUs (MA33-01, MA33-02, MA33-03). While the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it was noted that when the data from this warmwater fishery AU (MA33-03) were compared with the TFC, the percent similarity was low (31%).

The Aquatic Life Use for this Deerfield River AU (MA33-02) will continue to be assessed as Fully Supporting based on the fish community sample data collected in September 2016 documenting the presence fluvial fish including intolerant/moderately tolerant species in this warm water habitat. The Alert for hydromodification and regulated streamflow is being carried forward and a new alert is being identified because of the low percent similarity to the TFC in this AU.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5927	MassDFG	Fish Community	Deerfield River	Upstream ~ 120 m from Bardwells ferry Rd bridge., Shelburne Falls	42.55687	-72.67930
5928	MassDFG	Fish Community	Deerfield River	Melnik Farm., Deerfield	42.52352	-72.61524
5929	MassDFG	Fish Community	Deerfield River	Site 2 WWTP, pool-run braid along river left., Deerfield	42.55133	-72.61250
5930	MassDFG	Fish Community	Deerfield River	Behind WWTP, Deerfield	42.55133	-72.61250

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; Trout= any combination of brook trout, brown trout, rainbow trout, tiger trout; Other Tier2 Species= any size and any combination of American brook lamprey, Atlantic salmon, lake chub, lake trout, longnose sucker, slimy sculpin]

[Species List: AE = American Eel, AS = Atlantic Salmon, BND = Blacknose Dace, CS = Common Shiner, F = Fallfish, LND = Longnose Dace, SC = Slimy Sculpin, SMB = Smallmouth Bass, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	Trout ≤140mm Ind	LLS<200mm Ind	Other Tier2 Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5927	09/13/16	BP	TP	10	66	0	0	2	3%	58%	No	Yes	AE, AS, BND, CS, F, LND, SC, SMB, TD, WS,

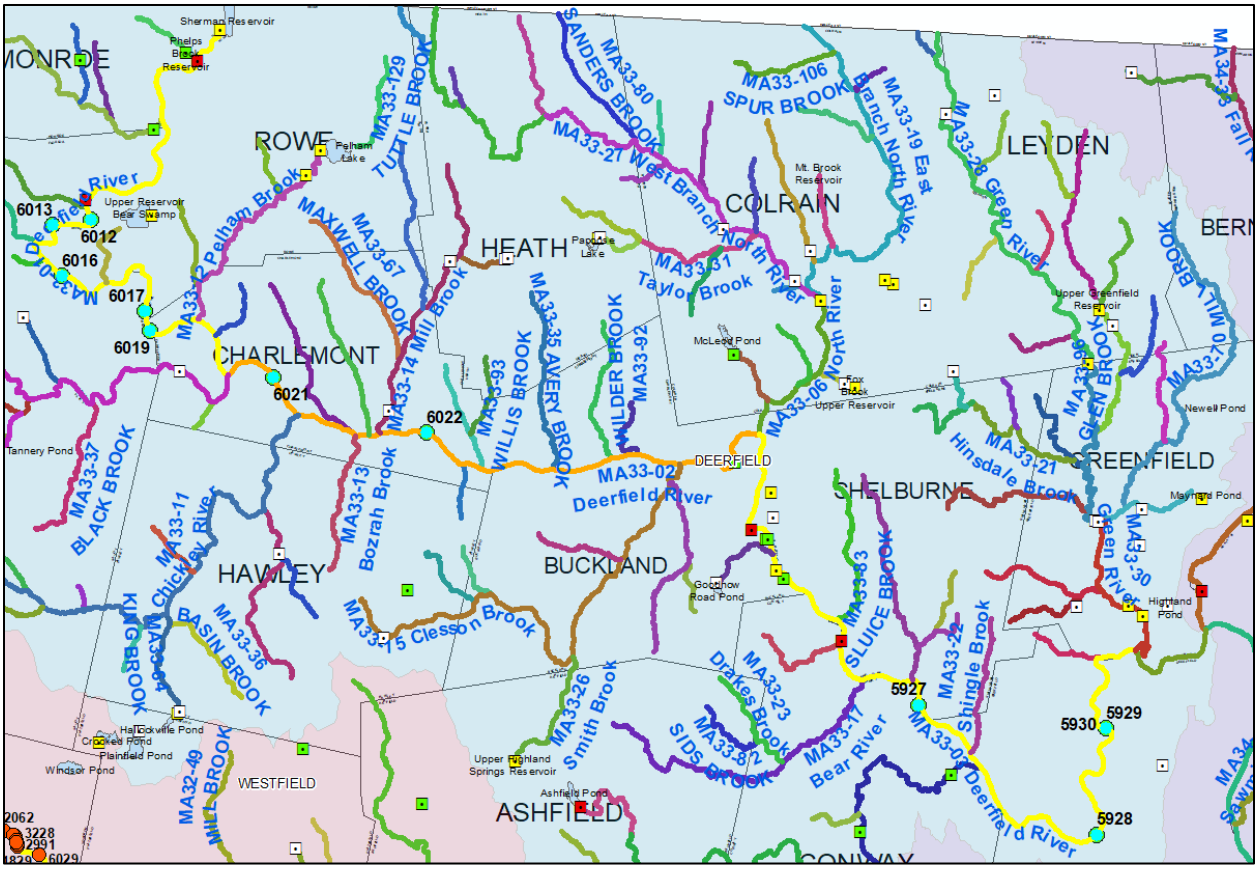
Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3)
[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net, Gradient: 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, LND = Longnose Dace, RB = Rock Bass, SL = Sea Lamprey, SMB = Smallmouth Bass, TD = Tesselated 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
5928	09/13/16	BP	TP		10	105	0%	5	70%	0%	2	25%	No	Yes	AE, BND, F, LND, RB, SL, SMB, TD, WS, YB,
5929	09/23/16	BP	TP		8	44	0%	3	34%	0%	2	50%	Yes	Yes	AE, B, F, LND, RB, SL, SMB, WS,
5930	09/23/16	BP	TP	L	11	346	0%	5	81%	0%	2	10%	No	Yes	AE, B, CS, F, LND, RB, SL, SMB, TD, WS, YB,

Comparison of fish community samples (2005-2017) to the Deerfield Target Fish Community (TFC) Model. (MassDFG 2018, MassDEP Undated 2, Kashiwagi and Richards 2009)

Eleven fish community samples (Sample IDs 5927, 5928, 5929, 5930, 6012, 6013, 6016, 6017, 6019, 6021, 6022) were collected in the Deerfield River (AUs MA33-01, MA33-02, MA33-03) in 2016. The overall percent similarity with the Deerfield Target Fish Community was 66.12% (note that the percent similarity was 31.45% when the data from MA33-03, a designated warmwater fishery AU, were evaluated alone). Of the 4 most common species (blacknose dace, longnose dace, common shiner, slimy sculpin) in the TFC, all made it to the top 5 positions among the study samples (combined among AUs), although at slightly different ranks (additionally, white sucker came in at #4). This overall comparison of fish community data with the Deerfield TFC model was an indicator of good water quality in these Deerfield River AUs (MA33-01, MA33-02, MA33-03). While the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it was noted that when the data from the downstream warmwater fishery AU (MA33-03) were compared with the TFC, the percent similarity was low (31%); therefore, an Alert is being identified for MA33-03.

Fish Community Samples in the Deerfield River (AUs MA33-01, MA33-02, MA33-03):



Deerfield TFC Model:

Table A4. Species percent composition for reference rivers used to develop the Deerfield River target fish community model. Species are ordered by mean rank. Non-native, stocked, and out-of-range species were deleted from the ranking and calculation of expected proportion in the target fish model. The ranks were converted to expected proportions (as a percent) using a rank-weighting technique as outlined by Bain and Meixler (2008).

Species	EB Westfield River	Third Branch White River	Tenmile River	Ashuelot River	Ammonoosuc River	Piscataquog River	Total	Rank	Expected Proportion
Blacknose dace	41.3	25.0	14.9	19.8	24.1	22.5	147.6	1	31.8
Longnose dace	18.7	19.9	9.3	12.7	38.5	15.2	114.2	2	15.9
Common shiner	7.8	2.6	13.8	22.3	1.4	15.8	63.7	3	10.6
Slimy sculpin	9.6	33.1	0.0	0.0	6.0	0.0	48.8	4	7.9
Fallfish	0.5	0.0	18.7	26.8	0.0	2.8	48.8	5	6.4
Atlantic salmon	9.7	0	0	2.2	24.1	3.4	39.4		
White sucker	8.2	0.3	15.8	7.9	0.5	2.8	35.5	7	4.5
Smallmouth bass	0.0	0.0	12.2	1.3	0.0	12.0	25.5		
Longnose sucker	0.0	5.6	0.0	0.0	4.8	2.8	13.2	9	3.5
Tessellated darter	0.0	0.1	7.3	3.8	0.2	0.0	11.4	10	3.2
Rainbow trout	0.1	7.5	0.1	0.0	0.0	0.2	7.8		
Creek chub	2.7	1.4	0.6	0.2	0.0	0.0	4.9	12	2.6
Cutlips minnow	0.0	0	4.6	0	0.0	0	4.6		
Brown trout	0.0	3.3	0.1	0.3	0.0	0.4	4.1		
Yellow bullhead	0.0	0.0	0.0	1.0	0.0	3.0	4.0		
Redbreast sunfish	0.0	0.0	0.0	0.0	0.0	2.7	2.7	16	2.0
Pumpkinseed	0.1	0.0	0.6	0.3	0.0	1.4	2.4	17	1.9
Brook trout	0.5	1.2	0.1	0.0	0.6	0.0	2.3	18	1.8
American eel	0	0	0	0.2	0	1.4	1.6	19	1.7
Bluegill	0.2	0	1.3	0	0.0	0	1.5		
Largemouth bass	0.0	0.0	0.0	0.0	0.0	1.4	1.4		
Golden shiner	0.1	0.0	0.3	0.0	0.0	0.5	0.9	22	1.4
Lake chub	0.6	0.0	0.0	0.0	0.0	0.0	0.6		
Spottail shiner	0.0	0.0	0.0	0.0	0.0	0.5	0.5	24	1.3
Brown bullhead	0.0	0	0.0	0.2	0.0	0.2	0.4	25	1.3
Bluntnose minnow	0.0	0	0.4	0	0.0	0	0.4		
Rock bass	0.0	0.0	0.3	0.1	0.0	0.0	0.4		
Chain pickerel	0.0	0.0	0.0	0.1	0.0	0.2	0.3	28	1.1
Yellow perch	0.0	0.0	0.0	0.3	0.0	0.0	0.3	28	1.1

Fish Community Analysis:

Combined analysis of all 3 AUs (MA33-01, MA33-02, MA33-03)

Watershed	Common Name	Values # of Fish	% of catch	Applicable TFC	TFC Difference	% Sim to TFC
Deerfield	American Brook Lamprey		0.00%	-	-	
Deerfield	American Eel	39	0.89%	2.0	1.1	
Deerfield	Atlantic Salmon	2	0.05%	-	0.0	
Deerfield	Banded Killifish		0.00%	-	-	
Deerfield	Banded Sunfish		0.00%	-	-	
Deerfield	Black Crappie		0.00%	-	-	
Deerfield	Blacknose Dace	1056	24.05%	32.0	8.0	
Deerfield	Bluegill	6	0.14%	-	0.1	
Deerfield	Bluntnose Minnow		0.00%	-	-	
Deerfield	Bridle Shiner		0.00%	-	-	
Deerfield	Brook Trout	6	0.14%	2.0	1.9	
Deerfield	Brown Bullhead		0.00%	1.0	1.0	
Deerfield	Brown Trout	30	0.68%	-	0.7	
Deerfield	Central Mudminnow		0.00%	-	-	
Deerfield	Chain Pickerel		0.00%	1.0	1.0	
Deerfield	Channel Catfish		0.00%	-	-	
Deerfield	Common Carp		0.00%	-	-	
Deerfield	Common Shiner	358	8.15%	11.0	2.8	
Deerfield	Creek Chub	100	2.28%	3.0	0.7	
Deerfield	Creek Chubsucker	9	0.20%	-	0.2	
Deerfield	Cutlips Minnow		0.00%	-	-	
Deerfield	Fallfish	35	0.80%	6.0	5.2	
Deerfield	Fathead Minnow		0.00%	-	-	
Deerfield	Golden Shiner		0.00%	2.0	2.0	
Deerfield	Green Sunfish		0.00%	-	-	
Deerfield	Lake Chub		0.00%	-	-	
Deerfield	Largemouth Bass		0.00%	-	-	
Deerfield	Longnose Dace	828	18.86%	16.0	2.9	
Deerfield	Longnose Sucker	13	0.30%	4.0	3.7	
Deerfield	Northern Pike		0.00%	-	-	
Deerfield	Pumpkinseed		0.00%	2.0	2.0	
Deerfield	Rainbow Trout		0.00%	-	-	
Deerfield	Redbreast Sunfish		0.00%	2.0	2.0	
Deerfield	Redfin Pickerel		0.00%	-	-	
Deerfield	Rock Bass	50	1.14%	-	1.1	
Deerfield	Sea Lamprey	4	0.09%	-	0.1	
Deerfield	Slimy Sculpin	1003	22.84%	8.0	14.8	
Deerfield	Smallmouth Bass	49	1.12%	-	1.1	
Deerfield	Spottail Shiner		0.00%	1.0	1.0	
Deerfield	Swamp Darter		0.00%	-	-	
Deerfield	Tadpole Madtom		0.00%	-	-	
Deerfield	Tesselated Darter	196	4.46%	-	4.5	
Deerfield	White Catfish		0.00%	-	-	
Deerfield	White Perch		0.00%	-	-	
Deerfield	White Sucker	599	13.64%	5.0	8.6	
Deerfield	Yellow Bullhead	7	0.16%	-	0.2	
Deerfield	Yellow Perch	1	0.02%	1.0	1.0	
Deerfield	(blank)		0.00%	-	-	66.12
Grand Total		4391	######	-	100.0	

Row Labels
Deerfield
5927
5928
5929
5930
6012
6013
6016
6017
6019
6021
6022
Grand Total

Analysis of MA33-03 stations alone (5927, 5928, 5929, 5930)

Watershed	Common Name	Values # of Fish	% of catch	Applicable TFC	TFC Difference	% Sim to TFC
Deerfield	American Brook Lamprey		0.00%	-	-	
Deerfield	American Eel	39	6.95%	2.0	5.0	
Deerfield	Atlantic Salmon	1	0.18%	-	0.2	
Deerfield	Banded Killifish		0.00%	-	-	
Deerfield	Banded Sunfish		0.00%	-	-	
Deerfield	Black Crappie		0.00%	-	-	
Deerfield	Blacknose Dace	4	0.71%	32.0	31.3	
Deerfield	Bluegill	6	1.07%	-	1.1	
Deerfield	Bluntnose Minnow		0.00%	-	-	
Deerfield	Bridle Shiner		0.00%	-	-	
Deerfield	Brook Trout		0.00%	2.0	2.0	
Deerfield	Brown Bullhead		0.00%	1.0	1.0	
Deerfield	Brown Trout		0.00%	-	-	
Deerfield	Central Mudminnow		0.00%	-	-	
Deerfield	Chain Pickerel		0.00%	1.0	1.0	
Deerfield	Channel Catfish		0.00%	-	-	
Deerfield	Common Carp		0.00%	-	-	
Deerfield	Common Shiner	7	1.25%	11.0	9.8	
Deerfield	Creek Chub		0.00%	3.0	3.0	
Deerfield	Creek Chubsucker		0.00%	-	-	
Deerfield	Cutlips Minnow		0.00%	-	-	
Deerfield	Fallfish	34	6.06%	6.0	0.1	
Deerfield	Fathead Minnow		0.00%	-	-	
Deerfield	Golden Shiner		0.00%	2.0	2.0	
Deerfield	Green Sunfish		0.00%	-	-	
Deerfield	Lake Chub		0.00%	-	-	
Deerfield	Largemouth Bass		0.00%	-	-	
Deerfield	Longnose Dace	213	37.97%	16.0	22.0	
Deerfield	Longnose Sucker		0.00%	4.0	4.0	
Deerfield	Northern Pike		0.00%	-	-	
Deerfield	Pumpkinseed		0.00%	2.0	2.0	
Deerfield	Rainbow Trout		0.00%	-	-	
Deerfield	Redbreast Sunfish		0.00%	2.0	2.0	
Deerfield	Redfin Pickerel		0.00%	-	-	
Deerfield	Rock Bass	50	8.91%	-	8.9	
Deerfield	Sea Lamprey	4	0.71%	-	0.7	
Deerfield	Slimy Sculpin	1	0.18%	8.0	7.8	
Deerfield	Smallmouth Bass	49	8.73%	-	8.7	
Deerfield	Spottail Shiner		0.00%	1.0	1.0	
Deerfield	Swamp Darter		0.00%	-	-	
Deerfield	Tadpole Madtom		0.00%	-	-	
Deerfield	Tesselated Darter	119	21.21%	-	21.2	
Deerfield	White Catfish		0.00%	-	-	
Deerfield	White Perch		0.00%	-	-	
Deerfield	White Sucker	27	4.81%	5.0	0.2	
Deerfield	Yellow Bullhead	7	1.25%	-	1.2	
Deerfield	Yellow Perch		0.00%	1.0	1.0	
Deerfield	(blank)		0.00%	-	-	31.45
Grand Total		561	######	-	100.0	

Row Labels
Deerfield
5927
5928
5929
5930
6012
6013
6016
6017
6019
6021
6022
Grand Total

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent fish toxics sampling has been conducted in this Deerfield River AU (MA33-03), and since no site-specific advisory has been issued 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 this Deerfield River AU (MA33-03), so it is Not Assessed. The former Alert due to historical observations of intermittent turbidity is also being carried forward.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary
Connecticut River Conservancy volunteers collected *E. coli* bacteria samples at two locations along this Deerfield River AU (MA33-01) during the summer of 2020 from up to downstream as follows: Stillwater Bridge, Deerfield (CRC_MA-DFR_08.0) and near Deerfield Academy, Deerfield (CRC_MA-DFR_05.1). None of the limited frequency single data sets had any GM intervals above 126 cfu/100mls, nor did any sample exceed the STV of 410 cfu/100mls. The seasonal GMs were 35 and 40cfu/100mls. The Primary Contact Recreational Use for this Deerfield River AU (MA33-03) is assessed as Fully Supporting based on the low *E. coli* bacteria data collected by CRC volunteers during the summer of 2020.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-DFR_05.1	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, Near Deerfield Academy, Deerfield	42.544224	-72.614002
CRC_MA-DFR_08.0	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, Stillwater Bridge, Deerfield	42.526715	-72.632576

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (30-day Interval Analysis) (CRC 2021) (MassDEP Undated 4)

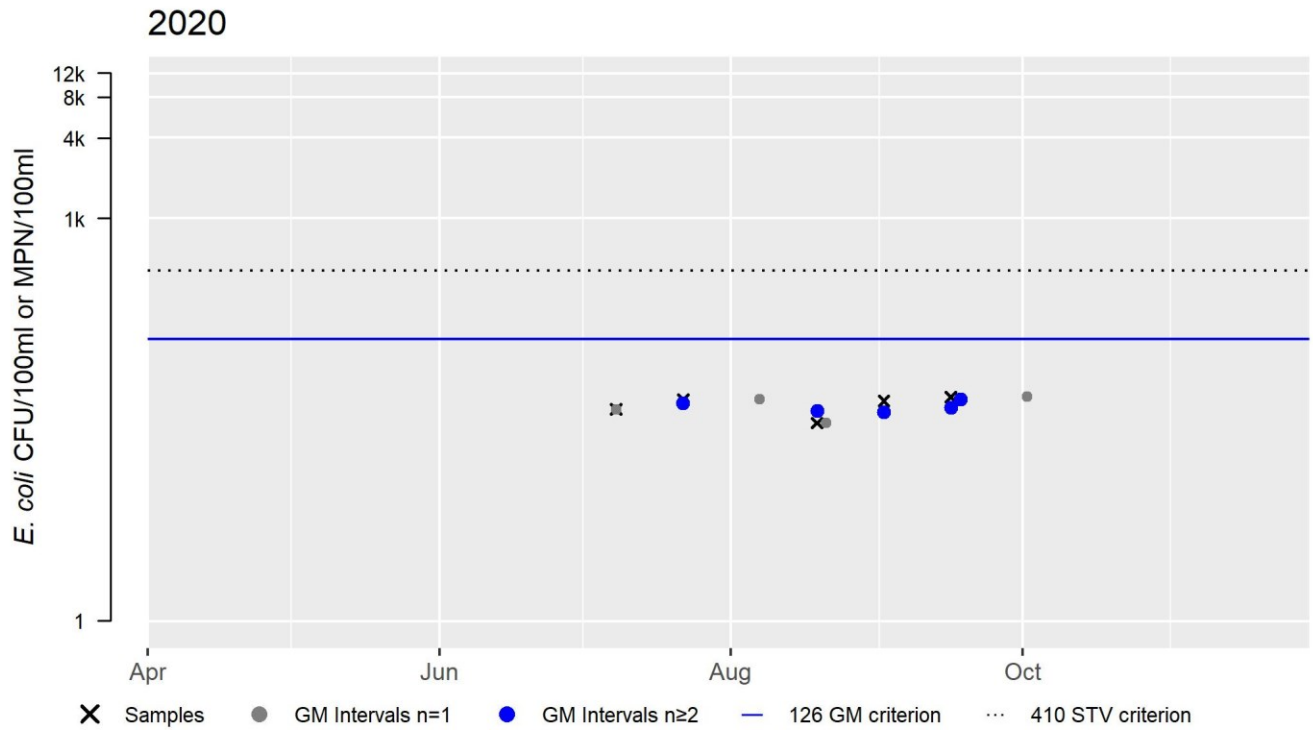
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
CRC_MA-DFR_05.1	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	29.8	47.3	40
CRC_MA-DFR_08.0	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	19.7	95.9	35

CRC_MA-DFR_05.1 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	40
#GMI	5
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

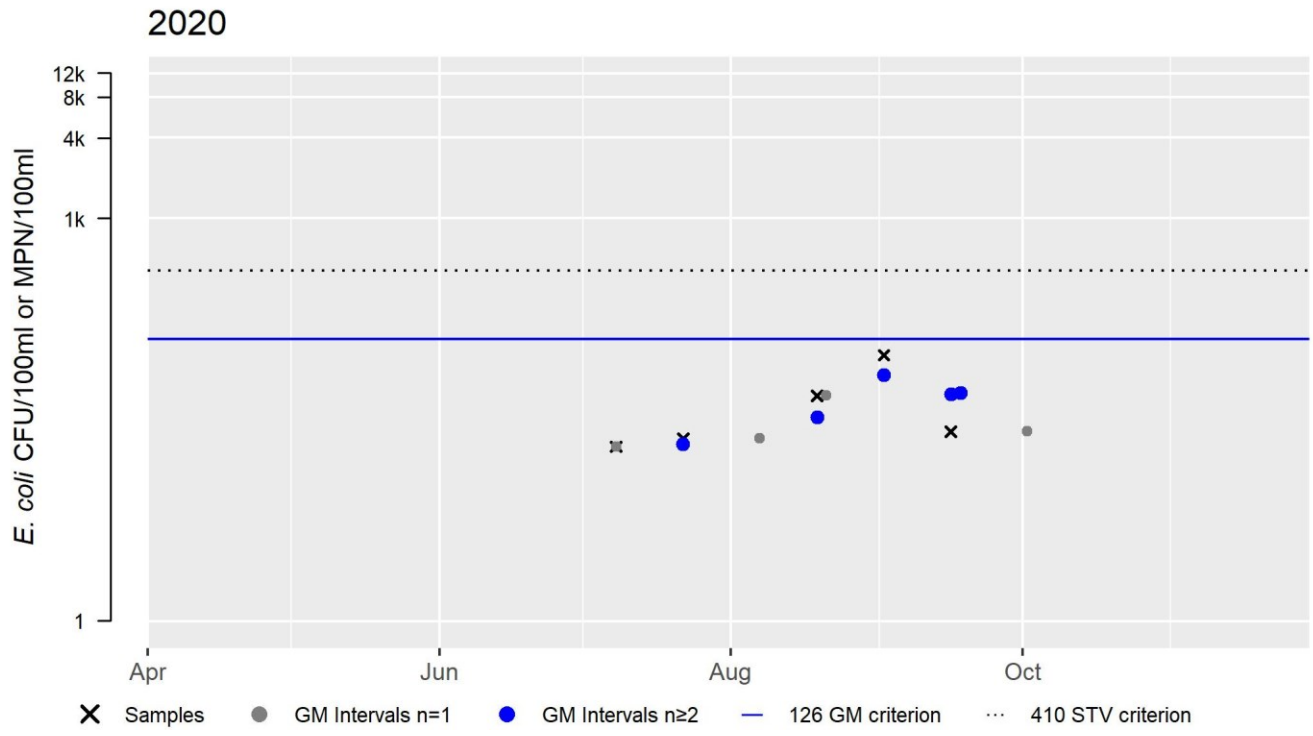
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exeedances; %GMI Ex = percent GMI Exeedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CRC_MA-DFR_08.0 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	35
#GMI	5
#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

Connecticut River Conservancy volunteers collected *E. coli* bacteria samples at two locations along this Deerfield River AU (MA33-01) during the summer of 2020 from up to downstream as follows: Stillwater Bridge, Deerfield (CRC_MA-DFR_08.0) and near Deerfield Academy, Deerfield (CRC_MA-DFR_05.1). None of the limited frequency single data sets had any GM intervals above 630 cfu/100mls, nor did any sample exceed the STV of 1260 cfu/100mls. The seasonal GMs were 35 and 40cfu/100mls.

The Secondary Contact Recreational Use for this Deerfield River AU (MA33-03) is assessed as Fully Supporting based on the low *E. coli* bacteria data collected by CRC volunteers during the summer of 2020

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-DFR_05.1	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, Near Deerfield Academy, Deerfield	42.544224	-72.614002
CRC_MA-DFR_08.0	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, Stillwater Bridge, Deerfield	42.526715	-72.632576

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4)

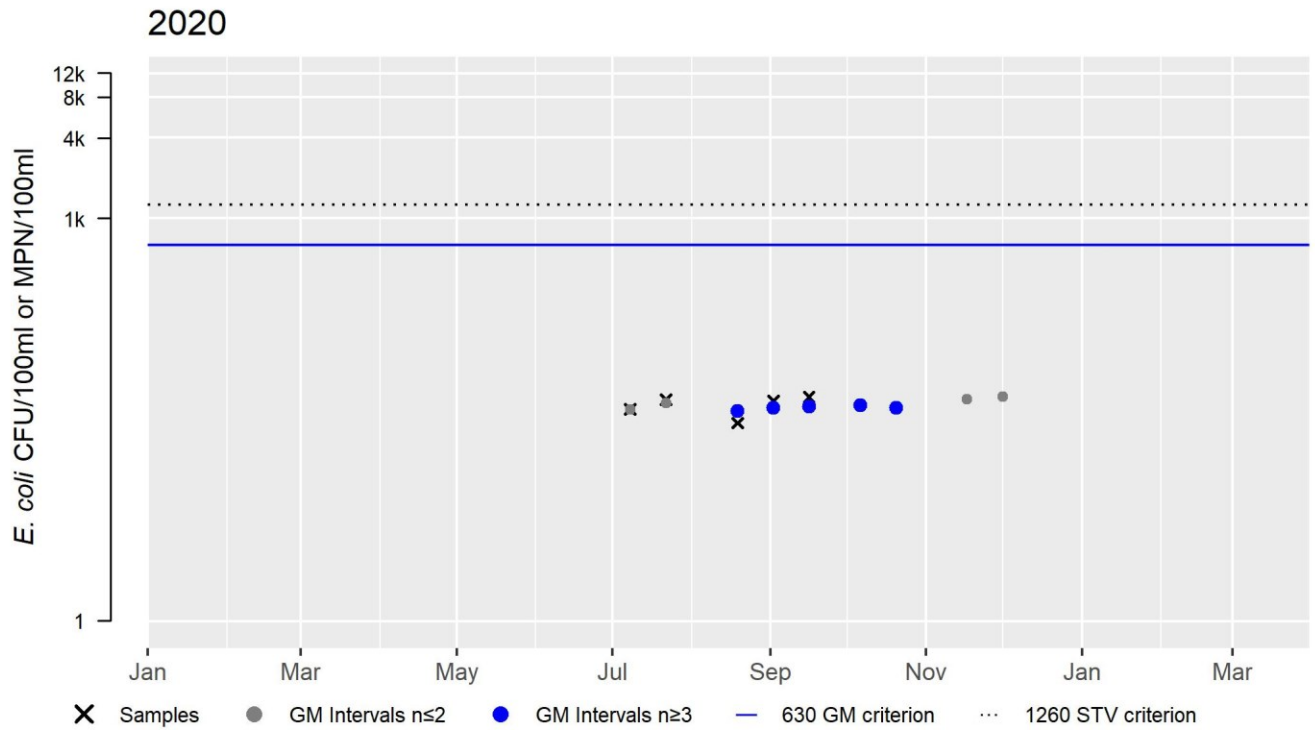
[Result units are CFU/100ml or MPN/100ml]

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)
CRC_MA-DFR_05.1	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	29.8	47.3	40
CRC_MA-DFR_08.0	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	19.7	95.9	35

CRC_MA-DFR_05.1 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	40
#GMI	5
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

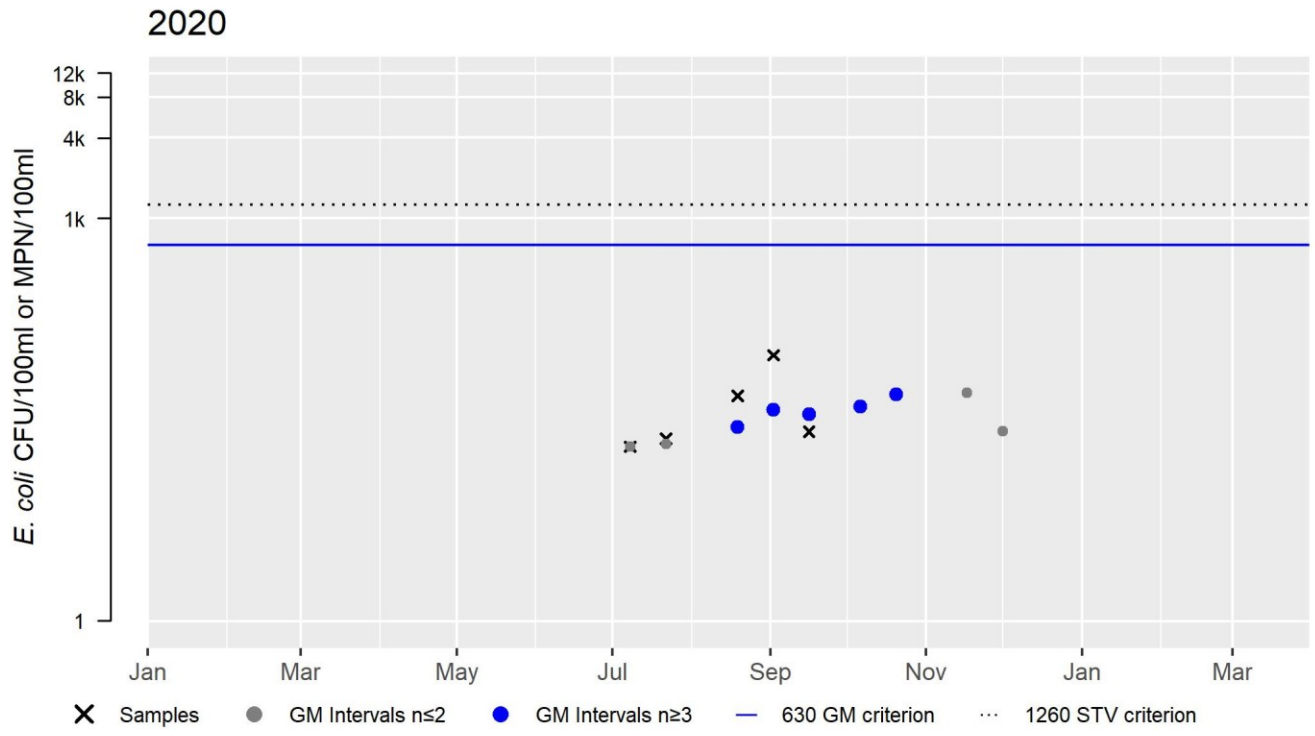
Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI Exeedances; %GMI Ex = percent GMI Exeedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



CRC_MA-DFR_08.0 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	35
#GMI	5
#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

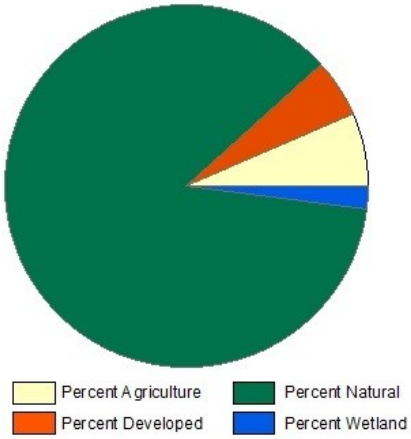


Deerfield River (MA33-04)

Location:	Confluence with Green River, Greenfield to confluence with Connecticut River, Greenfield/Deerfield.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B: WWF

Deerfield River MA33-04

Watershed Area: 663.33 sq miles (includes area outside Massachusetts)



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	346.3	14.27	90.26	4.29
Agriculture	6.5%	10.2%	6.6%	11.7%
Developed	5.2%	31.4%	6.5%	19%
Natural	86.3%	52.6%	82.3%	55.3%
Wetland	2%	5.8%	4.6%	14%
Impervious Cover	2.2%			

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	

Recommendations

2022 Recommendations
REC: Conduct additional *E. coli* bacteria sampling in this Deerfield River AU (MA33-04) at the Route 5&10 Bridge, Greenfield to evaluate if the *E. coli* impairment could be delisted.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	YES
2022 Use Attainment Summary	
No recent data are available to assess the Aquatic Life Use for this Deerfield River AU (MA33-04) so it is Not Assessed. The Alert for hydromodification and regulated streamflow is being carried forward.	

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent fish toxics sampling has been conducted in this Deerfield River AU (MA33-04), 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 Deerfield River AU (MA33-04), so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Connecticut River Conservancy volunteers collected *E. coli* bacteria samples from the Deerfield River at the Route 5&10 Bridge, Greenfield (CRC_MA-DFR_01.1) between June and September 2019 (n=6) and between July and September 2020 (n=5). Data analysis of this low frequency multi-year dataset indicated only one of two years with GMs that exceeded 20% and only one year with two samples that exceeded the STV of 410cfu/100mls. The seasonal GMs were 2420 and 68cfu/100ml in 2019 and 2020, respectively. Although the *E. coli* concentrations were below the use attainment impairment thresholds for this multi-year low frequency dataset, the Primary Contact Recreational Use for this Deerfield River AU (MA33-04) will continue to be assessed as Not Supporting with the E. coli impairment being carried forward. Since one of the two years of recent *E. coli* data indicated high bacteria concentrations, too limited data are available to delist the *E. coli* impairment.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-DFR_01.1	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, 5&10 Bridge, Greenfield	42.56975	-72.59223

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (30-day Interval Analysis) (CRC 2021) (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
CRC_MA-DFR_01.1	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	96	2419.6	582
CRC_MA-DFR_01.1	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	54.6	105	68

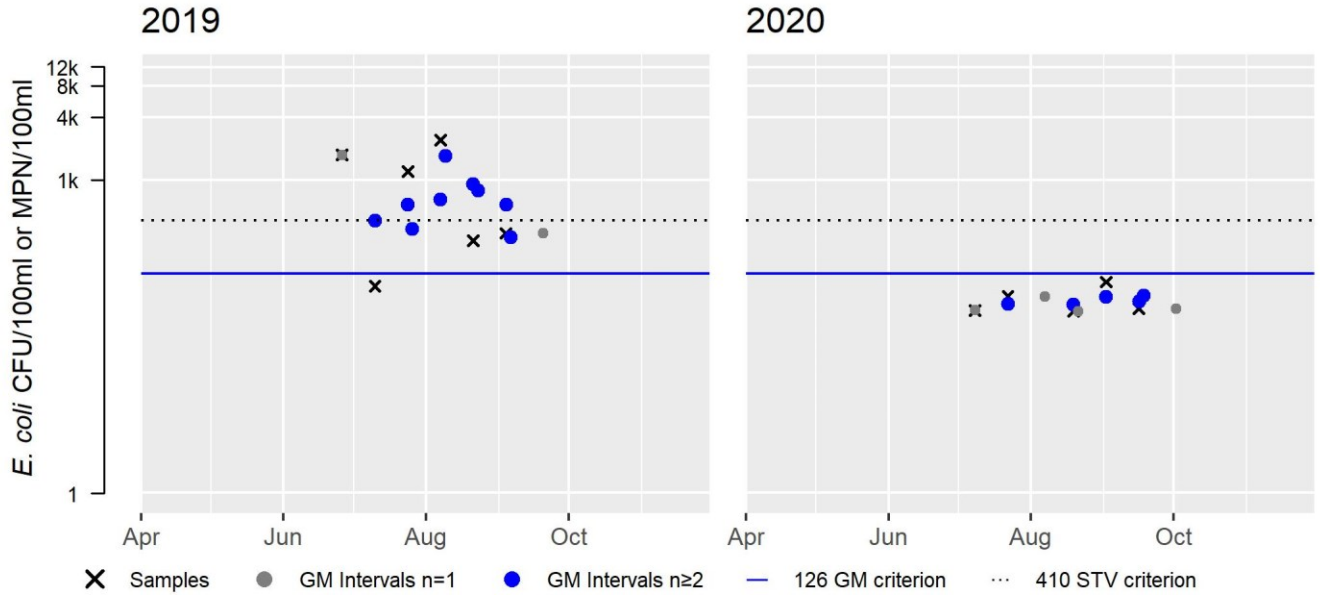
CRC_MA-DFR_01.1 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	582
#GMI	9
#GMI Ex	9
%GMI Ex	100
n>STV	3
%n>STV	50

Var	Res
Samples	5
SeasGM	68
#GMI	5
#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	64



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

2022 Use Attainment	Alert
Connecticut River Conservancy volunteers collected *E. coli* bacteria samples from the Deerfield River at the Route 5&10 Bridge, Greenfield (CRC_MA-DFR_01.1) between June and September 2019 (n=6) and between July and September 2020 (n=5). Data analysis of this low frequency multi-year dataset indicated only one of two years with GMs that exceeded 20% for the 630 cfu/100ml GM threshold and only one year with two samples that exceeded the STV of 1260cfu/100mls. The seasonal GMs were 2420 and 68cfu/100ml in 2019 and 2020, respectively. Since the *E. coli* concentrations were below the use attainment impairment thresholds for this multi-year low frequency dataset, the Secondary Contact Recreational Use for this Deerfield River AU (MA33-04) is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-DFR_01.1	Connecticut River Conservancy	Water Quality	Deerfield River	Deerfield River, 5&10 Bridge, Greenfield	42.56975	-72.59223

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (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)
CRC_MA-DFR_01.1	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	96	2419.6	582
CRC_MA-DFR_01.1	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	54.6	105	68

