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

Appendix 10
Farmington River Basin
Assessment and Listing Decision Summary

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

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
Rebecca L. Tepper, Secretary
Massachusetts Department of Environmental Protection
Bonnie Heiple, Commissioner
Bureau of Water Resources
Kathleen M. Baskin, Assistant Commissioner

May 2023

CN 568.1

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.

Contact Information

Watershed Planning Program
Division of Watershed Management, Bureau of Water Resources
Massachusetts Department of Environmental Protection
8 New Bond Street, Worcester, MA 01606
Website: https://www.mass.gov/guides/watershed-planning-program
Email address: dep.wpp@mass.gov

Notice of Availability

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

Table of Contents

2022 Cycle Impairment Changes

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Babcock Brook	MA31-32	2	2	None		Unchanged
Benton Brook	MA31-11	5	5	Benthic Macroinvertebrates		Unchanged
Benton Pond	MA31003	4c	4c	(Eurasian Water Milfoil, Myriophyllum Spicatum*)		Unchanged
Big Pond	MA31004	5	5	Dissolved Oxygen		Unchanged
Big Pond	MA31004	5	5	Mercury in Fish Tissue	33880	Unchanged
Bradley Brook	MA31-37	3	3	None		Unchanged
Buck River	MA31-38	3	3	None		Unchanged
Buck River	MA31-39	2	2	None		Unchanged
Cherry Brook	MA31-18	3	3	None		Unchanged
Clam River	MA31-03	2	5	Temperature		Added
Cone Brook	MA31-08	2	2	None		Unchanged
Cranberry Pond	MA31008	3	3	None		Unchanged
Cranberry Pond Brook	MA31-21	5	5	Lack of a Coldwater Assemblage		Unchanged
Creek Pond	MA31009	3	3	None		Unchanged
Dimmock Brook	MA31-10	2	3	None		Unchanged
Dimmock Brook Pond	MA31010	3	3	None		Unchanged
East Branch Salmon Brook	MA31-40	2	2	None		Unchanged
Ellis Brook	MA31-35	3	3	None		Unchanged
Fall River	MA31-02	2	5	Lack of a Coldwater Assemblage		Added
Halfway Brook	MA31-31	2	2	None		Unchanged
Hall Pond Brook	MA31-34	3	3	None		Unchanged
Hayden Pond	MA31016	3	4c	(Eurasian Water Milfoil, Myriophyllum Spicatum*)		Added
Hubbard Brook	MA31-16	2	5	Temperature		Added
Long Bow Lake	MA31019	3	3	None		Unchanged
Lower Spectacle Pond	MA31020	3	3	None		Unchanged
Miner Brook	MA31-28	2	2	None		Unchanged
Moody Brook	MA31-23	2	2	None		Unchanged
North Branch Silver Brook	MA31-25	3	3	None		Unchanged
North Brook	MA31-41	2	2	None		Unchanged
Noyes Pond	MA31026	4c	4c	(Non-Native Aquatic Plants*)		Unchanged
Otis Reservoir	MA31027	4a	4a	Mercury in Fish Tissue	33880	Unchanged
Palmer Brook	MA31-29	5	5	Lack of a Coldwater Assemblage		Unchanged
Pond Brook	MA31-30	2	2	None		Unchanged
Pond Brook	MA31-33	5	5	Lack of a Coldwater Assemblage		Unchanged
Pond Brook	MA31-33	5	5	Temperature		Added
Potash Brook	MA31-36	3	3	None		Unchanged
Richardson Brook	MA31-24	2	2	None		Unchanged

Waterbody	AU_ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Riiska Brook	MA31-17	2	2	None		Unchanged
Royal Pond	MA31034	3	3	None		Unchanged
Sandy Brook	MA31-14	2	5	Temperature		Added
Shales Brook	MA31-04	2	2	None		Unchanged
Shaw Pond	MA31036	5	5	(Eurasian Water Milfoil, Myriophyllum Spicatum*)		Unchanged
Shaw Pond	MA31036	5	5	Dissolved Oxygen		Unchanged
Silver Brook	MA31-13	2	5	Temperature		Added
Silver Shield Pond	MA31054	3	3	None		Unchanged
Slocum Brook	MA31-19	2	2	None		Unchanged
South Branch Silver Brook	MA31-26	2	2	None		Unchanged
Spectacle Pond Brook	MA31-27	5	5	Lack of a Coldwater Assemblage		Unchanged
Taylor Brook	MA31-20	2	2	None		Unchanged
Thomas Brook	MA31-06	5	5	Lack of a Coldwater Assemblage		Unchanged
Thorp Brook	MA31-22	2	2	None		Unchanged
Unnamed Tributary	MA31-05	3	3	None		Unchanged
Unnamed Tributary	MA31-07	2	2	None		Unchanged
Unnamed Tributary	MA31-09	2	3	None		Unchanged
Upper Spectacle Pond	MA31044	5	5	Dissolved Oxygen		Unchanged
Valley Brook	MA31-15	2	2	None		Unchanged
Ward Pond	MA31047	3	3	None		Unchanged
West Branch Farmington River	MA31-01	5	5	Fish Bioassessments		Added
West Branch Farmington River	MA31-01	5	5	Lack of a Coldwater Assemblage		Unchanged
West Branch Farmington River	MA31-01	5	5	Temperature		Unchanged
West Lake	MA31050	3	3	None		Unchanged
White Lily Pond	MA31051	3	3	None		Unchanged
York Lake	MA31052	5	5	Dissolved Oxygen		Unchanged

Babcock Brook (MA31-32)

Location:	Headwaters west of Amos Case Road, Tolland to mouth at confluence with Hall Pond Brook (forming headwaters Hubbard Brook), Tolland.
AU Type:	RIVER
AU Size:	3.3 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Babcock Brook (MA31-32) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

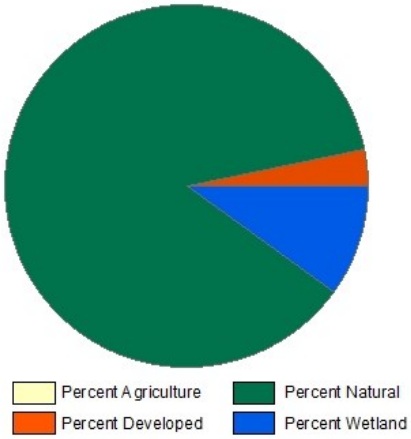
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Benton Brook (MA31-11)

Location:	Headwaters, drainage from Hayden Swamp, Otis to mouth at confluence with the West Branch Farmington River, Otis.
AU Type:	RIVER
AU Size:	5.2 MILES
Classification/Qualifier:	B: CWF, HQW

Benton Brook - MA31-11

Watershed Area: 4.19 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	4.19	2.62	0.75	0.58
Agriculture	0%	0%	0%	0%
Developed	3.3%	5%	4.3%	5.5%
Natural	86.9%	84.6%	69.9%	68.9%
Wetland	9.9%	10.4%	25.8%	25.6%
Impervious Cover	1.9%			

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				

Recommendations

2022 Recommendations
ALU: Conduct additional biological (benthic) and water quality sampling in Benton Brook (including long term temperature monitoring bracketing the Otis Wood Lands Club impoundment) to evaluate thermal regime stress as well as any potential sources affecting benthic community. A natural background conditions determination should be made for Benton Brook (collect additional temperature and fish data if needed).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES

2022 Use Attainment Summary

Benton Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin and MA DFG also identifies it as a Cold Water Fishery Resource (CFR). MA DFG biologists conducted backpack electrofishing at two sites along Benton Brook in July 2017; upstream of West Center Road crossing in Otis (SampleID 6771) and upstream of North Beech Plain Road crossing (upstream of an old breeched dam impoundment) in Sandisfield (SampleID 6772). Both samples were collected in high gradient stream reaches and were dominated by fluvial fish/taxa however no cold water species were collected.

The Aquatic Life Use for Benton Brook will continue to be assessed as Not Supporting with the Benthic Macroinvertebrates impairment being carried forward. Although no cold water fish species were collected, the Benton Brook subwatershed is minimally developed (there are many areas of wetlands/beaver dams along the stream, the watershed area and the proximal stream buffer are both >95% natural/wetland, the impervious cover is very low (~1.9%), and while there is one private dam, the Otis Wood Lands Club Dam, it is located in the lower end of the AU. While there were three macrohabitat generalist species in the sample collected downstream from this dam the community structure was fairly similar to the sample collected further upstream (the same four fluvial species were collected at both locations representing at least 81% of the samples). An alert is being identified for the Lack of a Coldwater Assemblage but an impairment is not being added at this time since this brook most likely lacks cold water fish due to natural conditions. A recommendation is being made to conduct additional biological (benthic) and water quality sampling in Benton Brook (including long term temperature monitoring bracketing the Otis Wood Lands Club impoundment) to evaluate thermal regime stress as well as any potential sources affecting benthic community. A natural background conditions determination should be made for Benton Brook.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
6771	MassDFG	Fish Community	Benton Brook	US of W. Center Rd xing, Otis	42.21403	-73.12637
6772	MassDFG	Fish Community	Benton Brook	US of N. Beech Plain Rd xing, US of old breeched dam impoundment, Sandisfield	42.18484	-73.08970

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: BB = Brown Bullhead, BM = Bridle Shiner, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, K = Banded Killifish, 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
6771	07/18/17	BP	TP	H	4	150	0%	4	100%	0%	0	0%	No	Yes	BND, CRC, CS, WS,
6772	07/18/17	BP	TP	H	7	237	0%	4	81%	11%	1	11%	No	Yes	BB, BM, BND, CRC, CS, K, WS,

Fish Consumption

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

Secondary Contact Recreation

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

Benton Pond (MA31003)

Location:	Otis.
AU Type:	FRESHWATER LAKE
AU Size:	61 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for Benton Pond (MA31003) 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	(Eurasian Water Milfoil, Myriophyllum Spicatum*)		Unchanged

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

Big Pond (MA31004)

Location:	Otis.
AU Type:	FRESHWATER LAKE
AU Size:	325 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for Big Pond (MA31004) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

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

Bradley Brook (MA31-37)

Location:	Headwaters, perennial portion, west of Ridgeview Terrace, Southwick to MA/CT border, Southwick.
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Bradley Brook (MA31-37) 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
3	3	None		Unchanged

Buck River (MA31-38)

Location:	Headwaters draining wetland just south of Morley Hillard Crank Road, Sandisfield to inlet Abbey Lake, Sandisfield (formerly part of 2014 segment: Buck River MA31-12).
AU Type:	RIVER
AU Size:	1.7 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Buck River (MA31-38) 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
3	3	None		Unchanged

Buck River (MA31-39)

Location:	Outlet Abbey Lake, Sandisfield to mouth at confluence with Clam River, Sandisfield (formerly part of 2014 segment: Buck River MA31-12).
AU Type:	RIVER
AU Size:	4.1 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Buck River (MA31-39) 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

Cherry Brook (MA31-18)

Location:	Headwaters, perennial portion, north of York Lake Road, Sandisfield to mouth at confluence with Sandy Brook, Sandisfield.
AU Type:	RIVER
AU Size:	2.4 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Cherry Brook (MA31-18) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

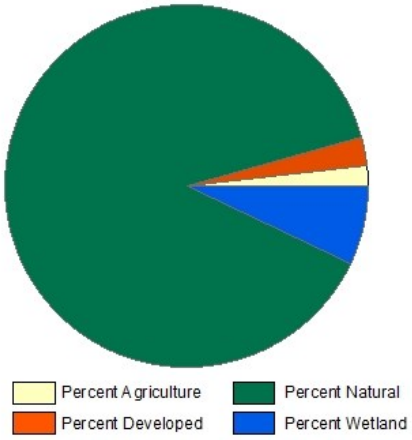
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Clam River (MA31-03)

Location:	Headwaters, perennial portion, outlet small unnamed pond, Otis to mouth at confluence with West Branch Farmington River, Sandisfield (excluding the 0.8 miles thru the Clam Lake Dam (NATID: MA01052) impoundment).
AU Type:	RIVER
AU Size:	7.9 MILES
Classification/Qualifier:	B: CWF, HQW

Clam River - MA31-03

Watershed Area: 31.39 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	31.39	8.02	6.81	1.89
Agriculture	1.8%	2%	1.3%	2.1%
Developed	2.6%	2.5%	3.9%	5.7%
Natural	88.6%	93.3%	82.4%	86.7%
Wetland	7.1%	2.2%	12.4%	5.6%
Impervious Cover	1.1%			

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	Dam or Impoundment (Y)	X				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

The Clam River is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin and MA DFG also identifies it as a Cold Water Fishery Resource (CFR). MassDEP biologists sampled the Clam River ~ 655 meters upstream from the confluence of the unnamed tributary from Lower Spectacle Pond in Sandisfield during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. The benthic community (B0796) sample, collected in July 2012, had an IBI score of 64 (indicative of satisfactory conditions for a Statewide Low Gradient stream). Backpack electrofishing (Sample ID 5031) in August 2012 documented a sample that was comprised entirely by fluvial fish including multiple age classes of Eastern brook trout and a slimy sculpin indicative of excellent habitat conditions. Water quality sampling data at this site (Station W2259), included both deployed probe and discrete sampling efforts. These data can be summarized as follows: minimum dissolved oxygen 7.4mg/L during three short term DO deploys, maximum temperature 22.2°C between June 1st and September 12th with 7DADM exceeding 20°C nine times, and the maximum 24-hour rolling average temperature was 20.3°C. The pH ranged from 7.5 to 7.7SU (n=3), and there were generally no indications of any nutrient enrichment problems (seasonal average total phosphorus concentrations was 0.012mg/L, max diel DO shift 1.3mg/L, maximum saturation 98%, maximum pH 7.7SU, and only one observation of any dense/very dense filamentous algae of six site visits). There were no toxicant issues either (maximum total ammonia-nitrogen concentration 0.02mg/L, chloride 18mg/L, n=5 for both), 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). During the summer of 2018 thermistors were deployed at three sites along the Clam River in Sandisfield from up to downstream as follows: downstream from beaver dam at Town Hill Road (W2820) between 18 June and 11 September, ~ 270 feet upstream of Hammertown Road (W2821) between 19 June and 11 September, and east of Route 57 and New Boston Cemetery, ~ 1000 feet upstream of Route 57 crossing (W2822) between 19 June and 11 September. The temperature data for these three sites up to downstream can be summarized as follows: maximum temperatures 29.5, 25.4, 24.3°C, the maximum 7DADM (26.9, 23.3, 23.5°C) exceeded 20°C 75, 53, and 70 times, respectively with 24 hour rolling maximum temperatures 25.5, 23.9, and 23.4°C above the 23.5°C threshold at the two most upstream sites. This relatively large watershed area (31.39mi^2) is ~96% natural/wetland with 1.1% Impervious Cover, the proximal stream buffer is minimally disturbed (92% natural/wetland), and there are no water withdrawals. However, while the river flows through many natural beaver dams/wetlands along its length, there is one dam along the river AU's length (Clam Lake Dam) and several others in the watershed (Royal (Acres) Pond, Guilder Pond, Upper Spectacle Pond, Lower Spectacle Pond, and Camp Woodcrest dams) so the thermal regime of the Clam River is not considered a natural background condition.

Except for temperature, all other water quality and biological monitoring data (benthic macroinvertebrates and fish), collected by MassDEP from the Clam River during the summers of 2012 and 2018 were indicative of excellent conditions. Since temperature exceedances of both acute and chronic Cold Water criteria/thresholds cannot be attributed to only natural conditions, the Aquatic Life Use for the Clam River is assessed as Not Supporting. A temperature impairment is being added and the former Alert for temperature is being removed.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5031	MassDEP	Fish Community	Clam River	0.4mi US of conflence w/ UNT from Lower Spectacle Pond	42.15946	-73.12792
B0796	MassDEP	Benthic	Clam River/	[approximately 655 meters upstream from the confluence of the unnamed tributary from Lower Spectacle Pond, Sandisfield, MA]	42.159460	-73.127924
W2259	MassDEP	Water Quality	Clam River	[approximately 2150 feet upstream from the confluence of the unnamed tributary from Lower Spectacle Pond, Sandisfield]	42.159460	-73.127924
W2820	MassDEP	Water Quality	Clam River	[downstream from beaver dam, Town Hill Road, Sandisfield]	42.176306	-73.145421
W2821	MassDEP	Water Quality	Clam River	[approximately 270 feet north/upstream of Hammertown Road, Sandisfield]	42.133074	-73.105296

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2822	MassDEP	Water Quality	Clam River	[east of Route 57 and New Boston Cemetery, approximately 1000 feet northwest/upstream of Route 57 crossing, Sandisfield]	42.096987	-73.088845

Biological Monitoring Information

Benthic Macroinvertebrate Data

MassDEP Benthic Macroinvertebrate Data (2011-2017). (MassDEP Undated 4)

[Index Biological Condition Class: E= Exceptional, S= Satisfactory, MD= Moderately Degraded, SD= Severely Degraded; High Gradient IBI Thresholds: E= 100-75, S= 74-55, MD= 54-35, SD= 34-0; Low Gradient IBI Thresholds: E= 100-81, S= 80-62, MD= 61-38, SD= 37-0; R qualifier = Rarefaction (100ct) <55]

Station Code	Collection Date	Collection Method	Index Type	Organism Count	Index Score	Index Biological Condition Class
B0796	07/10/12	RBP multihab	Statewide_Low_Gradient	98	64	S

Fish Community Data and DELTS

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

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

[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
5031	08/30/12	BP	TP	6	248	25	46	161	24	1	10%	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 6) (MassDEP Undated 5)

[Note: Most deploys 3-5 days in length; Day Count= total # of days over all deploys; XDADMin= 3-5 Day Average of the Daily Minima, XDADA= 3-5 Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2259	2012	3	11	7.4	7.8	8	1.3	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	DO Count	DO Min (mg/L)	DO Avg (mg/L)	Count CW <5.0	Count WW Early Life Stages <5.0	Count WW Other Life Stages <4.0
W2259	05/10/12	09/13/12	3	8.3	8.7	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2259	06/01/12	09/12/12	104	101	20.3	22.2	20.4	19.2	9	0	0	0	0	0
W2820	06/19/18	09/10/18	83	75	25.2	28.5	26.9	24.1	75	6	47	6	0	0
W2821	06/20/18	09/10/18	82	70	23.5	25.4	23.3	22.0	53	0	19	0	0	0
W2822	06/20/18	09/10/18	83	77	23.1	24.3	23.5	22.1	70	0	4	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer Index is June 1 – Sept 15; Most Deploys 3-5 Days in Length; Day Count= total # of days over all deploys; Max Daily Mean= Maximum 24-Hour Average, XDADM= 3-5 Day Average of the Daily Maxima, XDADA= 3-5 Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2259	2012	3	11	19.6	21.1	19.6	18.4	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 6) (MassDEP Undated 5)
[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W2259	06/01/12	09/13/12	104	5016	20.3	0	0	0
W2259	06/21/12	08/27/12	67	533	19.6	0	0	0
W2820	06/18/18	09/11/18	85	4033	25.5	300	250	0
W2821	06/19/18	09/11/18	84	3982	23.9	27	0	0

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
W2822	06/19/18	09/11/18	84	3980	23.4	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W2259	05/10/12	09/13/12	5	4	18.5	15.2	0	0	0	0
W2820	07/31/18	09/11/18	2	2	20.4	17.7	1	0	0	0
W2821	08/01/18	09/11/18	2	2	19.0	18.9	0	0	0	0
W2822	08/01/18	09/11/18	2	2	18.4	16.8	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2259	05/10/12	09/13/12	3	7.5	7.7	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2259	2012	5	0.005	0.022	0.012	1.3	0.8	97.9	7.7	6	1

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 6) (MassDEP Undated 5)
[CMC= Criterion Maximum Concentration, TU= Toxic Unit]

Station Code	Data Year	Metals Count	As CMC TU >1	Cd CMC TU >1	Cr III CMC TU >1	Cu CMC TU >1	Pb CMC TU >1	Ni CMC TU >1	Ag CMC TU >1	Zn CMC TU >1
W2259	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 6) (MassDEP Undated 5)
[CCC= Criterion Continuous Concentration, TU= Toxic Unit]

