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

Appendix 26 Westfield River Basin Assessment and Listing Decision Summary

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Massachusetts Department of Environmental Protection

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

Watershed Planning Program

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

Disclaimer

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

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Notice of Availability

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

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2022 Cycle Impairment Changes

		2018/20				Impairment
		AU	2022 AU			Change
Waterbody	AU_ID	Category	Category	Impairment	ATTAINS Action ID	Summary
Abbott Brook	MA32-62	3	3	None		Unchanged
Arm Brook	MA32-58	3	5	Temperature		Added
Ashley Brook	MA32-37	5	5	Escherichia Coli (E. Coli)		Unchanged
Ashley Cutoff	MA32001	3	3	None		Unchanged
Ashley Pond	MA32002	3	4c	(Water Chestnut*)		Added
Austin Brook	MA32-70		3	None		Unchanged
Barry Brook	MA32-57	3	3	None		Unchanged
Bartlett Brook	MA32-50	2	2	None		Unchanged
Bedlam Brook	MA32-33	2	2	None		Unchanged
Billings Brook	MA32-69		2	None		Unchanged
Blair Brook	MA32-71		3	None		Unchanged
Blair Pond	MA32009	4c	4c	(Fanwort*)		Added
Blair Pond	MA32009	4c	4c	(Non-Native Aquatic Plants*)		Removed
Borden Brook	MA32011	3	3	None		Unchanged
Reservoir						
Bradley Brook	MA32-21	2	2	None		Unchanged
Bronson Brook	MA32-45	2	2	None		Unchanged
Buck Pond	MA32012	5	5	(Non-Native Aquatic Plants*)		Unchanged
Buck Pond	MA32012	5	5	Chlorophyll-a		Unchanged
Buck Pond	MA32012	5	5	Dissolved Oxygen		Unchanged
Buckley-Dunton	MA32013	4a	4a	Mercury in Fish Tissue	42411	Unchanged
Lake						
Bush Brook	MA32-56	3	3	None		Unchanged
Center Pond	MA32015	4c	4c	(Curly-leaf Pondweed*)		Added
Center Pond	MA32015	4c	4c	(Eurasian Water Milfoil,		Unchanged
				Myriophyllum Spicatum*)		
Clear Pond	MA32077	3	3	None		Unchanged
Cobble Mountain	MA32018	3	3	None		Unchanged
Reservoir						
Cone Brook	MA32-72		3	None		Unchanged
Congamond Lakes	MA32021	5	5	(Eurasian Water Milfoil,		Unchanged
				Myriophyllum Spicatum*)		
Congamond Lakes	MA32021	5	5	(Non-Native		Unchanged
				Fish/Shellfish/Zooplankton*)		
Congamond Lakes	MA32021	5	5	Dissolved Oxygen		Unchanged
Congamond Lakes	MA32021	5	5	Harmful Algal Blooms		Unchanged
Congamond Lakes	MA32022	5	5	(Eurasian Water Milfoil,		Unchanged
				Myriophyllum Spicatum*)		
Congamond Lakes	MA32022	5	5	Dissolved Oxygen		Unchanged
Congamond Lakes	MA32023	5	5	(Eurasian Water Milfoil,		Unchanged
				Myriophyllum Spicatum*)		
Congamond Lakes	MA32023	5	5	Dissolved Oxygen		Unchanged
Congamond Lakes	MA32023	5	5	Nutrient/Eutrophication		Unchanged
				Biological Indicators		
Connor Reservoir	MA32024	3	3	None		Unchanged
Cook Brook	MA32-38	3	3	None		Unchanged
Cooley Lake	MA32026	3	3	None		Unchanged