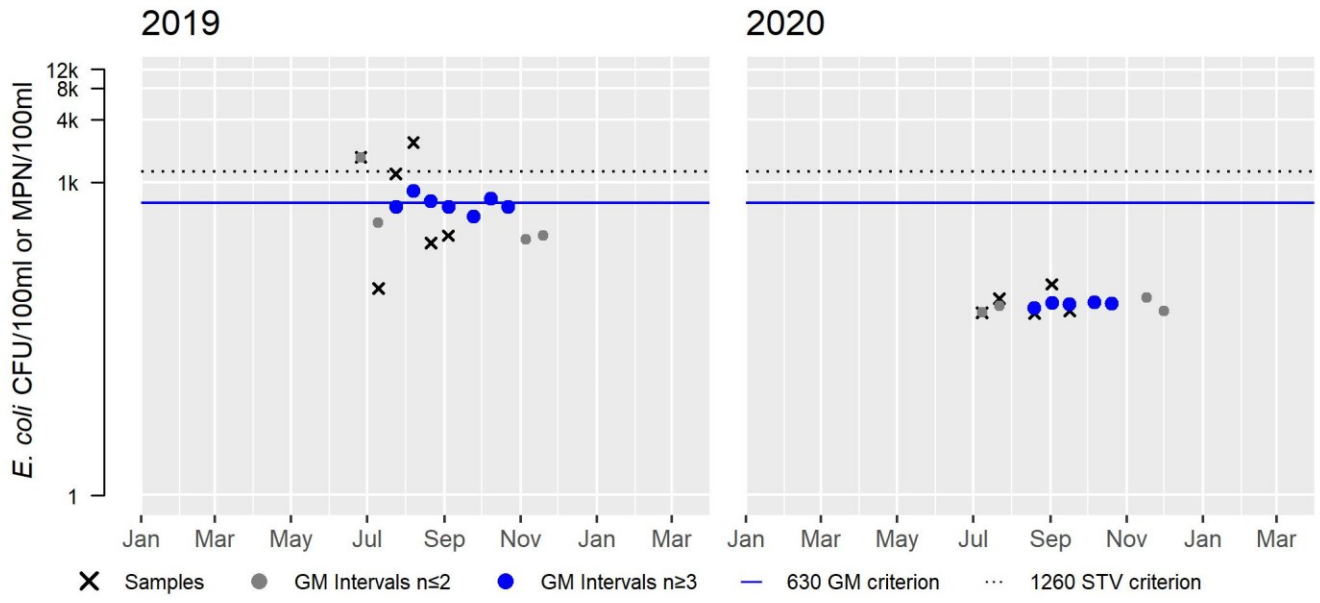
CRC_MA-DFR_01.1 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	582
#GMI	7
#GMI Ex	3
%GMI Ex	43
n>STV	2
%n>STV	33

Var	Res
Samples	5
SeasGM	68
#GMI	5
#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	25



Dickenson Brook (MA33-120)

Location:	Headwaters west of Sumner Stetson Road, Heath to confluence with West Branch Brook, Heath.
AU Type:	RIVER
AU Size:	0.7 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Dickenson Brook (MA33-120) 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

Dragon Brook (MA33-20)

Location:	Headwaters, perennial portion north of Patten Road, Shelburne to confluence with the Deerfield River, Shelburne.
AU Type:	RIVER
AU Size:	4.4 MILES
Classification/Qualifier:	B

No usable data were available for Dragon Brook (MA33-20) 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	Temperature		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Temperature	Agriculture (N)	X				
Temperature	Loss of Riparian Habitat (N)	X				
Temperature	Source Unknown (N)	X				

Drakes Brook (MA33-23)

Location:	Headwaters, (perennial portion) west of North Warger Road, Ashfield to confluence with Bear River, Conway.
AU Type:	RIVER
AU Size:	2.3 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Drakes Brook (MA33-23) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

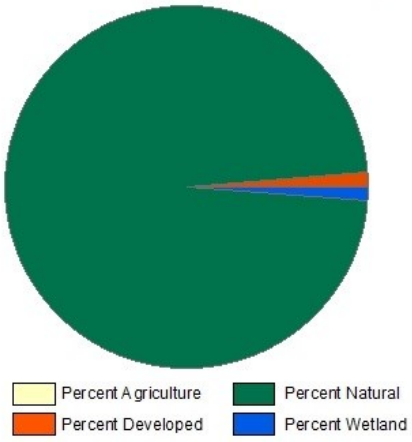
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Dunbar Brook (MA33-48)

Location:	Vermont-Massachusetts stateline, Monroe to confluence with Deerfield River, Monroe.
AU Type:	RIVER
AU Size:	5.6 MILES
Classification/Qualifier:	B: CWF

DUNBAR BROOK - MA33-48

Watershed Area: 11.94 sq miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	9.88	6.37	2.07	1.31
Agriculture	0.3%	0%	0%	0%
Developed	1.3%	1.1%	1.7%	1.9%
Natural	97.2%	97.5%	95.8%	95.6%
Wetland	1.2%	1.4%	2.5%	2.5%
Impervious Cover	0.6%			

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	NO
2022 Use Attainment Summary	

MassDEP biologists sampled Dunbar Brook upstream from the Dunbar Brook Dam in Florida MA during the summers of 2012, 2013, 2014, and 2015 as part of the Reference Site Network monitoring project. Survey results of this Cold Water habitat can be briefly summarized as follows: the benthic community (Station B0820) IBI scores were all indicative of excellent/satisfactory conditions (58 to 94, n=5), multiple age classes of Eastern brook trout were documented (backpack electrofishing in Septembers 2012, 2014, and 2015 [SampleIDs 5043, 6316, and 6393] and October 2013 [SampleID 5099]), and water quality sampling data including both deployed probe and discrete sampling efforts (Station W2286) were indicative of excellent conditions -- minimum dissolved oxygen 8.1mg/L during summers 2013 – 2015, maximum temperature 21.8°C during summers 2012 – 2015 (7DADM exceeded 20°C 5 times only in 2013) with maximum 24 hour rolling average 20.7°C, pH 6.4 to 7.0SU (n=11), no indications of any nutrient enrichment problems (seasonal average total phosphorus concentrations ranged from 0.005 to 0.013mg/L, max diel DO shift 1.5mg/L, maximum saturation 102%, maximum pH 7.0SU), and low concentrations of total ammonia-nitrogen (0.083mg/L) and chloride (maximum 4mg/L) (n=17).
The Aquatic Life Use of Dunbar Brook is assessed as Fully Supporting based on benthic macroinvertebrate, fish population, and water quality monitoring data collected by MassDEP biologists between 2012 and 2015.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5043	MassDEP	Fish Community	Dunbar Brook	W of River Rd, 0.25mi US of Dunbar Brook dam	42.70347	-72.95888
5099	MassDEP	Fish Community	Dunbar Brook	w of River Rd, ~1400 ft US of Dunbar Brk	42.70347	-72.95888
6316	MassDEP	Fish Community	Dunbar Brook	West of River Rd, approx 1400 ft US from the Dunbar Brook Dam (MA00222)., Florida	42.70347	-72.95888
6393	MassDEP	Fish Community	Dunbar Brook	, Florida	42.70347	-72.95888
B0820	MassDEP	Benthic	Dunbar Brook/	[west of River Road, approximately 425 meters upstream from the Dunbar Brook Dam (MA00222), Florida, MA]	42.703472	-72.958880
W2286	MassDEP	Water Quality	Dunbar Brook	[west of River Road, approximately 1400 feet upstream from the Dunbar Brook Dam (MA00222), Florida]	42.703472	-72.958880

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
B0820	04/25/12	RBP kicknet	Western_Highlands_100ct	100	94	E
B0820	07/26/12	RBP kicknet	Western_Highlands_100ct	107	72	S
B0820	08/06/13	RBP kicknet	Western_Highlands_300ct	299	61	S
B0820	08/11/14	RBP kicknet	Western_Highlands_300ct	308	58R	S
B0820	07/30/15	RBP kicknet	Western_Highlands_300ct	301	66	S

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]

[Species List: BT = Brown Trout, EBT = Brook Trout]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5043	09/27/12	BP	TP	2	20	7	73	250	6	0	100%	100%	No	Yes	BT, EBT,
5099	10/02/13	NS	TP	2	50	9	58	190	6	0	100%	100%	No	Yes	BT, EBT,
6316	09/16/14	NS	TP	2	36	5	64	173	3	0	100%	100%	No	Yes	BT, EBT,
6393	09/15/15	BP	TP	2	37	3	65	130	3	0	100%	100%	No	Yes	BT, EBT,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[7DADMin= 7-Day Average of the Daily Minima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2286	05/08/13	08/06/13	91	85	62	8.1	8.3	8.9	1.5	0	0	0	0	0	0	0	0
W2286	05/22/14	09/08/14	106	85	75	9	9.4	9.6	0.9	0	0	0	0	0	0	0	0
W2286	05/20/15	09/09/15	113	107	84	8.8	9	9.2	1	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2286	05/07/13	09/09/13	4	9.1	10	0	0	0
W2286	06/18/14	09/09/14	4	9.4	9.7	0	0	0
W2286	06/16/15	09/10/15	4	9	9.3	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2286	06/01/12	09/15/12	107	107	19.9	20.8	19.6	18.8	0	0	0	0	0	0
W2286	06/01/13	09/08/13	100	97	20.5	21.7	20.4	19.5	5	0	0	0	0	0
W2286	06/01/13	09/08/13	100	97	20.6	21.8	20.4	19.5	5	0	0	0	0	0
W2286	06/01/14	09/08/14	96	78	18.0	19.0	17.7	16.9	0	0	0	0	0	0
W2286	06/01/15	09/09/15	101	98	18.8	19.5	18.9	18.1	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 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
W2286	06/01/12	09/15/12	107	5136	19.9	0	0	0
W2286	06/01/13	09/09/13	101	4826	20.7	0	0	0
W2286	06/01/13	09/09/13	101	4826	20.7	0	0	0
W2286	06/01/15	09/10/15	101	4868	18.9	0	0	0
W2286	06/01/14	09/09/14	101	4819	18.0	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (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
W2286	05/09/12	10/03/12	2	0	12.5	11.4	0	0	0	0
W2286	05/07/13	09/09/13	6	5	18.4	13.7	0	0	0	0
W2286	06/18/14	09/09/14	4	4	15.8	15.3	0	0	0	0
W2286	06/16/15	09/10/15	4	4	18.2	16.6	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (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
W2286	05/07/13	09/09/13	3	6.7	7	0	0
W2286	06/18/14	09/09/14	4	6.6	6.9	0	0
W2286	06/16/15	09/10/15	4	6.4	7	1	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (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
W2286	2012	3	0.008	0.011	0.009	--	--	--	--	4	0
W2286	2013	5	0.005	0.006	0.005	1.5	0.5	101.7	7.0	5	0
W2286	2014	4	0.005	0.037	0.013	0.9	0.4	99.3	6.9	4	0
W2286	2015	4	0.005	0.005	0.005	1.0	0.4	98.2	7.0	4	0

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

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (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
W2286	2012	4	0.020	0.020	0.020	0	0
W2286	2013	5	0.020	0.020	0.020	0	0
W2286	2014	4	0.020	0.020	0.020	0	0
W2286	2015	4	0.040	0.083	0.051	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (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
W2286	2012	4	3	4	4	0	0
W2286	2013	5	3	4	3	0	0
W2286	2014	4	2	3	3	0	0
W2286	2015	4	3	4	4	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (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
W2286	05/07/13	09/09/13	3	27	34	0	0	0	0	0	0
W2286	06/18/14	09/09/14	4	22	33	0	0	0	0	0	0
W2286	06/16/15	09/10/15	4	23	41	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 Dunbar Brook, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP staff surveyed Dunbar Brook west of River Road, ~1400 feet upstream from the Dunbar Brook Dam (MA00222) in Florida (W2286) during the summers of 2012, 2013, 2014, and 2015 as part of the Reference Site Network monitoring project. No objectionable conditions (i.e., odors, deposits, growths, or turbidity) were observed during any of the surveys.
The Aesthetics Use for Dumbar Brook is assessed as Fully Supporting based on the lack of any objectionable conditions documented by MassDEP staff during the summers of 2012, 2013, 2014, and 2015

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2286	MassDEP	Water Quality	Dunbar Brook	[west of River Road, approximately 1400 feet upstream from the Dunbar Brook Dam (MA00222), Florida]	42.703472	-72.958880

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2286	Dunbar Brook	2012	4	MassDEP aesthetics observations for station W2286 on Dunbar 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 2012.
W2286	Dunbar Brook	2013	5	MassDEP aesthetics observations for station W2286 on Dunbar 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 2013.
W2286	Dunbar Brook	2014	4	MassDEP aesthetics observations for station W2286 on Dunbar 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 2014.
W2286	Dunbar Brook	2015	4	MassDEP aesthetics observations for station W2286 on Dunbar 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 2015.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2286	2012	4	4	0
W2286	2013	5	5	0

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2286	2014	4	4	0
W2286	2015	4	4	0

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

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2286	Dunbar Brook	2012	Color	None	4	4
W2286	Dunbar Brook	2012	Objectionable Deposits	No	4	4
W2286	Dunbar Brook	2012	Odor	None	4	4
W2286	Dunbar Brook	2012	Scum	No	4	4
W2286	Dunbar Brook	2012	Turbidity	None	4	4
W2286	Dunbar Brook	2013	Color	None	5	5
W2286	Dunbar Brook	2013	Objectionable Deposits	No	5	5
W2286	Dunbar Brook	2013	Odor	None	5	5
W2286	Dunbar Brook	2013	Scum	No	5	5
W2286	Dunbar Brook	2013	Turbidity	None	5	5
W2286	Dunbar Brook	2014	Color	None	4	4
W2286	Dunbar Brook	2014	Objectionable Deposits	No	4	4
W2286	Dunbar Brook	2014	Odor	None	4	4
W2286	Dunbar Brook	2014	Scum	No	4	4
W2286	Dunbar Brook	2014	Turbidity	None	2	4
W2286	Dunbar Brook	2014	Turbidity	Slightly Turbid	2	4
W2286	Dunbar Brook	2015	Color	Light Yellow/Tan	1	4
W2286	Dunbar Brook	2015	Color	None	3	4
W2286	Dunbar Brook	2015	Objectionable Deposits	No	4	4
W2286	Dunbar Brook	2015	Odor	None	4	4
W2286	Dunbar Brook	2015	Scum	No	4	4
W2286	Dunbar Brook	2015	Turbidity	None	3	4
W2286	Dunbar Brook	2015	Turbidity	Slightly Turbid	1	4

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 Dunbar Brook, so it is Not Assessed.	

Secondary Contact Recreation

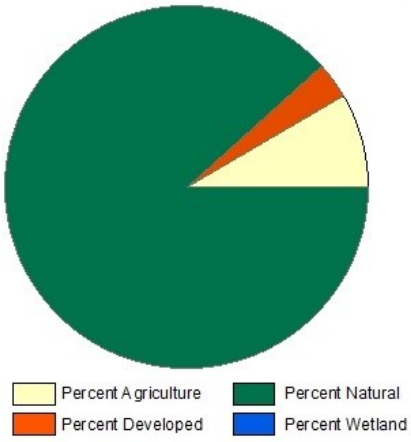
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Dunbar Brook, so it is Not Assessed.	

East Branch North River (MA33-19)

Location:	Vermont line, Colrain to confluence with West Branch North River, Colrain.
AU Type:	RIVER
AU Size:	7.5 MILES
Classification/Qualifier:	B: CWF, HQW

East Branch North River - MA33-19

Watershed Area: 54.15 sq miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	13.88	7.52	4.12	2.46
Agriculture	8.3%	9.2%	12.4%	13.1%
Developed	3.2%	3.5%	6.5%	7.3%
Natural	87.5%	86.3%	78.6%	77%
Wetland	1%	1.1%	2.5%	2.6%
Impervious Cover	1.3%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Escherichia Coli (E. Coli)		Unchanged
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)	Agriculture (N)				X	
Escherichia Coli (E. Coli)	Source Unknown (N)				X	
Temperature	Agriculture (N)	X				
Temperature	Source Unknown (N)	X				

Recommendations

2022 Recommendations
ALU: Additional long-term temperature data should be collected in the East Branch North River to better evaluate the appropriateness of the 2022 Temperature impairment (which was based off of data collected in the year following Hurricane Irene), the effectiveness of Connecticut River Conservancy habitat restoration efforts (in CRC's comment on the draft 2022 IR, the group indicated that restoration projects were completed upstream of this AU and downstream of Jesse Wood Lane in 2020), and to potentially target additional areas for improved riparian corridor health to provide additional shading. Cooperative efforts (both VT and MA towns in this subwatershed) to reduce thermal stress should be prioritized to protect/maintain/restore cold water habitat in this river. REC: Conduct additional *E. coli* bacteria bacteria sampling in the East Branch North River including "Lyonsville Road", Colrain (site of old Arthur Smith Covered Bridge, no road crossing here (MassDEP sampling site W1347) to better evaluate status of Primary Contact Recreational Use and potential delisting of the *E. coli* impairment.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES

2022 Use Attainment Summary
MassDEP biologists sampled the East Branch North River just south of the VT/MA border ~2225 feet upstream of the Route 112 crossing nearest Jesse Wood Road in Colrain during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. The benthic community (B0792) sample, collected in September 2012, had an IBI score of 53 (high end of Moderately Degraded conditions for a high gradient Western Highland region stream). Backpack electrofishing (Sample ID 5038) in September 2012 documented slimy sculpin and one young Eastern brook trout as well as other fluvial fishes. Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2255) can be summarized as follows: minimum dissolved oxygen 8.1mg/L during three short term DO deploys, maximum temperature 26.6°C between June 1st and September 15th with 7DADM exceeding 20°C 82 times. The maximum 24-hour rolling average temperature was 23.2°C, pH ranged from 7.9 to 8.7SU (n=3), and there was a slight indication of a nutrient enrichment problem (seasonal average total phosphorus concentrations was low 0.008mg/L, max diel DO shift only 1.7mg/L, maximum saturation 112%, maximum pH 8.7SU, a one observation of dense/very dense filamentous algae of six site visits). There were no toxicant issues (maximum total ammonia-nitrogen concentration was 0.02mg/L, chloride was 7mg/L (n=5), and there were no exceedances of any of clean metals or aluminum samples (n=3) although it should be noted that dissolved Al data were compared to total recoverable Al criteria, so exceedances cannot be ruled out). Slightly further downstream just upstream and downstream from the confluence with Spur Brook at Route 112 bridge in Colrain, MA DFG biologists conducted backpack electrofishing in August 2016. Fluvial fish including slimy sculpin comprised both samples. MA DFG biologists also conducted backpack electrofishing slightly further downstream in the East Branch North River along Route 112 (near a turnoff) in Colrain as follows: SampleID 5170 in September 2014, SampleID 5697 in August 2015, SampleID 6276 in September 2016, SampleID 6464 in August 2017, and Sample ID 8264 in August 2019. All samples were comprised entirely with fluvial fishes including slimy sculpin as well as one or a few Eastern brook trout in half of the samples. Overall, however, cold water fish represented ≤25% of the samples. The Aquatic Life Use for the East Branch North River is assessed as Not Supporting based on the elevated temperatures above Cold Water habitat criteria during the summer of 2012. While most of the watershed area in MA is Natural/Wetland with a low % of impervious cover, the agricultural areas are fairly concentrated within the stream buffer zone, so the elevated temperature is considered to be exacerbated by anthropogenic activities. Land-Use data in VT were not readily available but cooperative efforts to reduce thermal stress should be prioritized. While the benthic data IBI score was in the high end of the Moderately Degraded category, since the data were collected in the year following Hurricane Irene, a benthic impairment is not being added. The Alert for habitat degradation due to bank erosion and sedimentation identified by (Cole 2014) is being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5038	MassDEP	Fish Community	East Branch North River	0.4mi US of Rt 112 xing nearest Jesse Wood Rd, 0.25mi S of VT/MA state line	42.73205	-72.71946
5170	MassDFG	Fish Community	East Branch North River	Rt 112N (index site), 1/2mi S of Thompson Rd, Corlain	42.72131	-72.70915
5694	MassDFG	Fish Community	East Branch North River	Turnoff on Rt 112, Colrain	42.72157	-72.70941
5937	MassDFG	Fish Community	East Branch North River	Dornbusch property downstream of Rt 112, Colrain	42.72693	-72.71136
5938	MassDFG	Fish Community	East Branch North River	Upstream of Rt 112 bridge., Colrain	42.72815	-72.71328
6276	MassDFG	Fish Community	East Branch North River	Rt 112, Colrain	42.72169	-72.70971
6464	MassDFG	Fish Community	East Branch North River	Turnoff on Rt 112 @ 1 mile South of VT, Colrain	42.72129	-72.70927
8264	MassDFG	Fish Community	EB North River	Turnout on RT 112, Colrain	42.71996	-72.70777
B0792	MassDEP	Benthic	East Branch North River/	[approximately 680 meters upstream of the Route 112 crossing nearest Jesse Wood Road, Colrain, MA]	42.732054	-72.719457
W2255	MassDEP	Water Quality	East Branch North River	[approximately 2225 feet upstream of the Route 112 crossing nearest Jesse Wood Road, Colrain]	42.732054	-72.719457

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	
B0792	09/04/12	RBP kicknet	Western_Highlands_100ct	109	53	MD	

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]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, LNS = Longnose Sucker, RT = Rainbow Trout, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5038	09/21/12	BP	TP	6	116	1	75	75	1	25	43%	100%	Yes	Yes	AS, BND, EBT, LND, SC, WS,
5170	09/10/14	BP	TP	7	102	0	NA	NA	0	4	25%	100%	Yes	Yes	AS, BND, CRC, CS, LND, LNS, SC,
5694	08/17/15	BP	TP	8	494	1	151	151	0	62	15%	100%	No	Yes	AS, BND, CRC, CS, EBT, LND, LNS, SC,
5937	08/22/16	BP	TP	6	158	0	NA	NA	0	14	11%	100%	No	Yes	BND, CRC, CS, LND, LNS, SC,
5938	08/22/16	BP	TP	8	277	0	NA	NA	0	3	3%	100%	No	Yes	BND, CRC, CS, LND, LNS, RT, SC, WS,
6276	09/07/16	BP	TP	7	714	3	64	140	3	27	6%	100%	No	Yes	BND, CRC, CS, EBT, LND, LNS, SC,
6464	08/21/17	BP	TP	5	161	0	NA	NA	0	9	6%	100%	Yes	Yes	BND, CRC, CS, LND, SC,
8264	08/28/19	BP	TP	7	614	1	147	147	0	15	3%	100%	No	Yes	BND, CRC, CS, EBT, LND, SC, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2255	2012	3	11	8.1	8.1	8.6	1.7	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2255	05/23/12	09/27/12	3	8.5	9.1	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2255	06/01/12	09/15/12	107	107	23.0	26.6	25.3	22.0	82	0	13	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2255	2012	3	11	21.6	25.6	24.4	21.6	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 8) (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
W2255	06/01/12	09/15/12	107	5136	23.2	0	0	0
W2255	06/28/12	09/04/12	68	572	22.0	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (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
W2255	05/23/12	09/27/12	5	3	24.3	19.1	2	2	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (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
W2255	05/23/12	09/27/12	3	7.9	8.7	1	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (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
W2255	2012	5	0.005	0.020	0.008	1.7	1.2	111.6	8.7	6	1

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (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
W2255	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2255	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (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
W2255	2012	3	0.009	0.01	0.010	0.0	0.0	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (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
W2255	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (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
W2255	2012	5	5	7	6	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (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
W2255	05/23/12	09/27/12	3	79	94	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 the East Branch North River, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff surveyed the East Branch North River ~2225 feet upstream of the Route 112 crossing nearest Jesse Wood Road in Colrain (W2255) during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded. The Aesthetics Use for the East Branch North River is assessed as Fully Supporting based on the general lack of objectionable conditions documented by MassDEP staff during the summer of 2012.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2255	MassDEP	Water Quality	East Branch North River	[approximately 2225 feet upstream of the Route 112 crossing nearest Jesse Wood Road, Colrain]	42.732054	-72.719457

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2255	East Branch North River	2012	6	MassDEP aesthetics observations for station W2255/MAP2-181 on East Branch North 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.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2255	2012	6	6	1

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

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2255	East Branch North River	2012	Color	Brownish	1	6
W2255	East Branch North River	2012	Color	None	5	6
W2255	East Branch North River	2012	Objectionable Deposits	No	6	6
W2255	East Branch North River	2012	Odor	Musty (Basement)	1	6
W2255	East Branch North River	2012	Odor	None	5	6
W2255	East Branch North River	2012	Scum	No	6	6
W2255	East Branch North River	2012	Turbidity	None	4	6
W2255	East Branch North River	2012	Turbidity	Slightly Turbid	2	6

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO

2022 Use Attainment Summary

MassDEP staff conducted *E. coli* bacteria sampling in the East Branch North River upstream of the Route 112 crossing nearest Jesse Wood Road in Colrain (W2255) between May and September 2012 (n=6). Data analysis for this location indicated 33% of the intervals had GMs >126 cfu/100ml, none of the samples exceeded the 410 cfu/100ml STV, and the seasonal GM was 77 cfu/100ml. Further downstream Connecticut River Conservancy volunteers collected *E. coli* bacteria samples from the East Branch North River at Foundry Village Road in Colrain (CRC_MA-EBN_02.4) between June and September 2019 (n=5) and between July and September 2020 (n=5). Data analysis of this low frequency multi-year dataset indicated only one of two years with GMs that exceeded 20% (cumulative 30% exceedance) and only one year with one sample that exceeded the STV of 410cfu/100mls. The seasonal GMs were 147 and 66 cfu/100ml in 2019 and 2020, respectively.

Although the *E. coli* concentrations were below the use attainment impairment thresholds at both sites for a single year low frequency dataset at the upstream site and for the multi-year low frequency dataset at the downstream sampling site, the Primary Contact Recreational Use for the East Branch North River will continue to be assessed as Not Supporting with the *E. coli* impairment being carried forward. The original *E. coli* impairment was first listed in the 2016 IR reporting cycle based on elevated *E. coli* bacteria concentrations in the river further downstream at “Lyonsville Road", Colrain (site of old Arthur Smith Covered Bridge, no road crossing here (MassDEP sampling site W1347 during summer of 2005). Given the recent sampling sites do not encompass the lower portion of the river where the original impairment was identified, too limited data are available to delist the *E. coli* impairment.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-EBN_02.4	Connecticut River Conservancy	Water Quality	East Branch North River	East Branch North River, Foundry Village Rd, Colrain	42.67478	-72.69663
W2255	MassDEP	Water Quality	East Branch North River	[approximately 2225 feet upstream of the Route 112 crossing nearest Jesse Wood Road, Colrain]	42.732054	-72.719457

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4) (MassDEP Undated 8) (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
CRC_MA-EBN_02.4	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	5	38.8	920.8	147
CRC_MA-EBN_02.4	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	34.1	121	66
W2255	MassDEP	E. coli	05/23/12	09/27/12	6	21	345	77

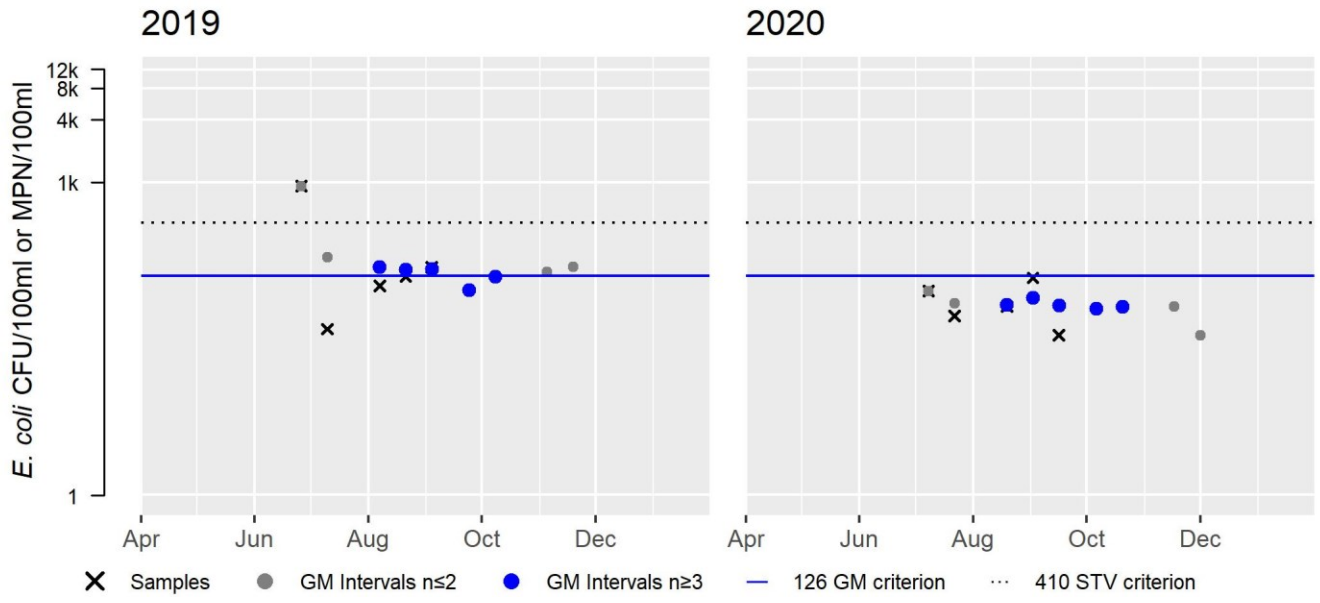
CRC_MA-EBN_02.4 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	147
#GMI	5
#GMI Ex	3
%GMI Ex	60
n>STV	1
%n>STV	20

Var	Res
Samples	5
SeasGM	66
#GMI	5
#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

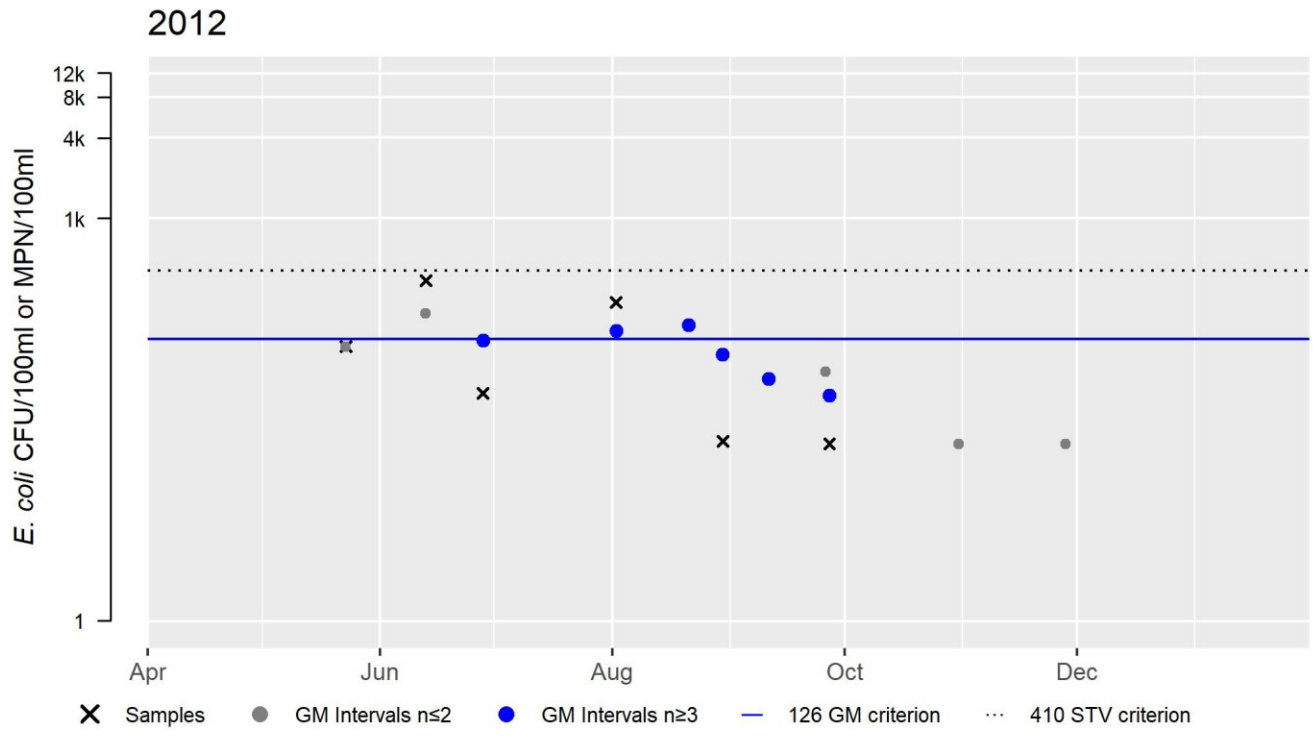
Variable	Cumulative %GMI Ex (all years)
Result	30



W2255 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	77
#GMI	6
#GMI Ex	2
%GMI Ex	33
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 conducted *E. coli* bacteria sampling in the East Branch North River upstream of the Route 112 crossing nearest Jesse Wood Road in Colrain (W2255) between May and September 2012 (n=6). Data analysis for this location indicated none of the intervals had GMs >630 cfu/100ml, none of the samples exceeded the 1260 cfu/100ml STV, and the seasonal GM was 77 cfu/100ml. Further downstream Connecticut River Conservancy volunteers collected *E. coli* bacteria samples from the East Branch North River at Foundry Village Road in Colrain (CRC_MA-EBN_02.4) between June and September 2019 (n=5) and between July and September 2020 (n=5). Data analysis of this low frequency multi-year dataset indicated none of the intervals had GMs >630 cfu/100ml, none of the samples exceeded the 1260 cfu/100ml STV. The seasonal GMs were 147 and 66 cfu/100ml in 2019 and 2020, respectively.

The Secondary Contact Recreational Use for the East Branch North River is assessed as Fully Supporting based on the *E. coli* bacteria sample data collected by MassDEP staff and CRC volunteers during the summers of 2012, 2019, and 2020.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-EBN_02.4	Connecticut River Conservancy	Water Quality	East Branch North River	East Branch North River, Foundry Village Rd, Colrain	42.67478	-72.69663
W2255	MassDEP	Water Quality	East Branch North River	[approximately 2225 feet upstream of the Route 112 crossing nearest Jesse Wood Road, Colrain]	42.732054	-72.719457

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4) (MassDEP Undated 8) (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)
CRC_MA-EBN_02.4	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	5	38.8	920.8	147
CRC_MA-EBN_02.4	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	34.1	121	66
W2255	MassDEP	E. coli	05/23/12	09/27/12	6	21	345	77

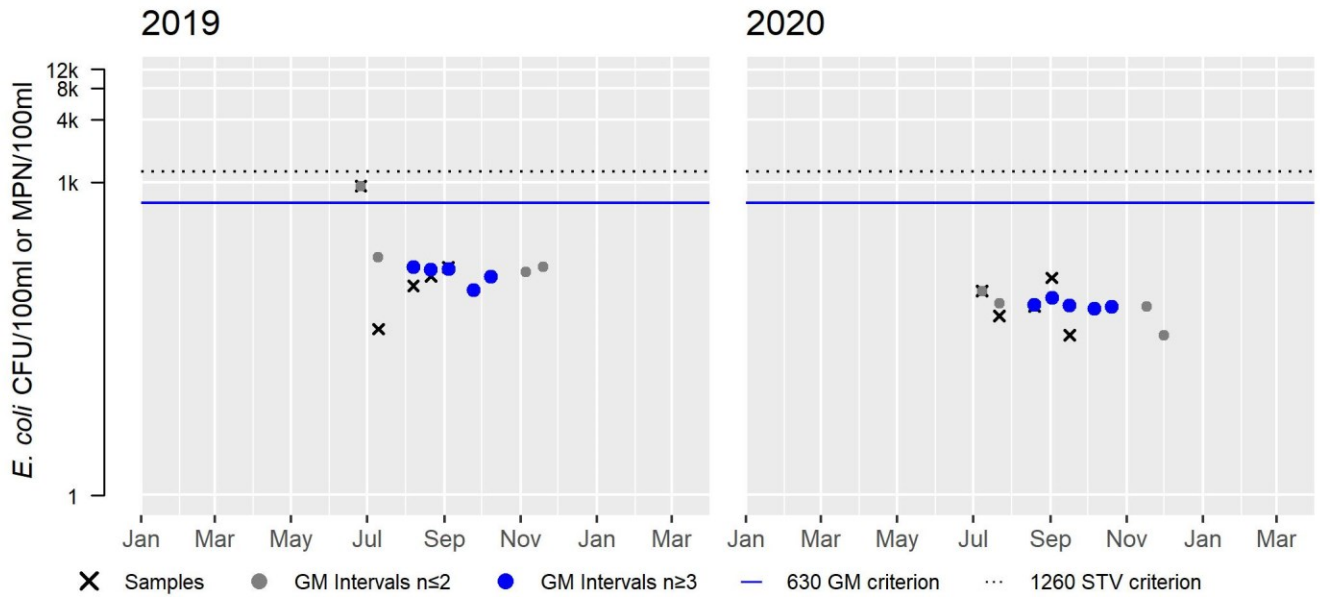
CRC_MA-EBN_02.4 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	147
#GMI	5
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	5
SeasGM	66
#GMI	5
#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

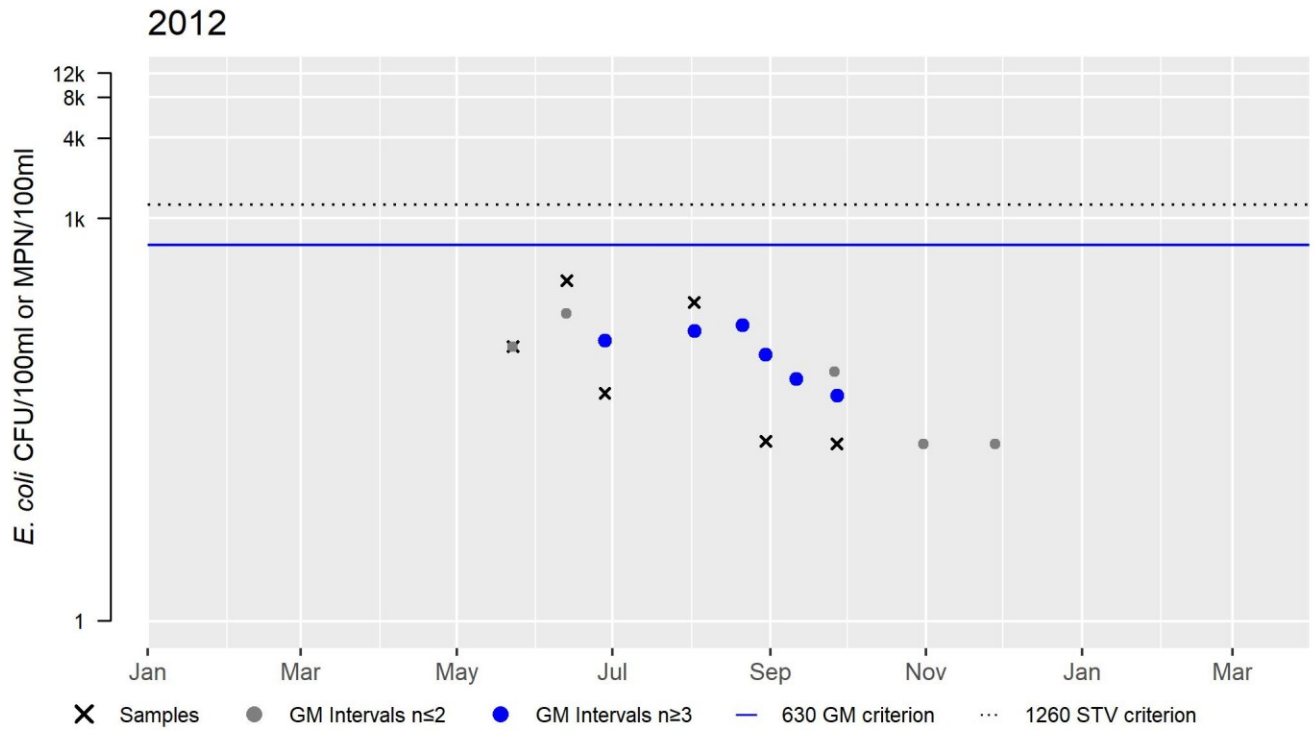
Variable	Cumulative %GMI Ex (all years)
Result	0



W2255 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

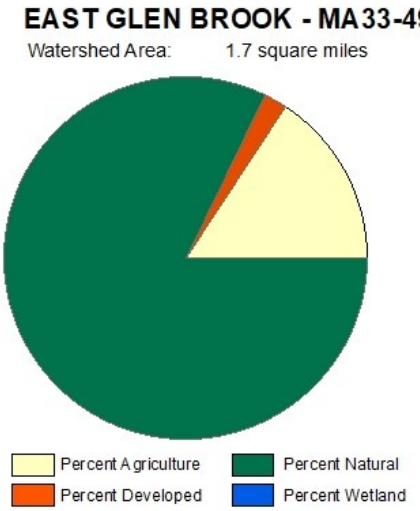
Var	Res
Samples	6
SeasGM	77
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

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



East Glen Brook (MA33-49)

Location:	Headwaters, perennial portion north of East Glen Road, Leyden to inlet of Upper Greenfield Reservoir (Glen Brook Upper Reservoir), Leyden.
AU Type:	RIVER
AU Size:	1.9 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	1.7	1.7	0.96	0.96
Agriculture	15.7%	15.7%	19.4%	19.4%
Developed	2%	2%	2.1%	2.1%
Natural	82%	82%	78%	78%
Wetland	0.3%	0.3%	0.5%	0.5%
Impervious Cover	1.1%			

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	NO
2022 Use Attainment Summary	

MassDEP biologists sampled East Glen Brook east of East Glen Road, approximately 4225 feet upstream of the inlet of the Greenfield Reservoir in Leyden during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. The benthic community (B0800) sample, collected in August 2012, had an IBI score of 51 (near high end of Moderately Degraded conditions for a high gradient Western Highland region stream). Backpack electrofishing (Sample ID 5022) in August 2012 documented multiple age classes of Eastern brook trout. Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2263) can be summarized as follows: minimum dissolved oxygen 8.7mg/L during three short term DO deploys, maximum temperature 19.9°C between June 1st and September 15th. The maximum 24-hour rolling average temperature was 19.1°C, pH ranged from 7.6 to 7.9SU (n=3), and there were no indications of any nutrient enrichment problems (seasonal average total phosphorus concentrations 0.018mg/L, max diel DO shift only 0.8mg/L, maximum saturation 99%, maximum pH 7.9SU, no observations of any dense/very dense filamentous algae). There were no toxicant issues (maximum total ammonia-nitrogen concentration was 0.02mg/L, chloride was 4mg/L (n=5), and there were no exceedances of any of clean metals or aluminum samples (n=3) although it should be noted that dissolved Al data were compared to total recoverable Al criteria, so exceedances cannot be ruled out).