Station Code	Data Year	Metals Count	As CCC TU >1	Cd CCC TU >1	Cr III CCC TU >1	Cu CCC TU >1	Pb CCC TU >1	Ni CCC TU >1	Se CCC TU >1	Zn CCC TU >1
W2259	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Since only dissolved aluminum data were available, these data were compared to the default freshwater criteria for total recoverable aluminum (TRA), presented in Appendix E of MassDEP's 2022 CALM. As dissolved Al is a fraction of TRA, an exceedance count of 0 does not rule out violations of the TRA criteria. CMC= Criterion Maximum Concentration, CCC= Criterion Continuous Concentration, TU= Toxic Unit]

Station Code	Data Year	Dissolved Al Count	Al Min (mg/L)	Al Max (mg/L)	Al Avg (mg/L)	Al CMC TU Max	Al CCC TU Max	Al CMC TU >1	Al CCC TU >1
W2259	2012	3	0.010	0.017	0.012	0.1	0.1	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[TAN= NH3 + NH4+]

Station Code	Data Year	TAN Count	TAN Min (mg/L)	TAN Max (mg/L)	TAN Avg (mg/L)	Count TAN >Chronic	Count TAN >Acute
W2259	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Data Year	Chloride Count	Chloride Min (mg/L)	Chloride Max (mg/L)	Chloride Avg (mg/L)	Count Chloride >230	Count Chloride >860
W2259	2012	5	11	18	14	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 6) (MassDEP Undated 5)

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
W2259	05/10/12	09/13/12	2	108	151	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 Clam 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 Clam River in Sandisfield ~2150 feet upstream from the confluence of the unnamed tributary from Lower Spectacle Pond (W2259) during the summer of 2012. Except for one observation of dense/very dense filamentous algae there were no other noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during any of the surveys (n=6). The Aesthetics Use for the Clam River is assessed as Fully Supporting based on the general lack of any objectionable conditions documented by MassDEP staff during the summers of 2012.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2259	MassDEP	Water Quality	Clam River	[approximately 2150 feet upstream from the confluence of the unnamed tributary from Lower Spectacle Pond, Sandisfield]	42.159460	-73.127924

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2259	Clam River	2012	6	MassDEP aesthetics observations for station W2259/MAP2-187 on Clam 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 6) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2259	2012	6	6	1

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff collected *E. coli* bacteria samples from the Clam River ~2150 feet upstream from the confluence of the unnamed tributary from Lower Spectacle Pond in Sandisfield (W2259) between May and September 2012 (n = 6). Data analysis indicated that none of the intervals had GM's > 126 cfu/100 ml and no samples exceeded the 410 cfu/100 ml STV. The seasonal GM was 12 cfu/100 ml. Since the *E. coli* concentrations did not exceed the use attainment impairment threshold for this single year limited frequency dataset, the Primary Contact Recreational Use for the Clam River is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2259	MassDEP	Water Quality	Clam River	[approximately 2150 feet upstream from the confluence of the unnamed tributary from Lower Spectacle Pond, Sandisfield]	42.159460	-73.127924

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 6) (MassDEP Undated 5)

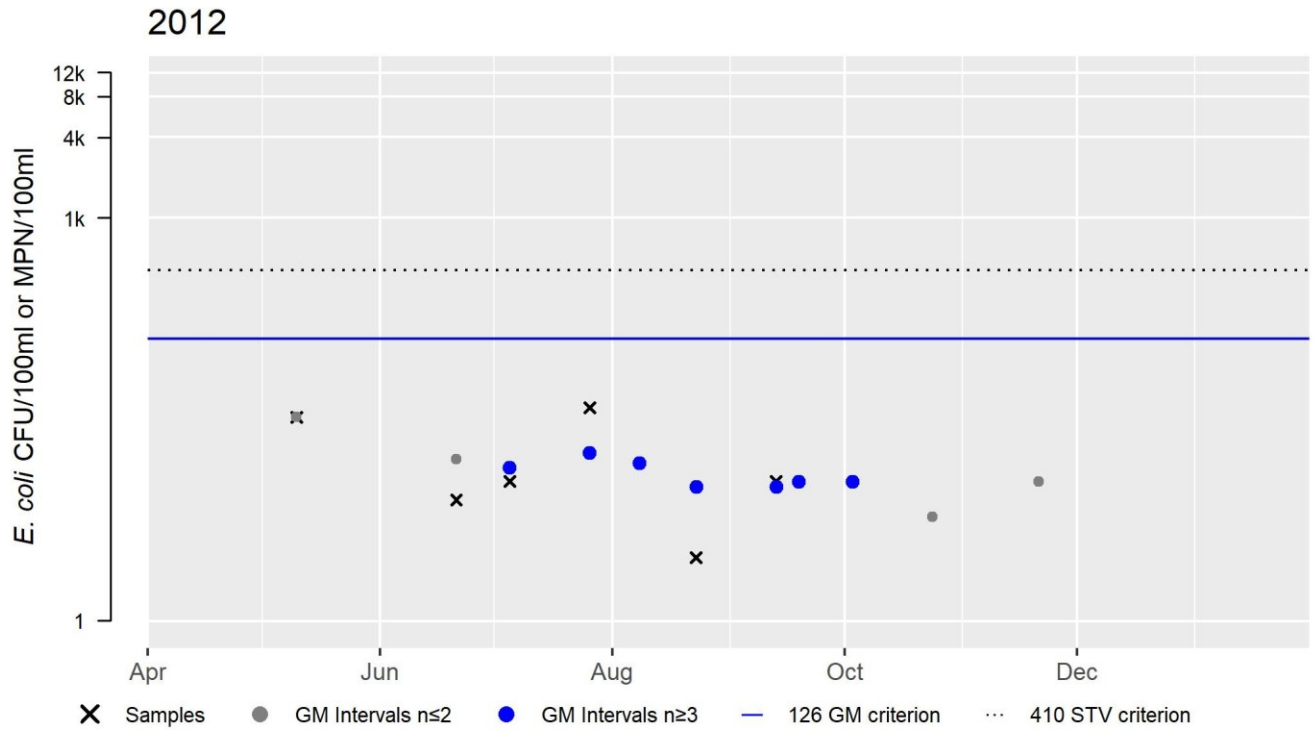
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2259	MassDEP	E. coli	05/10/12	09/13/12	6	3	39	12

W2259 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	12
#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



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff collected *E. coli* bacteria samples from the Clam River ~2150 feet upstream from the confluence of the unnamed tributary from Lower Spectacle Pond in Sandisfield (W2259) between May and September 2012. Data analysis indicated that none of the intervals had GM's > 630 cfu/100 ml and no samples exceeded the 1260 cfu/100 ml STV. The seasonal GM was 12 cfu/100 ml.
Since the *E. coli* concentrations did not exceed the use attainment impairment threshold for this single year limited frequency dataset, the Secondary Contact Recreational Use for the Clam River is assessed as Fully Supporting.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2259	MassDEP	Water Quality	Clam River	[approximately 2150 feet upstream from the confluence of the unnamed tributary from Lower Spectacle Pond, Sandisfield]	42.159460	-73.127924

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 6) (MassDEP Undated 5)

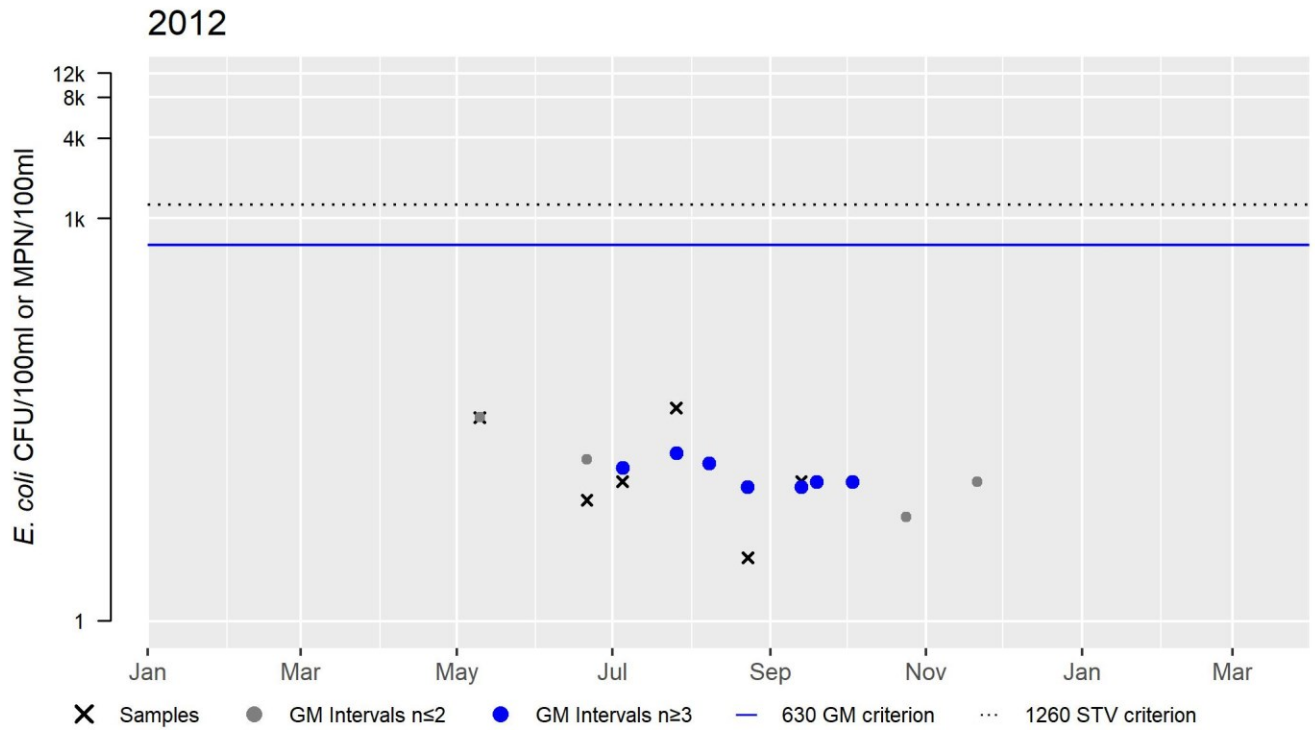
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100ml or MPN/100ml)	Maximum Sample Result (CFU/100ml or MPN/100ml)	Seasonal Geometric Mean (CFU/100ml or MPN/100ml)
W2259	MassDEP	E. coli	05/10/12	09/13/12	6	3	39	12

W2259 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	12
#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



Cone Brook (MA31-08)

Location:	Headwaters, drainage from Angerman Swamp in Beartown State Forest, Otis to mouth at inlet Hayden Pond, Otis.
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Cone Brook (MA31-08) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Cranberry Pond (MA31008)

Location:	Tolland.
AU Type:	FRESHWATER LAKE
AU Size:	75 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for Cranberry Pond (MA31008) 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

Cranberry Pond Brook (MA31-21)

Location:	Headwaters, outlet Cranberry Pond, Tolland to mouth at confluence with Slocum Brook, Tolland.
AU Type:	RIVER
AU Size:	1.6 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Cranberry Pond Brook (MA31-21) 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	Lack of a Coldwater Assemblage		Unchanged

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	Dam or Impoundment (N)	X				

Creek Pond (MA31009)

Location:	(Watson Pond) Otis.
AU Type:	FRESHWATER LAKE
AU Size:	52 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for Creek Pond (MA31009) 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

Dimmock Brook (MA31-10)

Location:	Outlet of Dimmock Brook Pond, Otis to mouth at confluence with West Branch Farmington River, Otis.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B: CWF, HQW

Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	5.15	4.05	0.81	0.81
Agriculture	0.1%	0.2%	0%	0%
Developed	3.8%	2.9%	2.8%	2.7%
Natural	82.4%	84.2%	77.3%	77.2%
Wetland	13.7%	12.8%	19.9%	20.1%
Impervious Cover	1.8%			

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

Recommendations

2022 Recommendations
ALU: A natural background conditions determination should be made for Dimmock Brook (collect additional temperature and fish data if needed).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	

Dimmock Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin and MA DFG also identifies it as a Cold Water Fishery Resource (CFR). MassDEP staff conducted long-term temperature monitoring in Dimmock Brook at the Route 23 Bridge in Otis (W0211) between 19 June and 10 September 2018. The maximum temperature recorded during the deployment was 29.8°C, the maximum 7DADM was 28.3°C (above 20°C 78 times), and the maximum 24-hour rolling average temperature was 27.2°C. Although these temperatures are all well above cold water standards/thresholds, the small (~5.2mi^2) Dimmock Brook subwatershed is minimally developed (there are many areas of wetlands/beaver dams along the stream, the watershed area and the proximal stream buffer are both >95% natural/wetland, there are no water withdrawals or dams, and the impervious cover is very low (~1.8%) so these are considered natural conditions.

Too limited data are currently available so the Aquatic Life Use for Dimmock Brook is assessed as having Insufficient Information. The former alert for only one brook trout (157mm) found in the July 2005 sample (although the sample was comprised almost entirely by fluvial specialist/fluvial dependent species) is being removed since the warmer thermal regime of the brook is indicative of natural background conditions. A natural background conditions determination should be made for Dimmock Brook.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0211	MassDEP	Water Quality	Dimmock Brook	[Route 23 bridge, Otis]	42.195453	-73.077099

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W0211	06/19/18	09/10/18	84	78	27.0	29.8	28.3	25.6	78	22	65	14	2	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W0211	06/18/18	09/11/18	85	4038	27.2	984	661	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W0211	07/31/18	09/11/18	2	2	22.7	19.4	1	1	0	0

Fish Consumption

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

Secondary Contact Recreation

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

Dimmock Brook Pond (MA31010)

Location:	Otis.
AU Type:	FRESHWATER LAKE
AU Size:	15 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for Dimmock Brook Pond (MA31010) 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

East Branch Salmon Brook (MA31-40)

Location:	Headwaters, perennial portion, Granville to MA/CT border, Granville.
AU Type:	RIVER
AU Size:	0.1 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for East Branch Salmon Brook (MA31-40) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

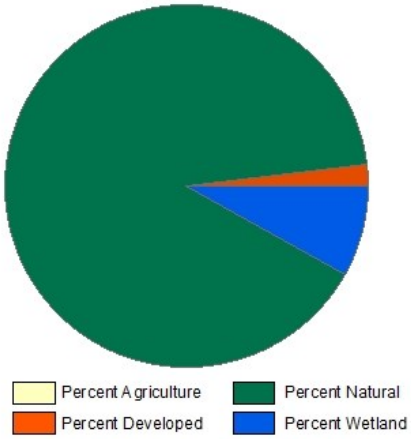
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Ellis Brook (MA31-35)

Location:	Headwaters, outlet Shaughnessy Swamp, north of Route 57, Granville to mouth at confluence with Valley Brook, Granville.
AU Type:	RIVER
AU Size:	0.8 MILES
Classification/Qualifier:	B: CWF, HQW

Ellis Brook - MA31-35

Watershed Area: 0.44 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	0.44	0.44	0.15	0.15
Agriculture	0.7%	0.7%	0%	0%
Developed	1.9%	1.9%	4.6%	4.6%
Natural	89.4%	89.4%	86%	86%
Wetland	8%	8%	9.4%	9.4%
Impervious Cover	0.8%			

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

Recommendations

2022 Recommendations
ALU: Ellis Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR). There are no dams present in this very small subwatershed (0.44mi^2) which also meets all other natural background condition screening methods. A natural background conditions determination should be made for Ellis Brook (collect additional temperature and fish data if needed).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	

Ellis Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR). In August 2014 MA DFG biologists conducted backpack electrofishing in Ellis Brook downstream from Route 57 in Granville (SampleID 5456) but no fish were collected. Notes were made that the substrate were composed of bedrock, boulders, muck, sand, cobble, gravel; Canopy cover hemlock, ash, maple; Crayfish were shocked; Not a very wide stream; Good section to survey. The drainage area of this subwatershed is extremely small (only 0.44mi^2), the watershed area and the proximal stream buffer are both >95% natural/wetland, the impervious cover is very low (~0.8), and no dams are present, but the stream originates at the outlet of Shaughnessy Swamp.
Too limited data are available to evaluate the Aquatic Life Use of Ellis Brook so it is assessed as having Insufficient Information but an Alert is being identified because no fish were collected in the brook. A natural background conditions determination should be made for Ellis Brook.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5456	MassDFG	Fish Community	Ellis Brook	DS of Rt 57, Granville	42.07029	-72.90470

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG: Fishless Samples. (MassDFG 2020)
[Method: BP= Backpack Shocking]

Sample ID	Sample Date	Method	No Fish Reason
5456	08/26/14	BP	Sample Attempted - No Fish

Fishless sample! Substrate composed of bedrock, boulders, muck, sand, cobble, gravel. Canopy cover hemlock, ash, maple. Crayfish were shocked. Not a very wide stream. Good section to survey.

Fish Consumption

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

Secondary Contact Recreation

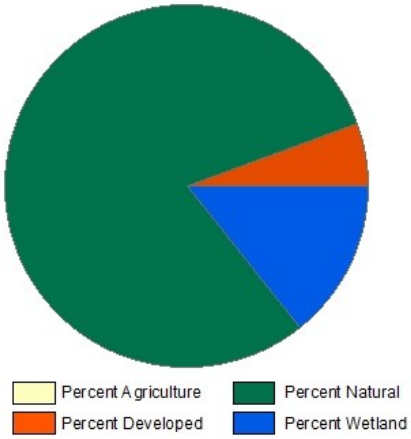
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No *E. coli* bacteria data are available to assess the status of the Secondary Contact Recreational Use for Ellis Brook, so it is Not Assessed.	

Fall River (MA31-02)

Location:	Headwaters, outlet Larkum Pond, Otis to mouth at confluence with West Branch Farmington River, Otis.
AU Type:	RIVER
AU Size:	0.8 MILES
Classification/Qualifier:	B: CWF, HQW

Fall River - MA31-02

Watershed Area: 16.63 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	16.63	9.23	2.75	1.75
Agriculture	0.6%	0.8%	0.1%	0.1%
Developed	5.6%	6.9%	11.1%	15.9%
Natural	79.7%	81.5%	69.9%	72%
Wetland	14.1%	10.8%	18.9%	12%
Impervious Cover	2.8%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	5	Lack of a Coldwater Assemblage		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	Dam or Impoundment (N)	X				

Recommendations

2022 Recommendations
ALU: Temperature monitoring (long term thermistor deployments) should be conducted in the Fall River bracketing any potential thermal influences to better evaluate habitat quality.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES

2022 Use Attainment Summary

The Fall River is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin and MA DFG also identifies it as a Cold Water Fishery Resource (CFR). MA DFG biologists conducted backpack electrofishing in Fall River along Reservoir Road in Otis (SampleID 8493) in July 2019. The sample was dominated by three fluvial taxa (comprising 96% of the sample) but no cold water fish were collected. Multiple ages of Eastern brook trout in the river were documented in samples collected in September 1986, and July 1990 (Kautza July 16, 2022). Backpack electrofishing by MassDEP biologists on 15 August 2001 during drought conditions also documented Eastern brook trout (n=5) but young of year age class was absent.

The Aquatic Life Use for Fall River is assessed as Not Supporting based on the lack of any cold water fish in the sample collected in July 2019. Although the fish sample was dominated by fluvial taxa/individuals an impairment for Lack of a Coldwater Assemblage is being added. The Alert for potential impacts resulting from hydromodification (flow alteration resulting from upstream impoundment releases) that potentially limit the amount of habitat available during spring and summer months (due to reservoir filling and water level maintenance) as well as affect the quality of habitat available during the fall (increased flows resulting from drawdown) is being carried forward.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
8493	MassDFG	Fish Community	Fall River	Along Reservoir Rd, Otis	42.16008	-73.06651

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: B = Bluegill, BND = Blacknose Dace, CRC = Creek Chub, 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
8493	07/22/19	BP	TP	H	4	104	0%	3	96%	0%	0	0%	Yes	Yes	B, BND, CRC, WS,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO

2022 Use Attainment Summary

No fish toxics sampling has been conducted in Fall 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 Fall 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 Fall River, so it is Not Assessed.	