		2018/20				Impairment
		AU	2022 AU			Change
Waterbody	AU_ID	Category	Category	Impairment	ATTAINS Action ID	Summary
Crooked Pond	MA32028	3	3	None		Unchanged
Damon Pond	MA32029	3	5	Mercury in Fish Tissue		Added
Dead Branch	MA32-63	5	2	Lack of a Coldwater		Removed
(Brook)				Assemblage		
Depot Brook	MA32-17	2	2	None		Unchanged
Dickinson Brook	MA32-34	2	2	None		Unchanged
Factory Brook	MA32-42	2	2	None		Unchanged
Freeland Brook	MA32-73		2	None		Unchanged
Fuller Brook	MA32-64	2	2	None		Unchanged
Garnet Lake	MA32037	3	3	None		Unchanged
Geer Brook	MA32-43	3	3	None		Unchanged
Glendale Brook	MA32-10	2	2	None		Unchanged
Granville	MA32038	3	3	None		Unchanged
Reservoir						
Great Brook	MA32-25	2	5	Escherichia Coli (E. Coli)		Added
Great Brook	MA32-25	2	5	Temperature		Added
Hamilton Brook	MA32-74		3	None		Unchanged
Hammond Pond	MA32040	3	3	None		Unchanged
Hollister Brook	MA32-75		3	None		Unchanged
Horse Pond	MA32043	5	5	(Eurasian Water Milfoil,		Unchanged
				Myriophyllum Spicatum*)		
Horse Pond	MA32043	5	5	(Non-Native Aquatic Plants*)		Unchanged
Horse Pond	MA32043	5	5	Chlorophyll-a		Unchanged
Horse Pond	MA32043	5	5	Dissolved Oxygen		Unchanged
Hume Brook	MA32-76		3	None		Unchanged
Hundred Acre	MA32-77		2	None		Unchanged
Brook						
Jacks Brook	MA32-39	5	5	Escherichia Coli (E. Coli)		Unchanged
Kearnery Brook	MA32-46	2	2	None		Unchanged
Kellog Brook	MA32-55	3	3	None		Unchanged
Kinne Brook	MA32-32	2	2	None		Unchanged
Little River	MA32-08	5	5	Escherichia Coli (E. Coli)		Unchanged
Little River	MA32-08	5	5	Fecal Coliform		Unchanged
Little River	MA32-08	5	5	Temperature		Added
Little River	MA32-16	5	5	Temperature		Unchanged
Little River	MA32-35	3	3	None		Unchanged
Little River	MA32-36	5	5	Combined Biota/Habitat		Unchanged
				Bioassessments		
Little River	MA32-36	5	5	Escherichia Coli (E. Coli)		Unchanged
Little River	MA32-36	5	5	Temperature		Added
Littleville Lake	MA32046	3	3	None		Unchanged
Mclean Reservoir	MA32050	3	3	None		Unchanged
Meadow Brook	MA32-11	2	2	None		Unchanged
Mica Mill Brook	MA32-78		3	None		Unchanged
Middle Branch	MA32-03	2	2	None		Unchanged
Westfield River						, J
Middle Branch	MA32-65	5	5	Temperature		Unchanged
Westfield River						U U
Middle Branch	MA32-66	2	2	None		Unchanged
Westfield River						_

		2018/20				Impairment
		AU	2022 AU			Change
Waterbody	AU_ID	Category	Category	Impairment	ATTAINS Action ID	Summary
Mill Brook	MA32-49	2	2	None		Unchanged
Miller Brook	MA32-27	5	5	Escherichia Coli (E. Coli)		Unchanged
Mongue Meadow	MA32-79		3	None		Unchanged
Brook						
Moose Meadow	MA32-40	2	2	None		Unchanged
Brook						
Moose Meadow	MA32-41	5	5	Escherichia Coli (E. Coli)		Unchanged
Brook						
Moose Meadow	MA32-41	5	5	Fecal Coliform		Unchanged
Brook						
Munn Brook	MA32-59	2	5	Escherichia Coli (E. Coli)		Added
North Branch	MA32-54	2	2	None		Unchanged
Swift River			_			
North Railroad	MA32053	3	3	None		Unchanged
Pond		2	2			
Norwich Pond	MA32054	3	3	None		Unchanged
Otis Wait Brook	MA32-80		3	None		Unchanged
Paucatuck Brook	MA32-29	2	2	None		Unchanged
Pequot Pond	MA32055	5	5	(Curly-leaf Pondweed*)		Added
Pequot Pond	MA32055	5	5	(Eurasian Water Milfoil,		Unchanged
Doguet Dand				(Non Native Aquatic Plante*)		Linchangod
Pequot Pond	MA32055	5	5	(Non-Native Aquatic Plants*)		Unchanged
Pequot Pond	MA32055	5	5	(Water Chesthut)		Added
Pequot Pond	MA32055	5	5			Unchanged
Pequot Pond	MA32055	5	5	Enterococcus		Unchanged
Pequot Pond	MA32055	5	5	Phosphorus Total		Unchanged
Pixley Brook	MA32-81		3	None		Unchanged
Pond Brook	MA32-24	2	2	None		Unchanged
Pond Brook	MA32-44	2	2	None		Unchanged
Pond Brook	MA32-67		2	None		Unchanged
Potash Brook	MA32-22	5	5	Chloride		Added
Potash Brook	MA32-22	5	5	Escherichia Coli (E. Coli)		Unchanged
Potash Brook	MA32-22	5	5	Temperature		Added
Powdermill Brook	MA32-09	5	5	Algae		Unchanged
Powdermill Brook	MA32-09	5	5	Escherichia Coli (E. Coli)		Unchanged
Powdermill Brook	MA32-09	5	5	Sedimentation/Siltation		Unchanged
Powdermill Brook	MA32-09	5	5	Turbidity		Unchanged
Powell Brook	MA32-82		3	None		Unchanged
Roaring Brook	MA32-30	2	2	None		Unchanged
Roaring Brook	MA32-61	2	2	None		Unchanged
Robin Hood Lake	MA32057	3	3	None		Unchanged
Rudd Pond	MA32060	3	3	None		Unchanged
Russell Pond	MA32061	3	3	None		Unchanged
Sanderson Brook	MA32-31	2	2	None		Unchanged
Scout Pond	MA32063	3	3	None		Unchanged
Shaker Mill Brook	MA32-18	2	2	None		Unchanged
Shaw Brook	MA32-52	2	2	None		Unchanged
Skunk Brook	MA32-83		2	None		Unchanged
Sodum Brook	MA32-84		3	None		Unchanged