The Aquatic Life Use for East Glen Brook is assessed as Fully Supporting based on the biological and water quality data collected by MassDEP biologists during the summer of 2012. While the benthic data IBI score was in the high end of the Moderately Degraded category, since the data were collected in the year following Hurricane Irene, a benthic impairment is not being added since all other data were indicative of excellent conditions.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5022	MassDEP	Fish Community	East Glen Brook	E. of E. Glen Rd, 0.8mi US of inlet of Greenfield Reservoir	42.67328	-72.61264
B0800	MassDEP	Benthic	East Glen Brook/	[east of East Glen Road, approximately 1290 meters upstream of the inlet of the Greenfield Reservoir, Leyden, MA]	42.673276	-72.612642
W2263	MassDEP	Water Quality	East Glen Brook	[east of East Glen Road, approximately 4225 feet upstream of the inlet of the Greenfield Reservoir, Leyden]	42.673276	-72.612642

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	
B0800	08/13/12	RBP kicknet	Western_Highlands_100ct	103	51	MD	

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]

[Species List: EBT = Brook Trout]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5022	08/23/12	BP	TP	1	96	96	49	176	91	0	100%	100%	No	Yes	EBT,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2263	2012	3	12	8.7	8.7	9	0.8	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2263	05/23/12	09/27/12	3	9.5	9.6	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2263	06/01/12	09/15/12	107	107	19.0	19.9	19.1	18.0	0	0	0	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2263	2012	3	12	18.7	19.7	19.3	18.3	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 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
W2263	06/01/12	09/15/12	107	5136	19.1	0	0	0
W2263	06/28/12	09/04/12	68	580	18.9	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (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
W2263	05/23/12	09/27/12	5	3	16.7	14.4	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (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
W2263	05/23/12	09/27/12	3	7.6	7.9	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (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
W2263	2012	5	0.009	0.043	0.018	0.8	0.5	99.2	7.9	6	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2263	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2263	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (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
W2263	2012	3	0.010	0.01	0.010	0.0	0.0	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (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
W2263	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (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
W2263	2012	5	2	4	3	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (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
W2263	05/23/12	09/27/12	3	71	80	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 East Glen Brook, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP staff surveyed East Glen Brook east of East Glen Road, approximately 4225 feet upstream of the inlet of the Greenfield Reservoir, Leyden (W2263) during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. No objectionable conditions (i.e., odors, deposits, growths, or turbidity) were observed during any of the surveys.
The Aesthetics Use for East Glen Brook is assessed as Fully Supporting based on the lack of any objectionable conditions documented by MassDEP staff during the summer of 2012.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2263	MassDEP	Water Quality	East Glen Brook	[east of East Glen Road, approximately 4225 feet upstream of the inlet of the Greenfield Reservoir, Leyden]	42.673276	-72.612642

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2263	East Glen Brook	2012	6	MassDEP aesthetics observations for station W2263/MAP2-197 on East Glen 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 2012.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2263	2012	6	6	0

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

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2263	East Glen Brook	2012	Color	None	6	6
W2263	East Glen Brook	2012	Objectionable Deposits	No	6	6
W2263	East Glen Brook	2012	Odor	None	5	6
W2263	East Glen Brook	2012	Odor	NR	1	6
W2263	East Glen Brook	2012	Scum	No	6	6
W2263	East Glen Brook	2012	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 East Glen Brook east of East Glen Road, approximately 4225 feet upstream of the inlet of the Greenfield Reservoir in Leyden (W2263) between May and September 2012 (n=6). Data analysis indicated none of the intervals had GMs >126 cfu/100ml, none of the samples exceeded the 410 cfu/100ml STV, and the seasonal GM was 46 cfu/100ml.
The Primary Contact Recreational Use for East Glen Brook is assessed as Fully Supporting based on the low E. coli concentrations during the summer of 2012.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2263	MassDEP	Water Quality	East Glen Brook	[east of East Glen Road, approximately 4225 feet upstream of the inlet of the Greenfield Reservoir, Leyden]	42.673276	-72.612642

Bacteria Data

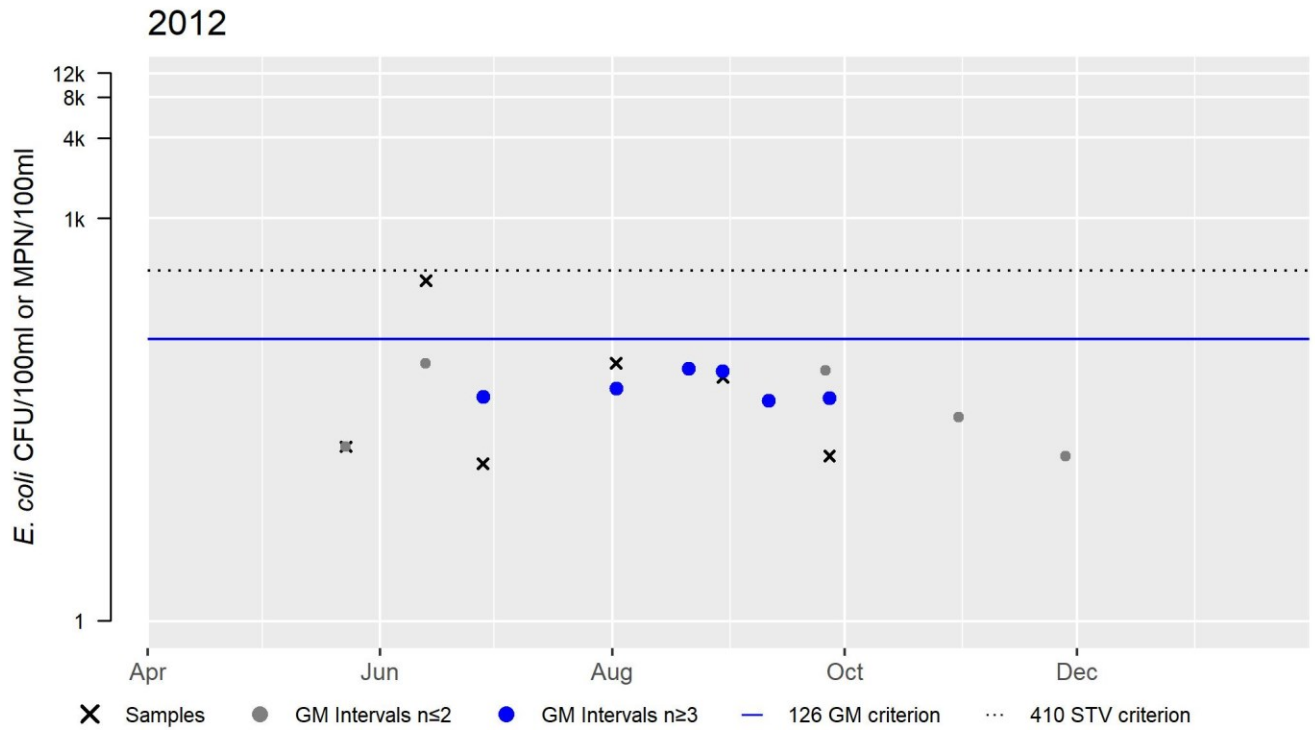
Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 6)
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2263	MassDEP	E. coli	05/23/12	09/27/12	6	15	345	46

W2263 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	46
#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 East Glen Brook east of East Glen Road, approximately 4225 feet upstream of the inlet of the Greenfield Reservoir in Leyden (W2263) between May and September 2012 (n=6). Data analysis indicated none of the intervals had GMs >630 cfu/100ml, none of the samples exceeded the 1260 cfu/100ml STV, and the seasonal GM was 46 cfu/100ml. The Secondary Contact Recreational Use for East Glen Brook is assessed as Fully Supporting based on the low *E. coli* concentrations during the summer of 2012.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2263	MassDEP	Water Quality	East Glen Brook	[east of East Glen Road, approximately 4225 feet upstream of the inlet of the Greenfield Reservoir, Leyden]	42.673276	-72.612642

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 6)

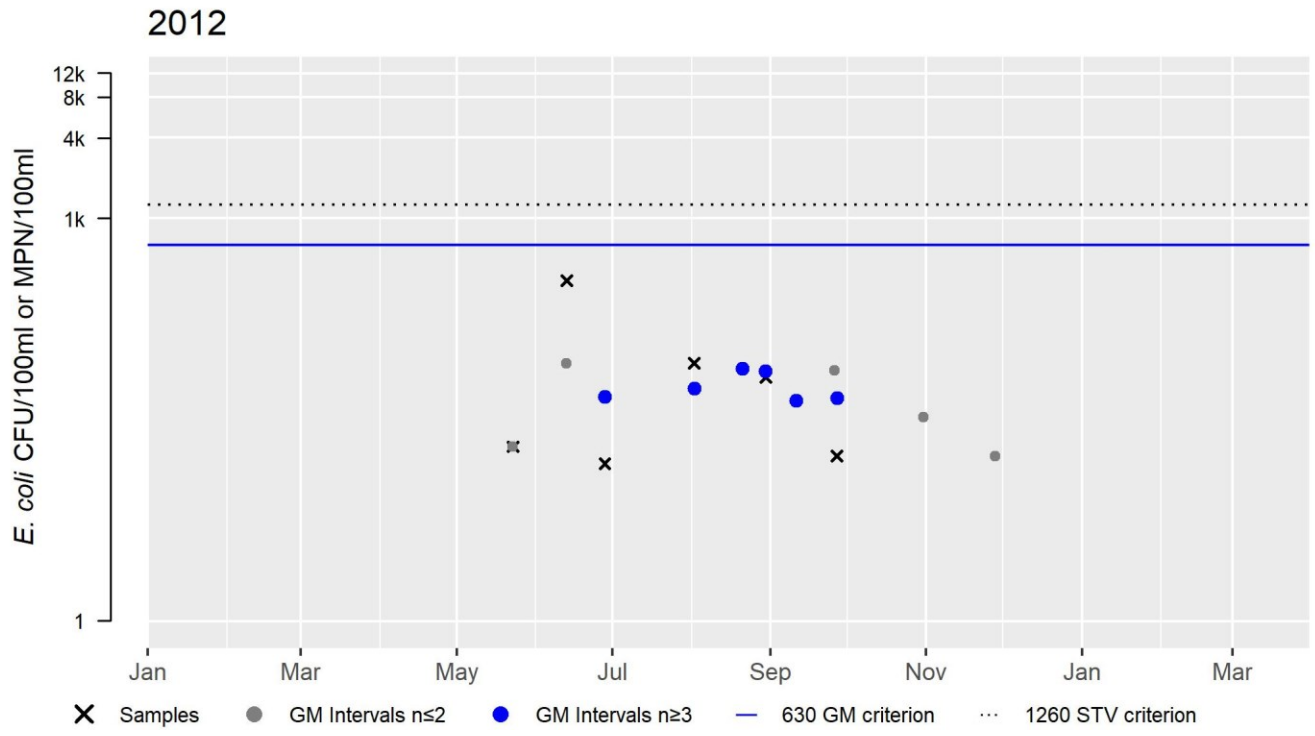
[Result units are CFU/100ml or MPN/100ml]

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)
W2263	MassDEP	E. coli	05/23/12	09/27/12	6	15	345	46

W2263 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	46
#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



East Oxbow Brook (MA33-72)

Location:	Headwaters, perennial portion east of Deer Run Lane, Charlemont to confluence with Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B

No usable data were available for East Oxbow Brook (MA33-72) 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

Fife Brook (MA33-50)

Location:	Headwaters, perennial portion southwest of Spruce Mountain in the Monroe State Forest, Monroe to confluence with Deerfield River, Florida.
AU Type:	RIVER
AU Size:	2.6 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Fife Brook (MA33-50) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Foundry Brook (MA33-25)

Location:	Headwaters north of Calvin Coombs Road, Colrain to confluence with East Branch North River, Colrain.
AU Type:	RIVER
AU Size:	2.8 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Foundry Brook (MA33-25) 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

Fox Brook (MA33-51)

Location:	From the outlet of Fox Brook Upper Reservoir, Colrain to confluence with North River, Colrain.
AU Type:	RIVER
AU Size:	0.7 MILES
Classification/Qualifier:	B

No usable data were available for Fox Brook (MA33-51) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Fox Brook Upper Reservoir (MA33006)

Location:	Colrain.
AU Type:	FRESHWATER LAKE
AU Size:	3 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Fox Brook Upper Reservoir (MA33006) 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

Fuller Brook (MA33-118)

Location:	Perennial portion in Dubuque State Forest, Hawley to confluence with Chickley River, Hawley.
AU Type:	RIVER
AU Size:	0.9 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Fuller Brook (MA33-118) 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

Glen Brook (MA33-52)

Location:	Headwaters, east of Brattleboro Road, Leyden to inlet of Upper Greenfield Reservoir (Glen Brook Upper Reservoir), Leyden.
AU Type:	RIVER
AU Size:	3.5 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Glen Brook (MA33-52) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

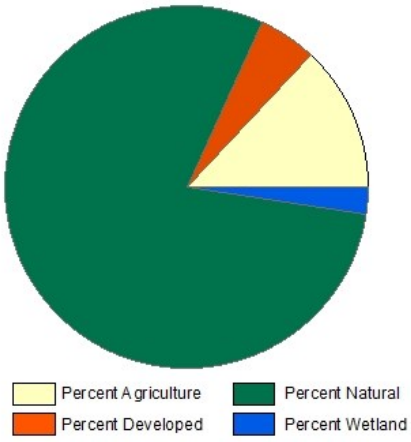
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Glen Brook (MA33-96)

Location:	Outlet of Upper Greenfield Reservoir, Leyden to confluence with Green River, Greenfield.
AU Type:	RIVER
AU Size:	3.2 MILES
Classification/Qualifier:	B

GLEN BROOK - MA33-96

Watershed Area: 7.35 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	7.35	2.97	3.69	1.2
Agriculture	12.9%	9%	14.6%	7.3%
Developed	5.3%	5.8%	4.8%	3.4%
Natural	79.5%	81.8%	77.3%	84.5%
Wetland	2.4%	3.5%	3.4%	4.8%
Impervious Cover	2.1%			

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

Recommendations

2022 Recommendations
ALU: Additional sampling (long-term temperature and fish community) data should be conducted in this Glen Brook AU (MA33-96); OTHER: This Glen Brook AU (MA33-96) should be protected as a Tier 1 Cold Water resource and review of any additional sampling data (long-term temperature and fish community) should be conducted for potential reclassification as Cold Water in a future revision of the MA SWQS.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MA DFG biologists conducted backpack electrofishing in Glen Brook in Leyden Glen, upstream of roadway arch, below Greenfield Reservoir in July 2014 (SampleID 5381). This sample was comprised almost entirely (95%) by fluvial fish including multiple age classes of Eastern brook trout. Further downstream upstream of a culvert above Leyden Road, a second backpack electrofishing sample was collected in August 2014 (SampleID 5404). This sample was comprised entirely by fluvial fish including multiple age classes of Eastern brook trout as well as slimy sculpin.
The Aquatic Life Use for this Glen Brook AU (MA33-96) is assessed as Fully Supporting based on the presence of Cold Water fish documented by MA DFG biologists in summer 2014.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5381	MassDFG	Fish Community	Glen Brook	Leyden Glen, upstream of roadway arch, below Greenfield Reservoir, Leyden	42.65978	-72.61579
5404	MassDFG	Fish Community	Glen Brook	Leyden Rd up, upstream of culvert, Greenfield	42.64357	-72.61000

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]
[Species List: BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, P = Pumpkinseed, SC = Slimy Sculpin]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5381	07/21/14	BP	TP	4	349	18	53	135	18	0	5%	95%	Yes	Yes	BND, CRC, EBT, P,
5404	08/19/14	BP	TP	7	375	32	55	171	27	41	20%	100%	Yes	Yes	BND, BT, CRC, CS, EBT, LND, SC,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in this Glen Brook AU (MA33-96), 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 Glen Brook AU (MA33-96), 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 Glen Brook AU (MA33-96), 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 Glen Brook AU (MA33-96), so it is Not Assessed	

Goodnow Road Pond (MA33007)

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

No usable data were available for Goodnow Road Pond (MA33007) 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

Granger Brook (MA33-53)

Location:	Headwaters, west of Bliss Road, Florida to confluence with Dunbar Brook, Monroe.
AU Type:	RIVER
AU Size:	1.2 MILES
Classification/Qualifier:	B

No usable data were available for Granger Brook (MA33-53) 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

Great Brook (MA33-54)

Location:	Headwaters, perennial portion west at Zerah Fiske Road, Shelburne to confluence with Hawkes Brook, Shelburne.
AU Type:	RIVER
AU Size:	1.2 MILES
Classification/Qualifier:	B

No usable data were available for Great Brook (MA33-54) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

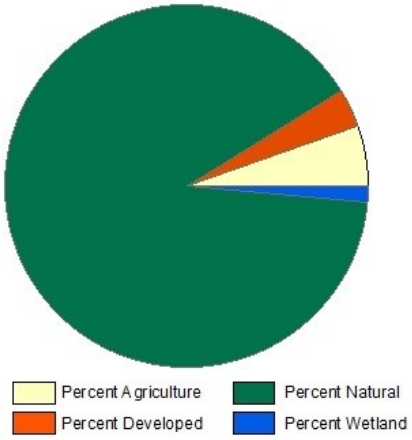
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Green River (MA33-28)

Location:	Vermont line, Colrain to water supply dam north of Eunice Williams Drive (Pumping Station Dam, NAT ID MA02291), Greenfield (formerly part of 2002 segment: Green River MA33-09).
AU Type:	RIVER
AU Size:	8.4 MILES
Classification/Qualifier:	A: PWS, ORW, HQW, CWF

Green River - MA33-28

Watershed Area: 52.04 sq miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	14.77	5.74	6.46	2.55
Agriculture	5.4%	6%	5%	5%
Developed	3.4%	3.6%	3.8%	3%
Natural	89.8%	89.2%	88.5%	89.8%
Wetland	1.4%	1.2%	2.7%	2.2%
Impervious Cover	1.3%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	5	Temperature		Added

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

Recommendations

2022 Recommendations
ALU: Additional long-term temperature data should be collected in this Green River AU (MA33-28) to better evaluate the thermal regime and potentially target areas for improved riparian corridor health to provide additional shading. Cooperative efforts (both VT and MA towns in this subwatershed) to reduce thermal stress should be prioritized to protect/maintain/restore cold water habitat in this river.

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 Green River AU (MA33-28) upstream of Borden Brook along River Road in August 2017 (SampleID 6659). This sample contained slimy sculpin and was comprised almost entirely by fluvial fish. Slightly further downstream backpack electrofishing in September 2016 (SampleID 6272) also contained one small Eastern brook trout as well as slimy sculpin and other fluvial species. MassDEP biologists sampled upstream of Thorne Brook confluence in Leyden in summers 2013, 2014, and 2015 as part of the Reference Site Network monitoring project. Survey results can be briefly summarized as follows: the benthic community (Station B0560) IBI scores were indicative of moderately degraded conditions in August 2013 and 2014 (scores 44 and 48) but had improved to satisfactory condition (score 65) in the July 2015 sample, backpack electrofishing in October 2013 (SampleID 5098), September 2014 (Sample ID 6318), and September 2015 (SampleID 6395), documented a few Eastern brook trout (multiple age classes), slimy sculpin, and other fluvial fishes. Water quality sampling data (both deployed probe and discrete sampling - Station W2414) documented minimum dissolved oxygen 7.9mg/L during three long term DO deploys, maximum temperature 25.6°C between June 1st and September 15th each year with 7DADMs exceeding 20°C 54 times in 2013, 6 times in 2014, 59 times in 2015 and a maximum 24-hour rolling average temperature 23.6°C (above 23.5°C 6 times in 2013 but no acute cold water threshold exceedances in 2014 or 2015), pH ranged from 7.6 to 8.3SU (n=11), and except for elevated total phosphorus concentration in 2014 (seasonal average 0.119mg/L), there were no other indications of any nutrient enrichment problems (seasonal average total phosphorus concentrations low in 2013 and 2015 both years ≤0.006mg/L, max diel DO shift only 1.9mg/L, maximum saturation 107%, maximum pH 8.3SU, no observations of dense/very dense filamentous algae). Lastly, there were no toxicant issues (maximum total ammonia-nitrogen concentration 0.084mg/L and chloride 4mg/L (n=13)). MA DFG biologists also conducted backpack electrofishing in this area in September 2019 (SampleID 8282) and documented slimy sculpin and other fluvial species as well as just a bit further downstream in August 2015 (SampleID 5705) where multiple age classes of Eastern brook trout and slimy sculpin were present. A single small Eastern brook trout and slimy sculpin were present in the river just upstream from the confluence with Katley Brook in September 2014 (SampleID 5167). Slightly further downstream a few small brook trout and slimy sculpin were present in samples collected in September 2014 and August 2015 (SampleIDs 5168 and 5706) however no cold water fish were collected during backpack electrofishing surveys by MA DFG biologists in September 2016, August 2017, or September 2019 (SampleIDs 6274, 6660, and 8283, respectively) although these samples were comprised entirely by fluvial species.

The Aquatic Life Use for this Green River AU (MA33-28) is assessed as Not Supporting based on the elevated temperatures above Cold Water habitat criteria during the summers 2013 to 2015. While most of the watershed area in MA is Natural/Wetland with a low % of impervious cover, agricultural areas and roadways are fairly near the river, so temperature is likely exacerbated by anthropogenic activities. Land-Use data in VT were not readily available but cooperative efforts to reduce thermal stress should be prioritized. The benthic data IBI scores indicated Moderately Degraded conditions following Hurricane Irene but had improved to Satisfactory Conditions in 2015, the fish sample data identify cold water species throughout most of this section of the river (numbers somewhat low) with cold water species absent in 2016, 2017, and 2019 downstream from the confluence of Katley Brook. All other water quality data were indicative of excellent conditions.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5098	MassDEP	Fish Community	Green River (1)	~50 ft above Thorne Brook on Green River, east of Green River Rd.	42.71673	-72.66978
5167	MassDFG	Fish Community	Green River (1)	River Road, 1 1/2mi N of Nelson Rd, adj to Katley Brook confluence, Colrain	42.67050	-72.64130
5168	MassDFG	Fish Community	Green River (1)	River Rd, Colrain	42.66184	-72.63246
5705	MassDFG	Fish Community	Green River (1)	DS of former NRA property. Off N. Green River Rd in Stewartville, just S of New County Rd, Leyden/Colrain	42.71036	-72.67351
5706	MassDFG	Fish Community	Green River (1)	S. Green River Rd, 1/2mi N. of Nelson Rd, Colrain/Leyden	42.66134	-72.63311
6272	MassDFG	Fish Community	Green River (1)	Green R. Rd S of UT, Colrain	42.71722	-72.67011
6274	MassDFG	Fish Community	Green River (1)	Green R Rd, Greenfield	42.66241	-72.63176
6318	MassDEP	Fish Community	Green River (1)	East of Green River Rd, Colrain. Approx 50 ft US/N of confluence with Thorne Brook., Leyden	42.71673	-72.66978
6395	MassDEP	Fish Community	Green River (1)	, Leyden, Colrain	42.71673	-72.66978
6659	MassDFG	Fish Community	Green River (1)	River Rd, red house, almost VT (@ Burden Brook), Colrain	42.72683	-72.67594
6660	MassDFG	Fish Community	Green River (1)	Turnout on River Rd, Colrain	42.66214	-72.63236
8282	MassDFG	Fish Community	Green River	US of Leyden Brook (several miles) , Colrain	42.71508	-72.66986
8283	MassDFG	Fish Community	Green River	"first" turnout on River rd , Greenfield	42.66184	-72.63223
B0560	MassDEP	Benthic	Green River/	[approximately 150 meters upstream from Thorne Brook confluence, Leyden, MA]	42.716437	-72.669532
W2414	MassDEP	Water Quality	Green River	[east of Green River Road, Colrain approximately 50 feet upstream/north of the confluence of Thorne Brook, Leyden (lower portion of Thorne Brook inaccurate on USGS 1990 Colrain quadrangle)]	42.715003	-72.669722

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	
B0560	08/06/13	RBP kicknet	Western_Highlands_300ct	295	44	MD	
B0560	08/11/14	RBP kicknet	Western_Highlands_300ct	305	48	MD	

Station Code	Collection Date	Collection Method	Index Type	Organism Count	Index Score	Index Biological Condition Class	
B0560	07/30/15	RBP kicknet	Western_Highlands_300ct	310	65	S	

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]

[Species List: AS = Atlantic Salmon, BB = Brown Bullhead, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, RT = Rainbow Trout, SC = Slimy Sculpin, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5098	10/02/13	BP	TP	8	260	2	105	168	1	6	6%	100%	No	Yes	AS, BND, CRC, CS, EBT, LND, SC, TD,
5168	09/09/14	BP	TP	8	282	2	67	67	2	2	11%	100%	Yes	Yes	AS, BND, CS, EBT, LND, RT, SC, WS,
5705	08/20/15	BP	TP	9	288	7	122	230	1	16	9%	100%	No	Yes	AS, BND, CRC, CS, EBT, LND, RT, SC, WS,
6272	09/01/16	BP	TP	7	416	1	97	97	1	34	8%	100%	No	Yes	BND, CRC, CS, EBT, LND, SC, TD,
6318	09/16/14	NS	TP	8	122	3	61	148	2	8	19%	100%	Yes	Yes	AS, BND, CRC, EBT, LND, RT, SC, WS,
6395	09/15/15	BP	TP	5	183	2	79	188	1	16	10%	100%	Yes	Yes	BND, CRC, EBT, LND, SC,
6659	08/28/17	BP	TP	7	189	0	NA	NA	0	20	11%	99%	No	Yes	BB, BND, CRC, CS, LND, RT, SC,
8282	09/17/19	BP	TP	7	880	0	NA	NA	0	53	6%	100%	No	Yes	BND, CRC, CS, LND, RT, SC, TD,

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; Trout= any combination of brook trout, brown trout, rainbow trout, tiger trout; Other Tier2 Species= any size and any combination of American brook lamprey, Atlantic salmon, lake chub, lake trout, longnose sucker, slimy sculpin]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, LND = Longnose Dace, RT = Rainbow Trout, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	Trout ≤140mm Ind	LLS<200mm Ind	Other Tier2 Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5167	09/09/14	BP	TP	8	192	1	0	9	5%	100%	No	Yes	AS, BND, CRC, CS, LND, RT, SC, WS,

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: BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, LND = Longnose Dace, RT = Rainbow Trout, SC = Slimy Sculpin, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
5706	08/20/15	BP	TP		8	491	1%	8	100%	1%	0	0%	Yes	Yes	BND, CRC, CS, LND, RT, SC, TD, WS,
6274	09/01/16	BP	TP		6	496	0%	6	100%	0%	0	0%	No	Yes	BND, CRC, CS, LND, TD, WS,
6660	08/28/17	BP	TP		5	281	0%	5	100%	0%	0	0%	No	Yes	BND, CRC, CS, LND, TD,
8283	09/17/19	BP	TP		5	713	0%	5	100%	0%	0	0%	No	Yes	BND, CRC, CS, LND, TD,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[7DADMin= 7-Day Average of the Daily Minima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2414	05/08/13	09/08/13	124	118	95	7.9	8.2	8.7	1.9	0	0	0	0	0	0	0	0
W2414	05/22/14	09/08/14	110	104	81	8.7	9	9.4	1.6	0	0	0	0	0	0	0	0
W2414	05/21/15	09/09/15	112	106	83	8.1	8.3	9	1.7	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2414	05/07/13	09/09/13	4	9.2	9.8	0	0	0
W2414	06/18/14	09/09/14	4	9.3	9.5	0	0	0
W2414	06/16/15	09/10/15	4	8.8	9.1	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2414	06/01/13	09/08/13	100	97	23.4	25.6	24.2	22.1	53	0	6	0	0	0
W2414	06/01/13	09/08/13	100	97	23.5	25.6	24.2	22.1	54	0	6	0	0	0
W2414	06/01/14	09/08/14	100	97	20.1	22.2	20.8	19.1	6	0	0	0	0	0
W2414	06/01/15	09/09/15	101	98	22.2	24.6	23.8	21.5	59	0	4	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 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
W2414	06/01/13	09/09/13	101	4830	23.6	6	0	0
W2414	06/01/13	09/09/13	101	4830	23.6	4	0	0
W2414	06/01/15	09/10/15	102	4874	22.3	0	0	0
W2414	06/01/14	09/09/14	101	4831	20.2	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (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
W2414	05/07/13	09/09/13	6	5	21.3	17.4	2	0	0	0
W2414	06/18/14	09/09/14	4	4	19.6	17.8	0	0	0	0
W2414	06/16/15	09/10/15	4	4	23.6	20.5	3	2	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (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
W2414	05/07/13	09/09/13	3	8.1	8.3	0	0
W2414	06/18/14	09/09/14	4	7.6	8	0	0
W2414	06/16/15	09/10/15	4	7.8	8.3	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (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
W2414	2013	5	0.005	0.005	0.005	1.9	1.0	106.7	8.3	5	0
W2414	2014	4	0.005	0.460	0.119	1.6	0.9	103.8	8.0	3	0
W2414	2015	4	0.005	0.007	0.006	1.7	1.2	106.9	8.3	4	0

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

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (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
W2414	2013	5	0.020	0.020	0.020	0	0
W2414	2014	4	0.020	0.020	0.020	0	0
W2414	2015	4	0.040	0.084	0.051	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (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
W2414	2013	5	3	4	3	0	0
W2414	2014	4	2	3	3	0	0
W2414	2015	4	3	4	4	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (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
W2414	05/07/13	09/09/13	3	78	107	0	0	0	0	0	0
W2414	06/18/14	09/09/14	4	61	100	0	0	0	0	0	0
W2414	06/16/15	09/10/15	4	71	113	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 Green River AU (MA33-28), therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert

Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff surveyed this Green River AU (MA33-28) east of Green River Road in Colrain near the confluence of Thorne Brook (W2414) during the summers of 2013, 2014, and 2015 as part of the Reference Site Network monitoring project. Generally no objectionable conditions (i.e., odors, deposits, growths, or turbidity) were observed during any of the surveys. The Aesthetics Use for this Green River AU (MA33-28) is assessed as Fully Supporting based on the general lack of any objectionable conditions documented by MassDEP staff during the summers of 2013, 2014, and 2015.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2414	MassDEP	Water Quality	Green River	[east of Green River Road, Colrain approximately 50 feet upstream/north of the confluence of Thorne Brook, Leyden (lower portion of Thorne Brook inaccurate on USGS 1990 Colrain quadrangle)]	42.715003	-72.669722

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2414	Green River	2013	5	MassDEP aesthetics observations for station W2414 on Green 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.
W2414	Green River	2014	4	MassDEP aesthetics observations for station W2414 on Green 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 2014.
W2414	Green River	2015	4	MassDEP aesthetics observations for station W2414 on Green 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 2015.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2414	2013	5	5	0
W2414	2014	4	3	0
W2414	2015	4	4	0

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

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2414	Green River	2013	Color	None	5	5
W2414	Green River	2013	Objectionable Deposits	No	5	5
W2414	Green River	2013	Odor	None	5	5
W2414	Green River	2013	Scum	No	5	5
W2414	Green River	2013	Turbidity	None	5	5
W2414	Green River	2014	Color	Brownish	1	4
W2414	Green River	2014	Color	None	3	4
W2414	Green River	2014	Objectionable Deposits	No	4	4
W2414	Green River	2014	Odor	None	4	4
W2414	Green River	2014	Scum	No	4	4
W2414	Green River	2014	Turbidity	Highly Turbid	1	4
W2414	Green River	2014	Turbidity	None	2	4
W2414	Green River	2014	Turbidity	Slightly Turbid	1	4
W2414	Green River	2015	Color	Light Yellow/Tan	1	4
W2414	Green River	2015	Color	None	3	4
W2414	Green River	2015	Objectionable Deposits	No	4	4
W2414	Green River	2015	Odor	None	4	4
W2414	Green River	2015	Scum	No	4	4
W2414	Green River	2015	Turbidity	None	4	4

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
Connecticut River Conservancy volunteers collected *E. coli* bacteria samples in the Green River at "Bare Ass Beach" in Colrain (CRC_MA-GRN_09.8) between June and September 2019 (n=6) and between July and September 2020 (n=5). Data analysis of this low frequency multi-year dataset indicated neither year had GMs that exceeded 126 cfu/100mls by more than 20% and only one year with one sample that exceeded the STV of 410cfu/100mls. The seasonal GMs were 63 and 58cfu/100ml in 2019 and 2020, respectively. Since the *E. coli* concentrations were below the use attainment impairment thresholds for this multi-year low frequency dataset, the Primary Contact Recreational Use for this Green River AU (MA33-28) is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-GRN_09.8	Connecticut River Conservancy	Water Quality	Green River	Green River, "Bare Ass Beach", Colrain	42.65102	-72.623573

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (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
CRC_MA-GRN_09.8	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	17.1	436	63
CRC_MA-GRN_09.8	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	29.2	145.5	58

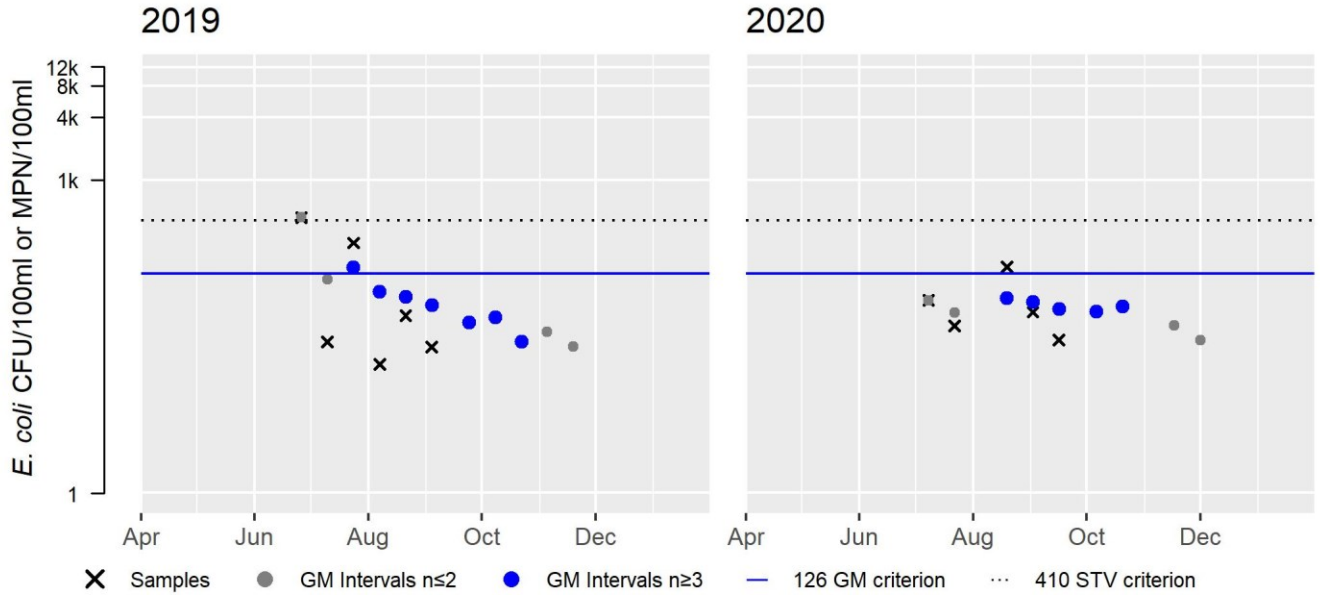
CRC_MA-GRN_09.8 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	63
#GMI	7
#GMI Ex	1
%GMI Ex	14
n>STV	1
%n>STV	17

Var	Res
Samples	5
SeasGM	58
#GMI	5
#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	8



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

Connecticut River Conservancy volunteers collected *E. coli* bacteria samples in the Green River at "Bare Ass Beach" in Colrain (CRC_MA-GRN_09.8) between June and September 2019 (n=6) and between July and September 2020 (n=5). Data analysis of this low frequency multi-year dataset indicated neither year had GMs that exceeded 630 cfu/100mls by more than 20% and no samples that exceeded the STV of 1260 cfu/100mls. The seasonal GMs were 63 and 58cfu/100ml in 2019 and 2020, respectively.
Since the *E. coli* concentrations were below the use attainment impairment thresholds for this multi-year low frequency dataset, the Secondary Contact Recreational Use for this Green River AU (MA33-28) is assessed as Fully Supporting.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-GRN_09.8	Connecticut River Conservancy	Water Quality	Green River	Green River, "Bare Ass Beach", Colrain	42.65102	-72.623573

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (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)
CRC_MA-GRN_09.8	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	17.1	436	63
CRC_MA-GRN_09.8	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	29.2	145.5	58

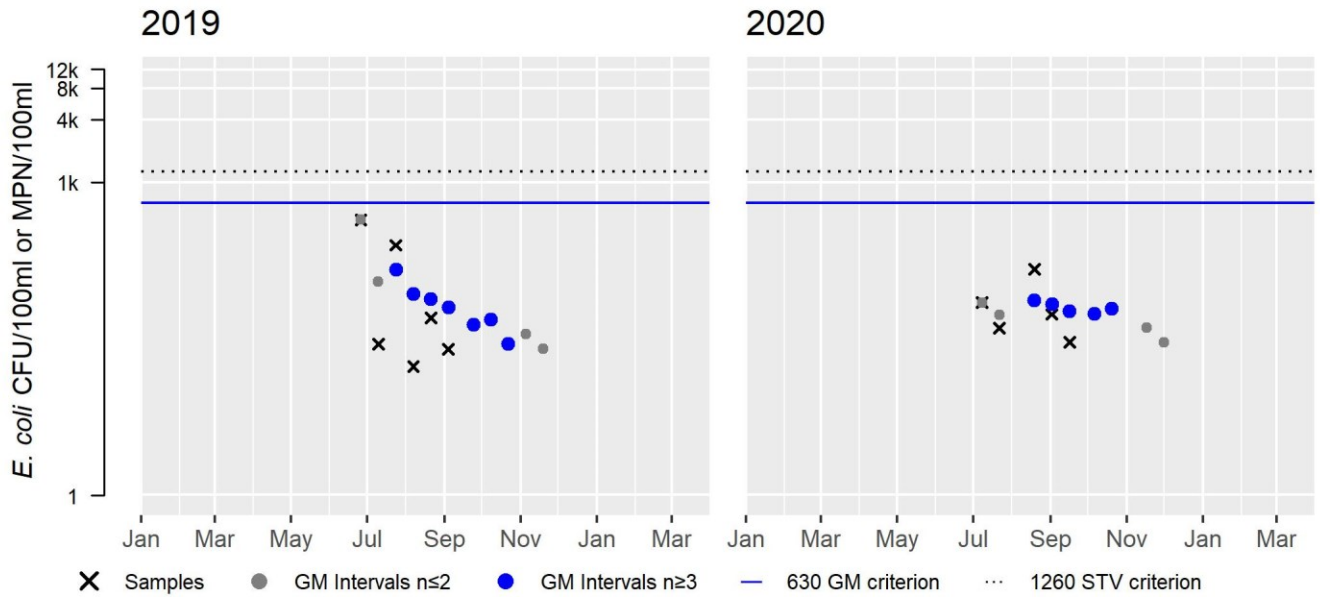
CRC_MA-GRN_09.8 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	63
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	5
SeasGM	58
#GMI	5
#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