Secondary Contact Recreation

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

Halfway Brook (MA31-31)

Location:	Headwaters, outlet of wetland in Granville State Forest, Tolland to mouth at confluence with Hubbard Brook, Granville.
AU Type:	RIVER
AU Size:	1.8 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Halfway Brook (MA31-31) 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

Hall Pond Brook (MA31-34)

Location:	Headwaters, outlet Hall Pond, Tolland to mouth at confluence with Babcock Brook (forming headwaters Hubbard Brook), Tolland.
AU Type:	RIVER
AU Size:	2.3 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Hall Pond Brook (MA31-34) 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
3	3	None		Unchanged

Hayden Pond (MA31016)

Location:	Otis.
AU Type:	FRESHWATER LAKE
AU Size:	28 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	4c	(Eurasian Water Milfoil, Myriophyllum Spicatum*)		Added

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

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm whether *M. heterophyllum* is present in Hayden Pond.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
MassDCR Lakes and Ponds staff identified an infestation of the non-native aquatic macrophyte, Eurasian water milfoil (*Myriophyllum spicatum*), in Hayden Pond in 2002. As was previously reported, *Myriophyllum* sp. (possibly *heterophyllum*) was noted during a synoptic survey of the pond conducted by MassDEP staff in 1996. The Aquatic Life Use for Hayden Pond is assessed as Not Supporting based on the presence of the non-native aquatic macrophyte so the Eurasian Water Milfoil, *Myriophyllum Spicatum* impairment is being added. The Alert for the possible infestation of *M. heterophyllum* is being carried forward.	

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDCR 2008, Duerring 2005)

Summary Statement	Assessment Recommendation
MassDCR Lakes and Ponds staff identified an infestation of the non-native aquatic macrophyte, Eurasian water milfoil (*Myriophyllum spicatum*), in Hayden Pond in 2002. As was previously reported, *Myriophyllum* sp. (possibly heterophyllum) was noted during a synoptic survey of the pond conducted by MassDEP staff in 1996. The Alert status should be retained.	Conduct an aquatic macrophyte survey to confirm whether *M. heterophyllum* is present in Hayden Pond.

Fish Consumption

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

Secondary Contact Recreation

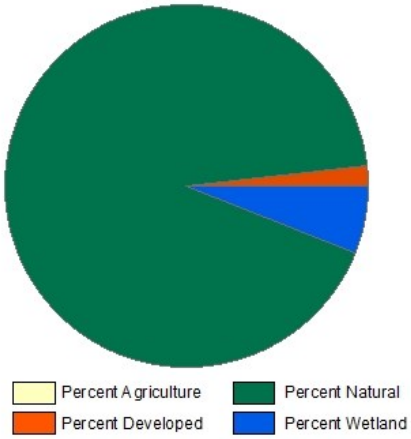
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No *E. coli* bacteria data are available to assess the status of the Secondary Contact Recreational Use for Hayden Pond, so it is Not Assessed.	

Hubbard Brook (MA31-16)

Location:	Headwaters, confluence Babcock Brook and Hall Pond Brook, Tolland to MA/CT border Granville.
AU Type:	RIVER
AU Size:	4 MILES
Classification/Qualifier:	B: CWF, HQW

Hubbard Brook - MA31-16

Watershed Area: 19.95 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	19.95	7.91	4.7	1.92
Agriculture	0.4%	0.7%	0.1%	0.2%
Developed	1.8%	2.3%	1.8%	2.1%
Natural	91.8%	93.3%	85.9%	92.3%
Wetland	6%	3.6%	12.3%	5.4%
Impervious Cover	0.8%			

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	Dam or Impoundment (Y)	X				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

Hubbard Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin and MA DFG also identifies it as a Cold Water Fishery Resource (CFR). MassDEP biologists conducted benthic macroinvertebrate sampling in August 2012 and long-term temperature monitoring summers 2012 through 2018 in Hubbard Brook as part of the Regional Monitoring Network Project (part of climate change monitoring project) ~ 790 feet upstream/ of West Hartland Road in Granville (benthic sample site B0825, water quality sampling site W2468). The benthic IBI score for the sample collected in August 2012 was 68, indicative of satisfactory conditions for a Western Highlands region stream. The maximum temperatures 2012 through 2018 ranged from 23.3 to 26.7°C, with 7DADMs >20°C between 17 and 78 times each year (the fewest exceedances were during shorter thermistor deployments) and 24-hour rolling average maximum temperatures were >23.5°C in 2013, 2016, and 2018. Further downstream near the MA/CT state line water quality monitoring was conducted as part of the Reference Site Network monitoring project during the summer of 2017 (sampling location described as west off Hartland Hollow Road, just upstream of unnamed tributary to northern bank and ~350 feet downstream of Pond Brook confluence in Granville (benthic sampling site B0948, water quality sampling site W2720). The benthic IBI score for the sample collected in July 2017 was 61R, indicative of satisfactory conditions for a Western Highlands region stream. Backpack electrofishing by MassDEP biologists in August 2017 (SampleID 7070) documented a sample comprised entirely of fluvial fish including multiple age classes of Eastern brook trout as well as slimy sculpin indicative of excellent water quality and habitat conditions. Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2720) can be summarized as follows: minimum dissolved oxygen 7.8mg/L during the long-term probe deployed from May 11th through September 19th 2017, maximum temperature 22.7°C between June 1st and September 15th with 7DADM exceeding 20°C 12 times. The maximum 24-hour rolling average temperature was 21.2°C, pH ranged from 6.6 to 7.0SU (n=4), and there was no indication of any nutrient enrichment problems (seasonal average total phosphorus concentrations was 0.011mg/L, max diel DO shift was only 1.2mg/L, maximum saturation 99%, maximum pH 7.0SU, and there were no observations of any dense/very dense filamentous algae during the five site visits). There were no toxicant issues either (maximum total ammonia-nitrogen concentration was 0.04mg/L (n=4) and the maximum chloride measurement was 11mg/L (n=5). While water temperatures often exceeded 20°C, this watershed area and the proximal stream buffer is ~98% natural/wetland with only 0.8% Impervious Cover, there are no water withdrawals, but there are four small dams present in this watershed (Noyes Pond Dam and the small Penstock Dam slightly further downstream in the Pond Brook AU (MA31-33) subwatershed and the Bahre Pond Dam and Granville S.F. Dam in the Halfway Brook AU (MA31-31) subwatershed). These dams can anthropogenically affect the thermal regime of Hubbard Brook and therefore the elevated temperatures cannot be attributed to solely natural conditions.

Except for temperature, all other water quality and biological monitoring data (benthic macroinvertebrates and fish), collected by MassDEP in Hubbard Brook during the summers 2012 and 2017 were indicative of excellent conditions. Since temperature exceedances of acute and/or chronic Cold Water criteria/thresholds documented for summers 2012 through 2018 cannot be attributed solely to natural conditions, the Aquatic Life Use for the Hubbard Brook is assessed as Not Supporting. A temperature impairment is being added.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7070	MassDEP	Fish Community	Hubbard River	Granville Fire road along left riparian, Granville. [DEP water body name is Hubbard Brook]	42.03859	-72.94063
B0825	MassDEP	Benthic	Hubbard Brook/	[approximately 245 meters upstream/northwest of West Hartland Road, Granville, MA]	42.065492	-72.967513
B0948	MassDEP	Benthic	Hubbard Brook/	west off Hartland Hollow Road, just upstream of unnamed tributary to northern bank and approximately 100 meters downstream from Pond Brook confluence, Granville, MA]	42.038557	-72.940653

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2468	MassDEP	Water Quality	Hubbard Brook	[approximately 790 feet upstream/northwest of West Hartland Road, Granville]	42.065492	-72.967513
W2720	MassDEP	Water Quality	Hubbard Brook	[west off Hartland Hollow Road, just upstream of unnamed tributary to northern bank and approximately 350 feet downstream of Pond Brook confluence, Granville]	42.038557	-72.940653

Biological Monitoring Information

Benthic Macroinvertebrate Data

MassDEP Benthic Macroinvertebrate Data (2011-2017). (MassDEP Undated 4)

[Index Biological Condition Class: E= Exceptional, S= Satisfactory, MD= Moderately Degraded, SD= Severely Degraded; High Gradient IBI Thresholds: E= 100-75, S= 74-55, MD= 54-35, SD= 34-0; Low Gradient IBI Thresholds: E= 100-81, S= 80-62, MD= 61-38, SD= 37-0; R qualifier = Rarefaction (100ct) <55]

Station Code	Collection Date	Collection Method	Index Type	Organism Count	Index Score	Index Biological Condition Class
B0825	08/30/12	RBP kicknet	Western_Highlands_300ct	304	68	S
B0948	07/27/17	RBP kicknet	Western_Highlands_300ct	293	61R	S

Fish Community Data and DELTS

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

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

[Species List: BND = Blacknose Dace, EBT = Brook Trout, F = Fallfish, 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
7070	08/09/17	BP	TP	6	106	5	118	210	2	2	7%	100%	No	Yes	BND, EBT, F, LND, SC, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[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
W2720	05/11/17	09/19/17	132	126	103	7.8	8.2	8.5	1.2	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	DO Count	DO Min (mg/L)	DO Avg (mg/L)	Count CW <5.0	Count WW Early Life Stages <5.0	Count WW Other Life Stages <4.0
W2468	04/19/17	12/18/17	1	13.7	13.7	0	0	0
W2720	06/14/17	09/20/17	4	8.8	8.9	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2468	08/04/12	09/15/12	43	40	23.4	24.4	22.7	21.8	22	0	7	0	0	0
W2468	06/20/13	09/15/13	88	85	25.0	26.7	25.6	24.1	54	9	29	5	0	0
W2468	06/01/14	09/15/14	107	107	22.3	23.9	22.6	21.1	61	0	1	0	0	0
W2468	06/01/15	09/15/15	106	100	22.0	23.7	22.5	21.2	69	0	5	0	0	0
W2468	06/01/16	09/15/16	106	100	23.9	24.8	23.5	22.4	71	1	10	0	0	0
W2468	06/01/17	07/02/17	31	22	21.6	23.3	21.4	20.1	17	0	0	0	0	0
W2468	06/01/18	09/15/18	107	107	25.0	26.5	25.4	24.0	78	5	44	4	0	0
W2720	06/01/17	09/15/17	107	107	21.2	22.7	21.9	20.5	12	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 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W2468	08/03/12	09/15/12	44	2041	23.4	0	0	0
W2468	06/19/13	09/15/13	88	4187	25.4	443	252	0
W2468	06/01/14	09/15/14	107	5136	22.5	0	0	0

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
W2468	06/01/15	09/15/15	107	5087	22.3	0	0	0
W2468	06/01/16	09/15/16	107	5087	23.9	54	0	0
W2468	06/01/17	07/02/17	32	1487	21.8	0	0	0
W2468	06/01/18	09/15/18	107	5136	25.0	240	215	0
W2720	06/01/17	09/15/17	107	5136	21.2	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W2468	08/03/12	10/24/12	3	1	21.1	14.4	1	0	0	0
W2468	05/29/13	10/22/13	4	1	16.9	12.9	0	0	0	0
W2468	01/15/14	12/11/14	7	0	12.3	6.4	0	0	0	0
W2468	04/16/15	12/08/15	8	2	16.1	10.7	0	0	0	0
W2468	04/13/16	12/14/16	8	2	17.7	9.8	0	0	0	0
W2468	04/19/17	12/18/17	8	2	13.7	8.9	0	0	0	0
W2468	05/23/18	10/24/18	3	0	17.4	14.0	0	0	0	0
W2720	06/14/17	09/20/17	4	3	20.7	19.6	1	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2720	06/14/17	09/20/17	4	6.6	7	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2468	2017	--	--	--	--	--	--	95.5	--	--	--
W2720	2017	5	0.0081	0.013	0.011	1.2	0.7	99.3	7.0	5	0

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

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[TAN= NH3 + NH4+]

Station Code	Data Year	TAN Count	TAN Min (mg/L)	TAN Max (mg/L)	TAN Avg (mg/L)	Count TAN >Chronic	Count TAN >Acute
W2720	2017	4	0.040	0.040	0.040	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Data Year	Chloride Count	Chloride Min (mg/L)	Chloride Max (mg/L)	Chloride Avg (mg/L)	Count Chloride >230	Count Chloride >860
W2720	2017	5	7	11	9	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 6) (MassDEP Undated 5)

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
W2468	04/19/17	12/18/17	1	52	52	0	0	0	0	0	0
W2720	06/14/17	09/20/17	4	50	66	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 Hubbard Brook, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff surveyed Hubbard Brook in Granville west off Hartland Hollow Road, just upstream of unnamed tributary to northern bank and ~350 feet downstream of Pond Brook confluence (W2720) as part of the Reference Site Network monitoring project during the summer of 2017. There were no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2017 (n=5). The Aesthetics Use for Hubbard Brook is assessed as Fully Supporting based on the lack of any objectionable conditions documented by MassDEP staff during the summer of 2017.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2720	MassDEP	Water Quality	Hubbard Brook	[west off Hartland Hollow Road, just upstream of unnamed tributary to northern bank and approximately 350 feet downstream of Pond Brook confluence, Granville]	42.038557	-72.940653

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2720	Hubbard Brook	2017	5	MassDEP aesthetics observations for station W2720 on Hubbard 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 2017.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2720	2017	5	5	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 6)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2720	Hubbard Brook	2017	Color	Light Yellow/Tan	1	5
W2720	Hubbard Brook	2017	Color	None	4	5
W2720	Hubbard Brook	2017	Objectionable Deposits	No	5	5
W2720	Hubbard Brook	2017	Odor	None	5	5
W2720	Hubbard Brook	2017	Scum	No	5	5
W2720	Hubbard Brook	2017	Turbidity	None	5	5

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 Hubbard Brook, so it is Not Assessed.	

Secondary Contact Recreation

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

Long Bow Lake (MA31019)

Location:	Becket.
AU Type:	FRESHWATER LAKE
AU Size:	26 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for Long Bow Lake (MA31019) 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

Lower Spectacle Pond (MA31020)

Location:	Sandisfield.
AU Type:	FRESHWATER LAKE
AU Size:	70 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for Lower Spectacle Pond (MA31020) 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

Miner Brook (MA31-28)

Location:	Headwaters, outlet wetland east of North Beech Plain Road, Sandisfield to mouth at confluence with West Branch Farmington River, Sandisfield.
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Miner Brook (MA31-28) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Moody Brook (MA31-23)

Location:	Headwaters, outlet Trout Pond, Tolland to mouth at confluence with West Branch Farmington River, Sandisfield.
AU Type:	RIVER
AU Size:	1.8 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Moody Brook (MA31-23) 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

North Branch Silver Brook (MA31-25)

Location:	Headwaters, outlet Atwater Pond, Sandisfield to mouth at confluence with South Branch Silver Brook (forming headwaters Silver Brook), Sandisfield.
AU Type:	RIVER
AU Size:	3.2 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for North Branch Silver Brook (MA31-25) 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
3	3	None		Unchanged

North Brook (MA31-41)

Location:	Headwaters, outlet unnamed pond north of Roberts Road, Sandisfield to MA/CT border, Sandisfield.
AU Type:	RIVER
AU Size:	0.9 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for North Brook (MA31-41) 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

Noyes Pond (MA31026)

Location:	Tolland.
AU Type:	FRESHWATER LAKE
AU Size:	166 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for Noyes Pond (MA31026) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

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

Otis Reservoir (MA31027)

Location:	Otis/Tolland/Blandford.
AU Type:	FRESHWATER LAKE
AU Size:	989 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

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			

Recommendations

2022 Recommendations
ALU: Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum spictaum* or any other non-native aquatic species in Otis Reservoir (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	
MassDCR's database of non-native species observations includes a record of Eurasian water milfoil (My*riophyllum spicatum*) found in Otis Reservoir. The presence of this species needs confirmation. The Aquatic Life Use for Otis Reservoir is Not Assessed but an Alert is being identified for the potential infestation of the non-native aquatic macrophyte *M. spicatum* (Eurasian water milfoil).	

Biological Monitoring Information

Non-native Aquatic Species Presence

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

Summary Statement	Assessment Recommendation
MassDCR's database of non-native species observations includes a record of Eurasian water milfoil (*Myriophyllum spicatum*) found in Otis Reservoir. The presence of this species should be confirmed by MassDEP staff and an Alert should be issued.	Conduct an aquatic macrophyte survey to confirm the presence of *Myriophyllum spictaum* in Otis Reservoir.

Fish Consumption

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

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 Otis Reservoir, so it is Not Assessed.	

Primary Contact Recreation

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

Secondary Contact Recreation

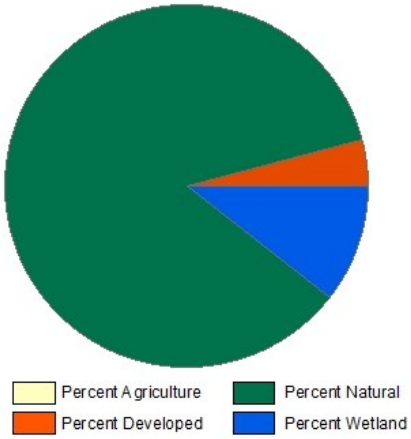
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No *E. coli* bacteria data are available to assess the status of the Secondary Contact Recreational Use for Otis Reservoir, so it is Not Assessed.	

Palmer Brook (MA31-29)

Location:	Headwaters, outlet Palmer Brook Dam (NATID: MA00205), Becket to mouth at inlet Ward Pond, Becket.
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B: CWF, HQW

Palmer Brook - MA31-29

Watershed Area: 5.07 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	5.07	4.31	0.82	0.73
Agriculture	0.3%	0.4%	0.7%	0.8%
Developed	4.1%	4.6%	2.4%	2.6%
Natural	85.1%	85.5%	72.1%	75.2%
Wetland	10.5%	9.6%	24.7%	21.3%
Impervious Cover	2.2%			

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

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	Dam or Impoundment (Y)	X				

Recommendations

2022 Recommendations
ALU: Palmer Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR) (fish sample data for this stream included the tolerant fluvial dependent species white sucker), so additional review by agency staff should be undertaken for delisting the Lack of Cold Water Assemblage impairment which was identified during the 2016 IR reporting cycle. The watershed area for this stream is small (5.07mi2), the watershed and proximal stream buffer are both >95% natural/wetland, the impervious cover is 2.2% (slightly above the natural conditions screening level of 2.0%), there are no water withdrawals, but there are dams that impact the thermal regime of the brook. The Palmer Brook Dam was built in 1968; Long Bow Lake Dam, 1960. A natural background conditions determination should be made for Palmer Brook (collect additional temperature and fish data if needed). Delisting of the Lack of Cold Water Assemblage impairment is likely warranted.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Palmer Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR). MA DFG biologists conducted backpack electrofishing in Palmer Brook upstream of the Route 20 crossing in Becket (SampleID 6759) in August 2017. The sample was comprised of two species and was dominated by the tolerant fluvial dependent species white sucker. The Aquatic Life Use for Palmer Brook will continue to be assessed as Not Supporting with the Lack of a Coldwater Assemblage impairment being carried forward since the recent sample also lacked cold water fish. Although no instream temperature data are available, it is presumed that temperatures are too warm to support a cold water fishery given the presence of Palmer Brook Dam. According to the DCR dam database (MassDCR 2002), the Palmer Brook Dam was built in 1968, while the Long Bow Lake Dam in this subwatershed area was built in 1960. A natural background conditions determination should be made for Palmer Brook.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
6759	MassDFG	Fish Community	Palmer Brook (2)	US of Rt 20 xing, Becket	42.26054	-73.10534

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: P = Pumpkinseed, 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
6759	08/08/17	BP	TP	H	2	118	0%	1	97%	0%	1	3%	No	No	P, WS,

Fish Consumption

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

Secondary Contact Recreation

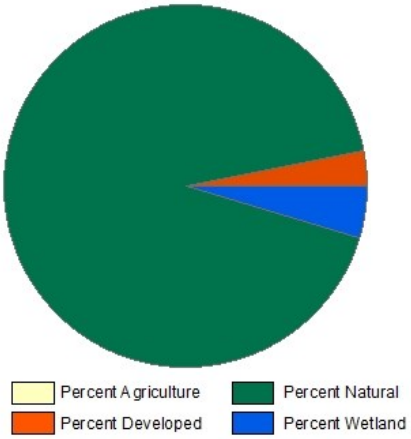
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No *E. coli* bacteria data are available to assess the status of the Secondary Contact Recreational Use for Palmer Brook, so it is Not Assessed.	