Waterbody	AU ID	2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
Stage Brook	MA32-60	2	2	None		Unchanged
Steep Bank Brook	MA32-53	3	2	None		Unchanged
Stones Brook	MA32-48	2	2	None		Unchanged
Swift River	MA32-12	2	2	None		Unchanged
Sykes Brook	MA32-85		3	None		Unchanged
Tannery Brook	MA32-86		3	None		Unchanged
Tower Brook	MA32-47	2	2	None		Unchanged
Walker Brook	MA32-20	2	2	None		Unchanged
Wards Stream	MA32-15	2	2	None		Unchanged
Watts Stream	MA32-14	2	3	None		Unchanged
Webster Brook	MA32-68		2	None		Unchanged
West Branch	MA32-01	2	2	None		Unchanged
Westfield River						
West Falls Branch	MA32-13	5	2	Temperature		Removed
Westfield Brook	MA32-51	2	2	None		Unchanged
Westfield	MA32074	3	3	None		Unchanged
Reservoir						
Westfield River	MA32-04	5	5	Enterococcus		Unchanged
Westfield River	MA32-04	5	5	Escherichia Coli (E. Coli)		Added
Westfield River	MA32-04	5	5	Temperature		Unchanged
Westfield River	MA32-05	2	2	None		Unchanged
Westfield River	MA32-06	2	2	None		Unchanged
Westfield River	MA32-07	2	2	None		Unchanged
White Brook	MA32-28	5	5	Escherichia Coli (E. Coli)		Unchanged
Whitmarsh Brook	MA32-87		3	None		Unchanged
Windsor Pond	MA32076	5	5	(Eurasian Water Milfoil,		Unchanged
				Myriophyllum Spicatum*)		
Windsor Pond	MA32076	5	5	Dissolved Oxygen		Unchanged
Windsor Pond	MA32076	5	5	Mercury in Fish Tissue	42410	Unchanged
Wright Pond	MA32078	3	3	None		Unchanged
Yokum Brook	MA32-19	2	2	None		Unchanged
Yokum Pond	MA32079	3	4c	(Eurasian Water Milfoil,		Added
				Myriophyllum Spicatum*)		

Abbott Brook (MA32-62)

Location:	Headwaters (perennial portion), north of Abbott Hill Road, Chester to mouth at confluence with West Branch Westfield River, Chester.
AU Type:	RIVER
AU Size:	2.5 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Abbott Brook (MA32-62) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Arm Brook (MA32-58)

Location:	Headwaters (perennial portion), south of Summit Lock Road, Westfield to inlet unnamed pond west of Barbara Street, Westfield.
AU Type:	RIVER
AU Size:	1.7 MILES
Classification/Qualifier:	B: CWF

ARM BROOK - MA32-58

Watershed Area: 2.56 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Stream Buffer
Land Use Area (square miles)	2.56	2.54	0.37	0.37
Agriculture	4.3%	4.3%	4.3%	4.3%
Developed	54.3%	54.7%	16.9%	16.9%
Natural	38.7%	38.2%	66.4%	66.4%
Wetland	2.8%	2.8%	12.4%	12.4%
Impervious	27.27%			