Green River (MA33-29)

Location:	From water supply dam north of Eunice Williams Drive (Pumping Station Dam, NATID MA02291), Greenfield to the Swimming Pool #2 Dam (NATID MA02321) northwest of Nashs Mill Road, Greenfield (formerly part of 2002 segment: Green River MA33-09).
AU Type:	RIVER
AU Size:	4.6 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Green River (MA33-29) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

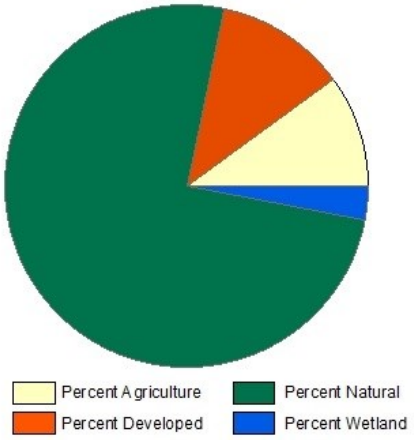
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Green River (MA33-30)

Location:	From Swimming Pool #2 Dam (NATID MA02321) northwest of Nashs Mill Road, Greenfield to confluence with the Deerfield River, Greenfield (formerly reported as 2002 segment: Green River MA33-10 and part of 2002 segment: Green River MA33-09) (HQW applies upstream of former Greenfield WWTF discharge (NPDES# MA0101214), from approximately 0.5 mile upstream of mouth).
AU Type:	RIVER
AU Size:	3.7 MILES
Classification/Qualifier:	B: CWF, HQW* (*HQW applies to portion upstream former Greenfield discharge)

Green River - MA33-30

Watershed Area: 89.36 sq miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	52.07	9.01	17.66	2.16
Agriculture	10%	6.6%	8.8%	8.2%
Developed	11.7%	36%	7.9%	23.1%
Natural	75.3%	53.2%	77%	57.1%
Wetland	3%	4.1%	6.2%	11.6%
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	Fecal Coliform		Unchanged
5	5	Lack of a Coldwater Assemblage		Added
5	5	Temperature		Added
5	5	Turbidity		Unchanged

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

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

Recommendations

2022 Recommendations
ALU: Additional long-term temperature data should be collected along the Green River (MA33-30) to better evaluate the appropriateness of the 2022 Temperature impairment (which was based off of data collected in the year following Hurricane Irene) and to potentially target areas for improved riparian corridor health to provide additional shading. Cooperative efforts (both VT and MA towns in this subwatershed) to reduce thermal stress should be prioritized to protect/maintain/restore cold water habitat in this river.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
MassDEP biologists sampled this Green River AU (MA33-30) east of Route 91, ~915 meters upstream of Colrain Street in Greenfield during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. The benthic community (B0785) sample, collected in September 2012, had an IBI score of 84 indicative of Exceptional conditions compared to the statewide low gradient index). Barge electrofishing (Sample ID 5033) in September 2012 documented fluvial fish (99% of sample) although no cold water species were present. Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2248) can be summarized as follows: minimum dissolved oxygen 7.3mg/L during three short term DO deploys, maximum temperature 26.5°C between June 1st and September 15th with 7DADM exceeding 20°C 90 times. The maximum 24-hour rolling average temperature was 25.2°C (frequently exceeding the acute threshold of 23.5°C, pH ranged from 7.4 to 7.6SU (n=3), and there were few indications of any nutrient enrichment problems (seasonal average total phosphorus concentrations was low 0.008mg/L, max diel DO shift only 2.4mg/L, maximum saturation 120%, maximum pH 7.6SU, and there were no observations of dense/very dense filamentous algae during the five site visits). There were no toxicant issues (maximum total ammonia-nitrogen concentration was 0.02mg/L, chloride was 11mg/L (n=5), and there were no exceedances of any of clean metals or aluminum samples (n=3) although it should be noted that dissolved Al data were compared to total recoverable Al criteria, so exceedances cannot be ruled out). The Aquatic Life Use for this Green River AU (MA33-30) is assessed as Not Supporting based on the lack of cold water fish and temperatures that exceed frequently exceeded Cold Water criteria during the summer of 2012 (both acute and chronic thresholds were exceeded). The benthic sample and other water quality data collected were indicative of generally good conditions. The former Alert related to habitat issues from the dams is no longer needed since the temperature impairment is being added.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5033	MassDEP	Fish Community	Green River (1)	East of I-91, 0.5mi US of Colrain St	42.59825	-72.61592

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
B0785	MassDEP	Benthic	Green River/	[east of Route 91, approximately 915 meters upstream of Colrain Street, Greenfield, MA]	42.598248	-72.615920
W2248	MassDEP	Water Quality	Green River	[east of Route 91, approximately 3000 feet upstream of Colrain Street, Greenfield]	42.598248	-72.615920

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	
B0785	09/06/12	RBP multihab	Statewide_Low_Gradient	103	84	E	

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: BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, LND = Longnose Dace, P = Pumpkinseed, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
5033	09/07/12	BG	TP	L	7	168	0%	6	99%	0%	1	1%	No	Yes	BND, CRC, CS, LND, P, TD, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2248	2012	3	12	7.3	7.4	8.1	2.4	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2248	05/23/12	09/27/12	3	8.5	8.6	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2248	06/01/12	09/15/12	107	107	25.3	26.5	25.7	24.2	90	10	65	6	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2248	2012	3	12	24.7	26.0	25.7	24.1	3	3	3	2	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 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
W2248	06/01/12	09/15/12	107	5136	25.2	506	241	0
W2248	06/28/12	09/04/12	68	579	24.8	169	80	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (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
W2248	05/23/12	09/27/12	5	3	21.3	18.1	1	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (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
W2248	05/23/12	09/27/12	3	7.4	7.6	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (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
W2248	2012	5	0.005	0.015	0.008	2.4	1.6	119.5	7.6	5	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2248	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2248	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (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
W2248	2012	3	0.010	0.01	0.010	0.0	0.0	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (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
W2248	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (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
W2248	2012	5	5	11	8	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (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
W2248	05/23/12	09/27/12	3	141	175	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 Green River AU (MA33-30), therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
MassDEP staff surveyed one reach along this Green River AU (MA33-30) ~3000 feet upstream of Colrain Street in Greenfield (W2248) during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. Except for high turbidity observations during two of the five surveys, there were generally no other objectionable conditions (i.e., odors, deposits, growths) during the surveys. The Aesthetics Use for this Green River AU (MA33-30) will continue to be assessed as Not Supporting with the Turbidity impairment being carried forward.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2248	MassDEP	Water Quality	Green River	[east of Route 91, approximately 3000 feet upstream of Colrain Street, Greenfield]	42.598248	-72.615920

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2248	Green River	2012	6	The Aesthetics use for the Green River is assessed as Fully Supporting based on observations (generally no odors, deposits, or growths) by MassDEP staff during field surveys at station W2248/MAP2-169 in summer 2012 (n=6). However, the use is identified with an Alert status due to 2 observations of highly turbid water.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2248	2012	6	5	0

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

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2248	Green River	2012	Color	Brownish	2	6
W2248	Green River	2012	Color	None	4	6
W2248	Green River	2012	Objectionable Deposits	No	4	6
W2248	Green River	2012	Objectionable Deposits	Yes	2	6
W2248	Green River	2012	Odor	None	6	6
W2248	Green River	2012	Scum	No	5	6
W2248	Green River	2012	Scum	Yes	1	6
W2248	Green River	2012	Turbidity	Highly Turbid	2	6
W2248	Green River	2012	Turbidity	None	4	6

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

E. coli bacteria samples were collected at three sites along this Green River AU (MA33-30) in Greenfield from up to downstream as follows: by MassDEP staff ~3000 feet upstream of Colrain Street (W2248) during the summer of 2012 (n=6), and by Connecticut River Conservancy volunteers between MA Route 2A and the Railroad Bridge (CRC_MA-GRN_02.0) in the summers of 2019 (n=6) and 2020 (n=5), and near Petty Plain Road (CRC_MA-GRN_00.8) during the summer of 2019 (n=6). Data analysis of these single and multiple year low frequency datasets indicated between 75 and 100% of the intervals had GMs >126 cfu/100ml, and two or more samples exceeded the 410 cfu/100ml STV at each site in at least one year. The seasonal GMs ranged from 157 to 1005cfu/100ml.
Since the *E. coli* concentrations exceeded the use attainment impairment thresholds at all three sampling locations, the Primary Contact Recreational Use for this Green River AU (MA33-30) will continue to be assessed as Not Supporting with the *E. coli*, Fecal Coliform, and Turbidity impairments being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-GRN_00.8	Connecticut River Conservancy	Water Quality	Green River	Green River, Petty Plain Rd, Greenfield	42.57636	-72.59841
CRC_MA-GRN_02.0	Connecticut River Conservancy	Water Quality	Green River	Green River, Between MA-2A and RR Bridge, Greenfield	42.58554	-72.61177
W2248	MassDEP	Water Quality	Green River	[east of Route 91, approximately 3000 feet upstream of Colrain Street, Greenfield]	42.598248	-72.615920

Bacteria Data

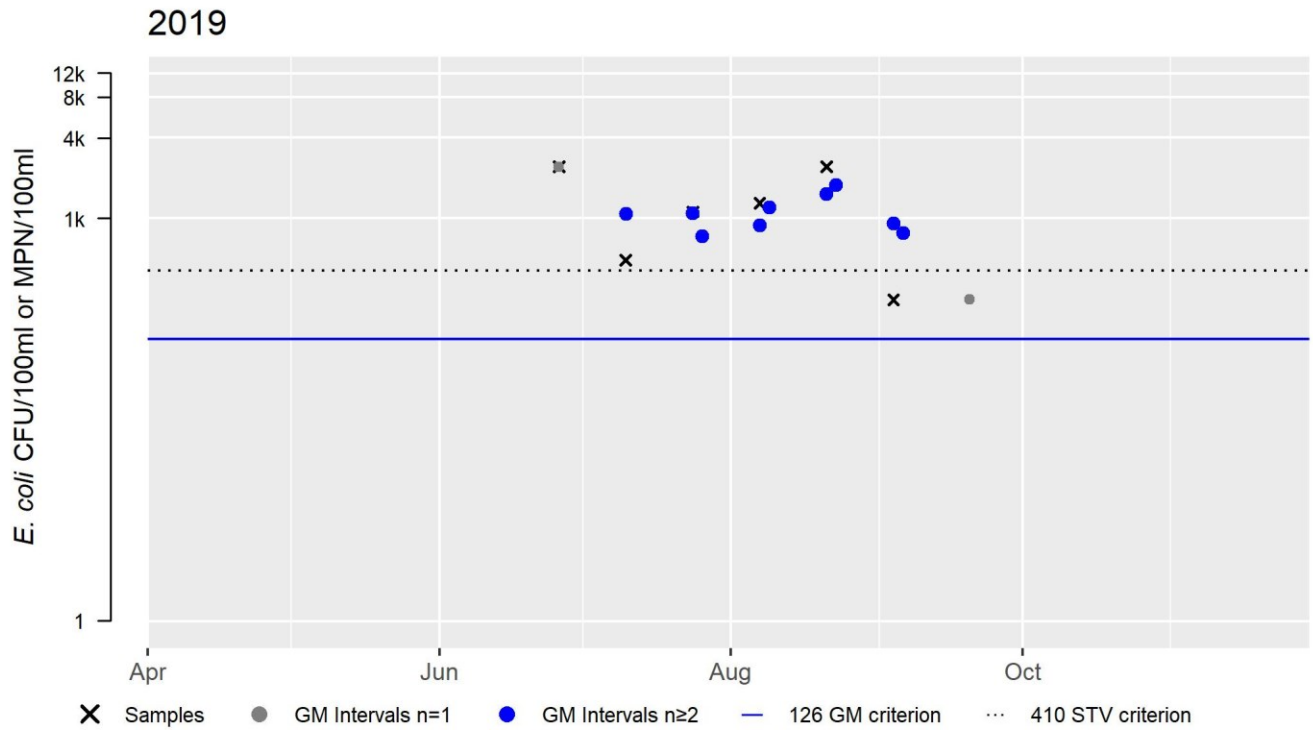
Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (30-day Interval Analysis) (CRC 2021) (MassDEP Undated 4) (MassDEP Undated 8) (MassDEP Undated 6)
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
CRC_MA-GRN_00.8	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	248.1	2419.6	1005
CRC_MA-GRN_02.0	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	95.9	2419.6	414
CRC_MA-GRN_02.0	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	137.6	686.7	292
W2248	MassDEP	E. coli	05/23/12	09/27/12	6	49	1730	157

CRC_MA-GRN_00.8 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	1005
#GMI	9
#GMI Ex	9
%GMI Ex	100
n>STV	5
%n>STV	83

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



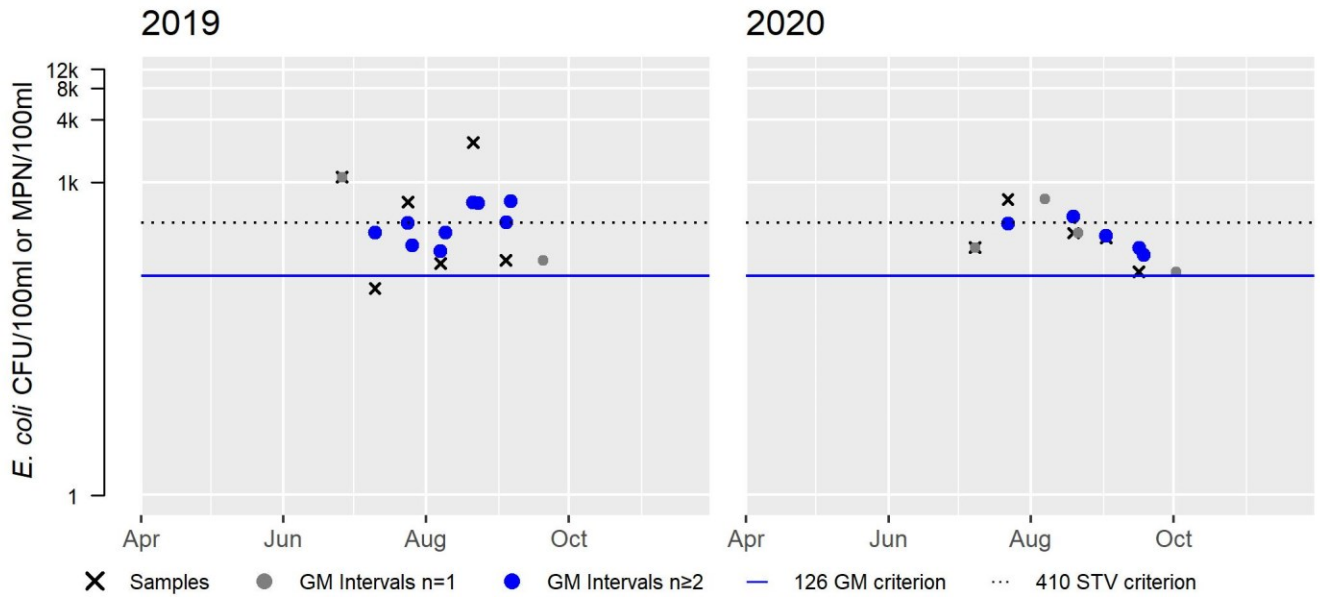
CRC_MA-GRN_02.0 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	414
#GMI	9
#GMI Ex	9
%GMI Ex	100
n>STV	3
%n>STV	50

Var	Res
Samples	5
SeasGM	292
#GMI	5
#GMI Ex	5
%GMI Ex	100
n>STV	1
%n>STV	20

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

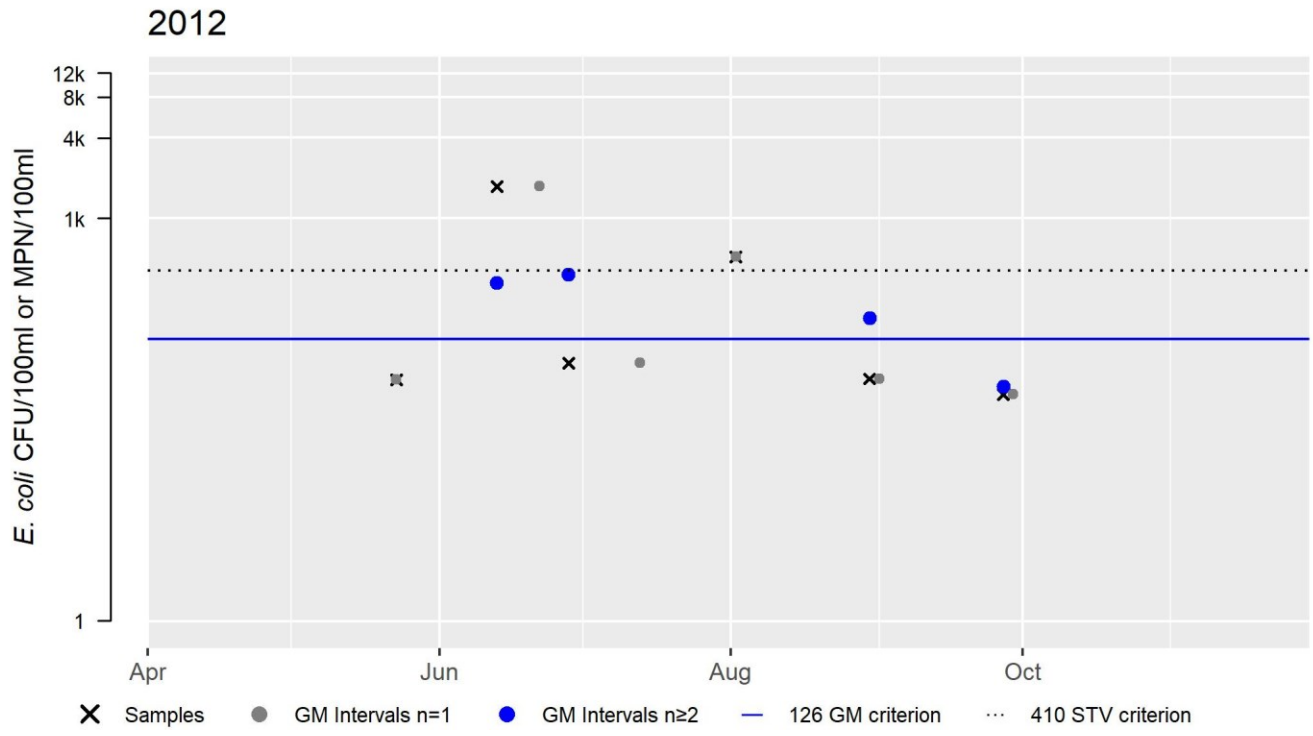
Variable	Cumulative %GMI Ex (all years)
Result	100



W2248 *E. coli* (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	157
#GMI	4
#GMI Ex	3
%GMI Ex	75
n>STV	2
%n>STV	33

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**
Not Supporting	NO
2022 Use Attainment Summary	

E. coli bacteria samples were collected at three sites along this Green River AU (MA33-30) in Greenfield from up to downstream as follows: by MassDEP staff ~3000 feet upstream of Colrain Street (W2248) during the summer of 2012 (n=6), and by Connecticut River Conservancy volunteers between MA Route 2A and the Railroad Bridge (CRC_MA-GRN_02.0) in the summers of 2019 (n=6) and 2020 (n=5), and near Petty Plain Road (CRC_MA-GRN_00.8) during the summer of 2019 (n=6). Data analysis of these single and multiple year low frequency datasets indicated none of the interval GMs at the two upstream sampling locations were >630 cfu/100ml and no more than one sample exceeded the 1260 cfu/100ml STV at either of these two sites but at the most downstream site (CRC_MA-GRN_00.8) 100% of the intervals had GMs >630 cfu/100ml, and three samples exceeded the 1260 cfu/100ml STV. The seasonal GMs ranged from 157 to 1005cfu/100ml.
Since the *E. coli* concentrations exceeded the use attainment impairment thresholds at the most downstream sampling location (CRC_MA-GRN_00.8 near Petty Plain Road in Greenfield), the Secondary Contact Recreational Use for this Green River AU (MA33-30) will continue to be assessed as Not Supporting with the *E. coli*, Fecal Coliform, and Turbidity impairments being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-GRN_00.8	Connecticut River Conservancy	Water Quality	Green River	Green River, Petty Plain Rd, Greenfield	42.57636	-72.59841
CRC_MA-GRN_02.0	Connecticut River Conservancy	Water Quality	Green River	Green River, Between MA-2A and RR Bridge, Greenfield	42.58554	-72.61177
W2248	MassDEP	Water Quality	Green River	[east of Route 91, approximately 3000 feet upstream of Colrain Street, Greenfield]	42.598248	-72.615920

Bacteria Data

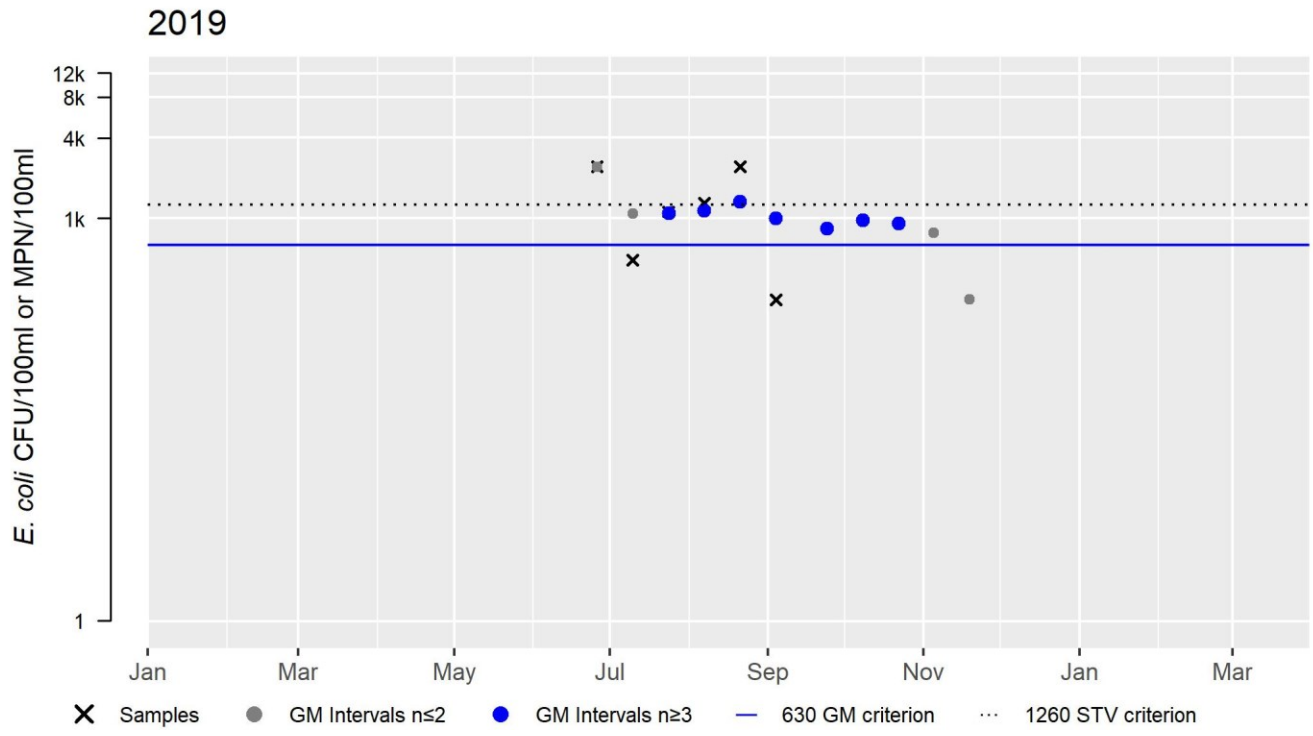
Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4) (MassDEP Undated 8) (MassDEP Undated 6)
[Result units are CFU/100ml or MPN/100ml]

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)
CRC_MA-GRN_00.8	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	248.1	2419.6	1005
CRC_MA-GRN_02.0	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	95.9	2419.6	414
CRC_MA-GRN_02.0	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	137.6	686.7	292
W2248	MassDEP	E. coli	05/23/12	09/27/12	6	49	1730	157

CRC_MA-GRN_00.8 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	1005
#GMI	7
#GMI Ex	7
%GMI Ex	100
n>STV	3
%n>STV	50

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



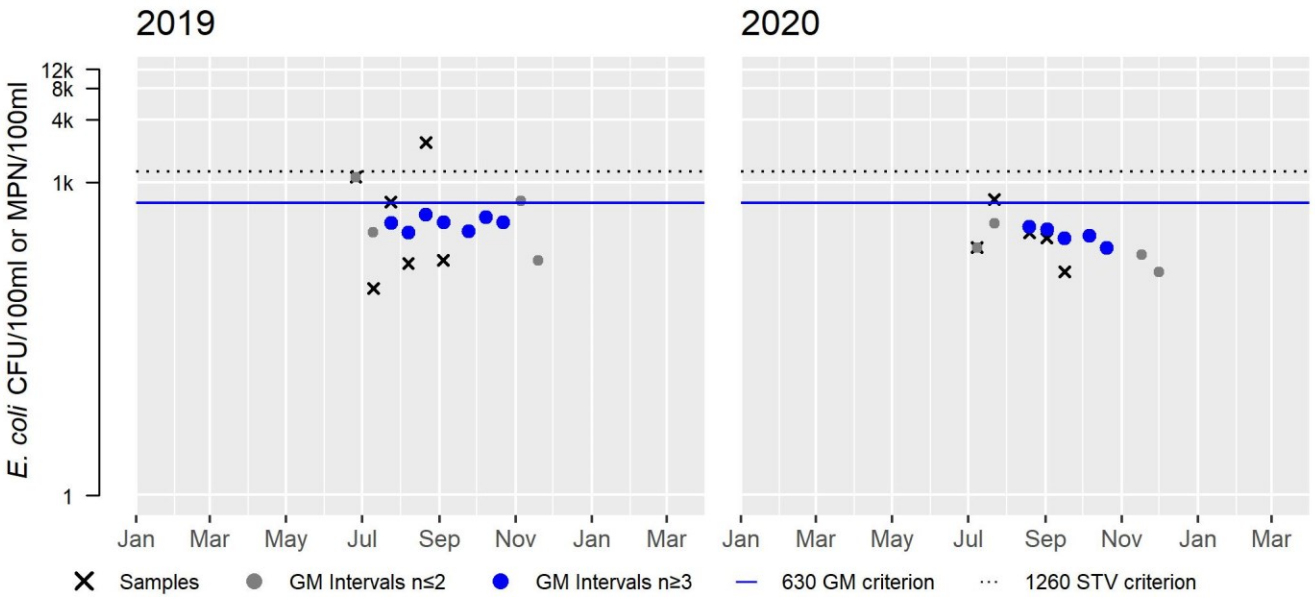
CRC_MA-GRN_02.0 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	414
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	17

Var	Res
Samples	5
SeasGM	292
#GMI	5
#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

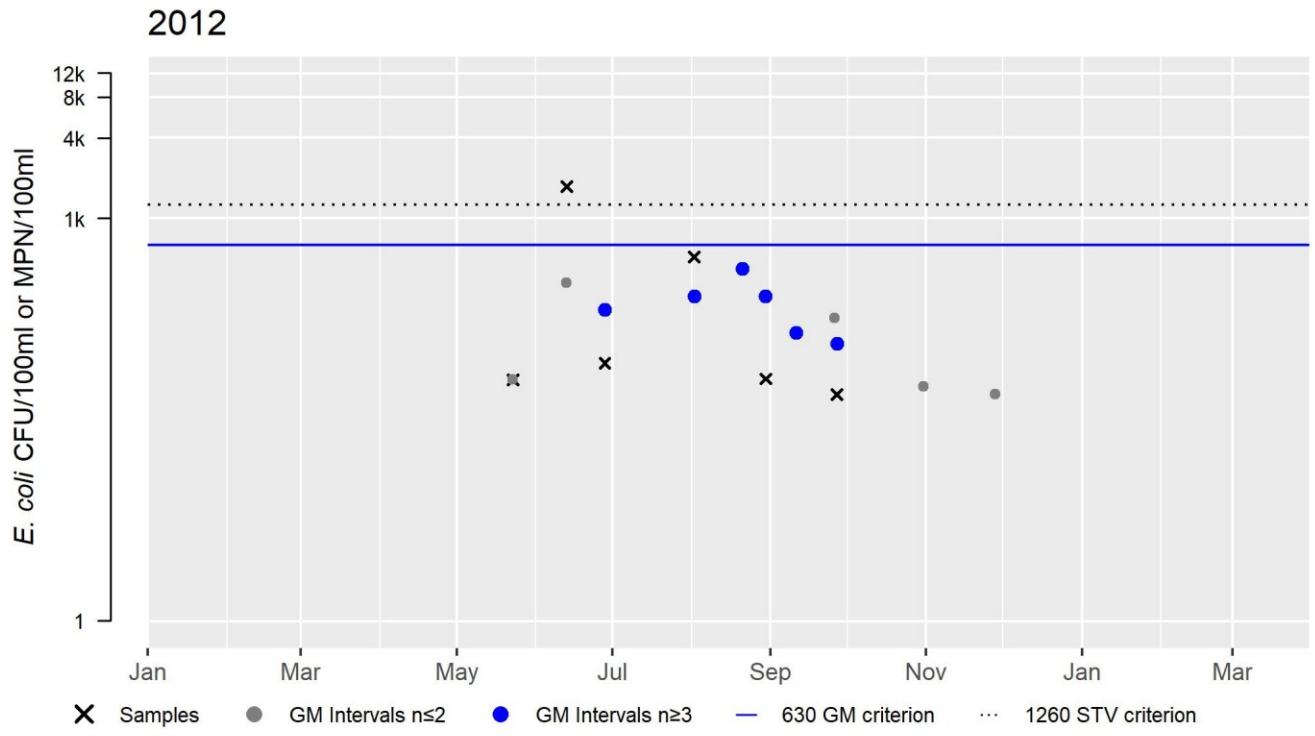
Variable	Cumulative %GMI Ex (all years)
Result	0



W2248 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	157
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	17

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



Green River (MA33-55)

Location:	Headwaters, perennial portion in Florida State Forest west of Blackstone Road, Florida to confluence with Cold River, Florida.
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B

No usable data were available for Green River (MA33-55) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Gulf Brook (MA33-56)

Location:	Outlet of Burnett Pond, Savoy to confluence with Cold River, Savoy.
AU Type:	RIVER
AU Size:	3.5 MILES
Classification/Qualifier:	B

No usable data were available for Gulf Brook (MA33-56) 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

Haley Brook (MA33-57)

Location:	Headwaters north of Main Street, Monroe to confluence with Dunbar Brook, Monroe.
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	B

No usable data were available for Haley Brook (MA33-57) 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

Hallockville Pond (MA33009)

Location:	Plainfield/Hawley.
AU Type:	FRESHWATER LAKE
AU Size:	18 ACRES
Classification/Qualifier:	B

No usable data were available for Hallockville Pond (MA33009) 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

Hartwell Brook (MA33-58)

Location:	Headwaters, south of South Heath Road, Charlemont to confluence with Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Hartwell Brook (MA33-58) 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

Hawkes Brook (MA33-112)

Location:	Headwaters east of Zerah Fiske Road, Shelburne to confluence with Dragon Brook, Shelburne.
AU Type:	RIVER
AU Size:	1.2 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Hawkes Brook (MA33-112) 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

Heath Brook (MA33-59)

Location:	Headwaters, south of West Main Street, Heath to confluence with Mill Brook, Heath.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B

No usable data were available for Heath Brook (MA33-59) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Hibbard Brook (MA33-60)

Location:	Headwaters, north of West Leyden Road, Leyden to confluence with Green River, Leyden.
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	A: PWS, ORW, HQW, CWF (Tributary)

No usable data were available for Hibbard Brook (MA33-60) 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

Highland Pond (MA33032)

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

No usable data were available for Highland Pond (MA33032) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

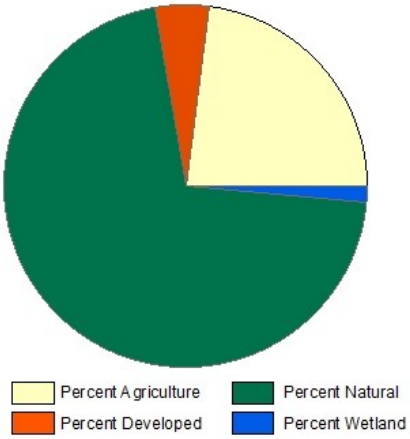
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Hinsdale Brook (MA33-21)

Location:	Headwaters east of Fiske Mill Road, Shelburne to confluence with Punch Brook, Greenfield.
AU Type:	RIVER
AU Size:	2.8 MILES
Classification/Qualifier:	B: CWF

Hinsdale Brook - MA33-21

Watershed Area: 5.27 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	5.27	4.07	1.69	1.37
Agriculture	22.9%	19.6%	14.6%	14%
Developed	4.8%	4.7%	6.2%	5.8%
Natural	71%	74.2%	75.7%	76.1%
Wetland	1.4%	1.6%	3.5%	4%
Impervious Cover	2.2%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Escherichia Coli (E. Coli)		Unchanged
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)	Agriculture (N)				X	
Escherichia Coli (E. Coli)	Source Unknown (N)				X	
Temperature	Agriculture (N)	X				
Temperature	Source Unknown (N)	X				

Recommendations

2022 Recommendations
ALU: Additional long-term temperature data should be collected in Hinsdale Brook to better evaluate the appropriateness of the 2022 Temperature impairment (which was based off of data collected in the year following Hurricane Irene) and to potentially target areas for improved riparian corridor health to provide additional shading. REC: Conduct *E. coli* bacteria sampling in Hinsdale Brook along Green River Road in Greenfield downstream of the storm water swale and discharge pipes (W1346) to evaluate if a delisting of *E. coli* bacteria impairment is appropriate since sampling upstream of this location in summer 2012 [upstream of Green River Road, Shelburne (~ 700 feet downstream of the Stewart Brook confluence)] had no *E. coli* bacteria exceedances.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing in the upper reach of Hinsdale Brook upstream of Wilson Graves Rd crossing in Shelburne in July 2014 (SampleID 5388) and near the confluence with Stewart Brook at Brook Road crossing in Shelburne in September 2014 and August 2015 (SampleIDs 5166 and 5707). The samples were all comprised of fluvial fish including multiple age classes of Eastern brook trout these sites as well as slimy sculpin at all but the most upstream location. Slightly further downstream MassDEP biologists also sampled Hinsdale Brook upstream of Green River Road, Shelburne (and ~700 feet downstream of the Stewart Brook confluence) during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. The benthic community (B0782) sample, collected in August 2012, had an IBI score of 47 (Moderately Degraded conditions for a high gradient Western Highland region stream). Backpack electrofishing by MassDEP biologists in August 2012 (SampleID 501=23) documented a sample comprised entirely by fluvial fish including multiple age classes of Eastern brook trout as well as slimy sculpin. Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2275) can be summarized as follows: minimum dissolved oxygen 8.5mg/L during three short term DO deploys, maximum temperature 22.0°C between June 1st and September 15th with 7DADM exceeding 20°C 25 times. The maximum 24-hour rolling average temperature was 20.7°C, pH ranged from 8.2 to 8.4SU (n=3), and there no indications of a nutrient enrichment problem (seasonal average total phosphorus concentrations was 0.010mg/L, max diel DO shift only 0.9mg/L, maximum saturation 106%, maximum pH 8.4SU, no observations of dense/very dense filamentous algae in any of the six site visits). There were no toxicant issues (maximum total ammonia-nitrogen concentration was 0.02mg/L, chloride was 8mg/L (n=5), and there were no exceedances of any of clean metals or aluminum samples (n=3) although it should be noted that dissolved Al data were compared to total recoverable Al criteria, so exceedances cannot be ruled out). Lastly MA DFG biologists also conducted backpack electrofishing in Hinsdale Brook at the Greenfield/Shelburne town line at Colrain/Brook roads in September 2016, August 2017, and September 2018 (SampleIDs 6275, 6657, and 7602, respectively). These samples were also comprised entirely by fluvial fish including a few Eastern brook trout (multiple age classes) as well as slimy sculpin. The Aquatic Life Use for the Hinsdale Brook is assessed as Not Supporting based on the elevated temperatures above Cold Water habitat criteria during the summer of 2012. The watershed area is 72.4% Natural/Wetland with 2.2% of impervious cover, with a fairly high percentage of agricultural area (22.9%), so the elevated temperature is considered to be exacerbated by anthropogenic activities. While the benthic data IBI score was in the Moderately Degraded category, since the data were collected in the year following Hurricane Irene, a benthic impairment is not being added. The former Alert for suboptimal habitat previously identified in the brook downstream From Greenfield Road in Shelburne is also being carried forward.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5023	MassDEP	Fish Community	Hinsdale Brook	0.6mi US of Green River Rd, along Brook Rd 0.5mi W of Greenfield townline & ~700Ft DS of Stewart Br confluence	42.62827	-72.64486
5166	MassDFG	Fish Community	Hinsdale Brook	US of Brook Rd xing, Index site, Shelburne	42.62981	-72.64551
5388	MassDFG	Fish Community	Hinsdale Brook	Upstream of Wilson Graves Rd xing, Shelburne	42.63522	-72.65792
5707	MassDFG	Fish Community	Hinsdale Brook	Bridge on Brook Rd, Shelburne	42.62965	-72.64577
6275	MassDFG	Fish Community	Hinsdale Brook	US of logging rd xing, Greenfield	42.62355	-72.63857
6657	MassDFG	Fish Community	Hinsdale Brook	Turnout on GreenfieldRd @ G'field/Shelburne line., Shelburne/Greenfield	42.62320	-72.63849
7602	MassDFG	Fish Community	Hinsdale Brook	Found at town line on Colrain Rd. , Greenfield	42.62336	-72.63857
B0812	MassDEP	Benthic	Hinsdale Brook/	[approximately 1080 meters upstream of Green River Road, Shelburne, MA (and approximately 210 meters downstream of the Stewart Brook confluence)]	42.628268	-72.644858
W2275	MassDEP	Water Quality	Hinsdale Brook	[approximately 3550 feet upstream of Green River Road, Shelburne (and approximately 700 feet downstream of the Stewart Brook confluence)]	42.628268	-72.644858

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
B0812	08/13/12	RBP kicknet	Western_Highlands_100ct	104	47	MD

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]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, SC = Slimy Sculpin]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5023	08/23/12	BP	TP	7	202	4	66	149	3	83	51%	100%	No	Yes	AS, BND, BT, CRC, EBT, LND, SC,
5166	09/09/14	BP	TP	5	113	3	84	162	2	69	65%	100%	Yes	Yes	BND, BT, EBT, LND, SC,
5388	07/25/14	BP	TP	4	300	94	55	207	70	0	38%	100%	Yes	Yes	BND, BT, CRC, EBT,
5707	08/20/15	BP	TP	5	205	11	44	205	6	94	77%	100%	No	Yes	BND, BT, EBT, LND, SC,
6275	09/01/16	BP	TP	6	444	2	125	182	1	138	32%	100%	No	Yes	BND, BT, CS, EBT, LND, SC,
6657	08/28/17	BP	TP	5	441	7	57	100	7	214	50%	100%	No	Yes	BND, CRC, EBT, LND, SC,
7602	09/07/18	BP	TP	6	232	5	98	199	3	84	40%	100%	No	Yes	BND, BT, CRC, EBT, LND, SC,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2275	2012	3	11	8.5	8.5	8.8	0.9	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2275	05/23/12	09/27/12	3	9	9.1	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2275	06/01/12	09/15/12	107	107	20.7	22.0	21.0	19.6	25	0	0	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2275	2012	3	12	20.1	22.0	21.4	19.8	1	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 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
W2275	06/01/12	09/15/12	107	5136	20.7	0	0	0
W2275	06/28/12	09/04/12	68	584	20.3	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (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
W2275	05/23/12	09/27/12	5	3	20.1	17.2	1	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (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
W2275	05/23/12	09/27/12	3	8.2	8.4	1	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (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
W2275	2012	5	0.009	0.012	0.010	0.9	0.6	106.2	8.4	6	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2275	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2275	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (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
W2275	2012	3	0.005	0.01	0.008	0.0	0.0	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (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
W2275	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (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
W2275	2012	5	5	8	7	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (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
W2275	05/23/12	09/27/12	3	214	245	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 Hinsdale Brook, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff surveyed Hinsdale Brook upstream of Green River Road, Shelburne (and ~700 feet downstream of the Stewart Brook confluence) (W2275) during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. There were generally no objectionable conditions (i.e., odors, deposits, growths, or turbidity) observed during the surveys. The Aesthetics Use for Hinsdale Brook is assessed as Fully Supporting based on the lack of any objectionable conditions documented by MassDEP staff during the summer of 2012.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2275	MassDEP	Water Quality	Hinsdale Brook	[approximately 3550 feet upstream of Green River Road, Shelburne (and approximately 700 feet downstream of the Stewart Brook confluence)]	42.628268	-72.644858

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2275	Hinsdale Brook	2012	6	MassDEP aesthetics observations for station W2275/MAP2-213 on Hinsdale 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 2012.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2275	2012	6	6	0

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

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2275	Hinsdale Brook	2012	Color	Greyish	1	6
W2275	Hinsdale Brook	2012	Color	None	5	6
W2275	Hinsdale Brook	2012	Objectionable Deposits	No	6	6
W2275	Hinsdale Brook	2012	Odor	None	6	6
W2275	Hinsdale Brook	2012	Scum	No	6	6
W2275	Hinsdale Brook	2012	Turbidity	None	5	6
W2275	Hinsdale Brook	2012	Turbidity	Slightly Turbid	1	6

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO

2022 Use Attainment Summary

MassDEP staff collected *E. coli* bacteria samples from Hinsdale Brook upstream of Green River Road, Shelburne (and ~700 feet downstream of the Stewart Brook confluence) (W2275) between May and September 2012 (n=6). Data analysis indicated none of the intervals had GMs >126 cfu/100ml, none of the samples exceeded the 410 cfu/100ml STV, and the seasonal GM was 24 cfu/100ml.