Pond Brook (MA31-30)

Location:	Headwaters, outlet Parsons Pond, Granville to mouth at confluence with Hubbard Brook, Granville.
AU Type:	RIVER
AU Size:	4.6 MILES
Classification/Qualifier:	B: CWF, HQW

Pond Brook - MA31-30

Watershed Area: 5.1 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	5.1	3.69	1.23	0.91
Agriculture	0.9%	1.3%	0.3%	0.3%
Developed	3.1%	3.7%	3%	3.3%
Natural	91.4%	91.2%	86.8%	89.5%
Wetland	4.6%	3.9%	9.9%	6.9%
Impervious Cover	1.2%			

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
This Pond Brook AU (MA311-30) is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin and MA DFG also identifies it as a Cold Water Fishery Resource (CFR). MA DFG biologists conducted backpack electrofishing in this Pond Brook AU (MA31-30) at the end of Hartland Hollow Road in Granville (SampleID 7626) in July 2018. The sample was comprised entirely by fluvial fish including multiple age classes of Eastern brook trout. The Aquatic Life Use for this Pond Brook AU (MA31-30) will continue to be assessed as Fully Supporting based on the presence of multiple age classes of Eastern brook trout documented by MA DFG biologists in July 2018 which is indicative of excellent habitat and water quality conditions.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7626	MassDFG	Fish Community	Pond Brook	End of Hartland Hollow Rd. , Granville	42.05959	-72.93983

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: 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
7626	07/16/18	BP	TP	2	179	42	45	174	35	0	23%	100%	Yes	Yes	BND, EBT,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No fish toxics sampling has been conducted in this Pond Brook AU (MA31-30), 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 Pond Brook AU (MA31-30), 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 Pond Brook AU (MA31-30), so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

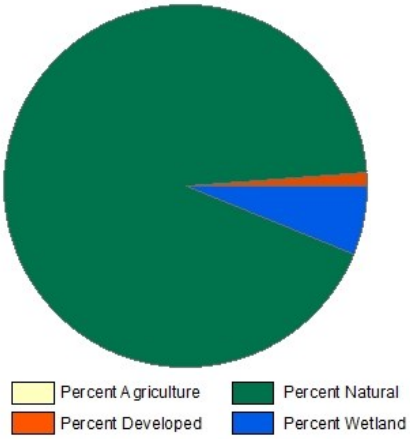
No *E. coli* bacteria data are available to assess the status of the Secondary Contact Recreational Use for this Pond Brook AU (MA31-30), so it is Not Assessed.

Pond Brook (MA31-33)

Location:	Headwaters, outlet Noyes Pond, Tolland to mouth at confluence with Babcock Brook, Tolland.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B: CWF, HQW

Pond Brook - MA31-33

Watershed Area: 5.01 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	5.01	5.01	1.32	1.32
Agriculture	0%	0%	0%	0%
Developed	1.2%	1.2%	2.1%	2.1%
Natural	92.6%	92.6%	86%	86%
Wetland	6.1%	6.1%	11.9%	11.9%
Impervious Cover	0.8%			

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Lack of a Coldwater Assemblage		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
Lack of a Coldwater Assemblage	Dam or Impoundment (Y)	X				
Temperature	Dam or Impoundment (Y)	X				

Recommendations

2022 Recommendations
ALU: This Pond Brook AU (MA31-33) is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR) (fish sample data for this stream dominated by fluvial fish but no cold water species), so additional review by agency staff should be undertaken for delisting the Lack of Cold Water Assemblage impairment which was identified during the 2016 IR reporting cycle and the Temperature impairment which is being added in the 2022 IR reporting cycle. The watershed area for this stream is very small (~5mi2), the watershed and proximal stream buffer are both >94% natural/wetland, the impervious cover is very low (0.8%), there are no water withdrawals, but four dams with a collective impounded area of 2017 acres impact the thermal regime of the brook. A natural background conditions determination should be made for this Pond Brook AU (MA31-33). Delisting of the Lack of Cold Water Assemblage and Temperature impairments are likely warranted.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO

2022 Use Attainment Summary
This Pond Brook AU (MA31-33) is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR). MassDEP staff conducted some limited water quality sampling in this Pond Brook AU (MA31-33) ~140 feet downstream from New Trout Pond Dam (NATID# MA02033), Schoolhouse Road in Tolland (W2826) in the summer of 2018. Probes were deployed between 19 June and 12 September 2018 to measure temperature and specific conductivity, while two discrete DO measurements were taken late morning on 1 August and 12 September. The minimum DO was 8.0mg/L (93% saturation). The maximum temperature measured was 28.3°C with 7DADMs >20°C 76 times, and the maximum 24- hour rolling average temperature was 25.5°C, all well above cold water standards/thresholds. The maximum specific conductance measured was 97µS/cm so no chloride toxicity exceedances were found. The Aquatic Life Use for this Pond Brook AU (MA31-33) will continue to be assessed as Not Supporting with the Lack of a Cold Water Assemblage impairment being carried forward. Instream temperatures measured in the summer of 2018 indicate the thermal regime of the brook with its four dams (Noyes Pond Dam, Penstock Dam, New Trout Pond Dam, and Trout Pond Dam) is too warm to support a cold water fishery. Although this small subwatershed area (~5mi^2) has very little development (the watershed area and the proximal stream buffer are both >95% natural/wetland and the impervious cover only is 0.8%), the presence of the dams anthropogenically affect the thermal regime of Pond Brook so a Temperature impairment is being added. According to the DCR dam database (MassDCR 2002), the Noyes Pond Dam was built in 1900, the Trout Pond Dam in 1920, but the dates for the other two dams are unknown. A natural background conditions determination should be made for this Pond Brook AU (MA31-33).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2826	MassDEP	Water Quality	Pond Brook	[approximately 140 feet east/downstream from New Trout Pond Dam (NATID# MA02033), Schoolhouse Road, Tolland]	42.098580	-73.005717

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	DO Count	DO Min (mg/L)	DO Avg (mg/L)	Count CW <5.0	Count WW Early Life Stages <5.0	Count WW Other Life Stages <4.0
W2826	08/01/18	09/12/18	2	8	8.4	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2826	06/20/18	09/11/18	84	78	25.5	28.3	26.5	24.3	76	13	59	6	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W2826	06/19/18	09/12/18	85	4028	25.5	568	334	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

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

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W2826	08/01/18	09/12/18	2	2	22.1	19.9	1	1	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2826	2018	--	--	--	--	--	--	93.3	--	--	--

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

MassDEP Long-term Continuous Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Start Date	End Date	SpCond Min (µs/cm)	SpCond Max (µs/cm)	SpCond Avg (µs/cm)	Max 4day Avg (µs/cm)	Max 1hr Avg (µs/cm)	4Day Count	1hr Count	Count 4day Avg >904	Count 1hr Avg >3193
W2826	06/19/18	09/12/18	8	97	53	92	96	3882	4072	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 6) (MassDEP Undated 5)

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
W2826	08/01/18	09/12/18	2	33	49	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 Pond Brook AU (MA31-33), 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 Pond Brook AU (MA31-33), 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 Pond Brook AU (MA31-33), so it is Not Assessed.	

Secondary Contact Recreation

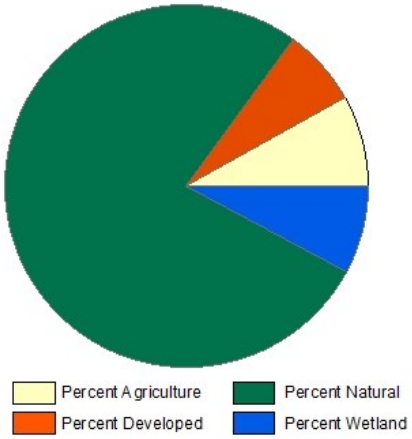
2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No *E. coli* bacteria data are available to assess the status of the Secondary Contact Recreational Use for this Pond Brook AU (MA31-33), so it is Not Assessed.	

Potash Brook (MA31-36)

Location:	Headwaters, outlet wetland east of North Lane, Granville to mouth at confluence with Valley Brook, Granville.
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B: CWF, HQW

Potash Brook - MA31-36

Watershed Area: 0.59 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	0.59	0.59	0.21	0.21
Agriculture	8.1%	8.1%	8.4%	8.4%
Developed	6.9%	6.9%	3%	3%
Natural	77.1%	77.1%	79.3%	79.3%
Wetland	7.9%	7.9%	9.3%	9.3%
Impervious Cover	3.5%			

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

Recommendations

2022 Recommendations
ALU: Potash Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR). There are no dams present in this very small subwatershed (0.59mi2) which also meets most other natural background condition screening methods. MassDEP recommends performing an evaluation as to whether Cold Water is an appropriate designation for Potash Brook. A natural background conditions determination should be made for Potash Brook (collect additional temperature and fish data if needed).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	

Potash Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR). MA DFG biologists conducted backpack electrofishing in Potash Brook in August 2015 downstream from Route 57 in Granville (SampleID 7514) but no fish were collected. The following notes were made: No fish but the presence of crayfish and salamanders; High gradient system sounded like a small waterfall downstream from site; Substrate dominated by boulders, sand with cobble, silt and gravel; Canopy composed of hemlock, maple, cherry, beech, and yellow birch. The drainage area of this subwatershed is extremely small (only 0.59mi^2), the watershed area and the proximal stream buffer are both >85% natural/wetland, and the estimated impervious cover is 3.5%.
Too limited data are available to evaluate the Aquatic Life Use of Potash Brook, so it is assessed as having Insufficient Information however an Alert is being identified because no fish were collected in the brook. A natural background conditions determination should be made for Potash Brook.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7514	MassDFG	Fish Community	Potash Brook	Downstream of Rt. 57, Granville	42.07606	-72.92030

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG: Fishless Samples. (MassDFG 2020)
[Method: BP= Backpack Shocking, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net]

Sample ID	Sample Date	Method	No Fish Reason
7514	08/14/15	BP	Sample Attempted - No Fish

* No fish but the presence of crayfish and salamanders. High gradient system sounded like a small waterfall downstream from site. Substrate is dominated by boulders, sand with cobble, silt and gravel. Canopy is composed of hemlock, maple, cherry, beech, and yellow birch.

Fish Consumption

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

Secondary Contact Recreation

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

Richardson Brook (MA31-24)

Location:	Headwaters, north of New Boston Road (Route 57), Tolland to mouth at confluence with Moody Brook, Tolland.
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Richardson Brook (MA31-24) 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

Riiska Brook (MA31-17)

Location:	Headwaters, perennial portion, west of New Hartford Road, Sandisfield to mouth at confluence with Sandy Brook, Sandisfield.
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Riiska Brook (MA31-17) 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

Royal Pond (MA31034)

Location:	Otis/Monterey.
AU Type:	FRESHWATER LAKE
AU Size:	7 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for Royal Pond (MA31034) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

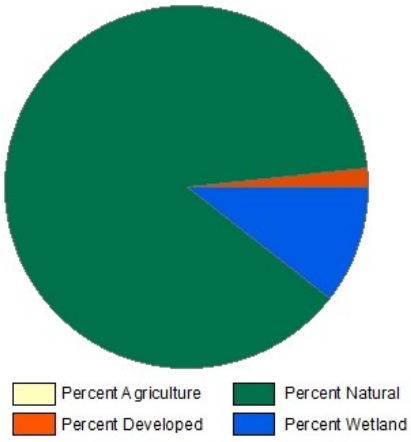
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Sandy Brook (MA31-14)

Location:	Headwaters, outlet York Lake, New Marlborough to MA/CT border Sandisfield.
AU Type:	RIVER
AU Size:	4.9 MILES
Classification/Qualifier:	B: CWF, HQW

Sandy Brook - MA31-14

Watershed Area: 9.87 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	9.87	6.5	2.15	1.49
Agriculture	0.9%	1%	0.1%	0.1%
Developed	1.7%	2%	2.2%	2.7%
Natural	87%	85.5%	75.8%	72.1%
Wetland	10.4%	11.6%	22%	25.2%
Impervious Cover	0.8%			

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	Dam or Impoundment (Y)	X				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

Sandy Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin and MA DFG also identifies it as a Cold Water Fishery Resource (CFR). MassDEP staff deployed thermistors at two sites in Sandy Brook between 18 June and 11 September 2018: ~150 feet downstream from York Lake Dam (NATID# MA00255), East Hill Road/Forest Road in New Marlborough (W2823) and near the Route 183 bridge crossing ~0.2 miles from the MA/CT border in Sandisfield. Just downstream from York Lake the maximum temperature was 31.6°C, the maximum 7DADM was 29.7°C and >20°C 78 times with a maximum 24-hour rolling average temperature of 27.9°C. MA DFG biologists also conducted backpack electrofishing in Sandy Brook along Route 183, ~0.5mi south of Rood Hill Road in Sandisfield (SampleID 8494) in July 2019. The sample was comprised entirely by fluvial fish including a few multiple age classes of Eastern brook trout. The maximum temperature near the state line was 26.1°C, the maximum 7DADM was 26.1°C and >20°C 72 times with a maximum 24-hour rolling average temperature of 25.2°C.
The Aquatic Life Use for Sandy Brook is assessed as Not Supporting because of elevated temperature. Although the watershed area and the proximal stream buffer are both >97% natural/wetland, and the impervious cover is very low (0.8%), York Lake and dam impact the thermal regime of Sandy Brook, a designated Cold Water Fishery. Although a few multiple age classes of Eastern brook trout were documented in the brook in July 2019, the temperatures of the brook at both sampling locations exceeded the acute and chronic temperature criteria/thresholds so the Temperature impairment is being added and the former Alert for temperature is being removed.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
8494	MassDFG	Fish Community	Sandy Brook	Along Rt 183, ~0.5mi S of Rood Hill Rd, Sandisfield	42.05130	-73.14487
W1446	MassDEP	Water Quality	Sandy Brook	[Route 183 bridge crossing approximatley 0.2 miles from the Massachusetts/Connecticut border, Sandisfield]	42.043700	-73.136558
W2823	MassDEP	Water Quality	Sandy Brook	[approximately 150 feet south/downstream from York Lake Dam (NATID# MA00255), East Hill Road/Forest Road, New Marlborough]	42.095294	-73.181550

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AE = American Eel, AS = Atlantic Salmon, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, 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
8494	07/22/19	BP	TP	8	298	13	52	150	12	0	6%	100%	Yes	Yes	AE, AS, BND, CRC, CS, EBT, LND, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W1446	06/19/18	09/10/18	84	78	24.1	26.1	25.2	23.2	72	4	18	0	0	0
W2823	06/19/18	09/10/18	84	78	27.9	31.6	29.7	26.6	78	44	75	31	14	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W1446	06/18/18	09/11/18	85	4028	24.6	207	38	0
W2823	06/18/18	09/11/18	85	4031	27.9	2022	1465	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

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

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W1446	07/31/18	09/11/18	2	2	19.1	16.9	0	0	0	0
W2823	07/31/18	09/11/18	2	2	24.9	21.8	1	1	0	0

Fish Consumption

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

Secondary Contact Recreation

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

Shales Brook (MA31-04)

Location:	Source north of Tyringham Road, Becket to mouth at inlet Shaw Pond, Becket.
AU Type:	RIVER
AU Size:	1.2 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Shales Brook (MA31-04) 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

Shaw Pond (MA31036)

Location:	Becket/Otis.
AU Type:	FRESHWATER LAKE
AU Size:	80 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for Shaw Pond (MA31036) 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	(Eurasian Water Milfoil, Myriophyllum Spicatum*)		Unchanged
5	5	Dissolved Oxygen		Unchanged

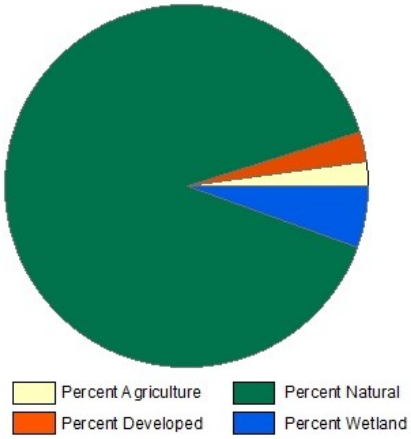
Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Eurasian Water Milfoil, Myriophyllum Spicatum*)	Introduction of Non-native Organisms (Accidental or Intentional) (Y)	X				
Dissolved Oxygen	Source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

Silver Brook (MA31-13)

Location:	Headwaters, confluence of North Branch and South Branch Silver Brook, Sandisfield to mouth at confluence with Clam River, Sandisfield.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B: CWF, HQW

Silver Brook - MA31-13

Watershed Area: 6.75 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	6.75	6.04	1.64	1.51
Agriculture	2.2%	2.5%	0.6%	0.7%
Developed	2.6%	2.8%	3.3%	3.5%
Natural	89.7%	89.3%	85.3%	85.2%
Wetland	5.5%	5.4%	10.8%	10.6%
Impervious Cover	1.2%			

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	Dam or Impoundment (Y)	X				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

Silver Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin and MA DFG also identifies it as a Cold Water Fishery Resource (CFR). MassDEP staff deployed a thermistor in Silver Brook at the Route 57 bridge in Sandisfield between 18 June and 11 September 2018 (W0207). The maximum temperature was 25.1°C, the maximum 7DADM was 24.0°C and >20°C 54 times with a maximum 24-hour rolling average temperature of 24.0°C.
The Aquatic Life Use for Silver Brook is assessed as Not Supporting because of elevated temperature. Although the watershed area and the proximal stream buffer are both >95% natural/wetland, and the impervious cover is low (1.2%), there are four dams (Atwater Pond, Bauer, North Silver Lake, and South Silver) in the watershed area that impact the thermal regime of Silver Brook, a designated Cold Water Fishery. While multiple age classes of Eastern brook trout were documented in the brook in July 2001 (MassDEP 2018), the temperatures of the brook exceeded the acute and chronic temperature criteria/thresholds so the Temperature impairment is being added and the former Alert for temperature is being removed.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W0207	MassDEP	Water Quality	Silver Brook	[Route 57 bridge, Sandisfield]	42.101187	-73.096337

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W0207	06/19/18	09/10/18	84	78	24.0	25.1	24.0	22.8	54	2	16	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W0207	06/18/18	09/11/18	85	4024	24.0	115	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

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

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W0207	07/31/18	09/11/18	2	2	20.0	17.6	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 Silver 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 Silver Brook, 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 Silver Brook, so it is Not Assessed.	

Secondary Contact Recreation

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

Silver Shield Pond (MA31054)

Location:	Becket.
AU Type:	FRESHWATER LAKE
AU Size:	10 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for Silver Shield Pond (MA31054) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

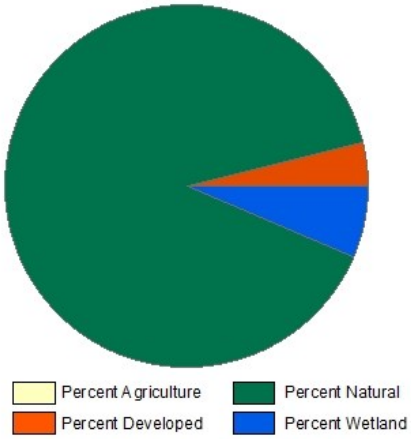
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

Slocum Brook (MA31-19)

Location:	Headwaters, outlet small unnamed wetland pond south of Hartland Road, Tolland to MA/CT border, Tolland.
AU Type:	RIVER
AU Size:	3.3 MILES
Classification/Qualifier:	B: CWF, HQW

Slocum Brook - MA31-19

Watershed Area: 4.43 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	4.43	4.42	1.22	1.22
Agriculture	0.3%	0.3%	0.2%	0.2%
Developed	3.8%	3.8%	5%	5%
Natural	89.6%	89.6%	83.1%	83.1%
Wetland	6.3%	6.3%	11.7%	11.7%
Impervious Cover	2.1%			

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	

Slocum Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin and MA DFG also identifies it as a Cold Water Fishery Resource (CFR). MassDEP biologists sampled Slocum Brook east of Colebrook River Road, ~4700 feet upstream of the Cranberry Pond Brook confluence in Tolland during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. The benthic community (B0787) sample, collected in July 2012, had an IBI score of 88 (Exceptional condition for a high gradient Western Highland region stream). Backpack electrofishing (Sample ID 5114) in August 2012 documented multiple ages of Eastern brook trout and the sample was dominated by fluvial fish. Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2250) can be summarized as follows: minimum dissolved oxygen 7.6mg/L during three short term DO deploys, maximum temperature 21.6°C between June 22nd and September 13th with 7DADM exceeding 20°C eight times. The maximum 24-hour rolling average temperature was 20.9°C, pH ranged from 7.0 to 7.2SU (n=3), and there was no indication of any nutrient enrichment problems (seasonal average total phosphorus concentrations was low 0.028mg/L, max diel DO shift only 0.8mg/L, maximum saturation 96%, maximum pH 7.2SU, and no observations of any dense/very dense filamentous algae of six site visits). With the exception of one chronic criteria exceedance for lead (TU 3.2) and aluminum (TU 1.0) there were no other toxicant issues (maximum total ammonia-nitrogen concentration was 0.02mg/L, chloride was 3mg/L (n=5), and there were no other 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 Slocum Brook is assessed as Fully Supporting based on the benthic macroinvertebrate, fish population, and water quality monitoring data collected by MassDEP biologists during the summer of 2012.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5114	MassDEP	Fish Community	Slocum Brook	E of Colebrook River Rd, 0.9mi US Of Cranberry Pond Brk confluence	42.04760	-73.01700
B0787	MassDEP	Benthic	Slocum Brook/	[east of Colebrook River Road, approximately 1430 meters upstream of the Cranberry Pond Brook confluence, Tolland, MA]	42.047599	-73.016997
W2250	MassDEP	Water Quality	Slocum Brook	[east of Colebrook River Road, approximately 4700 feet upstream of the Cranberry Pond Brook confluence, Tolland]	42.047599	-73.016997

Biological Monitoring Information

Benthic Macroinvertebrate Data

MassDEP Benthic Macroinvertebrate Data (2011-2017). (MassDEP Undated 4)

[Index Biological Condition Class: E= Exceptional, S= Satisfactory, MD= Moderately Degraded, SD= Severely Degraded; High Gradient IBI Thresholds: E= 100-75, S= 74-55, MD= 54-35, SD= 34-0; Low Gradient IBI Thresholds: E= 100-81, S= 80-62, MD= 61-38, SD= 37-0; R qualifier = Rarefaction (100ct) <55]

Station Code	Collection Date	Collection Method	Index Type	Organism Count	Index Score	Index Biological Condition Class
B0787	07/10/12	RBP kicknet	Western_Highlands_100ct	110	88	E

Fish Community Data and DELTS

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

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

[Species List: BND = Blacknose Dace, EBT = Brook Trout, GS = Golden Shiner]

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
5114	08/07/12	BP	TP	3	38	36	34	230	34	0	95%	97%	No	Yes	BND, EBT, GS,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Note: Most deploys 3-5 days in length; Day Count= total # of days over all deploys; XDADMin= 3-5 Day Average of the Daily Minima, XDADA= 3-5 Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2250	2012	3	11	7.6	8	8.2	0.8	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	DO Count	DO Min (mg/L)	DO Avg (mg/L)	Count CW <5.0	Count WW Early Life Stages <5.0	Count WW Other Life Stages <4.0
W2250	05/10/12	09/13/12	3	8.4	8.8	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2250	06/22/12	09/12/12	83	77	20.8	21.6	20.3	19.4	8	0	0	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Most Deploys 3-5 Days in Length; Day Count= total # of days over all deploys; Max Daily Mean= Maximum 24-Hour Average, XDADM= 3-5 Day Average of the Daily Maxima, XDADA= 3-5 Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2250	2012	3	11	19.5	20.3	19.0	18.5	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 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W2250	06/22/12	09/13/12	84	3962	20.9	0	0	0
W2250	06/21/12	08/27/12	67	531	19.7	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

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

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W2250	05/10/12	09/13/12	5	4	18.1	15.4	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2250	05/10/12	09/13/12	3	7	7.2	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2250	2012	5	0.018	0.043	0.028	0.8	0.5	95.5	7.2	6	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 6) (MassDEP Undated 5)

[CMC= Criterion Maximum Concentration, TU= Toxic Unit]

Station Code	Data Year	Metals Count	As CMC TU >1	Cd CMC TU >1	Cr III CMC TU >1	Cu CMC TU >1	Pb CMC TU >1	Ni CMC TU >1	Ag CMC TU >1	Zn CMC TU >1
W2250	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 6) (MassDEP Undated 5)

[CCC= Criterion Continuous Concentration, TU= Toxic Unit]

Station Code	Data Year	Metals Count	As CCC TU >1	Cd CCC TU >1	Cr III CCC TU >1	Cu CCC TU >1	Pb CCC TU >1	Ni CCC TU >1	Se CCC TU >1	Zn CCC TU >1
W2250	2012	3	0	0	0	0	1	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Selected TU Calculations. (MassDEP Undated 6) (MassDEP Undated 5)

[CMC= Criterion Maximum Concentration, CCC= Criterion Continuous Concentration, TU= Toxic Unit]

Station Code	Sample Date	Cd CMC TU	Cd CCC TU	Cu CMC TU	Cu CCC TU	Pb CMC TU	Pb CCC TU
W2250	06/26/12	0.9	0.0	0.6	0.69	0.1	3.2
W2250	07/24/12	0.5	0.9	0.5	0.58	0.0	0.8
W2250	09/04/12	0.4	0.7	0.4	0.47	0.0	0.8

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Since only dissolved aluminum data were available, these data were compared to the default freshwater criteria for total recoverable aluminum (TRA), presented in Appendix E of MassDEP's 2022 CALM. As dissolved Al is a fraction of TRA, an exceedance count of 0 does not rule out violations of the TRA criteria. CMC= Criterion Maximum Concentration, CCC= Criterion Continuous Concentration, TU= Toxic Unit]

Station Code	Data Year	Dissolved Al Count	Al Min (mg/L)	Al Max (mg/L)	Al Avg (mg/L)	Al CMC TU Max	Al CCC TU Max	Al CMC TU >1	Al CCC TU >1
W2250	2012	3	0.057	0.17	0.104	0.6	1.0	0	1

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[TAN= NH3 + NH4+]

Station Code	Data Year	TAN Count	TAN Min (mg/L)	TAN Max (mg/L)	TAN Avg (mg/L)	Count TAN >Chronic	Count TAN >Acute
W2250	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Data Year	Chloride Count	Chloride Min (mg/L)	Chloride Max (mg/L)	Chloride Avg (mg/L)	Count Chloride >230	Count Chloride >860
W2250	2012	5	3	3	3	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 6) (MassDEP Undated 5)

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
W2250	05/10/12	09/13/12	3	33	43	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 Slocum Brook, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff surveyed Slocum Brook in Tolland east of Colebrook River Road, ~4700 feet upstream of the Cranberry Pond Brook confluence (W2250) during the summer of 2012. No noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during any of the surveys (n=6). The Aesthetics Use for Slocum Brook is assessed as Fully Supporting based on the lack of any objectionable conditions documented by MassDEP staff during the summers of 2012.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2250	MassDEP	Water Quality	Slocum Brook	[east of Colebrook River Road, approximately 4700 feet upstream of the Cranberry Pond Brook confluence, Tolland]	42.047599	-73.016997

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2250	Slocum Brook	2012	6	MassDEP aesthetics observations for station W2250/MAP2-172 on Slocum 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 6) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2250	2012	6	6	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 6)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2250	Slocum Brook	2012	Color	Light Yellow/Tan	5	6
W2250	Slocum Brook	2012	Color	None	1	6
W2250	Slocum Brook	2012	Objectionable Deposits	No	6	6
W2250	Slocum Brook	2012	Odor	None	6	6
W2250	Slocum Brook	2012	Scum	No	6	6
W2250	Slocum 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 in Slocum Brook east of Colebrook River Road, ~4700 feet upstream of the Cranberry Pond Brook confluence in Tolland (W2250) between May and September 2012 (n = 6). Data analysis indicated that none of the intervals had GM's > 126 cfu/100 ml and no samples exceeded the 410 cfu/100 ml STV. The seasonal GM was 16 cfu/100 ml.

Since the *E. coli* concentrations did not exceed the use attainment impairment threshold for this single year limited frequency dataset, the Primary Contact Recreational Use for Slocum Brook is assessed as Fully Supporting.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2250	MassDEP	Water Quality	Slocum Brook	[east of Colebrook River Road, approximately 4700 feet upstream of the Cranberry Pond Brook confluence, Tolland]	42.047599	-73.016997

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 6) (MassDEP Undated 5)

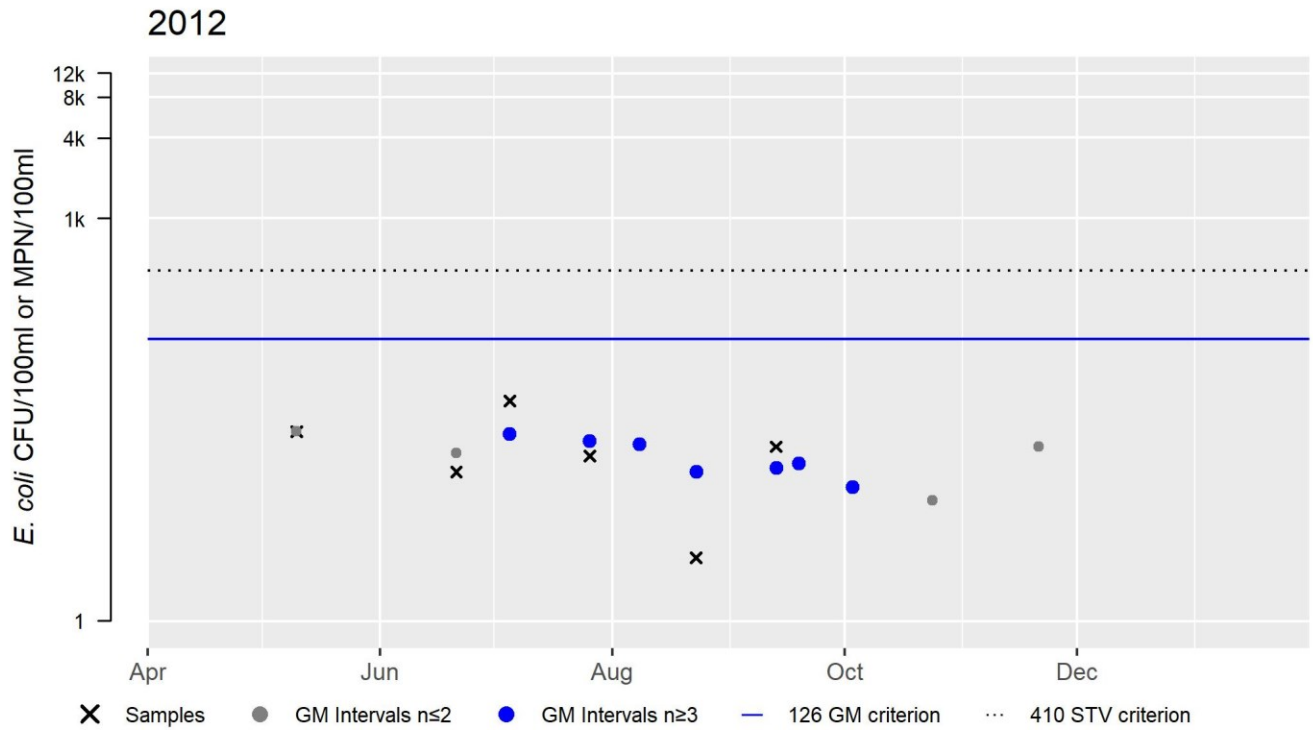
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2250	MassDEP	E. coli	05/10/12	09/13/12	6	3	44	16

W2250 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	16
#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



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff collected *E. coli* bacteria samples in Slocum Brook east of Colebrook River Road, ~4700 feet upstream of the Cranberry Pond Brook confluence in Tolland (W2250) between May and September 2012 (n = 6). Data analysis indicated that none of the intervals had GM's > 630 cfu/100 ml and no samples exceeded the 1260 cfu/100 ml STV. The seasonal GM was 16 cfu/100 ml. Since the *E. coli* concentrations did not exceed the use attainment impairment threshold for this single year limited frequency dataset, the Secondary Contact Recreational Use for Slocum Brook is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2250	MassDEP	Water Quality	Slocum Brook	[east of Colebrook River Road, approximately 4700 feet upstream of the Cranberry Pond Brook confluence, Tolland]	42.047599	-73.016997

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 6) (MassDEP Undated 5)

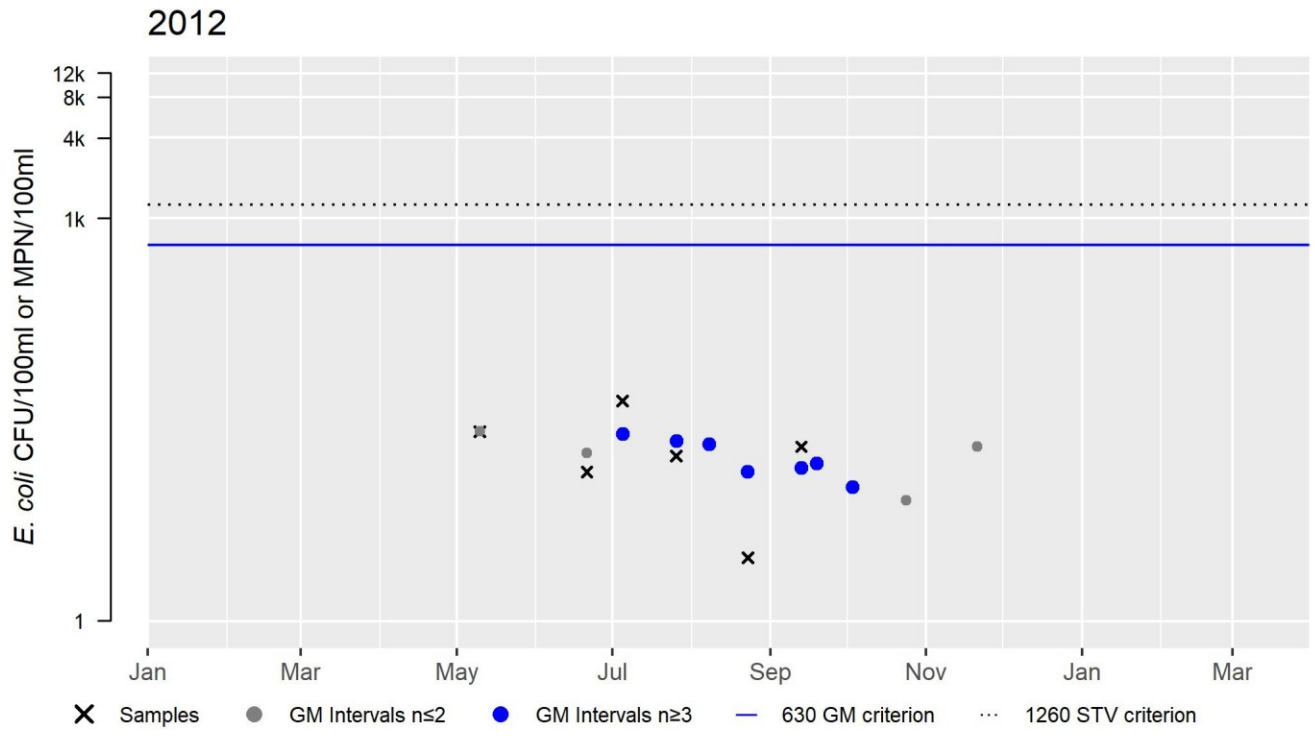
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100ml or MPN/100ml)	Maximum Sample Result (CFU/100ml or MPN/100ml)	Seasonal Geometric Mean (CFU/100ml or MPN/100ml)
W2250	MassDEP	E. coli	05/10/12	09/13/12	6	3	44	16

W2250 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	16
#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



South Branch Silver Brook (MA31-26)

Location:	Headwaters, perennial portion north of Fox Road, Sandisfield to mouth at confluence with North Branch Silver Brook (forming headwaters Silver Brook), Sandisfield.
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for South Branch Silver Brook (MA31-26) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

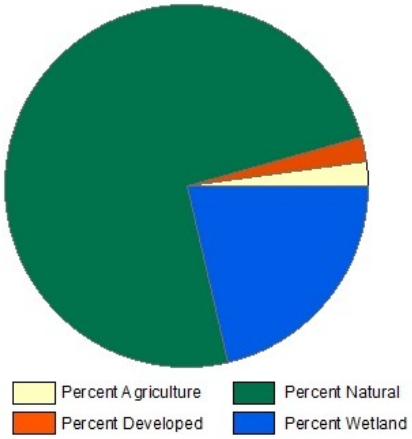
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Spectacle Pond Brook (MA31-27)

Location:	Headwaters, south of West Center Road, Otis to mouth at inlet Upper Spectacle Pond, Otis.
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	B: CWF, HQW

Spectacle Pond Brook - MA31-27

Watershed Area: 1.68 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	1.68	1.68	0.19	0.19
Agriculture	2.2%	2.2%	0%	0%
Developed	2.1%	2.1%	0.9%	0.9%
Natural	74.3%	74.3%	43.2%	43.2%
Wetland	21.3%	21.3%	55.9%	55.9%
Impervious Cover	1.3%			

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

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	Natural Sources (N)	X				

Recommendations

2022 Recommendations
ALU: Spectacle Pond Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR) (fish sample data for this stream included only macrohabitat generalist species), so additional review by agency staff should be undertaken for delisting the Lack of Cold Water Assemblage impairment which was identified during the 2016 IR reporting cycle. The watershed area for this stream is very small (1.68mi^2), the watershed and proximal stream buffer are both >95% natural/wetland, the impervious cover is very low (1.3%), there are no water withdrawals, and there are no dams other than beaver dams in the subwatershed area that impact the thermal regime of the brook, so its condition is naturally occurring. A natural background conditions determination should be made for Spectacle Pond Brook (collect additional temperature and fish data if needed). Delisting of the Lack of Cold Water Assemblage impairment is likely warranted.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Spectacle Pond Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR). MassDEP staff deployed a thermistor in Spectacle Pond Brook near Upper Spectacle Pond Road in Otis between 18 June and 11 September 2018 (W2825). The maximum temperature was 30.0°C, the maximum 7DADM was 28.2°C and >20°C 78 times, and the maximum 24-hour rolling average temperature was 26.7°C. The watershed area for this stream is very small (1.68mi^2), the watershed and proximal stream buffer are both >95% natural/wetland, the impervious cover is low (1.3%), there are no water withdrawals, and there are no dams other than beaver dams in the watershed area that impact the thermal regime of Spectacle Pond Brook. The Aquatic Life Use for Spectacle Pond Brook will continue to be assessed as Not Supporting with the Lack of a Coldwater Assemblage impairment being carried forward. Since the brook has very limited development and passes all current methods for evaluating natural conditions, Natural Sources are being identified for the Lack of a Coldwater Assemblage impairment. A natural background conditions determination should be made for Spectacle Pond Brook.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2825	MassDEP	Water Quality	Spectacle Pond Brook	[Upper Spectacle Pond Road, Otis]	42.188020	-73.120117

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2825	06/19/18	09/10/18	84	78	26.7	30.0	28.2	25.3	78	17	64	13	4	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W2825	06/18/18	09/11/18	85	4037	26.7	833	570	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

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

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W2825	07/31/18	09/11/18	2	2	22.1	18.9	1	1	0	0

Fish Consumption

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

Secondary Contact Recreation

2022 Use Attainment	Alert

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

Taylor Brook (MA31-20)