Despite low *E. coli* concentrations in the river upstream of Green River Road, Shelburne (and ~700 feet downstream of the Stewart Brook confluence) (W2275) during the summer 2012, the Primary Contact Recreational Use for Hinsdale Brook will continue to be assessed as Not Supporting with the *E. coli* impairment being carried forward. The impairment was first listed in the 2016 IR reporting cycle based on *E. coli* bacteria concentrations in Hinsdale Brook a little further downstream along Green River Road in Greenfield downstream of a storm water swale and discharge pipes (W1346) during the summer 2005 (n=5 samples with overall geo mean 139cfu/100mls) so a recommendation will be made to sample that location again to evaluate if a delisting is appropriate.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2275	MassDEP	Water Quality	Hinsdale Brook	[approximately 3550 feet upstream of Green River Road, Shelburne (and approximately 700 feet downstream of the Stewart Brook confluence)]	42.628268	-72.644858

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 6)

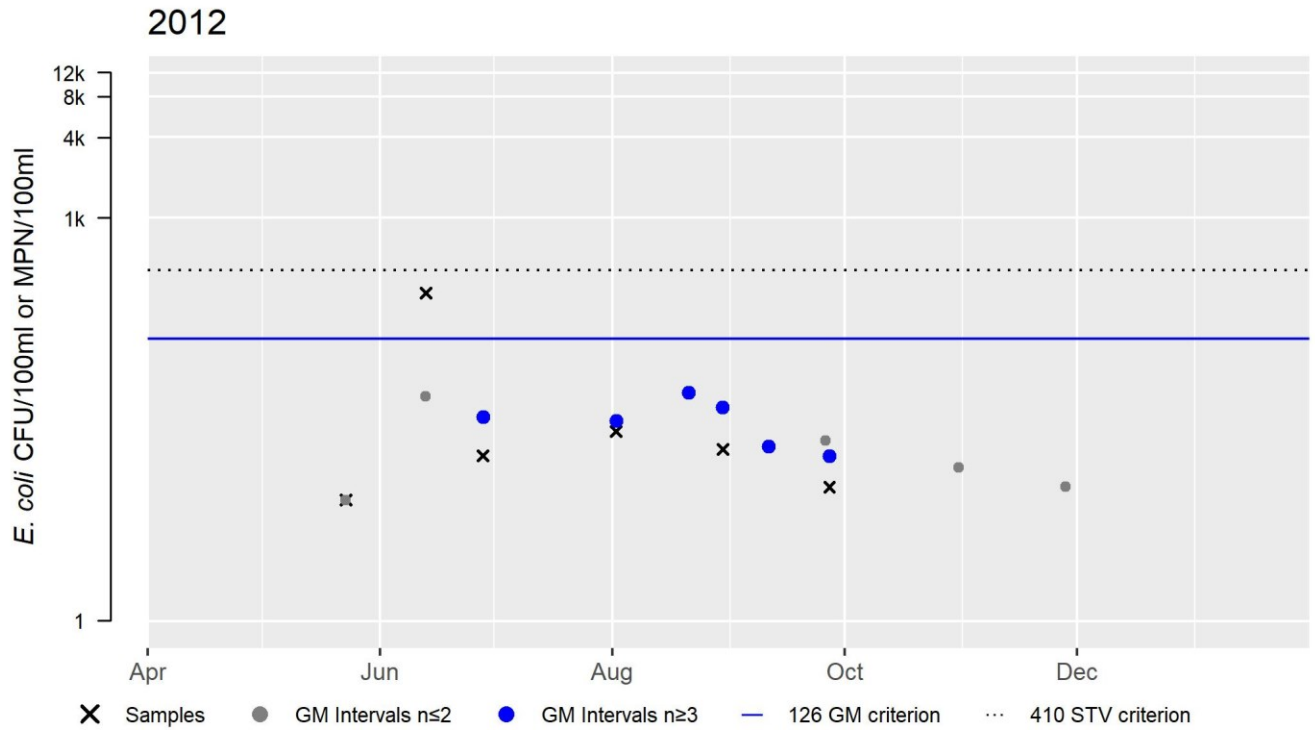
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2275	MassDEP	E. coli	05/23/12	09/27/12	6	8	276	24

W2275 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	24
#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 Hinsdale Brook upstream of Green River Road, Shelburne (and ~700 feet downstream of the Stewart Brook confluence) (W2275) between May and September 2012 (n=6). Data analysis indicated none of the intervals had GMs >630 cfu/100ml, none of the samples exceeded the 1260 cfu/100ml STV, and the seasonal GM was 24 cfu/100ml.

The Secondary Contact Recreational Use for Hinsdale Brook is assessed as Fully Supporting based on the low E. coli concentrations documented during summer 2012.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2275	MassDEP	Water Quality	Hinsdale Brook	[approximately 3550 feet upstream of Green River Road, Shelburne (and approximately 700 feet downstream of the Stewart Brook confluence)]	42.628268	-72.644858

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 6)

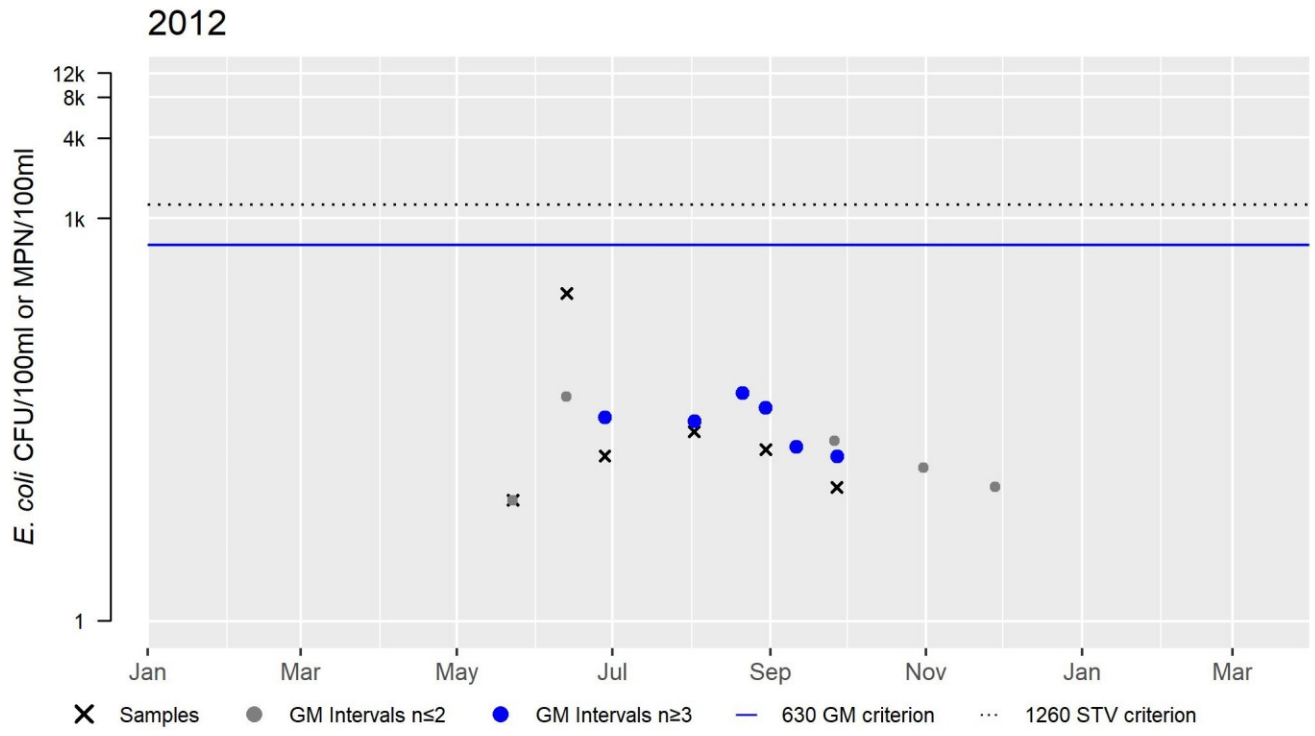
[Result units are CFU/100ml or MPN/100ml]

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)
W2275	MassDEP	E. coli	05/23/12	09/27/12	6	8	276	24

W2275 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	24
#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



Horsefords Brook (MA33-62)

Location:	Headwaters, west of Bannis Road, Savoy to confluence with Chickley River, Savoy.
AU Type:	RIVER
AU Size:	1.9 MILES
Classification/Qualifier:	B

No usable data were available for Horsefords Brook (MA33-62) 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

Houghton Brook (MA33-135)

Location:	Headwaters, perennial portion south of Charlemont Road, Colrain to mouth at confluence with North River, Colrain.
AU Type:	RIVER
AU Size:	0.2 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Houghton Brook (MA33-135) 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

Johnny Bean Brook (MA33-63)

Location:	Headwaters, Poland Brook State Wildlife Management Area, Conway to confluence with South River, Conway.
AU Type:	RIVER
AU Size:	1.7 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Johnny Bean Brook (MA33-63) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Johnson Brook (MA33-131)

Location:	Headwaters, west of Route 112 (Main Road) and northeast at Houghton Hill, Colrain to the mouth at confluence with North River, Colrain.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B

No usable data were available for Johnson Brook (MA33-131) 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	(Dewatering*)		Unchanged

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

Katley Brook (MA33-99)

Location:	Headwaters, east of Katley Hill, Leyden to confluence with Green River, Leyden.
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	A: PWS, ORW, HQW, CWF (Tributary)

No usable data were available for Katley Brook (MA33-99) 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

King Brook (MA33-64)

Location:	Headwaters, outlet Hallockville Pond, Hawley to confluence with Chickley River, Hawley.
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B

No usable data were available for King Brook (MA33-64) 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

Kinsman Brook (MA33-124)

Location:	Headwaters north of Colrain Stage Road, Heath to confluence with Davenport Brook forming headwaters Taylor Brook, Heath.
AU Type:	RIVER
AU Size:	1.8 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Kinsman Brook (MA33-124) 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

Legate Hill Brook (MA33-65)

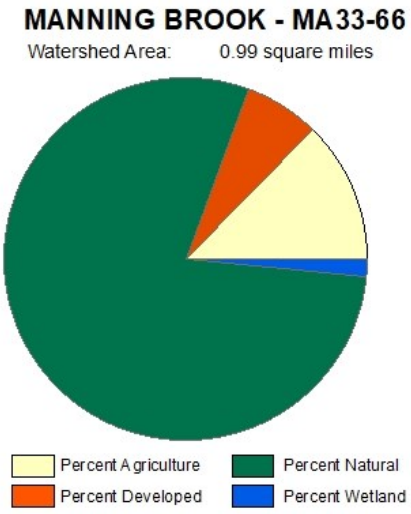
Location:	Headwaters, perennial portion north of Blueberry Peak, Charlemont to confluence with Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	3.4 MILES
Classification/Qualifier:	B

No usable data were available for Legate Hill Brook (MA33-65) 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

Manning Brook (MA33-66)

Location:	Headwaters, north of South County Road, Florida to confluence with Cold River, Florida.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B: CWF



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	0.99	0.99	0.18	0.18
Agriculture	12.6%	12.6%	0%	0%
Developed	6.7%	6.7%	12%	12%
Natural	79.1%	79.1%	86.2%	86.2%
Wetland	1.6%	1.6%	1.8%	1.8%
Impervious Cover	2.8%			

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	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing in Manning Brook downstream of the first culvert crossing on Route 2 below South County Road in Florida in September 2016 (SampleID 8144). The fish sample was comprised entirely by multiple age classes of Eastern brook trout. The Aquatic Life Use for Manning Brook is assessed as Fully Supporting based on the presence of cold water fish species which are indicate of excellent habitat and water quality conditions.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
8144	MassDFG	Fish Community	Manning Brook	Downstream of 1st culvert crossing on Rt. 2. Below South County Rd. , Florida	42.65029	-72.99579

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: EBT = Brook Trout]

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
8144	09/27/16	BP	TP		1	23	100%	1	100%	100%	0	0%	Yes	Yes	EBT,

Note: DFG database remarks all 23 Brook trout were vermiculated and that multiple age classes ranging 30-120mm were present in the 250 feet of the brook surveyed.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Manning Brook, 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 Manning Brook, 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 Manning Brook, so it is Not Assessed.	

Secondary Contact Recreation

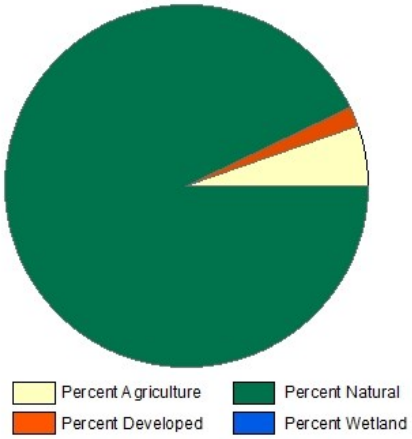
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for Manning Brook, so it is Not Assessed.	

Maxwell Brook (MA33-67)

Location:	Headwaters, located north of Tatro Road, Rowe to confluence with Mill Brook, Charlemont.
AU Type:	RIVER
AU Size:	3.3 MILES
Classification/Qualifier:	B: CWF

MAXWELL BROOK - MA33-67

Watershed Area: 2.96 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	2.96	2.95	0.59	0.59
Agriculture	5.4%	5.4%	1.9%	1.9%
Developed	1.7%	1.7%	3.2%	3.2%
Natural	92.7%	92.6%	93.6%	93.6%
Wetland	0.3%	0.3%	1.4%	1.4%
Impervious Cover	0.8%			

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	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing in Maxwell Brook near the turnoff on Maxwell Road, just north of Route 8A in Charlemont in August 2014 through 2018 (SampleIDs 5143, 5677, 6242, 6615, and 7609). The fish sample s were comprised entirely of multiple age classes of Eastern brook trout in the three most recent sampling years. The Aquatic Life Use for Manning Brook is assessed as Fully Supporting based on the presence of cold water fish species which are indicate of excellent habitat and water quality conditions .	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5143	MassDFG	Fish Community	Maxwell Brook	Turnoff on Maxwell Rd, just N of Rt 8A, Charlemont	42.65021	-72.86664
5677	MassDFG	Fish Community	Maxwell Brook	Turnoff US of falls on Maxwell Rd, Charlemont	42.64977	-72.86663
6242	MassDFG	Fish Community	Maxwell Brook	Maxwell Rd, Charlemont	42.65026	-72.86658
6615	MassDFG	Fish Community	Maxwell Brook	Turn out on Maxwell Rd, Charlemont	42.65002	-72.86654
7609	MassDFG	Fish Community	Maxwell Brook	Turnoff on Maxwell Rd. , Charlemont	42.64953	-72.86648

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]

[Species List: AS = Atlantic Salmon, EBT = Brook Trout]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5143	08/05/14	BP	TP	2	39	29	49	156	26	0	100%	100%	No	Yes	AS, EBT,
5677	08/05/15	BP	TP	2	60	57	58	145	54	0	100%	100%	No	Yes	AS, EBT,
6242	08/22/16	BP	TP	1	56	56	59	201	51	0	100%	100%	No	Yes	EBT,
6615	08/03/17	BP	TP	1	59	59	53	186	54	0	100%	100%	No	Yes	EBT,
7609	08/31/18	BP	TP	1	54	54	65	172	46	0	100%	100%	No	Yes	EBT,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Maxwell Brook, 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 Maxwell Brook, 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 Maxwell Brook, 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 Maxwell Brook, so it is Not Assessed.	

Maynard Pond (MA33011)

Location:	Greenfield.
AU Type:	FRESHWATER LAKE
AU Size:	3 ACRES
Classification/Qualifier:	B

No usable data were available for Maynard Pond (MA33011) 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

Mccard Brook (MA33-68)

Location:	Headwaters, east of Oak Hill Road, Leyden to confluence with Mill Brook, Greenfield.
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Mccard Brook (MA33-68) 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

Mcleod Pond (MA33012)

Location:	Colrain.
AU Type:	FRESHWATER LAKE
AU Size:	41 ACRES
Classification/Qualifier:	B

No usable data were available for Mcleod Pond (MA33012) 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

Meadow Brook (MA33-130)

Location:	Headwaters, outlet McLeod Pond, Colrain to mouth at confluence with North River, Colrain.
AU Type:	RIVER
AU Size:	1.2 MILES
Classification/Qualifier:	B

No usable data were available for Meadow Brook (MA33-130) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

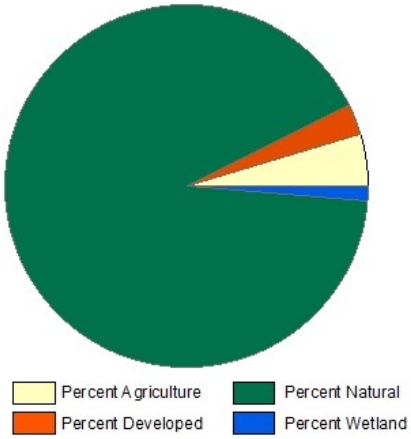
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Mill Brook (MA33-14)

Location:	Headwaters, originating north of Rowe Road, Heath to confluence with the Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	5.7 MILES
Classification/Qualifier:	B: CWF

Mill Brook - MA33-14

Watershed Area: 11.95 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	11.95	4.1	2.72	1.05
Agriculture	4.6%	4.4%	2%	3%
Developed	2.8%	3.5%	4.3%	6.9%
Natural	91.4%	91.7%	90.6%	88.8%
Wetland	1.3%	0.4%	3.1%	1.2%
Impervious Cover	1.3%			

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	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing in two locations along this Mill Brook AU (MA33-14) from up to downstream as follows: just upstream of the town line along Jacksonville Stage Road in Heath (SampleIDs 5144, 5676, 6243, 6613, and 7607) in August 2014 through 2018 and near the farm crossing off of Route 8A in Charlemont (SampleIDs 5145, 5678, 6245, and 6614) in August 2014 through 2017. All samples were comprised entirely by fluvial fish and included multiple age classes of Eastern brook trout. The Aquatic Life Use for this Mill Brook AU (MA33-14) is assessed as Fully Supporting based on the presence of cold water fish species which are indicate of excellent habitat and water quality conditions.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5144	MassDFG	Fish Community	Mill Brook (2)	Turnoff on Rt 8A, just N of townline, Heath	42.66163	-72.85336
5145	MassDFG	Fish Community	Mill Brook (2)	Farm xing off Rt 8A, Charlemont	42.63881	-72.86829
5676	MassDFG	Fish Community	Mill Brook (2)	Just US of town line along Jacksonville Stage Rd, Heath	42.66137	-72.85307
5678	MassDFG	Fish Community	Mill Brook (2)	Farm rd xing off N. Heath Rd (Rt 8A), Charlemont	42.63839	-72.86850
6243	MassDFG	Fish Community	Mill Brook (2)	Turn off @ town line on 8A, Heath	42.66159	-72.85323
6245	MassDFG	Fish Community	Mill Brook (2)	Farm Ford on 8a, Charlemont	42.63832	-72.86856
6613	MassDFG	Fish Community	Mill Brook (2)	Turnoff Rt 8a @ town line, Heath	42.66151	-72.85311
6614	MassDFG	Fish Community	Mill Brook (2)	Farm Ford off at Rt 8A, Charlemont	42.63849	-72.86858
7607	MassDFG	Fish Community	Mill Brook (2)	Turnoff on 8a at town line , Heath	42.66118	-72.85341

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]

[Species List: AS = Atlantic Salmon, BB = Brown Bullhead, BND = Blacknose Dace, EBT = Brook Trout]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5144	08/05/14	BP	TP	2	115	94	39	188	87	0	100%	100%	No	Yes	AS, EBT,
5145	08/05/14	BP	TP	3	149	55	57	168	48	0	44%	100%	No	Yes	AS, BND, EBT,
5676	08/05/15	BP	TP	2	176	174	48	155	167	0	100%	100%	No	Yes	AS, EBT,
5678	08/05/15	BP	TP	3	109	58	58	185	48	0	53%	99%	No	Yes	BB, BND, EBT,
6243	08/22/16	BP	TP	1	181	181	52	174	165	0	100%	100%	No	Yes	EBT,
6245	08/23/16	BP	TP	2	227	115	26	170	103	0	51%	100%	No	Yes	BND, EBT,
6613	08/03/17	BP	TP	1	132	132	49	405	115	0	100%	100%	No	Yes	EBT,
6614	08/03/17	BP	TP	2	194	56	47	200	46	0	29%	100%	No	Yes	BND, EBT,
7607	08/31/18	BP	TP	1	94	94	47	182	79	0	100%	100%	No	Yes	EBT,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No fish toxics sampling has been conducted in this Mill Brook AU (MA33-14), 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 Mill Brook AU (MA33-14), so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
Connecticut River Conservancy volunteers collected *E. coli* bacteria samples near the mouth of this Mill Brook AU (MA33-14) in Charlemont between June and September 2019 (n=5). Data analysis indicated 0% of the intervals had GMs >126 cfu/100ml, and no samples exceeded the 410 cfu/100ml STV. The seasonal GM was 43 cfu/100ml. Based on the low *E. coli* concentrations during this single year limited frequency dataset, the Primary Contact Recreational Use for this Mill Brook AU (MA33-14) is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-MBK_00.1	Connecticut River Conservancy	Water Quality	Mill Brook	Mill Brook, Charlemont	42.626551	-72.872454

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4)

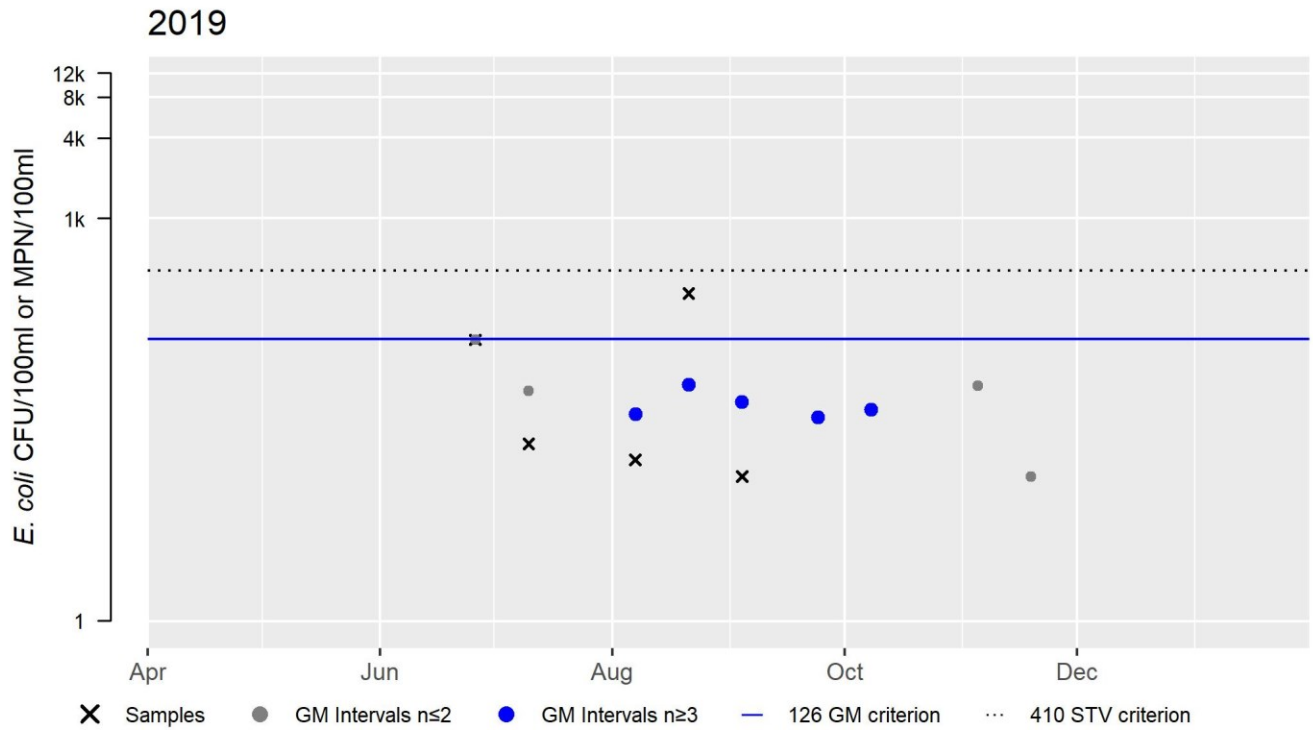
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
CRC_MA-MBK_00.1	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	5	12	275.5	43

CRC_MA-MBK_00.1 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	43
#GMI	5
#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	
Connecticut River Conservancy volunteers collected *E. coli* bacteria samples near the mouth of this Mill Brook AU (MA33-14) in Charlemont between June and September 2019 (n=5). Data analysis indicated 0% of the intervals had GMs >630 cfu/100ml, and no samples exceeded the 1260 cfu/100ml STV. The seasonal GM was 43 cfu/100ml. Based on the low E. coli concentrations during this single year limited frequency dataset, the Secondary Contact Recreational Use for this Mill Brook AU (MA33-14) is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-MBK_00.1	Connecticut River Conservancy	Water Quality	Mill Brook	Mill Brook, Charlemont	42.626551	-72.872454

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4)

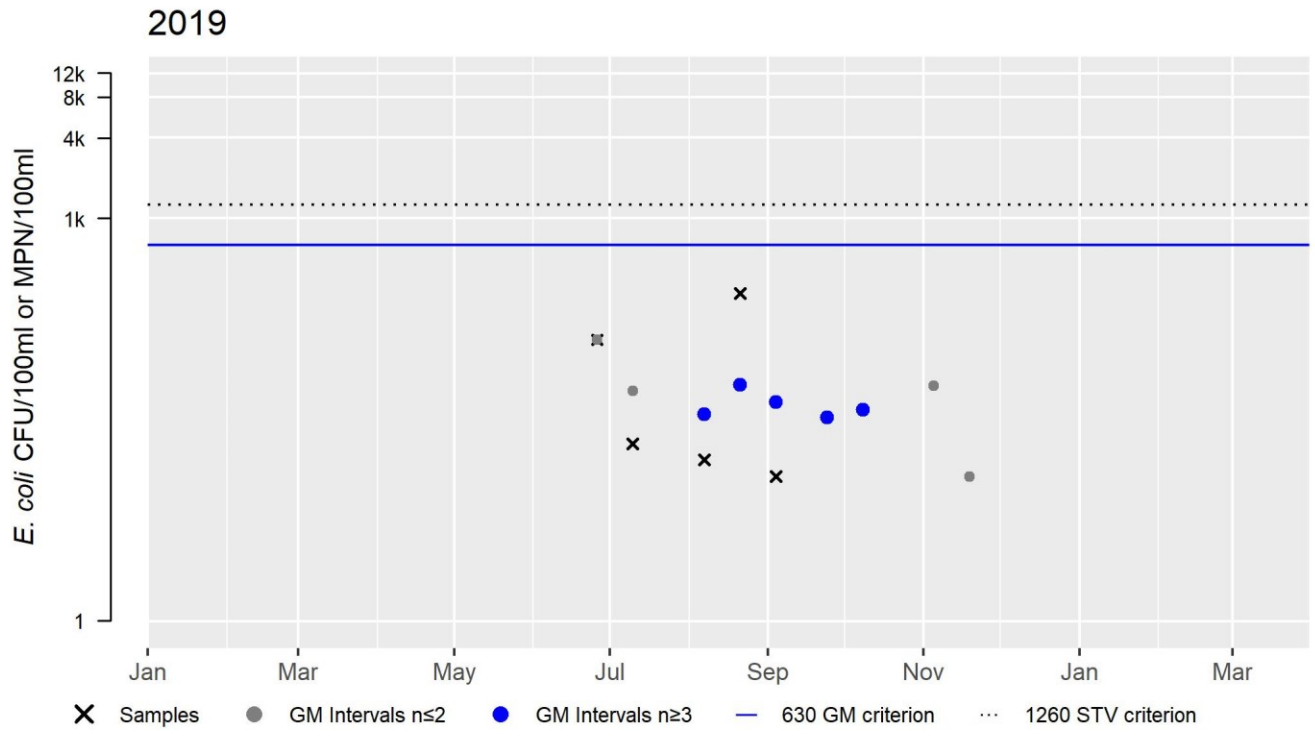
[Result units are CFU/100ml or MPN/100ml]

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)
CRC_MA-MBK_00.1	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	5	12	275.5	43

CRC_MA-MBK_00.1 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	43
#GMI	5
#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

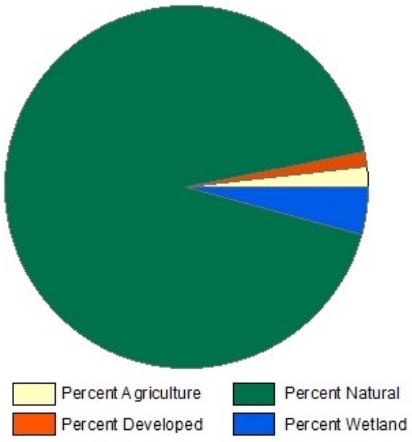


Mill Brook (MA33-69)

Location:	Headwaters, outlet Beaver Pond, Hawley to confluence with Chickley River, Hawley.
AU Type:	RIVER
AU Size:	4.1 MILES
Classification/Qualifier:	B: CWF

MILL BROOK - MA33-69

Watershed Area: 6.33 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	6.33	5.29	1.71	1.38
Agriculture	1.8%	2.2%	2.4%	3%
Developed	1.3%	1.6%	1.8%	2.2%
Natural	92.6%	93.1%	86.8%	88.2%
Wetland	4.2%	3.1%	9%	6.5%
Impervious Cover	0.5%			

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	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing in this Mill Brook AU (MA33-69) upstream of the bridge on Middle Road in Hawley in August/early September 2014 through 2019 (SampleIDs 5146, 5675, 6273, 6492, 7608, 8263). The samples were comprised entirely by fluvial fish including multiple age classes of Eastern brook trout and slimy sculpin. The Aquatic Life Use of this Mill Brook AU (MA33-69) is assessed as Fully Supporting based on the presence of cold water fish species documented in August/early September 2014 through 2019 which are indicative of excellent habitat and water quality conditions.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5146	MassDFG	Fish Community	Mill Brook (3)	US of bridge on Middle Rd, Hawley	42.59954	-72.90797
5675	MassDFG	Fish Community	Mill Brook (3)	US of brige on Middle Rd (2nd xing), Hawley	42.59947	-72.90810
6273	MassDFG	Fish Community	Mill Brook (3)	US of bridge, Hawley	42.59956	-72.90803
6492	MassDFG	Fish Community	Mill Brook (3)	US of Birdge., Hawley	42.59946	-72.90819
7608	MassDFG	Fish Community	Mill Brook (3)	Upstream of bridge on Middle Rd. , Hawley	42.59952	-72.90800
8263	MassDFG	Fish Community	Mill Brook	US at bridge on Middle Rd, Hawley	42.59949	-72.90808

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]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, EBT = Brook Trout, LND = Longnose Dace, LNS = Longnose Sucker, SC = Slimy Sculpin]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5146	08/05/14	BP	TP	5	67	16	57	213	11	30	73%	100%	Yes	Yes	AS, BND, EBT, LND, SC,
5675	08/05/15	BP	TP	5	176	35	54	185	33	85	81%	100%	No	Yes	BND, BT, EBT, LND, SC,
6273	09/06/16	BP	TP	6	224	32	62	217	29	52	40%	100%	No	Yes	BND, CRC, EBT, LND, LNS, SC,
6492	08/03/17	BP	TP	5	91	10	68	168	7	35	52%	100%	Yes	Yes	BND, EBT, LND, LNS, SC,
7608	08/31/18	BP	TP	6	85	7	58	145	5	28	45%	100%	No	Yes	BND, BT, CRC, EBT, LND, SC,
8263	09/03/19	BP	TP	6	197	10	69	169	9	77	45%	100%	No	Yes	BND, BT, CRC, EBT, LND, SC,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in this Mill Brook AU (MA33-69), 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 Mill Brook AU (MA33-69), 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 Mill Brook AU (MA33-69), so it is Not Assessed.	

Secondary Contact Recreation

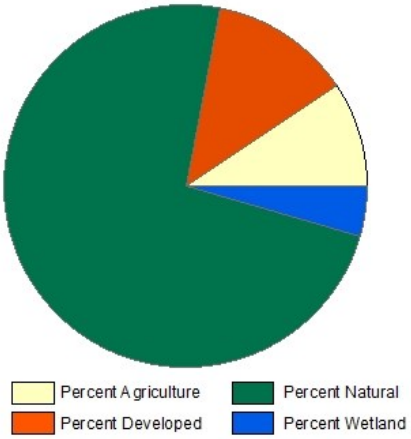
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for this Mill Brook AU (MA33-69), so it is Not Assessed.	

Mill Brook (MA33-70)

Location:	Headwaters, north of West Mountain Road, Bernardston to confluence with Cherry Rum Brook, Greenfield.
AU Type:	RIVER
AU Size:	8.4 MILES
Classification/Qualifier:	B

MILL BROOK - MA33-70

Watershed Area: 9.26 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	9.26	4.86	2.19	1.37
Agriculture	9.3%	11.4%	5.9%	6.2%
Developed	12.6%	18.1%	12.1%	13.2%
Natural	73.6%	64%	70.2%	65.2%
Wetland	4.5%	6.5%	11.7%	15.4%
Impervious Cover	4.2%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
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
Benthic Macroinvertebrates	Agriculture (N)	X				
Benthic Macroinvertebrates	Golf Courses (N)	X				
Benthic Macroinvertebrates	Highway/Road/Bridge Runoff (Non-construction Related) (N)	X				
Benthic Macroinvertebrates	Residential Districts (N)	X				
Benthic Macroinvertebrates	Source Unknown (N)	X				

Recommendations

2022 Recommendations
ALU: Conduct benthic macroinvertebrate sampling in this Mill Brook AU (MA33-70) to reevaluate conditions using appropriate IBI gradient metrics (sampling site used by Deerfield River Watershed Association project monitoring in 2005). Long-term temperature monitoring should also be conducted to evaluate thermal regimes with potential for future Cold Water designation.

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 at two sites along this Mill Brook AU (MA33-70) from up to downstream as follows: upstream of Eden Trail Road Crossing in Bernardston (SampleID 7373) in August 2018 and upstream of the Country Club Road crossing at Arch Bridge in Greenfield (SampleID5402) in August 2014. Both samples were comprised entirely by fluvial fish with multiple age classes of Eastern brook trout and slimy sculpin at the upstream site and Eastern brook trout (not stocked) at the downstream sampling location. Despite the presence of cold water fish (Eastern brook trout and slimy sculpin) which are indicative of excellent habitat and water quality conditions, the Aquatic Life Use for this Mill Brook AU (MA33-70) will continue to be assessed as Not Supporting with the Benthic Macroinvertebrate impairment being carried forward (2005 benthic survey documented moderately impacted conditions so this impairment was added during the 2016 reporting cycle) (MassDEP Undated 7).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5402	MassDFG	Fish Community	Mill Brook (1)	US of Country Club Rd xing @ Arch bridge, Greenfield	42.62702	-72.59080
7373	MassDFG	Fish Community	Mill Brook	upstream of Eden Trail Road Crossing, Bernardston	42.65955	-72.57108

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]

[Species List: BND = Blacknose Dace, EBT = Brook Trout, SC = Slimy Sculpin]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
7373	08/30/18	BP	TP	3	35	13	64	219	8	12	71%	100%	No	Yes	BND, EBT, SC,

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: BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
5402	08/18/14	BP	TP	L	5	124	2%	5	100%	2%	0	0%	Yes	Yes	BND, CRC, CS, EBT*, WS,

* Note following habitat comments in DFG database: Sand, gravel, good flow. Undercut banks. Several deep bend pools w/ woody structures. EBT not stocked District can't access it for stocking.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in this Mill Brook AU (MA33-70), 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 Mill Brook AU (MA33-70), 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 Mill Brook AU (MA33-70), 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 Mill Brook AU (MA33-70), so it is Not Assessed.	

Mt. Brook Reservoir (MA33024)

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

No usable data were available for Mt. Brook Reservoir (MA33024) 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

Newell Pond (MA33013)

Location:	Greenfield.
AU Type:	FRESHWATER LAKE
AU Size:	0.9 ACRES
Classification/Qualifier:	B

No usable data were available for Newell Pond (MA33013) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

North Brook (MA33-126)

Location:	Perennial portion north of Harwood Road, Hawley to confluence with Chickley River, Hawley.
AU Type:	RIVER
AU Size:	1.2 MILES
Classification/Qualifier:	B: CWF

No usable data were available for North Brook (MA33-126) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

North Pond (MA33014)

Location:	Florida.
AU Type:	FRESHWATER LAKE
AU Size:	19 ACRES
Classification/Qualifier:	B

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
Not Assessed	NO
2022 Use Attainment Summary	
No data are available to assess the Aquatic Life Use for North Pond so it is Not Assessed.	

Fish Consumption

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

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
The North Pond Beach was rarely, if at all, posted for swimming between 2014 and 2019 except during the summer of 2014 when posting exceeded 10% (was 12%). The Primary Contact Recreational Use for North Pond is assessed as Fully Supporting since there were few if any swimming advisory postings at the North Pond Beach.	

Beach Postings

MassDPH Beach Posting Data Summary (% Bathing Season Posted 2014-2019) (Bailey, Logan Feb. 2, 2021) (MassDEP Undated 4)

Beach ID	Beach Name/Town	Left Boundary (Latitude)	Left Boundary (Longitude)	Right Boundary (Latitude)	Right Boundary (Longitude)	2014	2015	2016	2017	2018	2019	# years> 10%
4852	North Pond Beach (DCR)/Savoy	42.65320	-73.05320	42.65265	-73.05260	12%	4%	6%	0%	0%	0%	1

Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

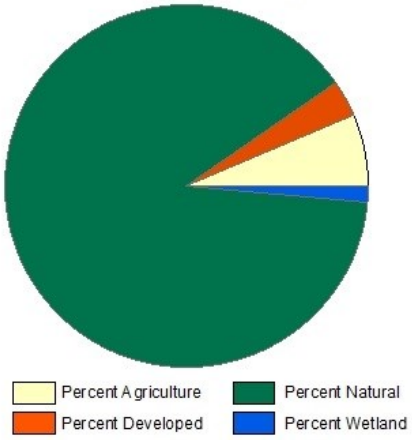
The North Pond Beach was rarely, if at all, posted for swimming between 2014 and 2019 except during the summer of 2014 when posting exceeded 10% (was 12%).
The Secondary Contact Recreational Use for North Pond is assessed as Fully Supporting since there were few if any swimming advisory postings at the North Pond Beach.