Location:	Headwaters, west of Clubhouse Road, Tolland to mouth at confluence with Slocum Brook, Tolland.
AU Type:	RIVER
AU Size:	3.3 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Taylor Brook (MA31-20) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

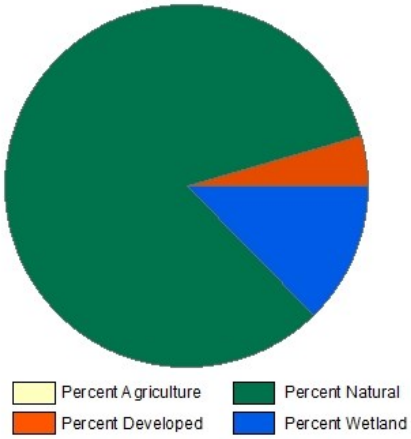
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Thomas Brook (MA31-06)

Location:	Headwaters, outlet Thomas Pond, Becket to mouth at confluence with unnamed tributary to Hayden Pond, Otis.
AU Type:	RIVER
AU Size:	0.8 MILES
Classification/Qualifier:	B: CWF, HQW

Thomas Brook - MA31-06

Watershed Area: 6.31 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	6.31	4.3	1.15	0.82
Agriculture	0.3%	0.4%	0.5%	0.7%
Developed	4.4%	6.2%	3.4%	4.7%
Natural	82.7%	79.8%	67.8%	68.2%
Wetland	12.6%	13.6%	28.2%	26.4%
Impervious Cover	2.5%			

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

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	Dam or Impoundment (N)	X				

Recommendations

2022 Recommendations
ALU: Thomas Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR) (fish sample data for this stream included fluvial taxa/fish but no cold water species were collected), so additional review by agency staff should be undertaken for delisting the Lack of Cold Water Assemblage impairment which was identified during the 2016 IR reporting cycle. The watershed area for this stream is small (6.31mi^2), the watershed and proximal stream buffer are both >94% natural/wetland, the impervious cover is 2.5%, there are no water withdrawals, although there are dams other than beaver dams in the subwatershed area that impact the thermal regime of the brook. The Palmer Brook Dam was built in 1968; Long Bow Lake Dam, 1960 while the MassPike (Route 90) and an old Railroad bed grade which does impound Palmer Brook in Ward Pond are also present. A natural background conditions determination should be made for Thomas Brook (collect additional temperature and fish data if needed). Delisting of the Lack of Cold Water Assemblage impairment is likely warranted.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO

2022 Use Attainment Summary
Thomas Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR). MassDEP biologists sampled Thomas Brook ~1025 feet downstream of Werden Road in Otis during the summer of 2012 as part of the MAP2 Probabilistic Wadeable Streams monitoring project. The benthic community sample (B0811), collected in July 2012, had an IBI score of 58 (Satisfactory condition for a high gradient Western Highland region stream). Backpack electrofishing (Sample ID 5030) in August 2012 documented a sample comprised entirely with fluvial taxa/fish but no cold water species were collected. Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2274) can be summarized as follows: minimum dissolved oxygen 7.1mg/L during three short term DO deploys, maximum temperature 27.6°C between June 22nd and September 13th with 7DADM exceeding 20°C 96 times. The maximum 24-hour rolling average temperature was 25.9°C, pH ranged from 7.5 to 7.6SU (n=3), and there was little indication of nutrient enrichment problems (seasonal average total phosphorus concentrations was low 0.013mg/L, max diel DO shift only 1.0mg/L, maximum saturation 94%, maximum pH 7.6SU, and two observations of dense/very dense filamentous algae of six site visits). There were no toxicant issues (maximum total ammonia-nitrogen concentration was 0.03mg/L, chloride was 55mg/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). With the exception of temperature and the lack of any cold water fish, the benthic and all other water quality monitoring data collected by MassDEP biologists during the summer of 2012 in Thomas Brook were indicative of good conditions. The Aquatic Life Use for Thomas Brook, however, will continue to be assessed as Not Supporting with the Lack of a Cold Water Assemblage impairment being carried forward. It is noted that this small watershed (6.31mi^2) is minimally developed but it is bisected by the MassPike (Route 90) and an old Railroad bed grade which does impound Palmer Brook in Ward Pond (no other physical dam is present at Ward Pond impoundment) in the upper Thomas Brook subwatershed area. There are many areas of wetlands/beaver dams along Thomas Brook, the watershed area and the proximal stream buffer are both >94% natural/wetland, the impervious cover is 2.5%, there are no water withdrawals, although there are two physical dams (Long Bow Lake and Palmer Brook dams in the upstream Palmer Brook tributary subwatershed). No cold water fish species were collected in Thomas Brook in 1976 based on information in MA DFG's database. Since the brook has very limited development and passes most current methods for evaluating natural conditions (the percent impervious cover slightly exceeds 2.0% at 2.5%), a Temperature impairment is not being added at this time. A natural background conditions determination should be made for Thomas Brook.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5030	MassDEP	Fish Community	Thomas Brook	0.2MI DS of Werden Rd	42.24539	-73.11392
B0811	MassDEP	Benthic	Thomas Brook/	[approximately 310 meters downstream of Werden Road, Otis, MA]	42.245391	-73.113919
W2274	MassDEP	Water Quality	Thomas Brook	[approximately 1025 feet downstream of Werden Road, Otis]	42.245391	-73.113919

Biological Monitoring Information

Benthic Macroinvertebrate Data

MassDEP Benthic Macroinvertebrate Data (2011-2017). (MassDEP Undated 4)

[Index Biological Condition Class: E= Exceptional, S= Satisfactory, MD= Moderately Degraded, SD= Severely Degraded; High Gradient IBI Thresholds: E= 100-75, S= 74-55, MD= 54-35, SD= 34-0; Low Gradient IBI Thresholds: E= 100-81, S= 80-62, MD= 61-38, SD= 37-0; R qualifier = Rarefaction (100ct) <55]

Station Code	Collection Date	Collection Method	Index Type	Organism Count	Index Score	Index Biological Condition Class
B0811	07/18/12	RBP kicknet	Western_Highlands_100ct	101	58	S

Fish Community Data and DELTS

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

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

[Species List: BND = Blacknose Dace, 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
5030	08/30/12	BP	TP	H	3	160	0%	3	100%	0%	0	0%	No	No	BND, LND, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Note: Most deploys 3-5 days in length; Day Count= total # of days over all deploys; XDADMin= 3-5 Day Average of the Daily Minima, XDADA= 3-5 Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2274	2012	3	11	7.1	7.3	7.6	1	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	DO Count	DO Min (mg/L)	DO Avg (mg/L)	Count CW <5.0	Count WW Early Life Stages <5.0	Count WW Other Life Stages <4.0
W2274	05/10/12	09/13/12	3	8.1	8.4	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2274	06/01/12	09/12/12	104	101	25.7	27.6	25.9	24.1	96	12	60	7	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Most Deploys 3-5 Days in Length; Day Count= total # of days over all deploys; Max Daily Mean= Maximum 24-Hour Average, XDADM= 3-5 Day Average of the Daily Maxima, XDADA= 3-5 Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2274	2012	3	11	25.5	26.6	24.9	23.3	3	2	2	1	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W2274	06/01/12	09/13/12	104	5013	25.9	616	351	0
W2274	06/21/12	08/27/12	67	532	25.8	83	70	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W2274	05/10/12	09/13/12	4	4	20.5	18.5	1	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2274	05/10/12	09/13/12	3	7.5	7.6	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2274	2012	5	0.01	0.016	0.013	1.0	0.7	94.4	7.6	6	2

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 6) (MassDEP Undated 5)
[CMC= Criterion Maximum Concentration, TU= Toxic Unit]

Station Code	Data Year	Metals Count	As CMC TU >1	Cd CMC TU >1	Cr III CMC TU >1	Cu CMC TU >1	Pb CMC TU >1	Ni CMC TU >1	Ag CMC TU >1	Zn CMC TU >1
W2274	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 6) (MassDEP Undated 5)
[CCC= Criterion Continuous Concentration, TU= Toxic Unit]

Station Code	Data Year	Metals Count	As CCC TU >1	Cd CCC TU >1	Cr III CCC TU >1	Cu CCC TU >1	Pb CCC TU >1	Ni CCC TU >1	Se CCC TU >1	Zn CCC TU >1
W2274	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Since only dissolved aluminum data were available, these data were compared to the default freshwater criteria for total recoverable aluminum (TRA), presented in Appendix E of MassDEP's 2022 CALM. As dissolved Al is a fraction of TRA, an exceedance count of 0 does not rule out violations of the TRA criteria. CMC= Criterion Maximum Concentration, CCC= Criterion Continuous Concentration, TU= Toxic Unit]

Station Code	Data Year	Dissolved Al Count	Al Min (mg/L)	Al Max (mg/L)	Al Avg (mg/L)	Al CMC TU Max	Al CCC TU Max	Al CMC TU >1	Al CCC TU >1
W2274	2012	3	0.009	0.033	0.019	0.1	0.2	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[TAN= NH3 + NH4+]

Station Code	Data Year	TAN Count	TAN Min (mg/L)	TAN Max (mg/L)	TAN Avg (mg/L)	Count TAN >Chronic	Count TAN >Acute
W2274	2012	5	0.020	0.030	0.022	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Data Year	Chloride Count	Chloride Min (mg/L)	Chloride Max (mg/L)	Chloride Avg (mg/L)	Count Chloride >230	Count Chloride >860
W2274	2012	5	31	55	40	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 6) (MassDEP Undated 5)

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
W2274	05/10/12	09/13/12	3	160	250	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 Thomas Brook, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff surveyed Thomas Brook in Otis ~1025 feet downstream of Werden Road (W2274) during the summer of 2012. There were generally few objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during the surveys (n=6). The Aesthetics Use for Thomas Brook 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
W2274	MassDEP	Water Quality	Thomas Brook	[approximately 1025 feet downstream of Werden Road, Otis]	42.245391	-73.113919

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2274	Thomas Brook	2012	6	MassDEP aesthetics observations for station W2274/MAP2-212 on Thomas 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 6) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2274	2012	6	6	2

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 6)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2274	Thomas Brook	2012	Color	Brownish	1	6
W2274	Thomas Brook	2012	Color	Light Yellow/Tan	3	6
W2274	Thomas Brook	2012	Color	None	1	6
W2274	Thomas Brook	2012	Color	Rusty	1	6
W2274	Thomas Brook	2012	Objectionable Deposits	No	6	6
W2274	Thomas Brook	2012	Odor	Musty (Basement)	2	6
W2274	Thomas Brook	2012	Odor	None	4	6
W2274	Thomas Brook	2012	Scum	No	4	6
W2274	Thomas Brook	2012	Scum	Yes	2	6
W2274	Thomas Brook	2012	Turbidity	None	5	6
W2274	Thomas Brook	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 Thomas Brook ~1025 feet downstream of Werden Road in Otis (W2274) between May and September 2012 (n = 6). Data analysis indicated that none of the intervals had GM's > 126 cfu/100 ml and no samples exceeded the 410 cfu/100 ml STV. The seasonal GM was 17 cfu/100 ml. Since the *E. coli* concentrations did not exceed the use attainment impairment threshold for this single year limited frequency dataset, the Primary Contact Recreational Use for Thomas Brook is assessed as Fully Supporting.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2274	MassDEP	Water Quality	Thomas Brook	[approximately 1025 feet downstream of Werden Road, Otis]	42.245391	-73.113919

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 6) (MassDEP Undated 5)

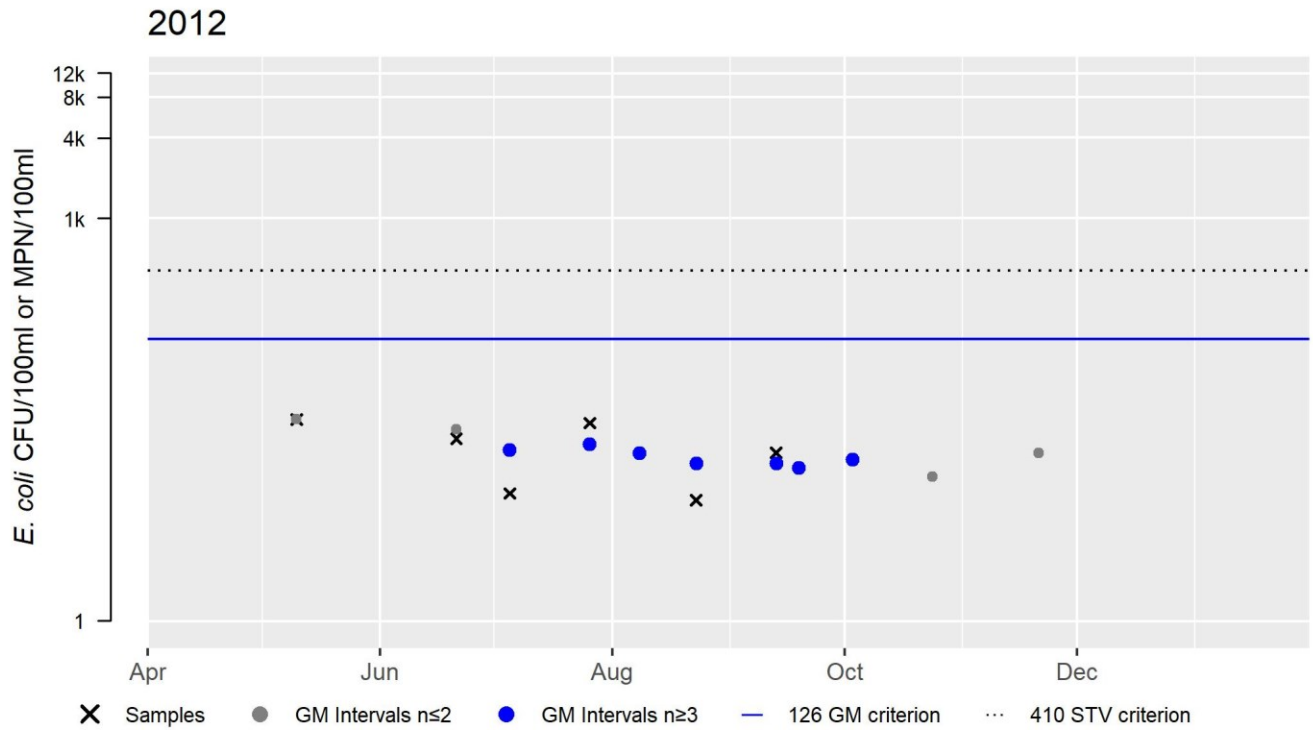
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result	Maximum Sample Result	Seasonal Geometric Mean
W2274	MassDEP	E. coli	05/10/12	09/13/12	6	8	32	17

W2274 *E. coli* (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	17
#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



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff collected *E. coli* bacteria samples from Thomas Brook ~1025 feet downstream of Werden Road in Otis (W2274) between May and September 2012 (n = 6). Data analysis indicated that none of the intervals had GM's > 630 cfu/100 ml and no samples exceeded the 1260 cfu/100 ml STV. The seasonal GM was 17 cfu/100 ml. Since the *E. coli* concentrations did not exceed the use attainment impairment threshold for this single year limited frequency dataset, the Secondary Contact Recreational Use for Thomas Brook is assessed as Fully Supporting	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2274	MassDEP	Water Quality	Thomas Brook	[approximately 1025 feet downstream of Werden Road, Otis]	42.245391	-73.113919

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (90-day Interval Analysis) (MassDEP Undated 6) (MassDEP Undated 5)

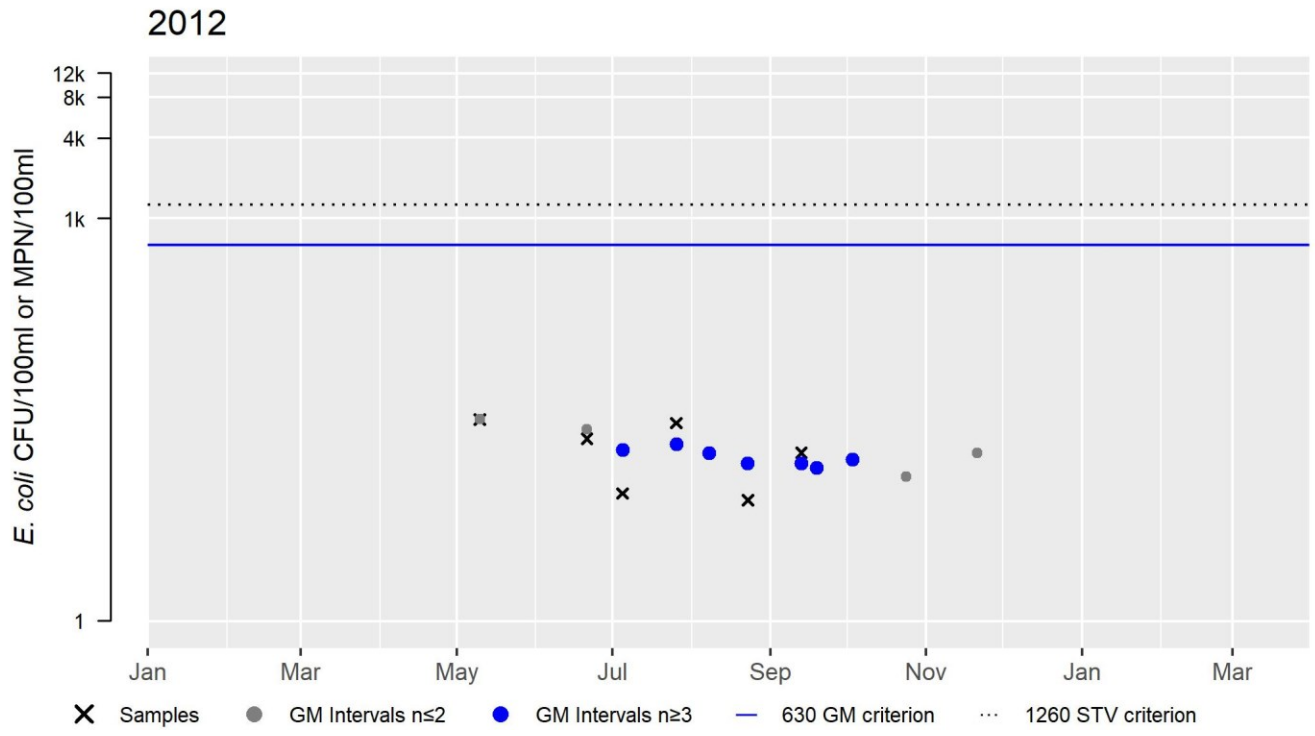
[Result units are CFU/100ml or MPN/100ml]

Station Code	Organization	Indicator	Start Date	End Date	Sample Count	Minimum Sample Result (CFU/100ml or MPN/100ml)	Maximum Sample Result (CFU/100ml or MPN/100ml)	Seasonal Geometric Mean (CFU/100ml or MPN/100ml)
W2274	MassDEP	E. coli	05/10/12	09/13/12	6	8	32	17

W2274 *E. coli* (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	17
#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



Thorp Brook (MA31-22)

Location:	Headwaters, east of Dodds Mountain, south of Sears Road, Sandisfield to mouth at confluence with West Branch Farmington River, Sandisfield.
AU Type:	RIVER
AU Size:	2.7 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Thorp Brook (MA31-22) 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

Unnamed Tributary (MA31-05)

Location:	Unnamed tributary to Shaw Pond, source in wetlands southwest of Route 90 and east of Route 20, Becket to mouth at inlet Shaw Pond, Becket (excluding "gravel pit" pond).
AU Type:	RIVER
AU Size:	1.3 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Unnamed Tributary (MA31-05) 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 (MA31-07)

Location:	Source, outlet Shaw Pond, Becket/Otis to mouth at inlet Hayden Pond, Otis.
AU Type:	RIVER
AU Size:	0.9 MILES
Classification/Qualifier:	B: CWF, HQW

No usable data were available for Unnamed Tributary (MA31-07) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

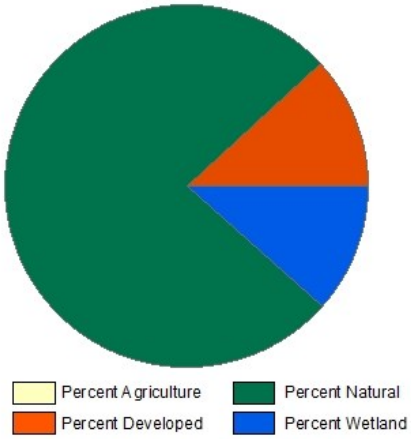
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
2	2	None		Unchanged

Unnamed Tributary (MA31-09)

Location:	Unnamed tributary to West Branch Farmington River, source north of Route 23 and east of Harrington Road, Otis to mouth at confluence with West Branch Farmington River, Otis.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B: CWF, HQW

Unnamed Tributary - MA31-09

Watershed Area: 1.07 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	1.07	1.07	0.39	0.39
Agriculture	0.3%	0.3%	0.1%	0.1%
Developed	11.8%	11.8%	13.8%	13.8%
Natural	76.4%	76.4%	66.5%	66.5%
Wetland	11.5%	11.5%	19.7%	19.7%
Impervious Cover	4.5%			

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

Recommendations

2022 Recommendations
ALU: This Unnamed Tributary AU (MA31-09) is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR). There are no dams present in this very small subwatershed (1.07mi^2) which also meets most other natural background condition A natural background conditions determination should be made for this Unnamed Tributary AU (MA31-09) (collect additional temperature and fish data if needed).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	

This Unnamed Tributary AU (MA31-09) is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR). MassDEP staff conducted some limited water quality sampling in this Unnamed Tributary AU (MA31-09) to the West Branch Farmington River, ~320 feet downstream from North Main Road (Route 8) in Otis (W2828) in the summer of 2018. Probes were deployed between 19 June and 12 September 2018 to measure temperature and specific conductivity, while a discrete DO measurement was taken late morning 12 September. The DO was 5.4mg/L (56.5% saturation). The maximum temperature measured was 28.4°C with 7DADMs >20°C 78 times, and the maximum 24-hour rolling average temperature was 25.2°C, all well above cold water standards/thresholds. The maximum specific conductance measured was 777µS/cm so no estimated chloride toxicity exceedances were found.
Too limited data are available to assess the Aquatic Life Use for this Unnamed Tributary AU (MA31-09) so it is assessed as having Insufficient Information. Temperature is being identified with an Alert however it is best professional judgement that the thermal regime of this stream is natural. The drainage area is extremely small (1.07mi^2), there are no dams or water withdrawals, the watershed area and the proximal stream buffer are both >86% natural/wetland, but the impervious cover is slightly high (4.5%). A natural background conditions determination should be made for this Unnamed Tributary (MA31-09).

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2828	MassDEP	Water Quality	Unnamed Tributary	[unnamed tributary to the West Branch Farmington River, approximately 320 feet downstream from North Main Road (Route 8), Otis]	42.195954	-73.092354

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[CW= Coldwater, WW= Warmwater]

Station Code	Start Date*	End Date	DO Count	DO Min (mg/L)	DO Avg (mg/L)	Count CW <5.0	Count WW Early Life Stages <5.0	Count WW Other Life Stages <4.0
W2828	07/31/18	09/12/18	1	5.4	5.4	0	0	0

* Date range shown includes other measurements not shown in this table; DO only measured on 9/12/18

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2828	06/20/18	09/11/18	84	78	25.0	28.4	26.9	23.9	78	9	55	4	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W2828	06/19/18	09/12/18	85	4037	25.2	424	218	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W2828	07/31/18	09/12/18	2	2	21.2	19.0	1	0	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2828	2018	--	--	--	--	--	--	56.5	--	--	--

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

MassDEP Long-term Continuous Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Start Date	End Date	SpCond Min (µs/cm)	SpCond Max (µs/cm)	SpCond Avg (µs/cm)	Max 4day Avg (µs/cm)	Max 1hr Avg (µs/cm)	4Day Count	1hr Count	Count 4day Avg >904	Count 1hr Avg >3193
W2828	06/19/18	09/12/18	62	777	413	655	776	3893	4083	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 6) (MassDEP Undated 5)

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
W2828	07/31/18	09/12/18	1	291	291	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 (MA31-09), 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 Unnamed Tributary (MA31-09), 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 Unnamed Tributary (MA31-09), so it is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent *E. coli* bacteria data are available to assess the status of the Secondary Contact Recreational Use for this Unnamed Tributary (MA31-09), so it is Not Assessed.	

Upper Spectacle Pond (MA31044)

Location:	Sandisfield/Otis.
AU Type:	FRESHWATER LAKE
AU Size:	53 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

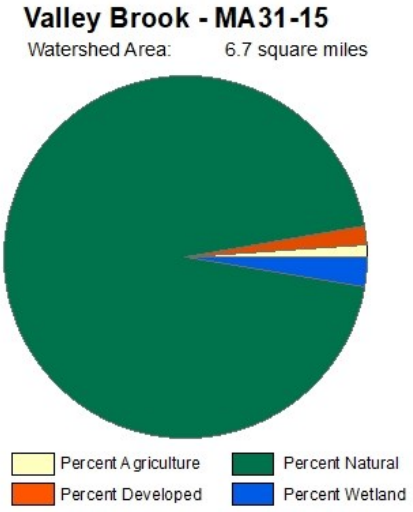
No usable data were available for Upper Spectacle Pond (MA31044) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

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

Valley Brook (MA31-15)

Location:	Source, northwest of Holden Hill, Granville to MA/CT border, Granville.
AU Type:	RIVER
AU Size:	5.9 MILES
Classification/Qualifier:	B: CWF, HQW



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	6.7	4.02	1.57	0.93
Agriculture	1.1%	0.7%	1.1%	0.1%
Developed	1.7%	2.4%	1.5%	2.4%
Natural	94.6%	94.2%	93.9%	94.3%
Wetland	2.6%	2.7%	3.4%	3.3%
Impervious Cover	0.7%			

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	

Valley Brook is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin and MA DFG also identifies it as a Cold Water Fishery Resource (CFR). MassDEP biologists sampled Valley Brook ~1/2 mile upstream of MA/CT state line, west of Clark Road in Granville during the summer of 2017 as part of the Reference Site Network monitoring project. The benthic community (B0949) sample, collected in July 2017, had an IBI score of 57 (indicative of satisfactory conditions for a high gradient Western Highlands region stream). Backpack electrofishing (Sample ID 7069) in August 2017 documented a sample was comprised entirely by fluvial fish including multiple age classes of Eastern brook trout as well as slimy sculpin which are indicative of excellent habitat conditions. Water quality sampling data including both deployed probe and discrete sampling efforts (Station W2721) were indicative of excellent conditions and can be summarized as follows: minimum dissolved oxygen 8.1mg/L during the long-term DO deploy (May to September), maximum temperature 20.9°C between June 1st and September 15th with a maximum 7DADM of 19.9°C (no exceedances of 20°C) and a maximum 24-hour rolling average temperature of 19.4°C, pH ranged from 6.8 to 7.1SU (n=4), and there was no indication of any nutrient enrichment problems (seasonal average total phosphorus concentrations was 0.017mg/L, max diel DO shift only 1.3mg/L, maximum saturation 100%, maximum pH 7.1SU, and no observations of any dense/very dense filamentous algae of five site visits), nor were there any toxicant issues (maximum total ammonia-nitrogen concentration was 0.04mg/L (n=4) and chloride was only 14mg/L (n=5)).
The Aquatic Life Use for Valley Brook will continue to be assessed as Fully Supporting based on the benthic macroinvertebrate, fish population, and water quality monitoring data collected by MassDEP during the summer of 2017.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
7069	MassDEP	Fish Community	Valley Brook	In metropolitan district public water supply area., Granville	42.04200	-72.91840
B0949	MassDEP	Benthic	Valley Brook/	approximately 0.8 kilometer upstream of MA/CT state line, west of Clark Road, Granville, MA]	42.042005	-72.918377
W2721	MassDEP	Water Quality	Valley Brook	[approximately 1/2 mile upstream of MA/CT state line, west of Clark Road, Granville]	42.042005	-72.918377

Biological Monitoring Information

Benthic Macroinvertebrate Data

MassDEP Benthic Macroinvertebrate Data (2011-2017). (MassDEP Undated 4)

[Index Biological Condition Class: E= Exceptional, S= Satisfactory, MD= Moderately Degraded, SD= Severely Degraded; High Gradient IBI Thresholds: E= 100-75, S= 74-55, MD= 54-35, SD= 34-0; Low Gradient IBI Thresholds: E= 100-81, S= 80-62, MD= 61-38, SD= 37-0; R qualifier = Rarefaction (100ct) <55]

Station Code	Collection Date	Collection Method	Index Type	Organism Count	Index Score	Index Biological Condition Class
B0949	07/27/17	RBP kicknet	Western_Highlands_300ct	284	57	S

Fish Community Data and DELTS

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

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

[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
7069	08/04/17	BP	TP	3	246	29	58	195	24	68	39%	100%	Yes	Yes	BND, EBT, SC,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[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
W2721	05/11/17	09/19/17	132	126	103	8.1	8.5	8.8	1.3	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	DO Count	DO Min (mg/L)	DO Avg (mg/L)	Count CW <5.0	Count WW Early Life Stages <5.0	Count WW Other Life Stages <4.0
W2721	06/14/17	09/20/17	4	9	9.1	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2721	06/01/17	09/15/17	107	107	19.3	20.9	19.9	18.7	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 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W2721	06/01/17	09/15/17	107	5136	19.4	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W2721	06/14/17	09/20/17	4	3	19.1	18.2	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2721	06/14/17	09/20/17	4	6.8	7.1	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2721	2017	4	0.0081	0.034	0.017	1.3	0.8	99.5	7.1	5	0

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

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[TAN= NH3 + NH4+]

Station Code	Data Year	TAN Count	TAN Min (mg/L)	TAN Max (mg/L)	TAN Avg (mg/L)	Count TAN >Chronic	Count TAN >Acute
W2721	2017	4	0.040	0.040	0.040	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Data Year	Chloride Count	Chloride Min (mg/L)	Chloride Max (mg/L)	Chloride Avg (mg/L)	Count Chloride >230	Count Chloride >860
W2721	2017	5	9	14	12	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 6) (MassDEP Undated 5)

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
W2721	06/14/17	09/20/17	4	55	73	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 Valley Brook, therefore the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff surveyed Valley Brook in Granville ~1/2 mile upstream of MA/CT state line, west of Clark Road (W2721) as part of the Reference Site Network monitoring project during the summer of 2017. There were no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2017 (n=5). The Aesthetics Use for Valley Brook is assessed as Fully Supporting based on the lack of any objectionable conditions documented by MassDEP staff during the summer of 2017.	

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
W2721	MassDEP	Water Quality	Valley Brook	[approximately 1/2 mile upstream of MA/CT state line, west of Clark Road, Granville]	42.042005	-72.918377

Aesthetic Observations

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

Station Code	Waterbody	Data Year	Field Sheet Count	Aesthetics Summary Statement
W2721	Valley Brook	2017	5	MassDEP aesthetics observations for station W2721 on Valley 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 2017.

Observations of Filamentous/Film Algae at MassDEP Stations (2011-2018) (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2721	2017	5	5	0

MassDEP Aesthetics Observations (2011-2018) (MassDEP Undated 6)

Station Code	Waterbody	Data Year	Parameter	Result	Result Count	Total Field Sheet Count
W2721	Valley Brook	2017	Color	None	5	5
W2721	Valley Brook	2017	Objectionable Deposits	No	5	5
W2721	Valley Brook	2017	Odor	None	5	5
W2721	Valley Brook	2017	Scum	No	5	5
W2721	Valley Brook	2017	Turbidity	None	5	5

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 Valley Brook, so it is Not Assessed.	

Secondary Contact Recreation

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

Ward Pond (MA31047)

Location:	Becket.
AU Type:	FRESHWATER LAKE
AU Size:	27 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for Ward Pond (MA31047) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

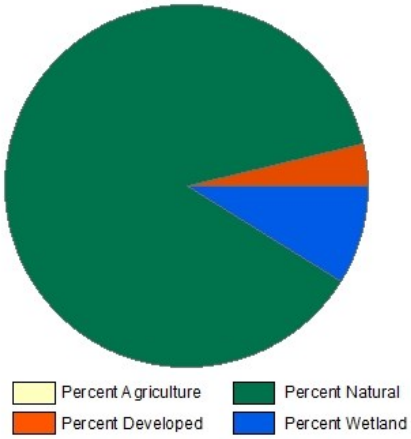
2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
3	3	None		Unchanged

West Branch Farmington River (MA31-01)

Location:	Headwaters, outlet Hayden Pond, Otis to the MA/CT border in the Colebrook Reservoir, Sandisfield/Tolland.
AU Type:	RIVER
AU Size:	16.1 MILES
Classification/Qualifier:	B: CWF, HQW

West Branch Farmington River - MA31-01

Watershed Area: 101.33 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	101.33	8.47	20.29	2.22
Agriculture	0.9%	1.2%	1%	1.7%
Developed	3.7%	2.1%	6%	5.9%
Natural	86.7%	93.3%	78.5%	86.4%
Wetland	8.7%	3.4%	14.5%	6%
Impervious Cover	1.8%			

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

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

Recommendations

2022 Recommendations
ALU: The West Branch Farmington River is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR) (fish sample data for this river indicates it is dominated by fluvial fish but cold water species below stocking size are not present), so additional review by agency staff should be undertaken for delisting the Lack of Cold Water Assemblage impairment which was identified during the 2006 IR reporting cycle (initially identified as Cause Unknown which was remapped to Lack of a Cold Water Assemblage in the 2010 IR reporting cycle) and temperature which was added as an impairment in the 2016 IR reporting cycle. The watershed area for this river is large (~101mi^2), the watershed and proximal stream buffer are both >92% natural/wetland, the impervious cover is low (1.8%), there are no water withdrawals, and while there are many beaver dams that impact the thermal regime of the river along its length, there is only one dam at the upstream end of this river AU (Hayden Pond Dam built in 1886 for the purpose of recreation) (nationaldams.com 2022). A natural background conditions determination should be made for the West Branch Farmington River (collect additional temperature and fish data if needed). Delisting of the Lack of Cold Water Assemblage and Temperature impairments may be warranted.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

The West Branch Farmington River is a designated Cold Water per 314 CMR 4.06(b): Table 9, Farmington River Basin; however, MA DFG does not identify it as a Cold Water Fishery Resource (CFR). MA DFG biologists conducted backpack electrofishing at ten sites along the West Branch Farmington River in August 2017 unless otherwise noted from up to downstream as follows: upstream of Tannery Road crossing in Otis (SampleID 6747), behind the Otis town library in May 2018 (SampleID 7739), near the pullout along Route 8 in Otis (SampleID 6748), upstream of Reservoir Road in Otis (SampleID 6746), along the fishing access in field off Route 8 in Otis (SampleID 6743), adjacent to Route 8 pulloff rest area near Tolland State Forest in Tolland/Sandisfield in August 2014 (SampleID 5430) and downstream of Alan Rd, along parking area of Route 8 Sandisfield (SampleID 6744), near the dirt pulloff on Route 8 in Sandisfield (SampleID 6745), upstream of Route 8/57 bridge in Sandisfield (SampleID 6740), downstream of lower Roosterville Road metal bridge in Sandisfield/Tolland (SampleID 6742), and along lower Roosterville Road in the upper flood plain in Sandisfield (SampleID6741). Samples at all of these sites were dominated by fluvial fish (taxa and individuals), however only two sites (SampleIDs 6743 and 6745) had Eastern brook trout and these fish were all above stocking size. One large rainbow trout was also collected at site 6745. Twelve fish community samples (Sample IDs 1113, 1232, 5430, 6740, 6741, 6742, 6743, 6744, 6745, 6746, 6747, and 6748) were collected from 2005-2017 throughout the West Branch Farmington River (MA31-01). The percent similarity with the Target Fish Community was 42.74%. More than 30% of the calculated difference was due to the presence of intolerant cutlip minnows, a species considered out of its distribution range that was excluded from the Farmington TFC model (Kashiwagi and Richards 2009). MassDEP staff conducted some limited water quality sampling in the river at three sites between July and October 2017 from up to downstream as follows: Tannery Road in Otis (W2768), Reservoir Road bridge in Otis (W0198), and Clark Road bridge, near USGS Gage #01185500 in Sandisfield (W0201). The minimum DO during the probe deployments between 14 July and 27 September or 11 October was 6.9mg/L, the maximum saturation was 102%, and the maximum diel DO shift was 1.4, 3.4, and 2.1mg/L from the up to downstream sites, respectively. The maximum temperatures measured between 14 July and 15 September from up to downstream were as follows: 27.4, 26.6, and 25.0°C with 7DADMs exceeding 20°C 42, 41, and 40 times, respectively during the deployments. The 24-hour maximum rolling average temperatures were above the acute cold water threshold of 23.5°C at the two upstream sites (24.3 and 23.8°C) but not at the most downstream sampling location (maximum 22.9°C). The three pH measurements were 7.5, 7.7, and 7.6SU (up to downstream at the three sites) and the maximum specific conductance measurement was only 270µS/cm, well below levels of concern related to chloride toxicity. The Aquatic Life Use for the West Branch Farmington River will continue to be assessed as Not Supporting with the Lack of a Coldwater Assemblage and Temperature impairments being carried forward. Additionally, a Fish Bioassessments impairment is being added due to the low percent similarity (<50%) of the fish community with the Farmington TFC model (%similarity was ~43%). The watershed area for the West Branch Farmington River (~101mi^2) is >92% natural/wetland in both the watershed and proximal stream buffer, Impervious Cover is only 1.8%, there are no water withdrawals, but there is one small dam at the headwaters of this river AU (Hayden Pond Dam which records indicate was built in 1886 and impounds ~28 acres). Many beaver dams are also present along its length. A natural background conditions determination should be made for the West Branch Farmington River.