North River (MA33-06)

Location:	From confluence of East and West branches of the North River, Colrain to confluence with Deerfield River, Shelburne/Charlemont. (Segment changed 1997 - East Branch no longer included in length) (HQW applies upstream of Barnhardt discharge (NPDES# MA0003697)).
AU Type:	RIVER
AU Size:	3.3 MILES
Classification/Qualifier:	B: CWF, HQW* (*HQW applies to portion upstream MA0003697 Barnhardt discharge)

North River - MA33-06

Watershed Area: 92.99 sq miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	48.58	10.51	12.79	3.1
Agriculture	6.4%	4.2%	7.1%	5.2%
Developed	3.2%	3.3%	5.3%	6.3%
Natural	89%	91.6%	84.7%	86.5%
Wetland	1.4%	0.9%	2.9%	2%
Impervious Cover	1.3%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	5	Lack of a Coldwater Assemblage		Added
2	5	Temperature		Added

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

Recommendations

2022 Recommendations
ALU: Additional long-term temperature data should be collected in the North River to better evaluate the thermal regime and potentially target areas for improved riparian corridor health to provide additional shading. Cooperative efforts (both VT and MA towns in this subwatershed) to reduce thermal stress should be prioritized to protect/maintain/restore cold water habitat in this river. Additional benthic and water quality sampling are also recommended to follow up on indicators of problems (moderately degraded benthic community and some indications of enrichment issues) during the MassDEP 2012 survey.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES

2022 Use Attainment Summary
MA DFG biologists conducted backpack electrofishing in the North River upstream of the DPW gravel piles/turnout along Call Road in Colrain in September 2014 and again in September 2016 (SampleIDs 5188 and 6236, respectively). Both samples were comprised entirely by fluvial fish but the cold water species included only a single brown and rainbow trout in the 2014 sample and a single rainbow trout in the 2016 sample. Further downstream, but upstream of the Main Road (Route 112) crossing nearest the Johnson Brook confluence, MassDEP biologists conducted benthic and water quality sampling during the summer 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. The benthic community (B0814) sample, collected in September 2012, had an IBI score of 35 (low end of Moderately Degraded conditions for a high gradient Western Highland region stream). Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2277) can be summarized as follows: minimum dissolved oxygen 5.9mg/L during three short term DO deploys, maximum temperature 28.8°C between June 1st and September 15th with 7DADM exceeding 20°C 93 times. The maximum 24-hour rolling average temperature was 25.8°C, pH was high ranging from 8.7 to 9.1SU (n=3), and there were indications of a nutrient enrichment problem (while seasonal average total phosphorus concentrations was low 0.037mg/L and there was one only observation of dense/very dense filamentous algae of six site visits, the max diel DO shift was 4.9mg/L, maximum saturation 145%, and the maximum pH was 9.1SU). Except for one slight chronic copper exceedance (1.23TU), there were no indications of any other toxics issues (maximum total ammonia-nitrogen concentration was 0.02mg/L, chloride was 7mg/L (n=5), and there were no exceedances of any other clean metals or aluminum samples (n=3) although it should be noted that dissolved Al data were compared to total recoverable Al criteria, so exceedances cannot be ruled out). Also, in September 2019, a sulfuric acid spill/leak at Barnhardt Manufacturing Company in Colrain resulted in a fish kill in the North River (~270,000 fish including thousands of state listed rare species). The Company's settlement (December 2021) will compensate the state for harms to natural resources and the Cold Water Fishery and ensure safe operation of the Colrain bleaching facility (Office of Attorney General 2021). The Aquatic Life Use for the North River is assessed as Not Supporting based on the elevated temperatures in this designated Cold Water stream during the summer of 2012 and the general lack of cold water fish in September 2014 and 2016. While most of the watershed area in MA is Natural/Wetland with a low % of impervious cover, there is one dam (the Kendall Company No 1 Dam, NATID MA00047), and it is also noted the agricultural areas are fairly concentrated within the stream buffer zone, so the elevated temperature is considered to be exacerbated by anthropogenic activities. Land-Use data in the upper watershed area in VT were not readily available but cooperative efforts to reduce thermal stress should be prioritized. While the benthic data IBI score was in the low end of the Moderately Degraded category, since the data were collected in the year following Hurricane Irene, a benthic impairment is not being added but additional benthic sampling is being recommended. The former alerts for habitat degradation due to bank erosion and sedimentation identified by (Cole 2014)in the 2016 IR cycle, whole effluent toxicity in the Barnhardt discharge, and potential impact on flow in the 0.6 mile reach of river that is bypassed via a canal (Duerring, Kennedy and Mitchell 2004) are being carried forward and new Alerts for benthic degradation and nutrient enrichment signals are being added.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5188	MassDFG	Fish Community	North River	US of DPW gravel piles/turnout along Call Rd, Colrain	42.64470	-72.71566
6236	MassDFG	Fish Community	North River	, Colrain	42.64461	-72.71550
B0814	MassDEP	Benthic	North River/	[approximately 830 meters upstream of the Main Road (Route 112) crossing nearest the Johnson Brook confluence (which is approximately 150 meters upstream of station), Colrain, MA]	42.639081	-72.724373
W2277	MassDEP	Water Quality	North River	[approximately 2725 feet upstream of the Main Road (Route 112) crossing nearest the Johnson Brook confluence (which is approximately 500 feet upstream of station), Colrain]	42.639081	-72.724373

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
B0814	08/08/12	RBP kicknet	Western_Highlands_100ct	107	35	MD

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: BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, CS = Common Shiner, LND = Longnose Dace, LNS = Longnose Sucker, RT = Rainbow Trout, TD = Tesselated Darter]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
5188	09/25/14	BP	TP		7	227	1%	7	100%	1%	0	0%	No	Yes	BND, BT, CRC, CS, LND, RT, TD,
6236	09/07/16	BP	TP		7	725	0%	7	100%	0%	0	0%	Yes	Yes	BND, CRC, CS, LND, LNS, RT, TD,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2277	2012	3	12	5.9	6.3	7.9	4.9	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2277	05/23/12	09/27/12	3	10.3	10.3	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2277	06/01/12	09/15/12	107	105	25.6	28.8	27.8	24.6	93	15	69	7	1	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2277	2012	3	12	24.6	28.3	27.3	23.9	3	3	3	2	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 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
W2277	06/01/12	09/15/12	107	5136	25.8	716	355	0
W2277	06/28/12	09/04/12	68	581	25.1	127	72	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (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
W2277	05/23/12	09/27/12	4	3	23.1	19.7	2	1	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (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
W2277	05/23/12	09/27/12	3	8.7	9.1	3	2

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (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
W2277	2012	5	0.012	0.054	0.037	4.9	3.7	144.9	9.1	6	1

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (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
W2277	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2277	2012	3	0	0	0	1	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Selected TU Calculations. (MassDEP Undated 8) (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
W2277	07/02/12	0.1	0.3	0.4	0.57	0.0	0.3
W2277	08/01/12	0.1	0.3	0.4	0.51	0.0	0.3
W2277	08/27/12	0.1	0.2	0.9	1.23	0.0	0.7

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (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
W2277	2012	3	0.010	0.01	0.010	0.0	0.0	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (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
W2277	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (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
W2277	2012	5	6	9	8	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (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
W2277	05/23/12	09/27/12	3	155	212	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 the North River, therefore the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff surveyed the North River upstream of the Main Road (Route 112) crossing nearest the Johnson Brook confluence (which is ~500 feet upstream of station) in Colrain (W2277) during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. There were generally no objectionable conditions (i.e., odors, deposits, growths, or turbidity) were observed during the surveys. The Aesthetics Use for the North River is assessed as Fully Supporting based on the general lack of objectionable conditions documented by MassDEP staff during the summer of 2012.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2277	MassDEP	Water Quality	North River	[approximately 2725 feet upstream of the Main Road (Route 112) crossing nearest the Johnson Brook confluence (which is approximately 500 feet upstream of station), Colrain]	42.639081	-72.724373

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2277	North River	2012	6	MassDEP aesthetics observations for station W2277/MAP2-217 on North 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.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2277	2012	6	6	1

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

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2277	North River	2012	Color	Brownish	1	6
W2277	North River	2012	Color	Light Yellow/Tan	2	6
W2277	North River	2012	Color	None	3	6
W2277	North River	2012	Objectionable Deposits	No	6	6
W2277	North River	2012	Odor	None	5	6

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2277	North River	2012	Odor	Rotting Vegetables	1	6
W2277	North River	2012	Scum	No	6	6
W2277	North River	2012	Turbidity	Moderately Turbid	1	6
W2277	North River	2012	Turbidity	None	3	6
W2277	North River	2012	Turbidity	Slightly Turbid	2	6

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP staff collected E. coli bacteria samples from the North River upstream of the Main Road (Route 112) crossing nearest the Johnson Brook confluence (which is ~500 feet upstream of station) in Colrain (W2277) between May and September 2012 (n=6). Data analysis of this low frequency single year dataset indicated 67% of the intervals had GMs >126 cfu/100ml, one of the samples exceeded the 410 cfu/100ml STV, and the seasonal GM was 118 cfu/100ml. Further downstream near the mouth of the North River at "Sunburn Beach" in Charlemont Connecticut River Conservancy volunteers collected E. coli bacteria samples from the river between June and September 2019 (n=5) and again between July and September 2020 (n=5). Data analysis of this low frequency multi-year dataset indicated only one of two years with GMs that exceeded>20% and neither year had two samples that exceeded the STV of 410cfu/100mls. The seasonal GMs were 152 and 50cfu/100ml in 2019 and 2020, respectively.

Since the E. coli concentrations were below the use attainment impairment thresholds at both sampling locations (a single year and a multi-year low frequency dataset at each), the Primary Contact Recreational Use for the North River is assessed as Fully Supporting.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-NOR_00.1	Connecticut River Conservancy	Water Quality	North River	North River, "Sunburn Beach", Charlemont	42.627706	-72.737089
W2277	MassDEP	Water Quality	North River	[approximately 2725 feet upstream of the Main Road (Route 112) crossing nearest the Johnson Brook confluence (which is approximately 500 feet upstream of station), Colrain]	42.639081	-72.724373

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4) (MassDEP Undated 8) (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
CRC_MA-NOR_00.1	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	5	35.5	980.4	152

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
CRC_MA-NOR_00.1	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	22.1	80.9	50
W2277	MassDEP	E. coli	05/23/12	09/27/12	6	40	816	118

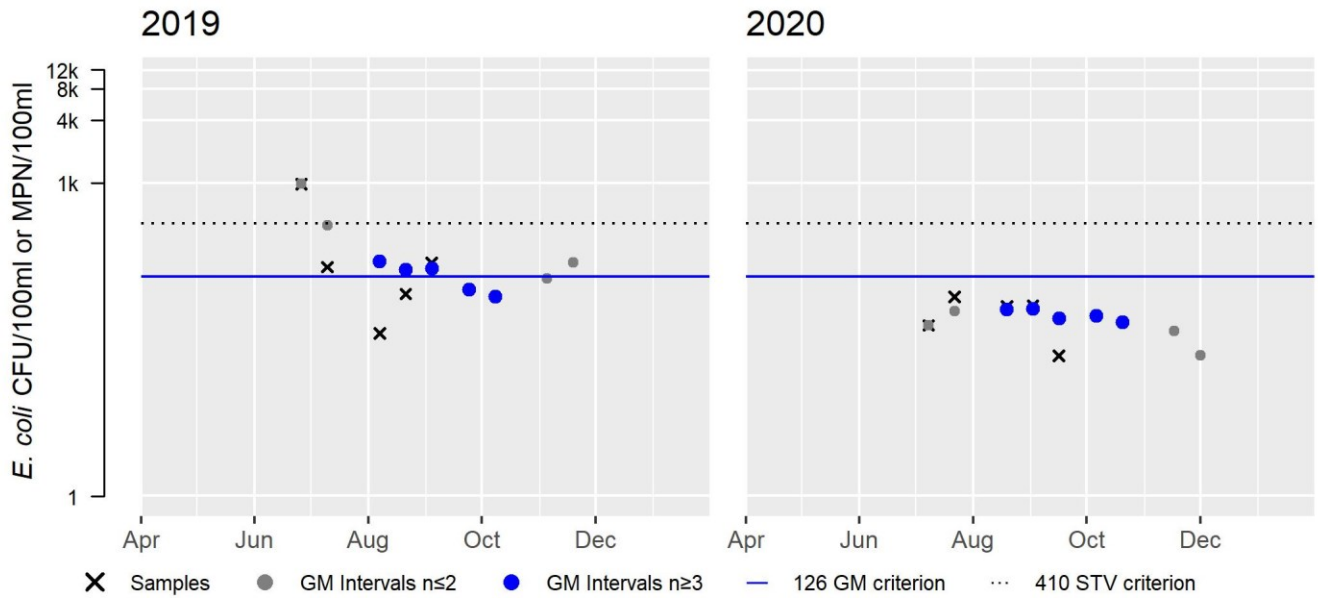
CRC_MA-NOR_00.1 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	152
#GMI	5
#GMI Ex	3
%GMI Ex	60
n>STV	1
%n>STV	20

Var	Res
Samples	5
SeasGM	50
#GMI	5
#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

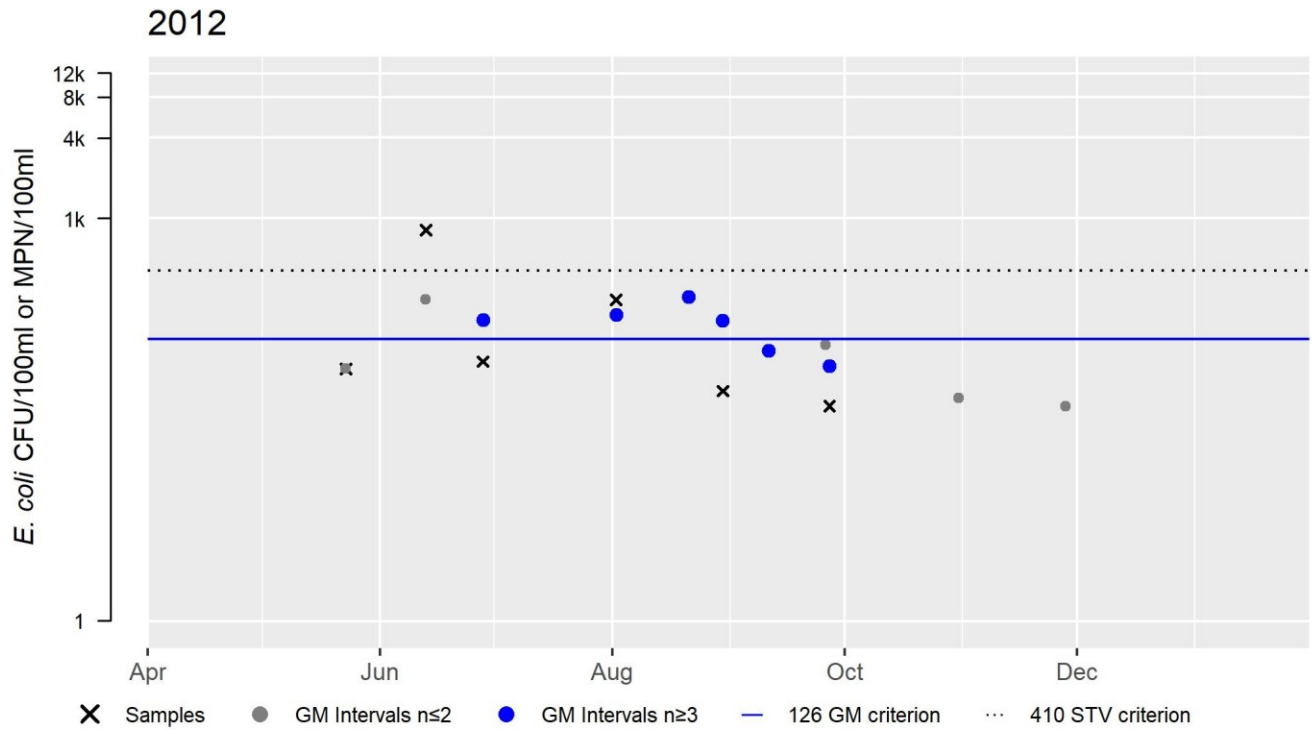
Variable	Cumulative %GMI Ex (all years)
Result	30



W2277 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	118
#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 the North River upstream of the Main Road (Route 112) crossing nearest the Johnson Brook confluence (which is ~500 feet upstream of station) in Colrain (W2277) between May and September 2012 (n=6). Data analysis of this low frequency single year dataset indicated none of the intervals had GMs >630 cfu/100ml, none of the samples exceeded the 1260 cfu/100ml STV, and the seasonal GM was 118 cfu/100ml. Further downstream near the mouth of the North River at "Sunburn Beach" in Charlemont Connecticut River Conservancy volunteers collected *E. coli* bacteria samples from the river between June and September 2019 (n=5) and again between July and September 2020 (n=5). Data analysis of this low frequency multi-year dataset also indicated no GM or STV exceedances. The seasonal GMs were 152 and 50cfu/100ml in 2019 and 2020, respectively.
Since the *E. coli* concentrations were below the use attainment impairment thresholds at both sampling locations (a single year and a multi-year low frequency dataset at each), the Primary Contact Recreational Use for the North River is assessed as Fully Supporting

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-NOR_00.1	Connecticut River Conservancy	Water Quality	North River	North River, "Sunburn Beach", Charlemont	42.627706	-72.737089
W2277	MassDEP	Water Quality	North River	[approximately 2725 feet upstream of the Main Road (Route 112) crossing nearest the Johnson Brook confluence (which is approximately 500 feet upstream of station), Colrain]	42.639081	-72.724373

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4) (MassDEP Undated 8) (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)
CRC_MA-NOR_00.1	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	5	35.5	980.4	152
CRC_MA-NOR_00.1	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	22.1	80.9	50
W2277	MassDEP	E. coli	05/23/12	09/27/12	6	40	816	118

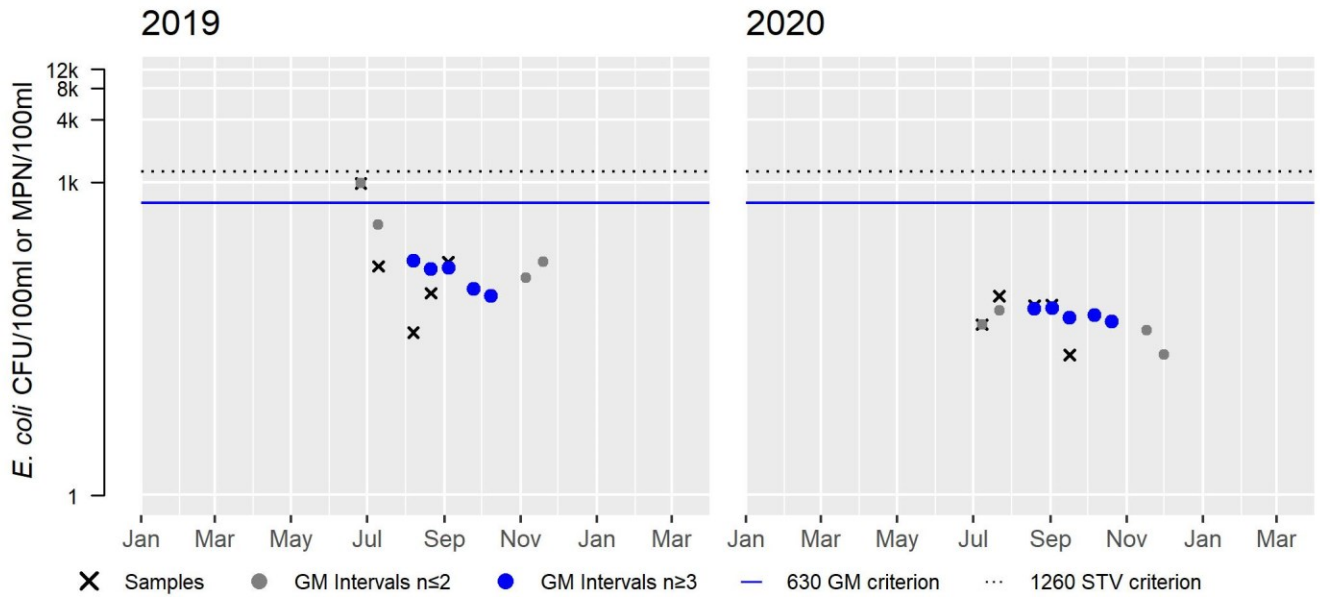
CRC_MA-NOR_00.1 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	5
SeasGM	152
#GMI	5
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	5
SeasGM	50
#GMI	5
#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

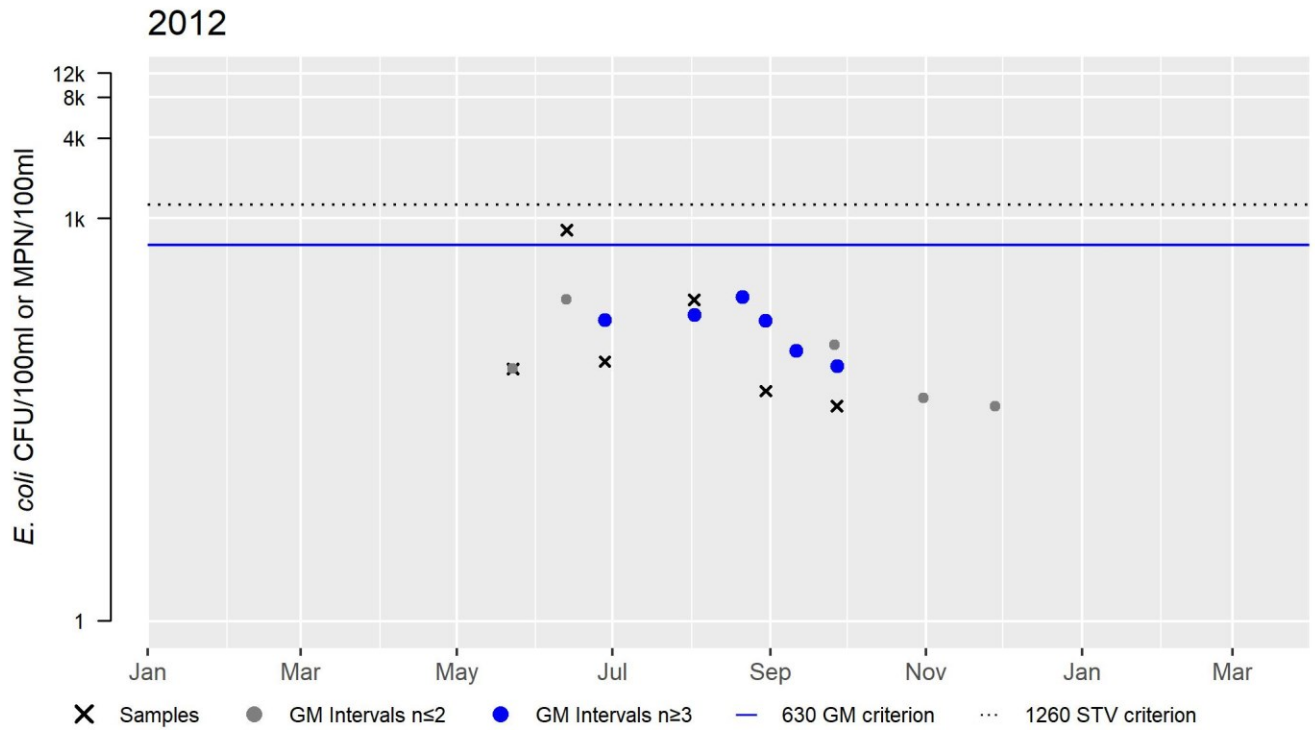
Variable	Cumulative %GMI Ex (all years)
Result	0



W2277 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	118
#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



Nye Brook (MA33-71)

Location:	Headwaters, perennial portion north of Guinea Gulf (Conway State Forest), Conway to confluence with Poland Brook, Conway.
AU Type:	RIVER
AU Size:	0.7 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Nye Brook (MA33-71) 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

Papoose Lake (MA33023)

Location:	Heath.
AU Type:	FRESHWATER LAKE
AU Size:	14 ACRES
Classification/Qualifier:	B

No usable data were available for Papoose Lake (MA33023) 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

Parsonage Brook (MA33-123)

Location:	Headwaters north of Main Road, Monroe to confluence with Dunbar Brook, Monroe.
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	B

No usable data were available for Parsonage Brook (MA33-123) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

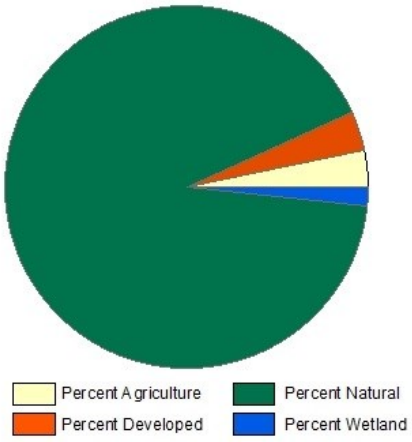
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Pelham Brook (MA33-12)

Location:	Headwaters outlet Pelham Lake, Rowe to confluence with Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	4.8 MILES
Classification/Qualifier:	B: CWF

Pelham Brook - MA33-12

Watershed Area: 13.63 sq miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	13.51	5.45	3.18	1.36
Agriculture	3.2%	1.9%	1.3%	0.9%
Developed	3.6%	2.9%	4.9%	5.3%
Natural	91.6%	94.3%	89.5%	91.3%
Wetland	1.7%	0.9%	4.3%	2.5%
Impervious Cover	1.5%			

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	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing in Pelham Brook accessed down a logging road off of Zoar Road in Rowe (near pole #57) in August 2014, September 2015, August 2016, and August 2018 (SampleIDs 5162, 5715, 6246, and 7610, respectively). All samples were comprised almost entirely by fluvial fish including multiple age classes of Eastern brook trout. The Aquatic Life Use for Pelham Brook is assessed as Fully Supporting based on the presence of cold water fish species which are indicate of excellent habitat and water quality conditions.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5162	MassDFG	Fish Community	Pelham Brook	Down logging rd off Zoar Rd, 1/4mi N of Brittingham Hill Rd, Rowe	42.68184	-72.91734
5715	MassDFG	Fish Community	Pelham Brook	off Zoar Rd index site, Rowe	42.68177	-72.91727
6246	MassDFG	Fish Community	Pelham Brook	Down logging rd, Rowe	42.68206	-72.91734
7610	MassDFG	Fish Community	Pelham Brook	Logging Rd. pole # 57, Rowe	42.68178	-72.91725

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]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, BT = Brown Trout, EBT = Brook Trout, LND = Longnose Dace, LNS = Longnose Sucker, P = Pumpkinseed]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5162	08/19/14	BP	TP	6	161	23	55	253	15	0	39%	100%	No	Yes	AS, BND, BT, EBT, LND, LNS,
5715	09/02/15	BP	TP	5	133	30	61	204	24	0	25%	100%	No	Yes	AS, BND, EBT, LND, LNS,
6246	08/23/16	BP	TP	5	225	49	57	212	41	0	23%	98%	No	Yes	BND, EBT, LND, LNS, P,
7610	08/31/18	BP	TP	3	80	22	61	215	16	0	28%	100%	No	Yes	BND, EBT, LND,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Pelham Brook, 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 Pelham Brook, 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 Pelham Brook, 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 Pelham Brook, so it is Not Assessed.	

Pelham Lake (MA33016)

Location:	Rowe.
AU Type:	FRESHWATER LAKE
AU Size:	80 ACRES
Classification/Qualifier:	B

No usable data were available for Pelham Lake (MA33016) 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	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	Atmospheric Deposition - Toxics (Y)		X			

Phelps Brook (MA33-73)

Location:	Perennial portion, north of Main Road, Monroe to inlet of Phelps Brook Reservoir, Monroe.
AU Type:	RIVER
AU Size:	1.2 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Phelps Brook (MA33-73) 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

Phelps Brook Reservoir (MA33030)

Location:	Monroe.
AU Type:	FRESHWATER LAKE
AU Size:	0.05 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Phelps Brook Reservoir (MA33030) 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

Plainfield Pond (MA33017)

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

No usable data were available for Plainfield Pond (MA33017) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

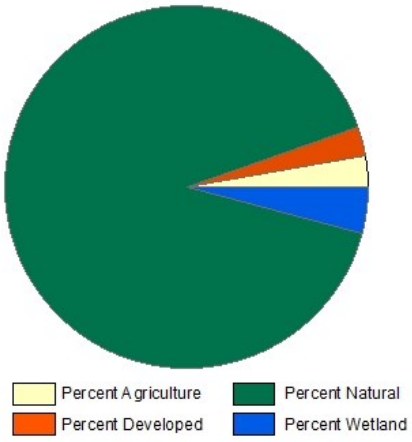
Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Mercury in Fish Tissue	Atmospheric Deposition - Toxics (Y)		X			
Mercury in Fish Tissue	Source Unknown (N)		X			

Poland Brook (MA33-74)

Location:	Confluence with Chapel Brook, Conway to confluence with South River, Conway.
AU Type:	RIVER
AU Size:	2.6 MILES
Classification/Qualifier:	B: CWF

POLAND BROOK - MA33-74

Watershed Area: 6.68 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	6.68	5.54	1.68	1.4
Agriculture	2.8%	3.4%	3.1%	3.6%
Developed	2.6%	2.6%	2.9%	2.6%
Natural	90.5%	91.3%	85.3%	88%
Wetland	4.1%	2.8%	8.7%	5.8%
Impervious Cover	1.1%			

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	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing at two sites along Poland Brook in Conway from up to downstream as follows: upstream of a bridge on North Poland Road ~ ¼ mile north of Bullitt Road (SampleIDs 5126, 5679, 6621, 6624, and 7613) in August 2014 through 2017 and September 2018, respectively and further downstream near the first North Poland Road Bridge crossing closest to the mouth of Poland Brook in September 2019 (SampleID 8315). The fish samples were all comprised entirely by fluvial fishes with a few multiple age classes of Eastern brook trout in samples collected 2014 through 2016, a few small Eastern brook trout and slimy sculpin were in the 2017 sample, and one small brook trout was in the 2018 sample. No cold water fish were collected in the sample collected near the mouth of Poland Brook in 2019. This small watershed area (~6.7mi^2) is Natural/Wetland (94.6%) with a low % of impervious cover (1.1%) and beaver dams are present upstream from the sampling locations. The Aquatic Life Use for Poland Brook is assessed as Fully Supporting based on the presence of a few cold water fish species which are indicate of excellent habitat and water quality conditions even their overall numbers were low.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5126	MassDFG	Fish Community	Poland Brook	US of new bridge on North Poland Rd, 1/4mi N of Bullitt Rd, Conway	42.50405	-72.74698
5679	MassDFG	Fish Community	Poland Brook	US of bridge on N. Poland Rd, Conway	42.50412	-72.74694
6221	MassDFG	Fish Community	Poland Brook	Poland Bk Rd, Conway	42.50420	-72.74703
6624	MassDFG	Fish Community	Poland Brook	US of bridge on N. Poland Rd, Conway	42.50418	-72.74677
7613	MassDFG	Fish Community	Poland Brook	Upstream of bridge on N. Poland Rd. , Conway	42.50361	-72.74667
8315	MassDFG	Fish Community	Poland Brook	Bridge on N Poland Rd, Conway	42.51185	-72.74365

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]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, LNS = Longnose Sucker, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5126	08/19/14	BP	TP	7	175	4	58	65	4	0	6%	100%	Yes	Yes	AS, BND, CRC, CS, EBT, LND, LNS,
5679	08/06/15	BP	TP	6	379	5	54	150	4	0	2%	100%	No	Yes	BND, CRC, CS, EBT, LND, LNS,
6221	08/01/16	BP	TP	5	228	5	56	160	4	0	2%	100%	No	Yes	BND, CRC, CS, EBT, LND,
6624	08/17/17	BP	TP	7	582	2	52	58	2	3	1%	100%	No	Yes	BND, CRC, CS, EBT, LND, SC, WS,

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; Trout= any combination of brook trout, brown trout, rainbow trout, tiger trout; Other Tier2 Species= any size and any combination of American brook lamprey, Atlantic salmon, lake chub, lake trout, longnose sucker, slimy sculpin]

[Species List: BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, LNS = Longnose Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	Trout ≤140mm Ind	LLS<200mm Ind	Other Tier2 Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
8315	09/18/19	BP	TP	6	753	1	0	5	1%	100%	No	Yes	BND, CRC, CS, EBT, LND, LNS,

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: BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, LND = Longnose Dace, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
7613	09/17/18	BP	TP		5	271	0%	5	100%	0%	0	0%	No	Yes	BND, CRC, CS, LND, WS,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Poland Brook, 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 Poland Brook, 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 Poland Brook, 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 Poland Brook, so it is Not Assessed.	

Potash Brook (MA33-75)

Location:	Headwaters, Cranberry Swamp, Hawley (drains wetland) to confluence with Mill Brook, Hawley.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B

No usable data were available for Potash Brook (MA33-75) 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

Pumpkin Hollow Brook (MA33-32)

Location:	Headwaters north of Conway State Forest and south of Old Cricket Hill Road, Conway to confluence with South River, Conway.
AU Type:	RIVER
AU Size:	2.3 MILES
Classification/Qualifier:	B

No usable data were available for Pumpkin Hollow Brook (MA33-32) 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

Punch Brook (MA33-100)

Location:	Headwaters, perennial portion east of Smead Road, Shelburne to confluence with Green River, Greenfield.
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B

No usable data were available for Punch Brook (MA33-100) 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

Rice Brook (MA33-125)

Location:	Perennial portion east of Legate Hill Road, Charlemont to confluence with Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	3.1 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Rice Brook (MA33-125) 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

Rice Brook (MA33-76)

Location:	Headwaters, north of Hazelton Road, Rowe to confluence with Pelham Brook, Rowe.
AU Type:	RIVER
AU Size:	1.2 MILES
Classification/Qualifier:	B

No usable data were available for Rice Brook (MA33-76) 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

Roberts Brook (MA33-77)

Location:	Headwaters, east of Hosmer Road, Heath to confluence with West Branch North River, Colrain.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B

No usable data were available for Roberts Brook (MA33-77) 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

Ross Brook (MA33-78)

Location:	Headwaters, south of Tannery Road, Savoy to confluence with Tannery Brook, Savoy.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B

No usable data were available for Ross Brook (MA33-78) 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

Ruddock Brook (MA33-79)

Location:	Headwaters, west of Dodge Corner Road, Hawley to confluence with Clesson Brook, Buckland.
AU Type:	RIVER
AU Size:	1.1 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Ruddock Brook (MA33-79) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

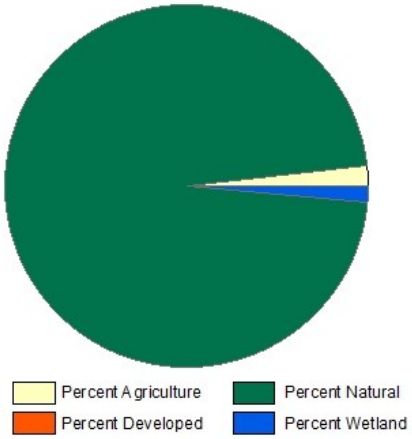
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Sanders Brook (MA33-80)

Location:	Vermont/Massachusetts border, Heath to confluence with West Branch North River, Colrain.
AU Type:	RIVER
AU Size:	2.8 MILES
Classification/Qualifier:	B

SANDERS BROOK - MA33-80

Watershed Area: 3.3 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	3.3	3.3	0.78	0.78
Agriculture	1.8%	1.8%	0%	0%
Developed	0.7%	0.7%	0.1%	0.1%
Natural	96.1%	96.1%	98.4%	98.4%
Wetland	1.4%	1.4%	1.5%	1.5%
Impervious Cover	0.3%			

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	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing fairly near the mouth of Sanders Brook upstream of the bridge on Adamsville Road near Colrain/Heath border in August 2014 through 2017, September 2018, and again in August 2019 (SampleIDs 5159, 5697, 6252, 6627, 7615, and 8266) and one additional site slightly farther upstream in August 2016 (SampleID 5936). All of the samples were comprised entirely by fluvial fish including multiple age classes of Eastern Brook trout as well as slimy sculpin. The Aquatic Life Use for Sanders Brook is assessed as Fully Supporting based on the presence of cold water fish species which are indicate of excellent habitat and water quality conditions.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5159	MassDFG	Fish Community	Sanders Brook	US of bridge on Adamsville Rd @ townline, Colrain	42.70432	-72.78305
5697	MassDFG	Fish Community	Sanders Brook	Bridge on Adamsville Rd, Colrain/Heath	42.70424	-72.78299
5936	MassDFG	Fish Community	Sanders Brook	Upstream ~ 250m from mouth., Colrain	42.70522	-72.78405
6252	MassDFG	Fish Community	Sanders Brook	US of bridge on 8a, Heath	42.70428	-72.78300
6627	MassDFG	Fish Community	Sanders Brook	US of bridge on WB Road at Columbia/Heath line., Colrain/Heath	42.70414	-72.78316
7615	MassDFG	Fish Community	Sanders Brook	Upstream of West Br. Rd. at town line , Colrain	42.70428	-72.78315
8266	MassDFG	Fish Community	Sanders Brook	US of bridge in Colrain Rd @ N. River, Colrain	42.70422	-72.78298

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]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, EBT = Brook Trout, LND = Longnose Dace, LNS = Longnose Sucker, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5159	08/18/14	BP	TP	4	161	93	42	190	85	63	98%	100%	No	Yes	AS, BND, EBT, SC,
5697	08/17/15	BP	TP	3	217	130	46	167	124	84	99%	100%	No	Yes	EBT, LND, SC,
5936	08/23/16	BP	TP	6	181	52	48	185	48	63	65%	100%	No	Yes	BND, EBT, LND, LNS, SC, WS,
6252	08/29/16	BP	TP	5	461	186	47	182	176	151	74%	100%	No	Yes	BND, EBT, LND, LNS, SC,
6627	08/21/17	BP	TP	5	206	87	47	180	80	111	96%	100%	No	Yes	BND, EBT, LND, SC, WS,
7615	09/17/18	BP	TP	4	151	73	51	201	64	72	96%	100%	No	Yes	BND, EBT, LND, SC,
8266	08/28/19	BP	TP	4	312	152	47	220	140	137	93%	100%	No	Yes	BND, EBT, LND, SC,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Sanders Brook, 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 Sanders Brook, 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 Sanders Brook, 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 Sanders Brook, so it is Not Assessed.	