Monitoring Stations

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
5430	MassDFG	Fish Community	West Branch Farmington River	Adjacent to Rt 8 pulloff rest area near Tolland State Forest, Tolland/Sandisfield	42.12734	-73.06730
6740	MassDFG	Fish Community	West Branch Farmington River	US of RT 8/57 bridge, Sandisfield	42.09432	-73.07578
6741	MassDFG	Fish Community	West Branch Farmington River	Along lower Roosterville Rd in upper flood plain, Sandisfield	42.06300	-73.06120
6742	MassDFG	Fish Community	West Branch Farmington River	DS of lower Roosterville Rd metal bridge, Sandisfield/Tolland	42.06920	-73.06042

Station Code	Organization	Type	Water Body	Station Description	Latitude	Longitude
6743	MassDFG	Fish Community	West Branch Farmington River	Along fishing access in field off Rt 8, Otis	42.14790	-73.07100
6744	MassDFG	Fish Community	West Branch Farmington River	DS of Alan Rd, along parking area of RT 8, Sandisfield	42.12760	-73.06728
6745	MassDFG	Fish Community	West Branch Farmington River	Dirt Pulloff on RT 8., Sandisfield	42.11238	-73.07180
6746	MassDFG	Fish Community	West Branch Farmington River	US of Reservoir Rd, Otis	42.15725	-73.07330
6747	MassDFG	Fish Community	West Branch Farmington River	US of Tannery Rd xing, Otis	42.21042	-73.09502
6748	MassDFG	Fish Community	West Branch Farmington River	Pullout along RT 8, Otis	42.18554	-73.08456
7739	MassDFG	Fish Community	West Branch Farmington River	Behind the Otis town library. Upstream of farm 1.5 , Otis	42.19618	-73.09118
W0198	MassDEP	Water Quality	West Branch Farmington River	[Reservoir Road bridge, Otis]	42.156888	-73.073528
W0201	MassDEP	Water Quality	West Branch Farmington River	[Clark Road bridge, near USGS Gage #01185500, Sandisfield]	42.078858	-73.073102
W2768	MassDEP	Water Quality	West Branch Farmington River	[Tannery Road, Otis]	42.210031	-73.095075

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: B = Bluegill, BND = Blacknose Dace, CCS = Creek Chubsucker, CLM = Cutlips Minnow, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, F = Fallfish, GS = Golden Shiner, LND = Longnose Dace, P = Pumpkinseed, RB = Rock Bass, RBS = Redbreast Sunfish, RT = Rainbow Trout, SMB = Smallmouth Bass, TD = Tesselated Darter, WS = White Sucker, YP = Yellow Perch]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables*	CFR	Species List
5430	08/06/14	BP	TP	H	8	201	0%	7	90%	27%	1	10%	No	No	BND, CLM, CRC, CS, F, LND, SMB, WS,
6740	08/24/17	BP	TP	H	5	236	0%	5	100%	44%	0	0%	No	No	CLM, CS, F, LND, WS,

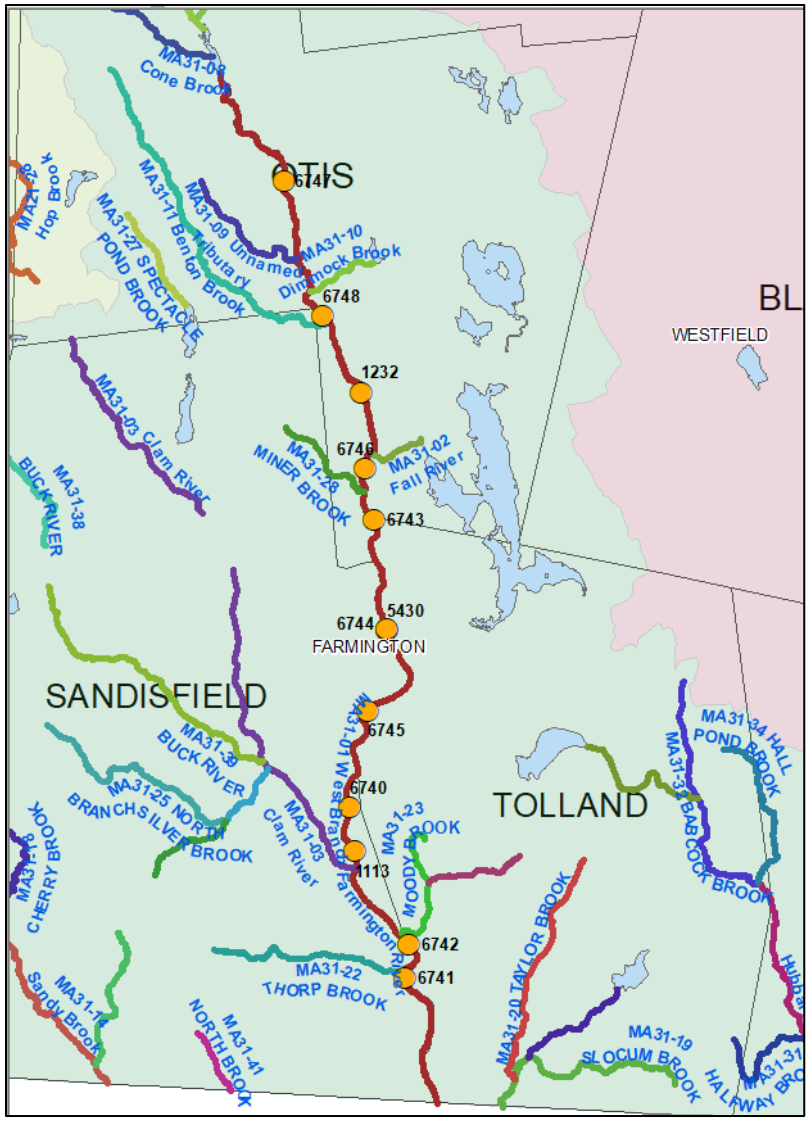
Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables*	CFR	Species List
6741	08/24/17	BP	TP	H	11	364	0%	8	62%	24%	2	38%	No	No	B, BND, CLM, CRC, CS, F, LND, RB, SMB, TD, WS,
6742	08/24/17	BP	TP	H	8	222	0%	6	83%	45%	2	17%	No	No	BND, CLM, CS, F, LND, RB, SMB, WS,
6743	08/23/17	BP	TP	H	12	195	1%	9	74%	45%	2	19%	No	No	B, BND, CLM, CRC, CS, EBT, F, LND, RB, SMB, TD, WS,
6744	08/23/17	BP	TP	H	9	227	0%	7	84%	46%	1	14%	Yes	No	B, BND, CLM, CS, F, LND, RT, SMB, WS,
6745	08/23/17	BP	TP	H	11	278	1%	9	85%	29%	1	10%	Yes	No	B, BND, CLM, CRC, CS, EBT, F, LND, RT, SMB, WS,
6746	08/22/17	BP	TP	H	7	324	0%	5	99%	37%	1	1%	Yes	No	B, BND, CLM, CS, F, LND, SMB,
6747	08/22/17	BP	TP	H	13	301	0%	7	90%	29%	5	9%	Yes	No	BND, CLM, CS, EBT, F, GS, LND, P, RB, RBS, SMB, WS, YP,
6748	08/22/17	BP	TP	L	8	211	0%	6	68%	46%	1	15%	Yes	No	B, BND, CLM, CS, F, LND, SMB, WS,
7739	05/25/18	BP	TP		10	125	0%	7	84%	48%	3	16%	No	No	BND, CCS, CLM, CRC, CS, F, RB, RBS, SMB, WS,

*Where Yes was indicated the sampling notes stated that some fish were missed at these sites (some sites another backpack electrofisher would have improved efficiency).

Data Sources: (MassDFG 2018, MassDEP Undated 1, Kashiwagi and Richards 2009)

Twelve fish community samples (Sample IDs 1113, 1232, 5430, 6740, 6741, 6742, 6743, 6744, 6745, 6746, 6747, and 6748) were collected from 2005-2017 throughout the West Branch Farmington River (MA31-01). The percent similarity with the Target Fish Community was 42.74%. More than 30% of the calculated difference was due to the presence of cutlip minnows, a species considered out of its distribution range (although intolerant) that was excluded from the Farmington TFC model (Kashiwagi and Richards 2009). While DFG records do not indicate this AU is a Coldwater Fishery Resource (Kautza, Re: historical coldwater fish data for West Branch Farmington River October 25, 2021), it is designated as a Coldwater Fishery in the MA SWQS. Because of the CWF designation, the West Branch Farmington River (MA31-01) should remain assessed as Not Supporting due to the lack of a coldwater assemblage in the recent samples (4 Eastern brook trout, all >140 mm, were collected and no slimy sculpin). Additionally, Fish Bioassessments should be identified as a cause of impairment due to the low percent similarity (<50%) of the fish community with the Farmington TFC model.

Fish Community Sample Locations



Farmington TFC Model:

Table A5. Species percent composition for reference rivers used to develop the Farmington 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	North River	Green River	Cold River	NB Sugar River	Ashuelot River	Salmon Brook	Total	Rank	Expected Proportion
Blacknose dace	38.4	41.9	53.8	6.9	29.0	38.9	208.9	1	33.7
Longnose dace	29.1	23.2	16.9	44.6	14.1	5.6	133.5	2	16.8
Atlantic salmon	15.1	18.8	6.5	0.0	3.2	18.7	62.2		
Slimy sculpin	8.9	12.0	2.7	0.0	0.0	16.9	40.5	4	8.4
Common shiner	1.1	0.7	6.5	20.8	8.2	1.4	38.7	5	6.7
Fallfish	0.3	0.0	0.0	1.0	30.4	0.0	31.6	6	5.6
White sucker	1.9	0.1	6.2	10.9	9.4	1.9	30.4	7	4.8
Brook trout	0.6	1.9	2.4	0.0	0.1	9.3	14.4	8	4.2
Creek chub	0.8	0.9	2.8	5.0	0.3	1.0	10.8	9	3.7
Longnose sucker	2.9	0.0	0.6	4.0	0.0	0.0	7.6	10	3.4
Tessellated darter	0.3	0.2	0.6	0.0	1.5	4.3	6.8	11	3.1
Brown trout	0.3	0.2	0	5	0.3	0.0	5.8		
Yellow bullhead	0.0	0.0	0.0	0.0	1.5	0.0	1.5		
Smallmouth bass	0.0	0.0	0.4	0.0	0.9	0.1	1.4		
American eel	0	0	0	0	0	1	1.0	15	2.2
Brown bullhead	0.2	0	0	0	0.3	0	0.4	16	2.1
Rainbow trout	0.2	0.0	0.2	0.0	0.1	0.0	0.4		
Redbreast sunfish	0.0	0.0	0.0	0.0	0.3	0.0	0.3	18	1.9
Pumpkinseed	0.0	0.0	0.1	0.0	0.2	0.0	0.3	19	1.8
Yellow perch	0.0	0.0	0.0	0.0	0.1	0.0	0.1	20	1.7
Largemouth bass	0.0	0.0	0.0	0.0	0.1	0.0	0.1		

Fish Community Analysis:

Use?	(blank)
After 1-1-05?	TRUE
SampleID	(All)
Bad Sample Check	Ok

Watershed	Common Name	Values # of Fish	Values % of catch	Applicable TFC	TFC Difference	% Sim to TFC
Farmington	American Brook Lamprey		0.00%	-	-	
Farmington	American Eel		0.00%	2.2	2.2	
Farmington	Atlantic Salmon		0.00%	-	-	
Farmington	Banded Killifish		0.00%	-	-	
Farmington	Banded Sunfish		0.00%	-	-	
Farmington	Black Crappie		0.00%	-	-	
Farmington	Blacknose Dace	254	9.19%	33.7	24.5	
Farmington	Bluegill	73	2.64%	-	2.6	
Farmington	Bluntnose Minnow		0.00%	-	-	
Farmington	Bridle Shiner		0.00%	-	-	
Farmington	Brook Trout	4	0.14%	4.2	4.1	
Farmington	Brown Bullhead		0.00%	2.1	2.1	
Farmington	Brown Trout		0.00%	-	-	
Farmington	Central Mudminnow		0.00%	-	-	
Farmington	Chain Pickerel		0.00%	-	-	
Farmington	Channel Catfish		0.00%	-	-	
Farmington	Common Carp		0.00%	-	-	
Farmington	Common Shiner	301	10.89%	6.7	4.2	
Farmington	Creek Chub	20	0.72%	3.7	3.0	
Farmington	Creek Chubsucker		0.00%	-	-	
Farmington	Cutlips Minnow	1001	36.22%	-	36.2	
Farmington	Fallfish	184	6.66%	5.6	1.1	
Farmington	Fathead Minnow		0.00%	-	-	
Farmington	Golden Shiner	1	0.04%	-	0.0	
Farmington	Green Sunfish		0.00%	-	-	
Farmington	Lake Chub		0.00%	-	-	
Farmington	Largemouth Bass		0.00%	-	-	
Farmington	Longnose Dace	392	14.18%	16.8	2.6	
Farmington	Longnose Sucker		0.00%	3.4	3.4	
Farmington	Northern Pike		0.00%	-	-	
Farmington	Pumpkinseed	1	0.04%	1.8	1.8	
Farmington	Rainbow Trout	2	0.07%	-	0.1	
Farmington	Redbreast Sunfish	16	0.58%	1.9	1.3	
Farmington	Redfin Pickerel		0.00%	-	-	
Farmington	Rock Bass	15	0.54%	-	0.5	
Farmington	Sea Lamprey		0.00%	-	-	
Farmington	Slimy Sculpin		0.00%	8.4	8.4	
Farmington	Smallmouth Bass	359	12.99%	-	13.0	
Farmington	Spottail Shiner		0.00%	-	-	
Farmington	Swamp Darter		0.00%	-	-	
Farmington	Tadpole Madtom		0.00%	-	-	
Farmington	Tesselated Darter	28	1.01%	-	1.0	
Farmington	White Catfish		0.00%	-	-	
Farmington	White Perch		0.00%	-	-	
Farmington	White Sucker	112	4.05%	4.8	0.7	
Farmington	Yellow Bullhead		0.00%	-	-	
Farmington	Yellow Perch	1	0.04%	1.7	1.7	
Farmington	(blank)		0.00%	-	-	42.74
Grand Total		2764	100.00%	-	100.0	

After 1-1-05?	TRUE
Use?	(blank)
Bad Sample Check	Ok

Row Labels
Farmington
1113
1232
5430
6740
6741
6742
6743
6744
6745
6746
6747
6748
Grand Total

Lengths of coldwater fish collected in the West Branch Farmington River (MA31-01); since all lengths were >140 mm, the fish were likely stocked:

Sample	Coldwater Species	Length (mm)
6743	Eastern brook trout	231
6743	Eastern brook trout	181
6744	rainbow trout	358
6745	Eastern brook trout	148
6745	rainbow trout	337
6747	Eastern brook trout	200

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[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
W0198	07/14/17	09/27/17	76	70	47	6.9	7.6	8.1	3.4	0	0	0	0	0	0	0	0
W0201	07/14/17	10/11/17	89	77	60	6.7	7.3	7.8	2.1	0	0	0	0	0	0	0	0
W2768	07/14/17	10/11/17	89	77	60	7	7.3	7.7	1.4	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	DO Count	DO Min (mg/L)	DO Avg (mg/L)	Count CW <5.0	Count WW Early Life Stages <5.0	Count WW Other Life Stages <4.0
W0198	09/06/17	10/12/17	2	8.9	9.5	0	0	0
W0201	09/06/17	10/12/17	2	8.7	9.5	0	0	0
W2768	09/06/17	10/12/17	2	8.7	9.3	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; Max Daily Mean= Maximum 24-Hour Average, 7DADM= 7-Day Average of the Daily Maxima, 7DADA= 7-Day Average of the Daily Average, CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W0198	07/14/17	09/15/17	64	61	23.7	26.6	24.6	22.2	41	1	6	0	0	0
W0201	07/14/17	09/15/17	64	61	22.8	25.0	24.0	22.0	40	0	5	0	0	0
W2768	07/14/17	09/15/17	64	61	25.2	27.4	25.8	24.1	42	4	16	3	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater; NOTE: In the case of more than one row of data in the same year for a site, different types of temperature probes were deployed.]

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W0198	07/13/17	09/15/17	64	3046	23.8	43	0	0
W0201	07/13/17	09/15/17	64	3044	22.9	0	0	0

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
W2768	07/13/17	09/15/17	64	3048	25.3	193	153	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater]

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W0198	09/06/17	10/12/17	2	1	17.0	15.4	0	0	0	0
W0201	09/06/17	10/12/17	2	1	16.9	15.4	0	0	0	0
W2768	09/06/17	10/12/17	2	1	17.7	15.8	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W0198	09/06/17	10/12/17	1	7.7	7.7	0	0
W0201	09/06/17	10/12/17	1	7.6	7.6	0	0
W2768	09/06/17	10/12/17	1	7.5	7.5	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 6) (MassDEP Undated 5)
[Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W0198	2017	--	--	--	--	3.4	1.6	98.5	7.7	--	--
W0201	2017	--	--	--	--	2.1	1.2	101.9	7.6	--	--
W2768	2017	--	--	--	--	1.4	0.7	96.5	7.5	--	--

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 6) (MassDEP Undated 5)

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
W0198	09/06/17	10/12/17	2	258	270	0	0	0	0	0	0
W0201	09/06/17	10/12/17	2	149	194	0	0	0	0	0	0
W2768	09/06/17	10/12/17	2	223	244	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 Farmington 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 West Branch Farmington 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 West Branch Farmington River, so it is Not Assessed.	

Secondary Contact Recreation

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

West Lake (MA31050)

Location:	Sandisfield.
AU Type:	FRESHWATER LAKE
AU Size:	60 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for West Lake (MA31050) 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

White Lily Pond (MA31051)

Location:	Otis.
AU Type:	FRESHWATER LAKE
AU Size:	62 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

No usable data were available for White Lily Pond (MA31051) 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

York Lake (MA31052)

Location:	New Marlborough.
AU Type:	FRESHWATER LAKE
AU Size:	29 ACRES
Classification/Qualifier:	B: HQW (no lakes in the state have a CWF designation)

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

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Dissolved Oxygen	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	
Without any new/recent data, the Aquatic Life Use for York Lake will continue to be assessed as Not Supporting with the Dissolved Oxygen impairment being carried forward.	

Fish Consumption

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

Aesthetic

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

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

The DCR York Lake Beach in New Marlborough was rarely, if at all, posted for swimming between 2014 and 2019 (postings if any were all ≤4%).
The Primary Contact Recreational Use for York Lake is assessed as Fully Supporting since there were few, if any, swimming advisory postings at the York Lake (DCR) Beach.

Beach Postings

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

Beach ID	Beach Name/Town	Left Boundary (Latitude)	Left Boundary (Longitude)	Right Boundary (Latitude)	Right Boundary (Longitude)	2014	2015	2016	2017	2018	2019	# years> 10%
4834	York Lake Beach (DCR)/New Marlborough	42.09638	-73.18090	42.09585	-73.18070	0%	4%	2%	0%	0%	0%	0

Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

The York Lake (DCR) Beach was rarely, if at all, posted for swimming between 2014 and 2019 (postings if any were all ≤4%).
The Secondary Contact Recreational Use for York Lake is assessed as Fully Supporting since there were few, if any, swimming advisory postings at the York Lake (DCR) Beach.

Data Sources

Bailey, Logan. "RE: Beaches Bill reporting data." Email to Dan Davis (MassDEP Watershed Planning Program) providing an Excel file (DEP_BeachDataRequest) with data for marine and DCR freshwater beaches, Environmental Toxicology Program, Bureau of Environmental Health, Massachusetts Department of Public Health, Boston, MA, Feb. 2, 2021.

Duerring, Christine L. "Farmington River Watershed 2001 Water Quality Assessment Report." CN 91.0, Division of Watershed Management, Massachusetts Department of Environmental Protection, Worcester, MA, 2005.

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.

Kautza, Adam. "Re: historical coldwater fish data for West Branch Farmington River." Email to Jenny Peet (MassDEP Watershed Planning Program), Coldwater Fisheries Project Leader, Massachusetts Department of Fish and Game, Westborough, MA, October 25, 2021.

Kautza, Adam. "Re: Fall River in Farmington fish sample dates (SampleIDs 342 sometime in 1986 and 1698 sometime in 1990)." Email to Laurie Kennedy (MassDEP Watershed Planning Program), Coldwater Fisheries Project Leader, Massachusetts Department of Fish and Game, Westborough, MA, July 16, 2022.

MassDCR. "Excel spreadsheet of non-native aquatic and wetland species in Massacusetts lakes and ponds (entitled "MA Waterbodies July 2008 Robinson working") revised July 17, 2008." Working version corrected by MassDEP Division of Watershed Management staff Laurie Kennedy and Richard McVoy as of April 23, 2009, Lakes and Ponds Program, Massachusetts Department of Conservation and Recreation, Boston, MA, 2008.

MassDCR. "Massachusetts Dam Safety Program Database as of 16 May 2002." Dam Safety Program, Massachusetts Department of Conservation and Recreation, Boston, MA, 2002.

MassDEP. "Basis and rational for assessing and listing waters in the Farmington River Watershed pursuant to the requirements of sections 305(b), 314 and 303(d) of the Clean Water Act: 2016 Reporting Cycle." Farmington watershed data compendium, Watershed Planning Program, Division of Watershed Management, Massachusetts Department of Environmental Protection, Worcester, MA, 2018.

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 1.

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 2.

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 3.

MassDEP. "Open file analysis of MassDEP WPP benthic survey data (2011-2018) using 2022 CALM guidance." Watershed Planning Program, Massachusetts Department of Environmental Protection, Worcester, MA, Undated 4.

MassDEP. "Open file analysis of MassDEP WPP water quality data collected between 2011 and 2018 using 2022 CALM guidance." Division of Watershed Management, Massachusetts Department of Environmental Protection, Worcester, MA, Undated 5.

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 6.

MassDFG. Fish Community Data 1964-2019. Database submitted to MassDEP on 24 November 2020. Division of Fisheries and Wildlife, Massachusetts Department of Fish and Game. Westborough, MA, November 24, 2020.

MassDFG. Fish Population *Data 1998-2017.* Database. Prod. Division of Fisheries and Wildlife, Massachusetts Department of Fish and Game. Westborough, Massachusetts, 2018.

nationaldams.com. U.S. National Dams website. 2022. https://nationaldams.com/dams/hayden-pond-dam-3gy62y2 (accessed July 2022).