Schneck Brook (MA33-113)

Location:	Headwaters, north of Wilder Hill Road, Conway to confluence with the Deerfield River, Conway.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B

No usable data were available for Schneck Brook (MA33-113) 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

Sheldon Brook (MA33-81)

Location:	Headwaters, south of Old Albany Road, Shelburne to confluence with Deerfield River, Deerfield/Greenfield.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Sheldon Brook (MA33-81) 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

Sherman Reservoir (MA33018)

Location:	Massachusetts portion only. Rowe/Monroe.
AU Type:	FRESHWATER LAKE
AU Size:	72 ACRES
Classification/Qualifier:	B

No usable data were available for Sherman Reservoir (MA33018) 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	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			

Shingle Brook (MA33-22)

Location:	Headwaters north of Guy Manners Road, Shelburne to confluence with the Deerfield River, Deerfield.
AU Type:	RIVER
AU Size:	2.8 MILES
Classification/Qualifier:	B

No usable data were available for Shingle Brook (MA33-22) 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

Sids Brook (MA33-82)

Location:	Headwaters, perennial portion north of Baptist Corner Road, Ashfield to confluence with Drakes Brook, Conway.
AU Type:	RIVER
AU Size:	1.7 MILES
Classification/Qualifier:	B

No usable data were available for Sids Brook (MA33-82) 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

Sluice Brook (MA33-83)

Location:	Headwaters, north of Tower Road, Shelburne to confluence with Deerfield River, Shelburne.
AU Type:	RIVER
AU Size:	3.3 MILES
Classification/Qualifier:	B

No usable data were available for Sluice Brook (MA33-83) 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

Smead Brook (MA33-84)

Location:	Headwaters, east of Old Albany Road, Greenfield to confluence with Wheeler Brook, Greenfield.
AU Type:	RIVER
AU Size:	1.7 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Smead Brook (MA33-84) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

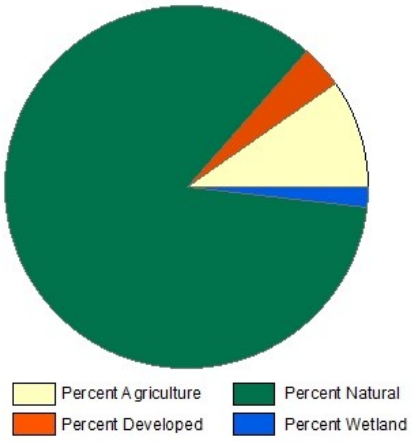
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Smith Brook (MA33-26)

Location:	Headwaters, outlet Upper Reservoir, Ashfield to confluence with Clesson Brook, Buckland.
AU Type:	RIVER
AU Size:	2.7 MILES
Classification/Qualifier:	B

Smith Brook - MA33-26

Watershed Area: 5.78 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	5.78	5.78	1.61	1.61
Agriculture	9.7%	9.7%	10.7%	10.7%
Developed	3.8%	3.8%	6.4%	6.4%
Natural	84.7%	84.7%	78.8%	78.8%
Wetland	1.8%	1.8%	4.1%	4.1%
Impervious Cover	1.7%			

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

Recommendations

2022 Recommendations
ALU: Conduct long-term temperature monitoring in Smith Brook to better evaluate thermal regime and acquire data to consider designated as Cold Water Fishery in a future SWQS update.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing in Smith Brook near the pull-off before Clesson Brook Road along Route 112 in Ashfield in August 2014 (SampleID 5440). The sample was comprised entirely by fluvial fish including multiple age classes of Eastern brook trout and slimy sculpin. The Aquatic Life Use for Smith Brook is assessed as Fully Supporting based on the presence of cold water fish species which are indicative of excellent habitat and water quality conditions.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5440	MassDFG	Fish Community	Smith Brook	Pulloff before Clesson Bk Rd along Rt 112, Ashfield	42.56313	-72.80332

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]

[Species List: BND = Blacknose Dace, CRC = Creek Chub, EBT = Brook Trout, LND = Longnose Dace, RT = Rainbow Trout, SC = Slimy Sculpin]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5440	08/29/14	BP	TP	6	97	8	74	112	8	71	87%	100%	No	Yes	BND, CRC, EBT, LND, RT, SC,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Smith Brook, 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 Smith Brook, 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 Smith Brook, 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 Smith Brook, so it is Not Assessed.	

South Pond (MA33019)

Location:	Savoy.
AU Type:	FRESHWATER LAKE
AU Size:	29 ACRES
Classification/Qualifier:	B

No usable data were available for South Pond (MA33019) 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

South River (MA33-07)

Location:	Headwaters, outlet Ashfield Pond, Ashfield to Emmets Road, Ashfield.
AU Type:	RIVER
AU Size:	2.3 MILES
Classification/Qualifier:	B: CWF

No usable data were available for South River (MA33-07) 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	Temperature		Unchanged

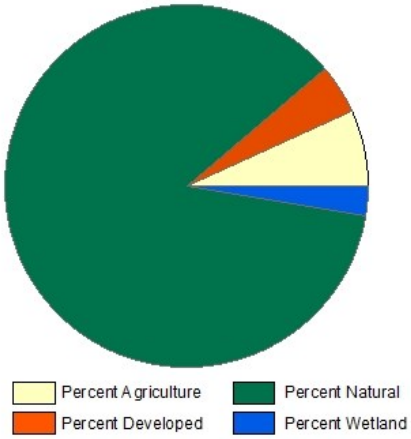
Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Temperature	Dam or Impoundment (N)	X				
Temperature	Source Unknown (N)	X				

South River (MA33-101)

Location:	Emmets Road, Ashfield to confluence with Johnny Bean Brook, Conway (formerly part of 2014 segment: South River MA33-08).
AU Type:	RIVER
AU Size:	6.1 MILES
Classification/Qualifier:	B: CWF

SOUTH RIVER - MA33-101

Watershed Area: 18 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	18	8.27	4.52	2.26
Agriculture	6.8%	6.2%	8.6%	9%
Developed	4.4%	2.5%	6.5%	4.5%
Natural	86.2%	89.9%	79.4%	82.4%
Wetland	2.6%	1.4%	5.6%	4.1%
Impervious Cover	2%			

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

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary
MA DFG biologists conducted 11 backpack electrofishing samples along this South River AU (MA33-101) between August 2014 and August 2017 as follows: between the confluences of Creamery and Poland brooks along Route 116 in Ashfield (Sample IDs 5439, 7491, 7496, 5438, 5437, 7497, 5680, and 6623) and further downstream along Route 116 near the bridge close to Eldridge Road in Conway (SampleIDs 5681, 6241, and 6622). The samples were comprised entirely (with a single exception) of fluvial fish including multiple age classes of Eastern brook trout as well as slimy sculpin. The Aquatic Life Use for this South River AU (MA33-101) is assessed as Fully Supporting based on the presence of cold water fish species which are indicate of excellent habitat and water quality conditions.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5437	MassDFG	Fish Community	South River	Adj to Route 116 DS of Bullitt Rd, Ashfield	42.50971	-72.76208
5438	MassDFG	Fish Community	South River	Adj to Rt 116, US of Bullitt Rd, Ashfield	42.50922	-72.76373
5439	MassDFG	Fish Community	South River	Adjacent to Rt 116 just DS of Creamery Br confl, Ashfield	42.50821	-72.77086
5680	MassDFG	Fish Community	South River	Turn off DS of Bullit Rd, along Rt 116, Ashfield	42.50967	-72.76012
5681	MassDFG	Fish Community	South River	DS of bridge on Rt 116 at Eldridge Rd, Conway	42.51423	-72.72009
6241	MassDFG	Fish Community	South River	rte 116 and eldridge rd bridge (DS), Conway	42.51434	-72.72018
6622	MassDFG	Fish Community	South River	DS of bridge on Rt 116 @ edridge Rd, Conway	42.51433	-72.71995
6623	MassDFG	Fish Community	South River	Turn off on 116 DS of Bullet Rd, Ashfield	42.50968	-72.76001
7491	MassDFG	Fish Community	South River	Off Rt. 116 downstream of confluence of Creamery Brook, Ashfield	42.50822	-72.77093
7496	MassDFG	Fish Community	South River	Upstream of Bullit Rd., Ashfield	42.50721	-72.76761
7497	MassDFG	Fish Community	South River	Downstream of Bullit Rd., About 35 m downstream of bridge, Ashfield	42.50975	-72.76210

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]

[Species List: B = Bluegill, BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, GS = Golden Shiner, LND = Longnose Dace, LNS = Longnose Sucker, P = Pumpkinseed, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5437	08/28/14	BP	TP	5	195	8	69	224	7	39	27%	100%	No	Yes	BND, EBT, LND, LNS, SC,
5438	08/28/14	BP	TP	5	170	34	37	215	27	50	52%	100%	Yes	Yes	BND, EBT, LND, LNS, SC,
5439	08/29/14	BP	TP	8	189	36	64	246	31	17	31%	99%	No	Yes	BND, CRC, CS, EBT, LND, LNS, P, SC,
5680	08/06/15	BP	TP	6	145	78	49	199	69	32	78%	100%	No	Yes	BND, BT, EBT, LND, LNS, SC,
5681	08/06/15	BP	TP	8	377	2	86	152	1	14	8%	100%	No	Yes	BND, CRC, CS, EBT, LND, LNS, P, SC,
6241	08/01/16	BP	TP	8	186	2	117	121	2	7	5%	100%	No	Yes	BND, BT, CRC, CS, EBT, LND, SC, WS,
6622	08/17/17	BP	TP	9	555	2	70	123	2	17	3%	100%	No	Yes	B, BND, CRC, CS, EBT, GS, LND, SC, WS,
6623	08/17/17	BP	TP	7	400	13	70	119	13	159	43%	96%	No	Yes	B, BND, CRC, EBT, LND, SC, WS,
7491	07/21/15	BP	TP	6	104	29	60	188	23	14	42%	100%	No	Yes	BND, BT, CRC, EBT, LND, SC,
7496	07/21/15	BP	TP	5	120	35	43	222	27	35	59%	100%	No	Yes	BND, EBT, LND, LNS, SC,
7497	07/21/15	BP	TP	4	202	43	59	190	38	73	57%	100%	No	Yes	BND, EBT, LND, SC,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in this South River AU (MA33-101), 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 South River AU (MA33-101), so it is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent bacteria data are available to assess the status of the Primary Contact Recreational Use for this South River AU (MA33-101), so it will continue to be assessed as Not Supporting with the *E. coli* and Fecal Coliform impairments being carried forward.	

Secondary Contact Recreation

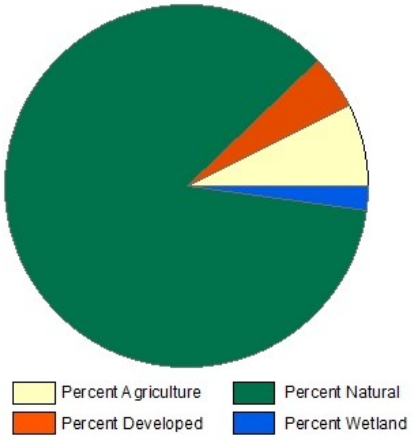
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for this South River AU (MA33-101), so it is Not Assessed.	

South River (MA33-102)

Location:	From confluence with Johnny Bean Brook, Conway to confluence with Deerfield River, Conway (formerly part of 2014 segment: South River MA33-08) (through former 2008 segment: South River Impoundment MA33022).
AU Type:	RIVER
AU Size:	6.9 MILES
Classification/Qualifier:	B

SOUTH RIVER - MA33-102

Watershed Area: 26.29 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	26.29	5.13	6.3	0.98
Agriculture	7.3%	8.2%	8.4%	8.8%
Developed	4.8%	5.9%	7.3%	10.6%
Natural	85.6%	84.4%	78.9%	75.4%
Wetland	2.2%	1.5%	5.4%	5.2%
Impervious Cover	2.2%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Physical Substrate Habitat Alterations*)		Unchanged
5	5	Escherichia Coli (E. Coli)		Unchanged
5	5	Fecal Coliform		Unchanged
5	5	Temperature		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Physical Substrate Habitat Alterations*)	Source Unknown (N)	X				
Escherichia Coli (E. Coli)	Source Unknown (N)				X	
Fecal Coliform	Source Unknown (N)				X	
Temperature	Agriculture (N)	X				
Temperature	Dam or Impoundment (N)	X				
Temperature	Source Unknown (N)	X				

Recommendations

2022 Recommendations
ALU: Additional long-term temperature data should be collected in the South River to better evaluate the appropriateness of the 2022 Temperature impairment (which was based off of data collected in the year following Hurricane Irene) and to potentially target areas for improved riparian corridor health to provide additional shading. Cooperative efforts (MA towns in this subwatershed) to reduce thermal stress should be prioritized to protect/maintain/restore cold water habitat in this river. REC: Conduct additional *E. coli* bacteria sampling at historic sampling locations along this South River AU (MA33-102) to evaluate if the *E. coli* and Fecal Coliform bacteria impairments can be delisted [include CRC sampling location in the South River off Reeds Bridge Road in Conway (CRC_MA-SOU_02.4)].

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO

2022 Use Attainment Summary
MassDEP biologists sampled this South River AU (MA33-102) upstream of Main Street (Route 116) in Conway (upstream of the confluence of Pumpkin Hollow Brook) during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. The benthic community (B0797) sample, collected in July 2012, had an IBI score of 46 (Moderately Degraded conditions for a high gradient Western Highland region stream). Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2260) can be summarized as follows: minimum dissolved oxygen 8.1mg/L during three short term DO deploys, maximum temperature 25.4°C between June 1st and September 15th with 7DADM exceeding 20°C 61 times. The maximum 24-hour rolling average temperature was 23.5°C, pH ranged from 8.0 to 8.7SU (n=3), and there was no indication of a nutrient enrichment problem (seasonal average total phosphorus concentrations was low 0.007mg/L, max diel DO shift only 1.3mg/L, maximum saturation 107%, maximum pH 8.7SU, and there were no observations of any dense/very dense filamentous algae of six site visits). There were no toxicant issues (maximum total ammonia-nitrogen concentration was 0.02mg/L, chloride was 32mg/L (n=5), and there were no exceedances of any of clean metals or aluminum samples (n=3) although it should be noted that dissolved Al data were compared to total recoverable Al criteria, so exceedances cannot be ruled out). Slightly further downstream along Route 116 in Conway, MA DFG biologists conducted backpack electrofishing in August 2016 (SampleID 6240). The sample was comprised of fluvial fish including multiple age classes of Eastern brook trout as well as slimy sculpin. The Aquatic Life Use for this South River AU (MA33-102) is assessed as Not Supporting based on the elevated temperatures above Cold Water habitat criteria during the summer of 2012. While most of the watershed area is Natural/Wetland (87.8%) with 2.2% impervious cover, the proximal stream buffer is 80.6% Natural/Westland and has 8.8% agricultural areas often occur along the stream buffer zone, as do roadways, rural development, and at least one dam (Ashfield Pond Dam)so the elevated temperature is considered to be exacerbated by anthropogenic activities. While the benthic data IBI score was in the Moderately Degraded category, since the data were collected in the year following Hurricane Irene, a benthic impairment is not being added. The Physical Substrate Habitat Alteration impairment is also being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
6240	MassDFG	Fish Community	South River	rte 116., Conway	42.50894	-72.69810

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
B0797	MassDEP	Benthic	South River/	[approximately 120 meters upstream of Main Street (Route 116), Conway, MA (approximately 60 meters upstream of confluence of Pumpkin Hollow Brook)]	42.508302	-72.698707
W2260	MassDEP	Water Quality	South River	[approximately 400 feet upstream of Main Street (Route 116), Conway (approximately 200 feet upstream of confluence of Pumpkin Hollow Brook)]	42.508302	-72.698707

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
B0797	07/24/12	RBP kicknet	Western_Highlands_100ct	108	46	MD

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]

[Species List: BND = Blacknose Dace, CRC = Creek Chub, EBT = Brook Trout, LND = Longnose Dace, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
6240	08/01/16	BP	TP	6	115	30	70	212	25	55	74%	100%	No	Yes	BND, CRC, EBT, LND, SC, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2260	2012	3	11	8.1	8.4	8.8	1.3	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2260	05/23/12	09/20/12	3	8.7	9.1	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2260	06/01/12	09/15/12	91	84	23.4	25.4	24.2	22.3	61	0	19	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2260	2012	3	11	21.8	24.4	22.5	20.8	3	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 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
W2260	06/01/12	09/15/12	107	4320	23.5	0	0	0
W2260	06/21/12	08/27/12	67	532	22.0	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (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
W2260	05/23/12	09/20/12	5	3	23.0	18.7	2	1	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (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
W2260	05/23/12	09/20/12	3	8	8.7	2	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (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
W2260	2012	5	0.005	0.010	0.007	1.3	0.9	107.1	8.7	6	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2260	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2260	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (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
W2260	2012	3	0.010	0.01	0.010	0.0	0.0	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (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
W2260	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (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
W2260	2012	5	11	32	22	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (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
W2260	05/23/12	09/20/12	3	144	235	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 South River AU (MA33-102), therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff surveyed this South River AU (MA33-102) upstream of Main Street (Route 116) in Conway (upstream of the confluence of Pumpkin Hollow Brook) during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. There were generally no objectionable conditions (i.e., odors, deposits, growths, or turbidity) observed during any of the surveys. The Aesthetics Use for this South River AU (MA33-102) is assessed as Fully Supporting based on the general lack of objectionable conditions noted by MassDEP sampling crews during the summer of 2012.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2260	MassDEP	Water Quality	South River	[approximately 400 feet upstream of Main Street (Route 116), Conway (approximately 200 feet upstream of confluence of Pumpkin Hollow Brook)]	42.508302	-72.698707

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2260	South River	2012	6	MassDEP aesthetics observations for station W2260/MAP2-193 on South 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.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2260	2012	6	6	0

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

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2260	South River	2012	Color	None	6	6
W2260	South River	2012	Objectionable Deposits	No	6	6
W2260	South River	2012	Odor	None	6	6
W2260	South River	2012	Scum	No	5	6
W2260	South River	2012	Scum	Yes	1	6
W2260	South River	2012	Turbidity	None	5	6
W2260	South River	2012	Turbidity	Slightly Turbid	1	6

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MassDEP staff collected *E. coli* bacteria samples from this South River AU (MA33-102) upstream of Main Street (Route 116) in Conway (upstream of the confluence of Pumpkin Hollow Brook) during the summer of 2012 (W2260) between May and September 2012 (n=6). Data analysis indicated none of the intervals had GMs >126 cfu/100ml, none of the samples exceeded the 410 cfu/100ml STV, and the seasonal GM was 91 cfu/100ml. Connecticut River Conservancy volunteers collected E. coli bacteria samples further downstream from the river off Reeds Bridge Road in Conway (CRC_MA-SOU_02.4) between June and September 2019 (n=6) and between July and September 2020 (n=5). Data analysis of this low frequency multi-year dataset indicated only one of two years with GMs that exceeded>20% and only one year with two samples that exceeded the STV of 410cfu/100mls. The seasonal GMs were 336 and 68cfu/100ml in 2019 and 2020, respectively.

Although the *E. coli* concentrations were below the use attainment impairment thresholds for both the single year and multi-year low frequency datasets, the Primary Contact Recreational Use for this South River AU (MA33-102) will continue to be assessed as Not Supporting with the *E. coli* and Fecal Coliform bacteria impairments being carried forward. Since one of the two years of recent *E. coli* data indicated high bacteria concentrations, too limited data are available to delist the *E. coli* impairment.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-SOU_02.4	Connecticut River Conservancy	Water Quality	South River	South River, off Reeds Bridge Rd, Conway	42.54131	-72.690065
W2260	MassDEP	Water Quality	South River	[approximately 400 feet upstream of Main Street (Route 116), Conway (approximately 200 feet upstream of confluence of Pumpkin Hollow Brook)]	42.508302	-72.698707

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4) (MassDEP Undated 8) (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
CRC_MA-SOU_02.4	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	59.8	980.4	336
CRC_MA-SOU_02.4	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	25.9	214.3	68
W2260	MassDEP	E. coli	05/17/12	09/20/12	6	42	186	91

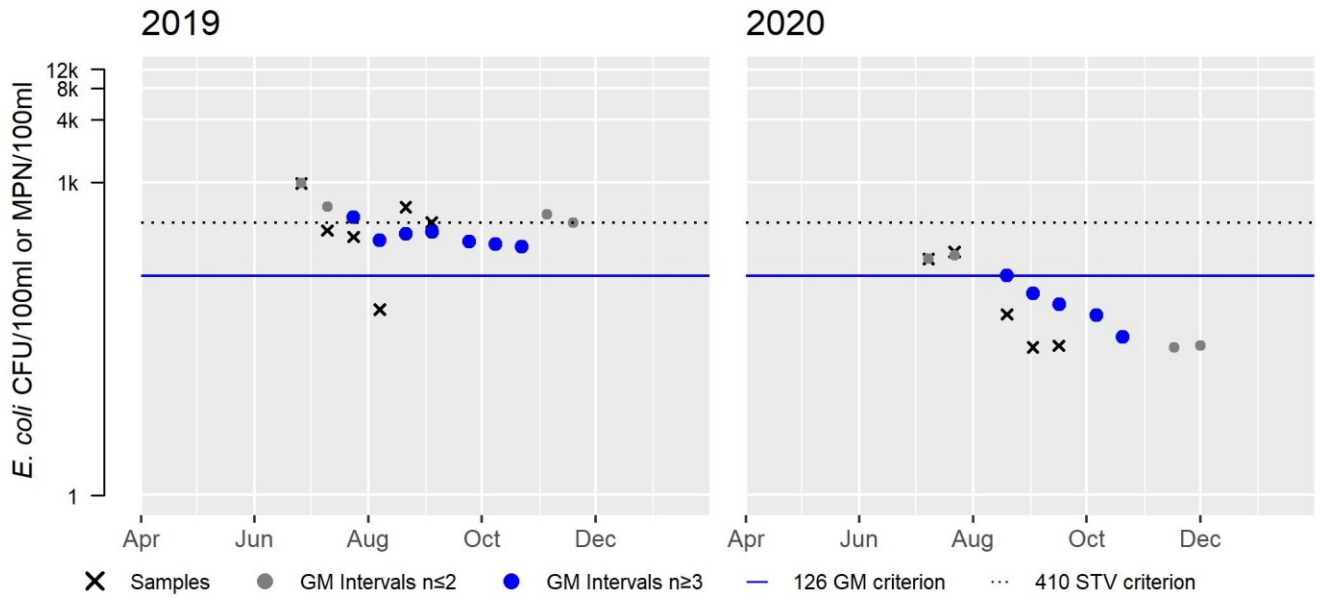
CRC_MA-SOU_02.4 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	336
#GMI	7
#GMI Ex	7
%GMI Ex	100
n>STV	3
%n>STV	50

Var	Res
Samples	5
SeasGM	68
#GMI	5
#GMI Ex	1
%GMI Ex	20
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

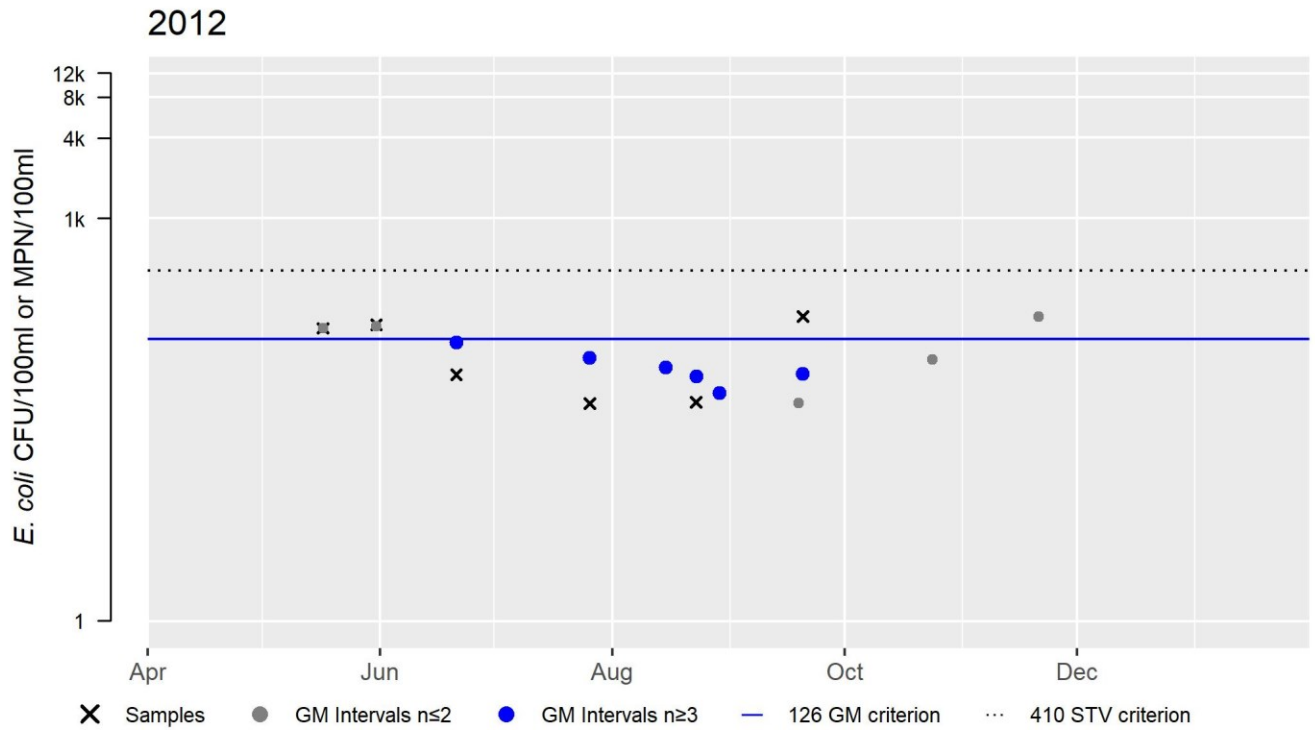
Variable	Cumulative %GMI Ex (all years)
Result	67



W2260 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	91
#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 South River AU (MA33-102) upstream of Main Street (Route 116) in Conway (upstream of the confluence of Pumpkin Hollow Brook) during the summer of 2012 (W2260) between May and September 2012 (n=6). Data analysis indicated none of the intervals had GMs >630 cfu/100ml, none of the samples exceeded the 1260 cfu/100ml STV, and the seasonal GM was 91 cfu/100ml. Connecticut River Conservancy volunteers collected *E. coli* bacteria samples further downstream from the river off Reeds Bridge Road in Conway (CRC_MA-SOU_02.4) between June and September 2019 (n=6) and between July and September 2020 (n=5). Data analysis of this low frequency multi-year dataset indicated none of the GMs exceeded 630 cfu/100mls ano did any sample exceed the STV of 1260 cfu/100mls. The seasonal GMs were 336 and 68cfu/100ml in 2019 and 2020, respectively.
The Secondary Contact Recreational Use for this South River AU (MA33-102) is assessed as Fully Supporting based on the *E. coli* concentration data from the summers of 2012, 2019, and 2020.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
CRC_MA-SOU_02.4	Connecticut River Conservancy	Water Quality	South River	South River, off Reeds Bridge Rd, Conway	42.54131	-72.690065
W2260	MassDEP	Water Quality	South River	[approximately 400 feet upstream of Main Street (Route 116), Conway (approximately 200 feet upstream of confluence of Pumpkin Hollow Brook)]	42.508302	-72.698707

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (CRC 2021) (MassDEP Undated 4) (MassDEP Undated 8) (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)
CRC_MA-SOU_02.4	Connecticut River Conservancy	E. coli	06/26/19	09/04/19	6	59.8	980.4	336
CRC_MA-SOU_02.4	Connecticut River Conservancy	E. coli	07/08/20	09/16/20	5	25.9	214.3	68
W2260	MassDEP	E. coli	05/17/12	09/20/12	6	42	186	91

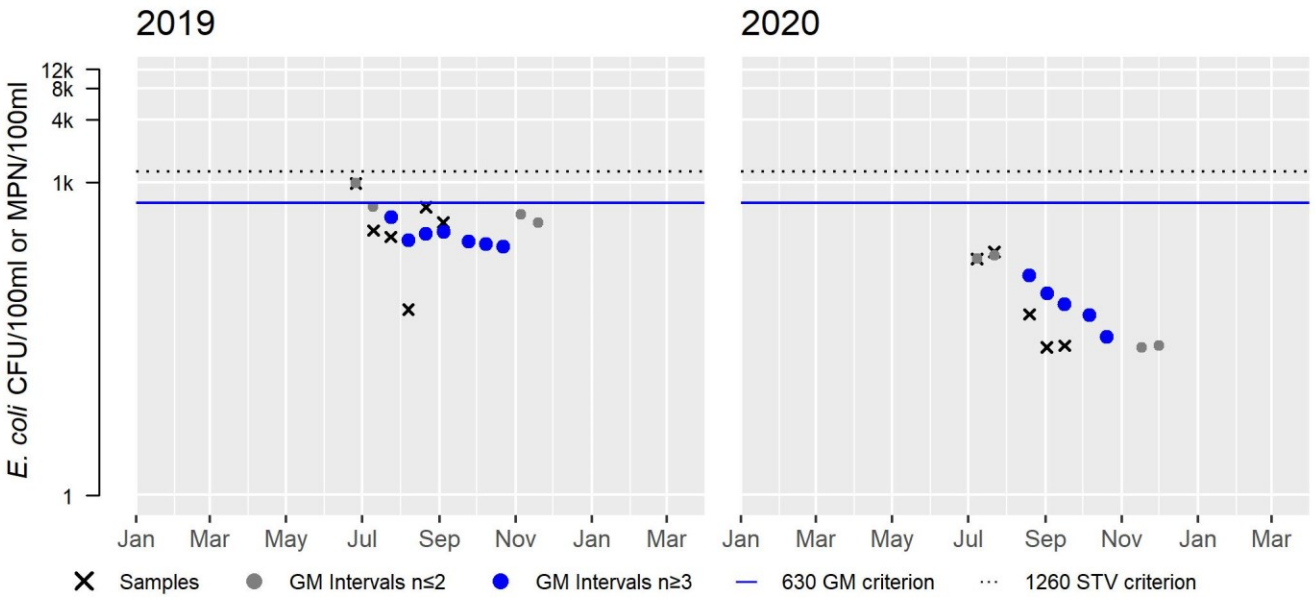
CRC_MA-SOU_02.4 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	336
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

Var	Res
Samples	5
SeasGM	68
#GMI	5
#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

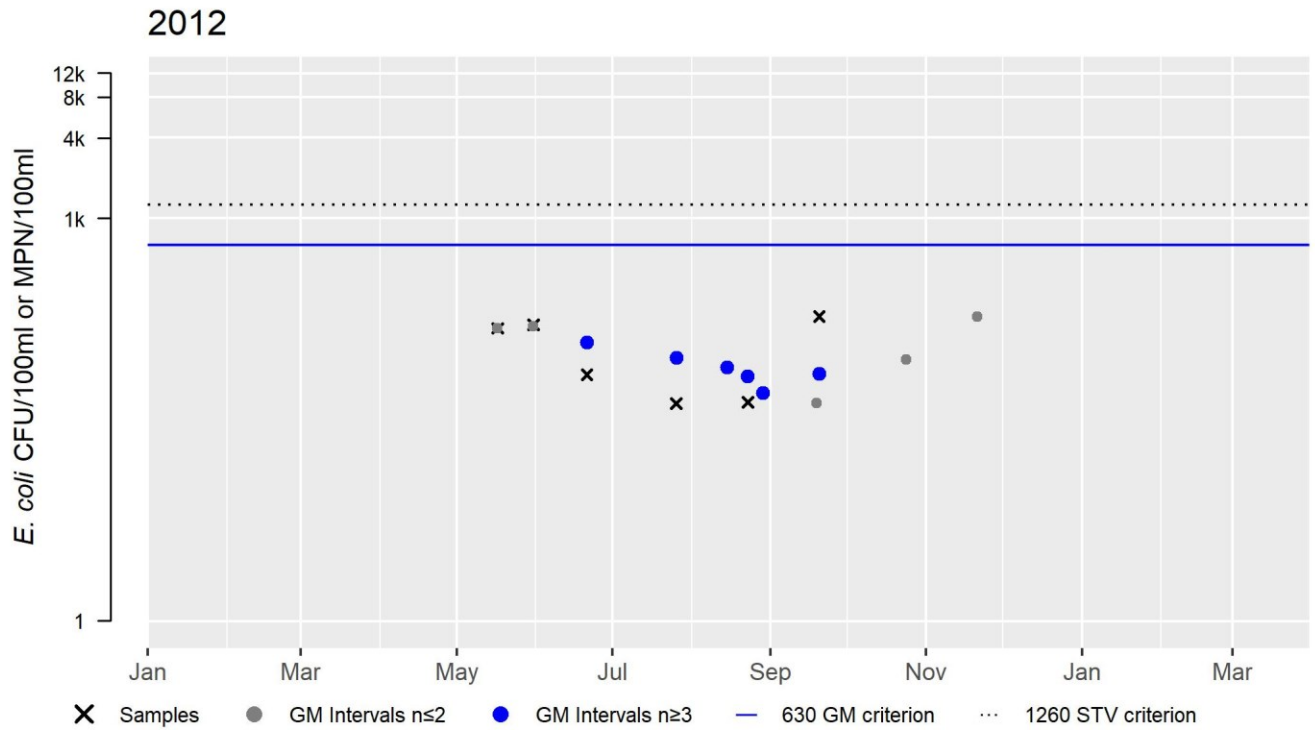
Variable	Cumulative %GMI Ex (all years)
Result	0



W2260 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	91
#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



Spur Brook (MA33-106)

Location:	Headwaters, outlet small pond just west at intersection of Christian Hill Road and Thompson Road, Colrain to confluence with East Branch North River, Colrain.
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B

No usable data were available for Spur Brook (MA33-106) 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

Stafford Brook (MA33-98)

Location:	Headwaters, perennial portion south of East Colrain Road, Colrain to confluence with Green River, Colrain.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	A: PWS, ORW, HQW, CWF (Tributary)

No usable data were available for Stafford Brook (MA33-98) 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

Staples Brook (MA33-121)

Location:	Headwaters east of Spruce Hill, North Adams to confluence Tower Brook, Florida.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B

No usable data were available for Staples Brook (MA33-121) 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

Steele Brook (MA33-85)

Location:	Headwaters, perennial portion north of Tunnel Road, Rowe to confluence with Pelham Brook, Rowe.
AU Type:	RIVER
AU Size:	1.7 MILES
Classification/Qualifier:	B

No usable data were available for Steele Brook (MA33-85) 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

Stewart Brook (MA33-132)

Location:	Perennial portion north of Wilson Graves Road, Shelburne to mouth at confluence with Hinsdale Brook, Shelburne.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Stewart Brook (MA33-132) 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

Tannery Brook (MA33-86)

Location:	Outlet of Tannery Pond, Savoy to confluence with Gulf Brook, Savoy.
AU Type:	RIVER
AU Size:	0.7 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Tannery Brook (MA33-86) 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

Tannery Pond (MA33020)

Location:	Savoy.
AU Type:	FRESHWATER LAKE
AU Size:	0.5 ACRES
Classification/Qualifier:	B

No usable data were available for Tannery Pond (MA33020) 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

Taylor Brook (MA33-31)

Location:	From the confluence of Kinsman Brook and Davenport Brook, Heath to confluence with West Branch North River, Colrain.
AU Type:	RIVER
AU Size:	2.6 MILES
Classification/Qualifier:	B

No usable data were available for Taylor Brook (MA33-31) 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

Tilton Brook (MA33-119)

Location:	Headwaters in Savoy Mountain State Forest, west of Bannis Road, Savoy to confluence with Chickley River, Savoy.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B

No usable data were available for Tilton Brook (MA33-119) 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

Tissdell Brook (MA33-24)

Location:	Headwaters perennial portion east of Christian Hill Cemetary, Colrain to confluence with West Branch North River, Colrain.
AU Type:	RIVER
AU Size:	1.7 MILES
Classification/Qualifier:	B

No usable data were available for Tissdell Brook (MA33-24) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Todd Brook (MA33-127)

Location:	Headwaters east of Coon Hill, Charlemont to confluence with Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Todd Brook (MA33-127) 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

Tower Brook (MA33-87)

Location:	Headwaters, west of Central Shaft Road, Florida (drains wetland) to confluence with Cold River, Florida.
AU Type:	RIVER
AU Size:	1.9 MILES
Classification/Qualifier:	B

No usable data were available for Tower Brook (MA33-87) 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

Trout Brook (MA33-88)

Location:	Headwaters, perennial portion west of Hawks Mountain, Charlemont/Hawley to confluence with Cold River, Charlemont.
AU Type:	RIVER
AU Size:	0.6 MILES
Classification/Qualifier:	B

No usable data were available for Trout Brook (MA33-88) 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

Tuttle Brook (MA33-129)

Location:	Headwaters east of Leshures Road, Rowe to mouth at confluence with Potter Brook, Rowe.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B

No usable data were available for Tuttle Brook (MA33-129) 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 (MA33-103)

Location:	Unnamed tributary to Hinsdale Brook, perennial portion east of Little Mohawk Road, Shelburne to confluence with Hinsdale Brook, Shelburne.
AU Type:	RIVER
AU Size:	1.9 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA33-103) 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 (MA33-104)

Location:	Unnamed tributary to an unnamed tributary to Hinsdale Brook from Shearer Pond Dam (NATID MA01531), Colrain to confluence with an unnamed tributary to Hinsdale Brook, Shelburne.
AU Type:	RIVER
AU Size:	0.9 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA33-104) 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 (MA33-105)

Location:	Unnamed tributary to Glen Brook, headwaters north of Oak Hill Road, Leyden to confluence Glen Brook, Greenfield.
AU Type:	RIVER
AU Size:	1.9 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA33-105) 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 (MA33-107)

Location:	Unnamed tributary to the East Branch North River, headwaters south of Fairbanks Road, Colrain to the confluence of the East Branch North River, Colrain.
AU Type:	RIVER
AU Size:	1.7 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA33-107) 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 (MA33-108)

Location:	Unnamed tributary to East Branch North River, headwaters outlet Mt. Brook Reservoir, Colrain to confluence with East Branch North River, Colrain.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA33-108) 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 (MA33-109)

Location:	Unnamed tributary to West Branch North River, headwaters west of Wilson Hill Road, Colrain to confluence with West Branch North River, Colrain.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA33-109) 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 (MA33-110)

Location:	Unnamed tributary to Taylor Brook, headwaters, Catamount State Forest, Colrain to confluence Taylor Brook, Colrain.
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA33-110) 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 (MA33-114)

Location:	Headwaters east of Pine Hill Road, Conway to confluence with South River, Conway.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA33-114) 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 (MA33-115)

Location:	Unnamed tributary to Chapel Brook, headwaters west of Bird Hill Road, Ashfield to confluence with Chapel Brook, Ashfield.
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA33-115) 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 (MA33-116)

Location:	Unnamed tributary to Clesson Brook, headwaters north of Avery Road, Buckland to confluence with Clesson Brook, Buckland.
AU Type:	RIVER
AU Size:	1.8 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA33-116) 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 (MA33-128)

Location:	Unnamed tributary to Deerfield River known as 'Bear Swamp Outflow', from headwaters north of Tunnel Road, Rowe to confluence with Deerfield River, Rowe.
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Unnamed Tributary (MA33-128) 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 (MA33-133)

Location:	Unnamed tributary to the Deerfield River from headwaters, outlet Goodnow Road Pond, Buckland to mouth at confluence with the Deerfield River, Buckland.
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA33-133) 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 (MA33-134)

Location:	Unnamed tributary to East Branch North River from headwaters east of Franklin Hill Road and southwest at Franklin Hill, Colrain to mouth at confluence with East Branch North River, Colrain.
AU Type:	RIVER
AU Size:	0.7 MILES
Classification/Qualifier:	B

No usable data were available for Unnamed Tributary (MA33-134) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

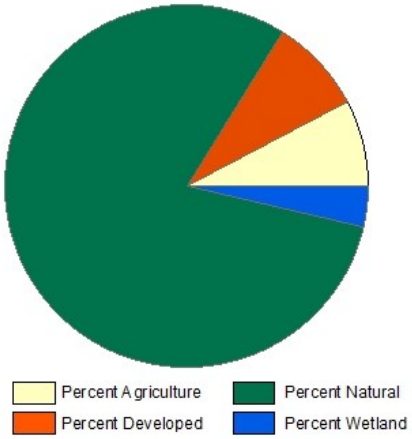
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Unnamed Tributary (MA33-137)

Location:	Unnamed tributary to Creamery Brook, headwaters, perennial portion west of West Road, Ashfield to mouth at confluence with Creamery Brook, Ashfield.
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B

Unnamed Tributary - MA33-137

Watershed Area: 1.09 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	1.09	1.09	0.21	0.21
Agriculture	7.7%	7.7%	17.9%	17.9%
Developed	8.4%	8.4%	9.1%	9.1%
Natural	80.3%	80.3%	67.1%	67.1%
Wetland	3.6%	3.6%	5.9%	5.9%
Impervious Cover	4%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
--	5	Escherichia Coli (E. Coli)		Added
--	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	
Temperature	Agriculture (N)	X				
Temperature	Source Unknown (N)	X				

2022 Recommendations
ALU: Conduct follow-up benthic sampling and long-term, continuous temperature monitoring in this Unnamed Tributary to Creamery Brook AU (MA33-137) downstream of West Road in Ashfield (B0790) since the 2022 Temperature impairment was identified based on data in the year following Hurricane Irene, and the IBI score was in the Severely Degraded category in the year following Hurricane Irene. REC: Conduct additional *E. coli* bacteria sampling to better evaluate the status of the Primary Contact Recreational Use and determine if the *E. coli* impairment should be retained or delisted.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
MassDEP biologists sampled this Unnamed Tributary to Creamery Brook AU (MA33-137) ~ 520 meters downstream of West Road in Ashfield during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. The benthic community (B0790) sample, collected in July 2012, had an IBI score of 30 (Severly Degraded conditions for a high gradient Western Highland region stream). Backpack electrofishing by MassDEP biologists in August 2012 (SampleID 5017) resulted in a sample comprised entirely by fluvial fish that was dominated (97%) by multiple age classes of Eastern brook trout so this stream will be assessed as a Tier 1 Existing Use Cold Water resource. Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2253) can be summarized as follows: minimum dissolved oxygen 7.4mg/L during three short term DO deploys, maximum temperature 27.6°C between June 1st and September 15th with 7DADM exceeding 20°C 87 times. The maximum 24-hour rolling average temperature was 22.9°C, pH ranged from 7.3 to 7.7SU (n=3), and there was no indication of a nutrient enrichment problem (seasonal average total phosphorus concentrations was low 0.014mg/L, max diel DO shift only 1.6mg/L, maximum saturation 96%, maximum pH 7.7SU, ad there were no observations of any dense/very dense filamentous algae of six site visits). There were no toxicant issues (maximum total ammonia-nitrogen concentration was 0.05mg/L, chloride was 45mg/L (n=5), and there were no exceedances of any of clean metals or aluminum samples (n=3) although it should be noted that dissolved Al data were compared to total recoverable Al criteria, so exceedances cannot be ruled out). The Aquatic Life Use for this Unnamed Tributary to Creamery Brook AU (MA33-137) is assessed as Not Supporting based on the elevated temperatures above Tier 1 Existing Use Cold Water habitat criteria (this stream was dominated by multiple age classes of Eastern brook trout) during the summer of 2012. Approximately 84% of this small subwatershed is Natural/Wetland with 4% of impervious cover, while the proximal watershed is only 73% Natural/Wetland so the elevated temperature is considered to be exacerbated by anthropogenic activities. While the benthic data IBI score was in the Severely Degraded category, since the data were collected in the year following Hurricane Irene, a benthic impairment is not being added but additional benthic sampling is being recommended.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5017	MassDEP	Fish Community	UNT to Creamery Brook (2)	0.3mi DS of West Rd	42.51153	-72.80105
B0790	MassDEP	Benthic	Unnamed And/Or Undefined Saris/	[unnamed tributary to Creamery Brook, approximately 520 meters downstream of West Road, Ashfield, MA]	42.511527	-72.801051
W2253	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Creamery Brook, approximately 1700 feet downstream of West Road, Ashfield]	42.511527	-72.801051

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
B0790	07/24/12	RBP kicknet	Western_Highlands_100ct	100	30	SD

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]

[Species List: BND = Blacknose Dace, EBT = Brook Trout]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5017	08/21/12	BP	TP	2	79	77	40	149	75	0	97%	100%	No	Yes	BND, EBT,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2253	2012	3	10	7.4	7.6	8.2	1.6	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2253	05/23/12	09/20/12	2	8.1	8.4	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2253	06/01/12	09/15/12	107	107	22.3	27.6	25.8	21.4	87	0	2	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2253	2012	3	11	20.4	25.6	24.8	19.1	3	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 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
W2253	06/01/12	09/15/12	107	5136	22.9	0	0	0
W2253	06/21/12	08/27/12	67	530	21.3	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (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
W2253	05/23/12	09/20/12	5	3	24.6	19.2	2	1	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (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
W2253	05/23/12	09/20/12	3	7.3	7.7	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (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
W2253	2012	5	0.008	0.027	0.014	1.6	1.1	95.5	7.7	6	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2253	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2253	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (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
W2253	2012	3	0.010	0.01	0.010	0.0	0.0	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (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
W2253	2012	5	0.020	0.050	0.036	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (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
W2253	2012	5	36	45	39	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (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
W2253	05/23/12	09/20/12	3	212	229	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 to Creamery Brook AU (MA33-137), therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP biologists sampled this Unnamed Tributary to Creamery Brook AU (MA33-137) ~ 520 meters downstream of West Road in Ashfield (W2253) during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. No objectionable conditions (i.e., odors, deposits, growths, or turbidity) were observed during any of the surveys. The Aesthetics Use for this Unnamed Tributary to Creamery Brook AU (MA33-137) is assessed as Fully Supporting based on the lack of any objectionable conditions documented by MassDEP staff during the summer of 2012.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2253	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Creamery Brook, approximately 1700 feet downstream of West Road, Ashfield]	42.511527	-72.801051

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2253	Unnamed Tributary	2012	6	MassDEP aesthetics observations for station W2253/MAP2-177 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 2012.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2253	2012	6	6	0

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

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2253	Unnamed Tributary	2012	Color	None	6	6
W2253	Unnamed Tributary	2012	Objectionable Deposits	No	6	6
W2253	Unnamed Tributary	2012	Odor	None	6	6
W2253	Unnamed Tributary	2012	Scum	No	6	6
W2253	Unnamed Tributary	2012	Turbidity	None	5	6
W2253	Unnamed Tributary	2012	Turbidity	NR	1	6

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
MassDEP staff collected *E. coli* bacteria samples from this Unnamed Tributary to Creamery Brook AU (MA33-137) ~ 520 meters downstream of West Road in Ashfield (W2253) between May and October 2012 (n=6). Data analysis of this low frequency single year dataset indicated 83% of the intervals had GMs >126 cfu/100ml, and no samples exceeded the 410 cfu/100ml STV. The seasonal GM was 153cfu/100ml. Since the *E. coli* concentrations exceeded the use attainment impairment thresholds for this single year low frequency dataset, the Primary Contact Recreational Use for this Unnamed Tributary to Creamery Brook AU (MA33-137) is assessed as Not Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2253	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Creamery Brook, approximately 1700 feet downstream of West Road, Ashfield]	42.511527	-72.801051

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 6)

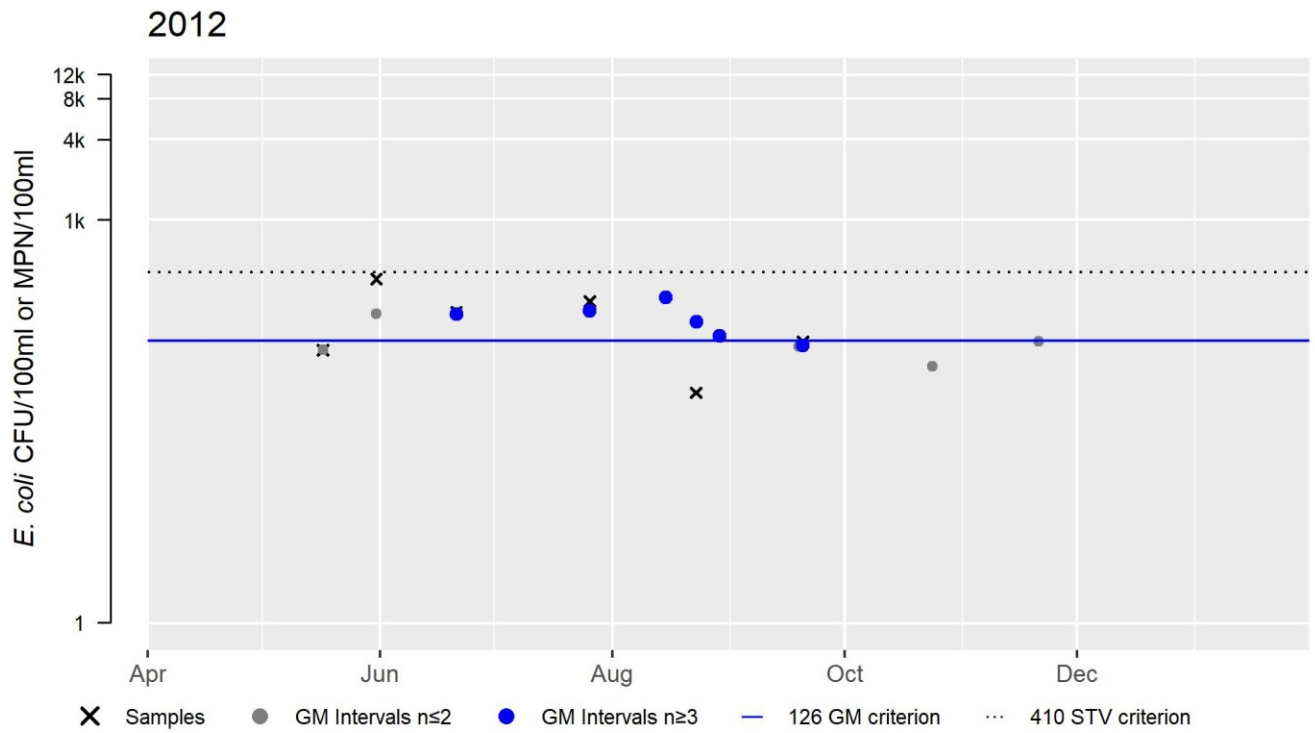
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2253	MassDEP	E. coli	05/17/12	09/20/12	6	52	365	153

W2253 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	153
#GMI	6
#GMI Ex	5
%GMI Ex	83
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	

2022 Use Attainment	Alert
MassDEP staff collected *E. coli* bacteria samples from this Unnamed Tributary to Creamery Brook AU (MA33-137) ~ 520 meters downstream of West Road in Ashfield (W2253) between May and October 2012 (n=6). Data analysis of this low frequency single year dataset indicated none of the intervals had GMs >630 cfu/100ml, and no samples exceeded the 1260 cfu/100ml STV. The seasonal GM was 153cfu/100ml. Since the *E. coli* concentrations did not exceed the use attainment impairment thresholds for this single year low frequency dataset, the Secondary Contact Recreational Use for this Unnamed Tributary to Creamery Brook AU (MA33-137) is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2253	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to Creamery Brook, approximately 1700 feet downstream of West Road, Ashfield]	42.511527	-72.801051

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 6)

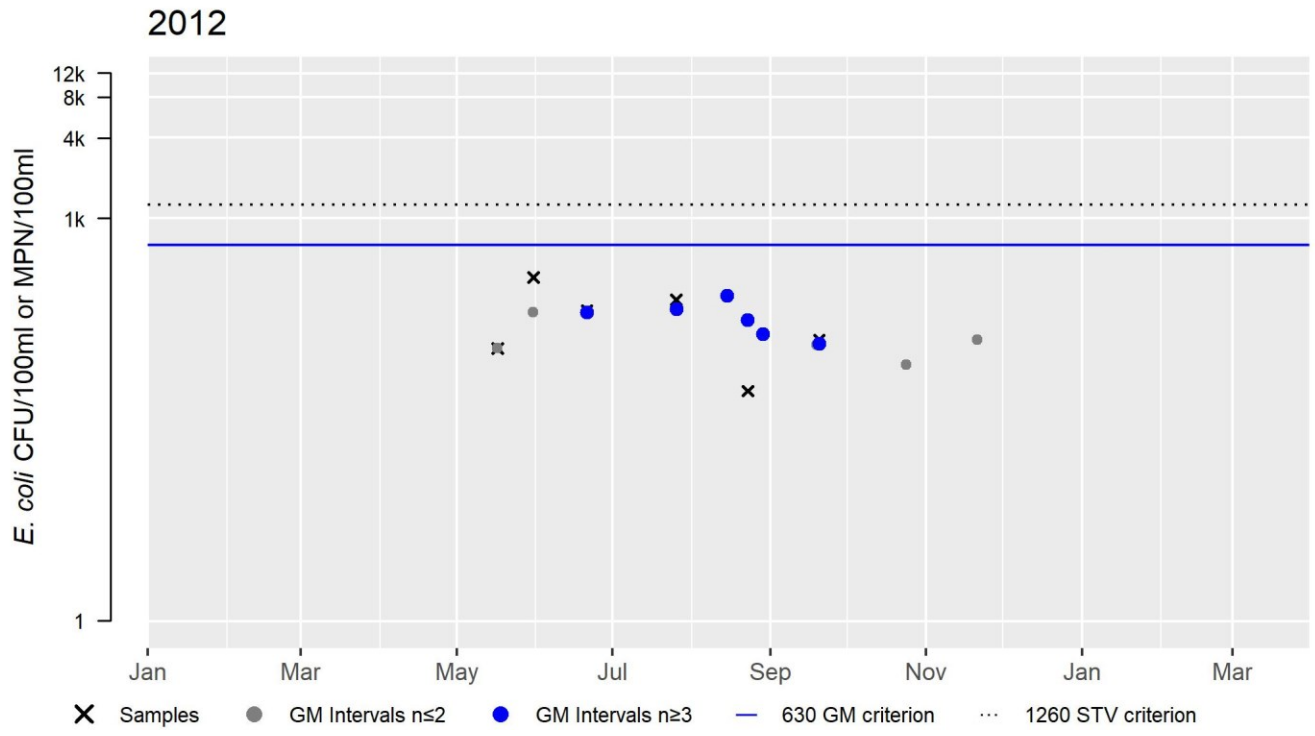
[Result units are CFU/100ml or MPN/100ml]

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)
W2253	MassDEP	E. coli	05/17/12	09/20/12	6	52	365	153

W2253 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	153
#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



Unnamed Tributary (MA33-61)

Location:	Unnamed tributary to Clark Brook locally known as "Hog Hollow Brook", headwaters north of Bray Road, Buckland to confluence with Clark Brook, Buckland.
AU Type:	RIVER
AU Size:	1.1 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Unnamed Tributary (MA33-61) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Upper Greenfield Reservoir (MA33021)

Location:	Leyden.
AU Type:	FRESHWATER LAKE
AU Size:	6 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Upper Greenfield Reservoir (MA33021) 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

Upper Highland Springs Reservoir (MA33025)

Location:	Ashfield.
AU Type:	FRESHWATER LAKE
AU Size:	2 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Upper Highland Springs Reservoir (MA33025) 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

Upper Reservoir Bear Swamp (MA33026)

Location:	Rowe.
AU Type:	FRESHWATER LAKE
AU Size:	108 ACRES
Classification/Qualifier:	B

No usable data were available for Upper Reservoir Bear Swamp (MA33026) 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

Vincent Brook (MA33-89)

Location:	Headwaters, perennial portion east of Stetson Brothers Road, Colrain to confluence with West Branch North River, Colrain.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B

No usable data were available for Vincent Brook (MA33-89) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

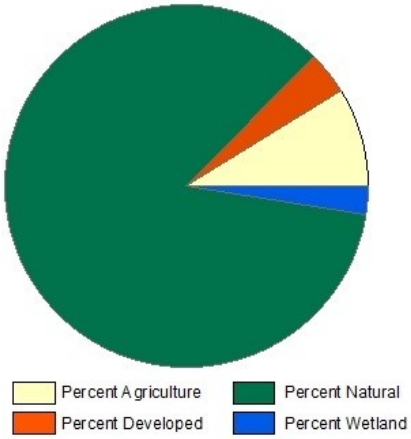
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

West Branch Brook (MA33-90)

Location:	Headwaters, Vermont-Massachusetts stateline, Heath to confluence with Burrington Brook (forming headwaters West Branch North River), Heath.
AU Type:	RIVER
AU Size:	5.4 MILES
Classification/Qualifier:	B: CWF

WEST BRANCH BROOK - MA33-90

Watershed Area: 10.97 sq miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	7.54	7.26	1.61	1.58
Agriculture	8.8%	8.9%	4.4%	4.5%
Developed	3.9%	3.9%	3.1%	3.2%
Natural	84.8%	84.6%	85.8%	85.7%
Wetland	2.5%	2.6%	6.7%	6.6%
Impervious Cover	1.5%			

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	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing in West Branch Brook downstream of the bridge on Route 8A near Sumner Stetson Road in Heath in August 2014 through 2017, September 2018, and August 2019 (SampleIDs 5160, 5696, 6253, 6626, 7616, and 8267, respectively). The samples were all comprised entirely by fluvial fish and included multiple age classes of Eastern brook trout and slimy sculpin. The Aquatic Life Use for West Branch Brook is assessed as Fully Supporting based on the presence of cold water fish species which are indicate of excellent habitat and water quality conditions.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5160	MassDFG	Fish Community	West Branch Brook	DS of bridge on Rt 8A, just W of Sumner Stetson Rd, Heath	42.70462	-72.83547
5696	MassDFG	Fish Community	West Branch Brook	Bridge on Rt 8A, adj to Sumner Stetson Rd, Heath	42.70446	-72.83553
6253	MassDFG	Fish Community	West Branch Brook	DS of bridge on 8A, Heath	42.70461	-72.83541
6626	MassDFG	Fish Community	West Branch Brook	DS of bridge on Rt 8A, Health	42.70447	-72.83547
7616	MassDFG	Fish Community	West Branch Brook	Downstream of bridge on 8a, Heath	42.70470	-72.83569
8267	MassDFG	Fish Community	West Branch Brook	DS of Bridge on 8A, Heath	42.70460	-72.83540

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]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CRC = Creek Chub, EBT = Brook Trout, LND = Longnose Dace, LNS = Longnose Sucker, P = Pumpkinseed, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5160	08/18/14	BP	TP	8	357	22	51	184	20	33	21%	100%	No	Yes	AS, BND, CRC, EBT, LND, LNS, P, SC,
5696	08/17/15	BP	TP	6	241	25	64	179	20	23	22%	100%	No	Yes	BND, CRC, EBT, LND, LNS, SC,
6253	08/29/16	BP	TP	6	439	38	48	180	33	38	20%	100%	No	Yes	BND, CRC, EBT, LND, LNS, SC,
6626	08/21/17	BP	TP	7	262	13	56	153	11	36	19%	100%	No	Yes	BND, CRC, EBT, LND, LNS, SC, WS,
7616	09/17/18	BP	TP	6	299	11	73	153	6	19	10%	100%	No	Yes	BND, CRC, EBT, LND, SC, WS,
8267	08/28/19	BP	TP	6	505	24	58	155	20	52	15%	100%	No	Yes	BND, CRC, EBT, LND, SC, WS,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in West Branch Brook, 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 West Branch Brook, 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 West Branch Brook, so it is Not Assessed.	

Secondary Contact Recreation

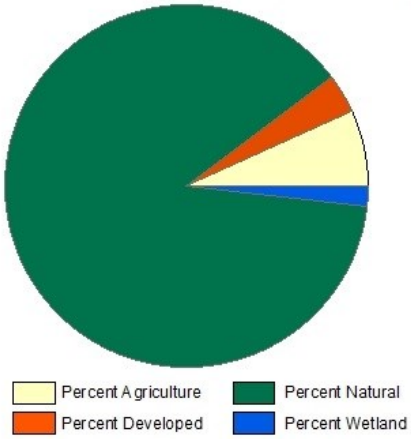
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available to assess the status of the Secondary Contact Recreational Use for West Branch Brook, so it is Not Assessed.	

West Branch North River (MA33-27)

Location:	Headwaters, confluence of West Branch Brook and Burrington Brook, Heath to confluence with East Branch North River, forming headwaters North River, Colrain.
AU Type:	RIVER
AU Size:	7.2 MILES
Classification/Qualifier:	B: CWF, HQW

West Branch North River - MA33-27

Watershed Area: 26.6 sq miles including areas outside Massachusetts



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	23.17	5.96	5.4	1.81
Agriculture	6.8%	7.9%	5.7%	9.4%
Developed	3.5%	3.9%	4.8%	7.3%
Natural	87.9%	87.8%	85.9%	82.4%
Wetland	1.8%	0.4%	3.6%	0.8%
Impervious Cover	1.5%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	5	Temperature		Added

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

Recommendations

2022 Recommendations
ALU: Additional long-term temperature data should be collected in the West Branch North River to better evaluate the thermal regime and potentially target areas for improved riparian corridor health to provide additional shading. Cooperative efforts (both VT and MA towns in this subwatershed) to reduce thermal stress should be prioritized to protect/maintain/restore cold water habitat in this river. Additional benthic sampling is also recommended to follow up on indicators of the moderately degraded benthic community which followed Hurricane Irene.

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 two reaches of the West Branch North River from up to downstream as follows: near the Crowning Shield property off of West Branch Road in Heath in August 2016 and 2017 (SampleIDs 5935, 6732, 6733, 6734) and further downstream along Adamsville Road near the farm stand in Colrain upstream of the confluence with Taylor Brook in September 2014 and August 2015, 2016, 2017, 2019 (SampleIDs 5169, 5695, 6254, 6549, and 8265, respectively). All samples were comprised almost entirely by fluvial fish including multiple age classes of Eastern brook trout and/or slimy sculpin. MassDEP biologists also sampled the West Branch North River downstream of Heath Road crossing in Colrain during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. The benthic community (B0782) sample, collected in August 2012, had an IBI score of 46 (Moderately Degraded conditions for a high gradient Western Highland region stream). Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2244) can be summarized as follows: minimum dissolved oxygen 7.9mg/L during three short term DO deploys, maximum temperature 26.1°C between June 1st and September 15th with 7DADM exceeding 20°C 56 times. The maximum 24-hour rolling average temperature was 23.4°C, pH ranged from 7.6 to 8.2SU (n=3), and there no indications of a nutrient enrichment problem (seasonal average total phosphorus concentrations was low 0.005mg/L, max diel DO shift only 1.9mg/L, maximum saturation 109%, maximum pH 8.2SU, no observations of dense/very dense filamentous algae in any of the six site visits). There were no toxicant issues (maximum total ammonia-nitrogen concentration was 0.02mg/L, chloride was 8mg/L (n=5), and there were no exceedances of any of clean metals or aluminum samples (n=3) although it should be noted that dissolved Al data were compared to total recoverable Al criteria, so exceedances cannot be ruled out).

The Aquatic Life Use for the West Branch North River is assessed as Not Supporting based on the elevated temperatures above Cold Water habitat criteria during the summer of 2012 while the presence of cold water fish (Eastern brook trout and slimy sculpin) and the other water quality data were indicative of otherwise excellent conditions. While most of the watershed area in MA is Natural/Wetland (89.7%) with a low % of impervious cover (1.5%), the agricultural areas are fairly concentrated within the stream buffer zone (proximal stream buffer watershed of Natural/Wetland 83.2%), so the elevated temperature is considered to be exacerbated by anthropogenic activities. Land-Use data in VT were not readily available but cooperative efforts to reduce thermal stress should be prioritized. While the benthic data IBI score was in the Moderately Degraded category, since the data were collected in the year following Hurricane Irene, a benthic impairment is not being added.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5169	MassDFG	Fish Community	West Branch North River	Index site Adamsville Rd veg stand, Colrain	42.68033	-72.74110
5695	MassDFG	Fish Community	West Branch North River	Across from farm stand on Adamsville Rd, Colrain	42.68040	-72.74190
5935	MassDFG	Fish Community	West Branch North River	Crowning Shield Conservation Area, Charlemont	42.70968	-72.80535
6254	MassDFG	Fish Community	West Branch North River	Farm stand on 8A, Colrain	42.68038	-72.74177
6549	MassDFG	Fish Community	West Branch North River	W.B. Road @ farm stand, Colrain	42.68031	-72.74187
6732	MassDFG	Fish Community	West Branch North River	Crowning Shield Property, Lower control, Heath	42.71001	-72.80547

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
6733	MassDFG	Fish Community	West Branch North River	Crowningshield Property, Off West Branch Rd, Middle section at project site (50m-150m), Health	42.71167	-72.80797
6734	MassDFG	Fish Community	West Branch North River	off W. branch Rd, @ 50 m-150m in Upper control site. Crowning shield property., Hawley	42.71096	-72.80967
8265	MassDFG	Fish Community	WB North River	Colrain Rd turnout across from garden, Colrain	42.68054	-72.74203
B0782	MassDEP	Benthic	West Branch North River/	[approximately 180 meters downstream of Heath Road, Colrain, MA]	42.674169	-72.733528
W2244	MassDEP	Water Quality	West Branch North River	[approximately 600 feet downstream of Heath Road, Colrain]	42.674169	-72.733528

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
B0782	08/08/12	RBP kicknet	Western_Highlands_100ct	108	46	MD

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]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, LNS = Longnose Sucker, P = Pumpkinseed, RT = Rainbow Trout, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5169	09/10/14	BP	TP	8	65	3	68	91	3	8	29%	100%	No	Yes	AS, BND, CRC, EBT, LND, LNS, RT, SC,
5695	08/17/15	BP	TP	7	264	3	128	188	1	56	25%	100%	No	Yes	BND, CRC, CS, EBT, LND, LNS, SC,
5935	08/23/16	BP	TP	7	226	21	52	245	14	49	44%	100%	No	Yes	BND, CRC, CS, EBT, LND, LNS, SC,
6254	08/29/16	BP	TP	8	381	1	84	84	1	50	18%	100%	Yes	Yes	BND, CRC, CS, EBT, LND, LNS, RT, SC,
6549	08/21/17	BP	TP	8	299	0	NA	NA	0	32	12%	100%	No	Yes	BND, CRC, LND, LNS, P, RT, SC, WS,
6732	08/30/17	BP	TP	6	75	6	76	190	3	22	41%	96%	No	Yes	BND, EBT, LND, LNS, P, SC,

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
6733	08/30/17	BP	TP	6	175	13	72	168	11	68	47%	100%	No	Yes	BND, CRC, EBT, LND, LNS, SC,
6734	08/30/17	BP	TP	7	123	18	71	200	11	29	39%	99%	Yes	Yes	BND, CRC, EBT, LND, LNS, P, SC,
8265	08/28/19	BP	TP	5	354	0	NA	NA	0	28	12%	100%	No	Yes	BND, CRC, LND, LNS, SC,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2244	2012	3	12	7.9	8.1	8.6	1.9	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (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
W2244	05/23/12	09/27/12	3	8.5	9	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2244	06/01/12	09/15/12	86	79	23.0	26.1	25.0	22.1	56	0	12	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (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
W2244	2012	3	12	21.8	25.8	24.8	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 8) (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
W2244	06/01/12	09/15/12	107	4080	23.4	0	0	0
W2244	06/28/12	09/04/12	68	583	22.4	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (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
W2244	05/23/12	09/27/12	4	3	23.2	19.6	2	2	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (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
W2244	05/23/12	09/27/12	3	7.6	8.2	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (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
W2244	2012	5	0.005	0.006	0.005	1.9	1.3	109.1	8.2	6	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2244	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 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
W2244	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (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
W2244	2012	3	0.010	0.01	0.010	0.0	0.0	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (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
W2244	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (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
W2244	2012	5	6	8	7	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (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
W2244	05/23/12	09/27/12	3	88	100	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 the West Branch North River, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff surveyed the West Branch North River downstream of Heath Road crossing in Colrain (W2244) during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. No objectionable conditions (i.e., odors, deposits, growths, or turbidity) were observed during any of the surveys. The Aesthetics Use for the West Branch North River is assessed as Fully Supporting based on the lack of any objectionable conditions documented by MassDEP staff during the summer of 2012.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2244	MassDEP	Water Quality	West Branch North River	[approximately 600 feet downstream of Heath Road, Colrain]	42.674169	-72.733528

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2244	West Branch North River	2012	6	MassDEP aesthetics observations for station W2244/MAP2-165 on West Branch North 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.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2244	2012	6	6	0

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

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2244	West Branch North River	2012	Color	Brownish	1	6
W2244	West Branch North River	2012	Color	None	5	6
W2244	West Branch North River	2012	Objectionable Deposits	No	6	6

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2244	West Branch North River	2012	Odor	None	6	6
W2244	West Branch North River	2012	Scum	No	6	6
W2244	West Branch North River	2012	Turbidity	None	5	6
W2244	West Branch North River	2012	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 the West Branch North River downstream of Heath Road crossing in Colrain (W2244) between May and September 2012 (n=6). Data analysis indicated none of the intervals had GMs >126 cfu/100ml, and only one of the samples exceeded the 410 cfu/100ml STV, and the seasonal GM was 35 cfu/100ml. The Primary Contact Recreational Use for the West Branch North River is assessed as Fully Supporting based on the low *E. coli* concentrations documented during the summer of 2012.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2244	MassDEP	Water Quality	West Branch North River	[approximately 600 feet downstream of Heath Road, Colrain]	42.674169	-72.733528

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 6)

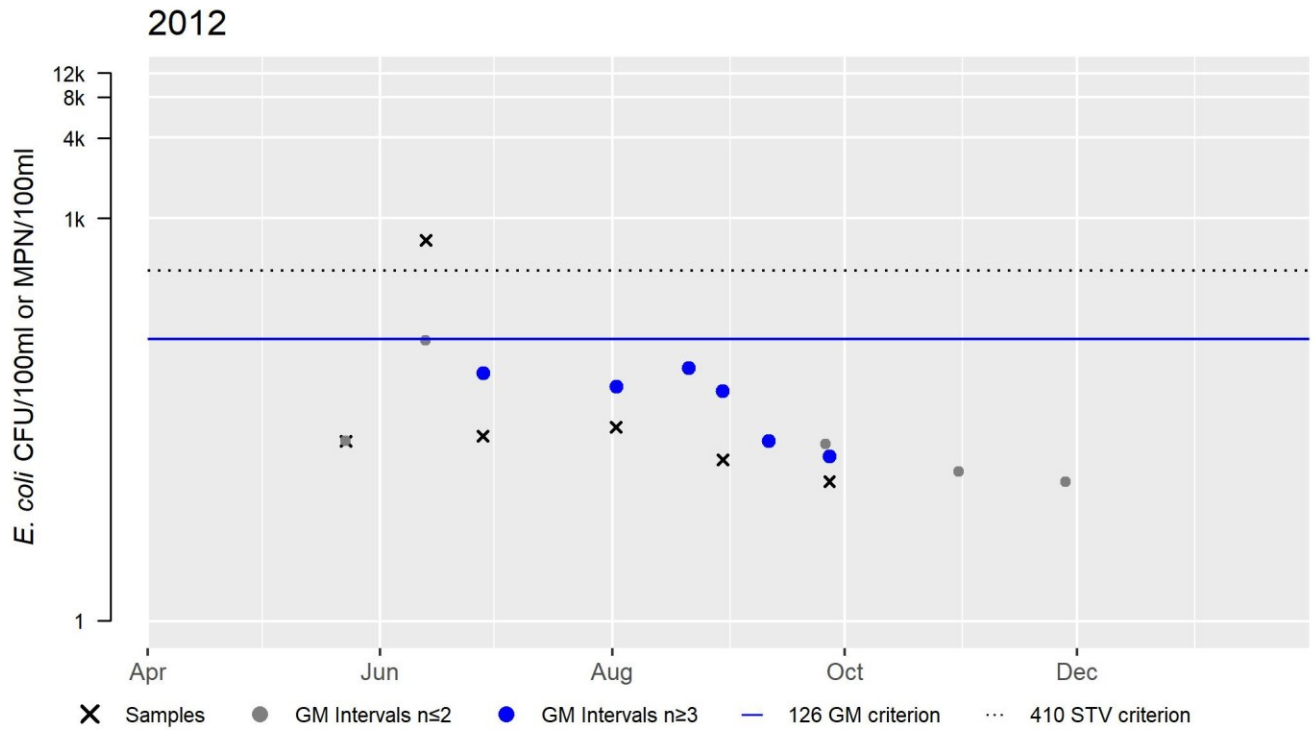
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2244	MassDEP	E. coli	05/23/12	09/27/12	6	11	687	35

W2244 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	35
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	17

Abbreviations: Samples = #samples; SeasGM = Seasonal Geometric Mean (GM); #GMI = number GM Intervals; #GMI Ex = number GMI 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 the West Branch North River downstream of Heath Road crossing in Colrain (W2244) between May and September 2012 (n=6). Data analysis indicated none of the intervals had GMs >630 cfu/100ml, none of the samples exceeded the 1260 cfu/100ml STV, and the seasonal GM was 35 cfu/100ml. The Secondary Contact Recreational Use for the West Branch North River is assessed as Fully Supporting based on the low *E. coli* concentrations documented during the summer of 2012.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2244	MassDEP	Water Quality	West Branch North River	[approximately 600 feet downstream of Heath Road, Colrain]	42.674169	-72.733528

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 6)

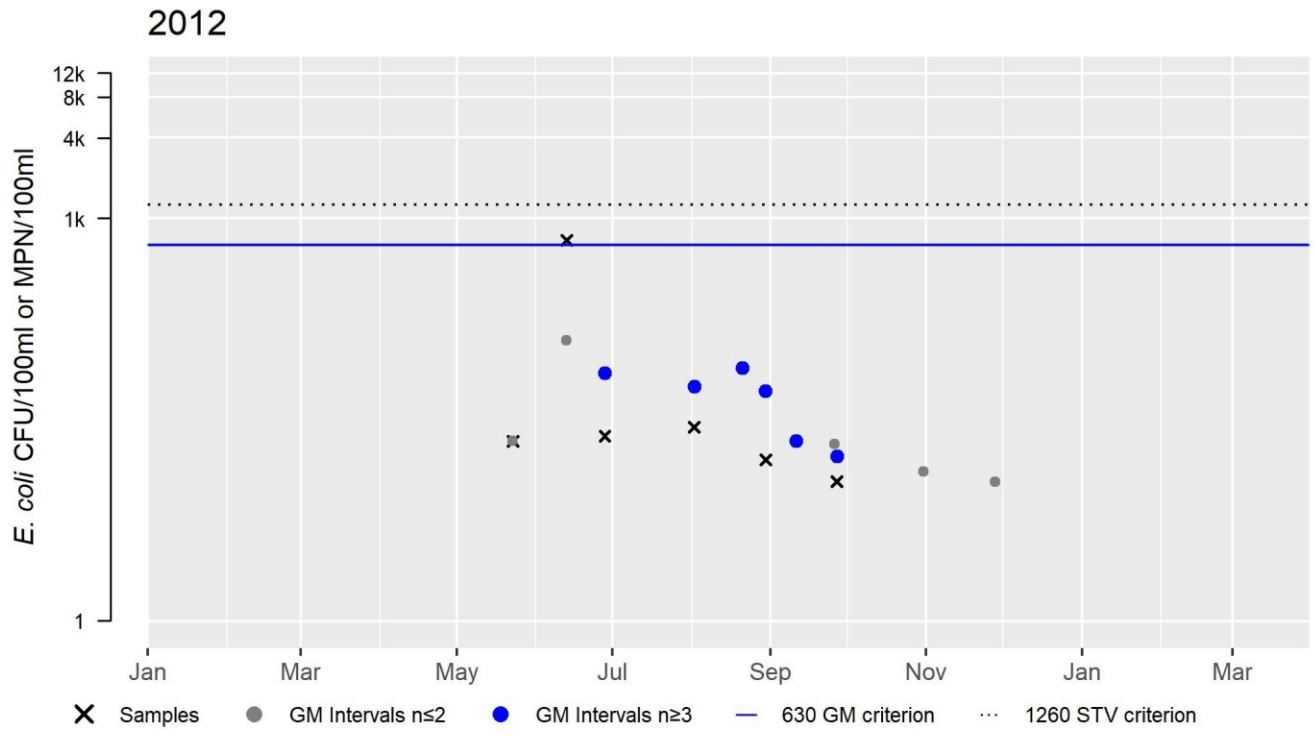
[Result units are CFU/100ml or MPN/100ml]

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)
W2244	MassDEP	E. coli	05/23/12	09/27/12	6	11	687	35

W2244 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	35
#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



Wheeler Brook (MA33-136)

Location:	Headwaters, portion in Massachusetts, east of Sherman Reservoir, Rowe to mouth at inlet of Sherman Reservoir, Rowe.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Wheeler Brook (MA33-136) 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

Wheeler Brook (MA33-95)

Location:	Headwaters, south of Old Greenfield Road, Shelburne to confluence with Green River, Greenfield.
AU Type:	RIVER
AU Size:	2.5 MILES
Classification/Qualifier:	B

No usable data were available for Wheeler Brook (MA33-95) 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

Whitcomb Brook (MA33-91)

Location:	Headwaters, perennial portion east of Whitcomb Hill Road, Florida to confluence with Deerfield River, Florida.
AU Type:	RIVER
AU Size:	0.6 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Whitcomb Brook (MA33-91) 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

White Brook (MA33-122)

Location:	Headwaters east of Olson Road, Florida to confluence with the Cold River, Florida.
AU Type:	RIVER
AU Size:	1.6 MILES
Classification/Qualifier:	B: CWF

No usable data were available for White Brook (MA33-122) 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

Wilder Brook (MA33-92)

Location:	Headwaters, east of Flagg Hill Road, Heath to confluence with Deerfield River, Charlemont.
AU Type:	RIVER
AU Size:	2.9 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Wilder Brook (MA33-92) 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

Willis Brook (MA33-93)

Location:	Headwaters, perennial portion south of South Road, Heath to confluence with Hartwell Brook, Charlemont.
AU Type:	RIVER
AU Size:	1.6 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Willis Brook (MA33-93) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

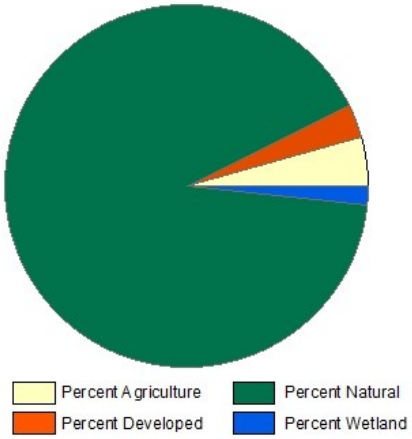
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Workman Brook (MA33-94)

Location:	Headwaters, perennial portion west of East Colrain Road, Colrain (drains wetland) to confluence with Green River, Colrain.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	A: PWS, ORW, HQW, CWF (Tributary)

WORKMAN BROOK - MA33-94

Watershed Area: 1.01 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	1.01	1.01	0.43	0.43
Agriculture	4.3%	4.3%	2%	2%
Developed	3%	3%	1.5%	1.5%
Natural	91%	91%	92.8%	92.8%
Wetland	1.7%	1.7%	3.6%	3.6%
Impervious Cover	1.1%			

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	NO
2022 Use Attainment Summary	
MA DFG biologists conducted backpack electrofishing in Workman Brook upstream of Glen River Road in Colrain in August 2017 (SampleID 6658). The sample was comprised entirely of fluvial fish including multiple age classes of Eastern brook trout and slimy sculpin. The Aquatic Life Use for Workman Brook is assessed as Fully Supporting based on the presence of cold water fish species which are indicative of excellent habitat and water quality conditions	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
6658	MassDFG	Fish Community	Workman Brook	US of Glen River Rd (several hundred feet), Colrain	42.65020	-72.64147

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]

[Species List: BND = Blacknose Dace, CRC = Creek Chub, EBT = Brook Trout, SC = Slimy Sculpin]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
6658	08/28/17	BP	TP	4	92	10	61	184	6	20	33%	100%	No	Yes	BND, CRC, EBT, SC,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in Workman Brook, 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 Workman Brook, 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 Workman Brook, 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 Workman Brook, so it is Not Assessed.	

Data Sources

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CRC. "2012-2020 water quality monitoring data downloaded from WQX on 1/15/2021." Connecticut River Conservancy, Greenfield, MA, 2021.

Duerring, Christine L., Laurie E. Kennedy, and Peter Mitchell. "Deerfield River Watershed 2000 Water Quality Assessment Report." CN 087.0, Division of Watershed Management, Massachusetts Department of Environmental Protection, Worcester, MA, 2004.

Kashiwagi, M., and T. Richards. "Development of Target Fish Community Models for Massachusetts Mainstem Rivers Technical Report." Division of Fisheries and Wildlife, Massachusetts Department of Fish and Game, Westborough, Massachusetts, 2009.

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MassDEP. "Open file analysis of 2005-2017 fish community data in comparison with the Target Fish Community model." Division of Watershed Management, Massachusetts Department of Environmental Protection, Worcester, Massachusetts, Undated 2.

MassDEP. "Open file analysis of DFG 2012-2019 fish community data using 2022 CALM guidance." Division of Watershed Management, Massachusetts Department of Environmental Protection, Worcester, MA, Undated 3.

MassDEP. "Open file analysis of external water quality data (potential date range 2011-2020) using 2022 CALM guidance." Division of Watershed Management, Massachusetts Department of Environmental Protection, Worcester, MA, Undated 4.

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MassDEP. ”Open files of repository documents for the 2016 Integrated Report cycle." Division of Watershed Management, Massachusetts Department of Environmental Protection, Worcester, MA, Undated 7.

MassDEP. "Open files of unpublished, validated water quality monitoring data, field sheet data, and GIS datalayers in development." Division of Watershed Management, Massachusetts Department of Environmental Protection, Worcester, MA, Undated 8.

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MassDFG. *Fish Population Data 1998-2017.* Database. Prod. Division of Fisheries and Wildlife, Massachusetts Department of Fish and Game. Westborough, Massachusetts, 2018.

Office of Attorney General. "Cotton Bleaching Company to Pay Nearly $1.5 Million for Acid Spill That Killed More Than 270,000 Fish in the North River." Press release offered by the Office of Attorney General Maura Healey and the Massachusetts Department of Environmental Protection. December 7, 2021. https://www.mass.gov/news/cotton-bleaching-company-to-pay-nearly-15-million-for-acid-spill-that-killed-more-than-270000-fish-in-the-north-river (accessed 2022).