Cover

2018/20 AU	2022 AU			Impairment Change
Category	Category	Impairment	ATTAINS Action ID	Summary
3	5	Temperature		Added

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

Recommendations

2022 Recommendations

ALU: The health of the Arm Brook cold-water fish community needs to be reevaluated since it was last documented in 2001. The recommendation from the 2016 Westfield data repository (MassDEP Undated 7) to resample the fish community is being brought forward in light of significant development in the subwatershed and the new Temperature impairment identified in the 2022 IR cycle.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
MassDEP staff conducted limited water quality monitoring in Arm Brook approximately 75 feet downstre	am of Egleston
Road, Westfield (Station W2824) during summer 2018. A probe was deployed to record continuous temp	erature
measurements over 84 days in the summer index period. A total of 29 7DADMs exceeded 20.0 °C (maxim	um 7DADM was
22.5 °C) in this designated Cold Water Fishery, but the maximum 24-hour rolling average temperature wa	is acceptable at

, 22.6 °C.

The Aquatic Life Use of Arm Brook (MA32-58) is assessed as Not Supporting with a new impairment being added for Temperature. Continuous temperature data indicated chronic temperature exceedances of the Cold Water Fishery standard in this developed subwatershed (27% impervious cover) whose headwaters begin in a Zone II Wellhead Protection Area for the City of Westfield (MassGIS 2021). The health of the cold-water fish community needs to be reevaluated since it was last documented in 2001.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2824	MassDEP	Water	Arm Brook	[approximately 75 feet downstream of	42.160555	-72.731603
		Quality		Egleston Road, Westfield]		

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2824	06/20/18	09/11/18	84	78	22.3	25.2	22.5	21.3	29	0	1	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W2824	06/19/18	09/12/18	85	4032	22.6	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2824	07/31/18	09/12/18	2	2	18.2	17.9	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Arm Brook (MA32-58), so the Fish Consumption Use is No	t Assessed.

Fish toxics sampling has not been conducted in Arm Brook (MA32-58), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Arm Brook (MA32-58), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Arm Brook (MA32-58), so the Primary Contact Recreational Use is Not	Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Arm Brook (MA32-58), so the Secondary Contact Recreational Use is No	ot Assessed.

Ashley Brook (MA32-37)

Location:	Headwaters (perennial portion), south of Hillside Road, Westfield to mouth at confluence with Jacks Brook, Westfield.
AU Type:	RIVER
AU Size:	0.5 MILES
Classification/Qualifier:	B: CWF

Ashley Brook - MA32-37

Watershed Area: 1.08 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	1.08	1.08	0.26	0.26
Agriculture	8.4%	8.4%	15.7%	15.7%
Developed	41.9%	41.9%	27.7%	27.7%
Natural	46.2%	46.2%	44.4%	44.4%
Wetland	3.4%	3.4%	12.2%	12.2%
Impervious	11.45%			

Cover

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

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted limited water quality monitoring in Ashley Brook ~115 feet downstream of Hillside Road, Westfield during summer 2017 (Station W2751). A probe was deployed to measure dissolved oxygen (DO) for 76 days from late July through mid-October. The minimum DO during that time was 6.1 mg/L, which is acceptable for a designated Cold Water Fishery like Ashley Brook. Continuous temperature data were measured over 51 days in the summer index period. Four 7DADMs exceeded 20.0 °C (maximum 7DADM 20.3 °C) and the maximum 24-hour rolling average temperature was good at 19.5 °C. pH was measured once at 7.2 S.U. There were no indications of nutrient enrichment in the maximum DO diel shift (2.3 mg/L) or maximum DO saturation (84.7%). Specific conductance was measured twice with a maximum of 319 µs/cm.

Based on these limited water quality data, the Aquatic Life Use of Ashley Brook (MA32-37) is assessed as Fully Supporting.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2751	MassDEP	Water	Ashley Brook	[approximately 115 feet downstream of	42.102357	-72.772467
		Quality		Hillside Road, Westfield]		

Physico-chemical Water Quality Information

DO, pH, Temperature

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

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2751	07/27/17	10/11/17	76	64	47	6.1	7.1	7.6	2.3	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
14/2754			-			•		

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA	Count CWTier2 Daily Mean >24.1	Count WW 7DADM	Count WW Daily Mean >28.3
W2751	07/27/17	09/15/17	51	48	19.1	24.3	20.3	17.8	4	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2751	07/26/17	09/15/17	51	2418	19.5	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2751	09/06/17	10/12/17	2	1	16.1	15.0	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2751	09/06/17	10/12/17	1	7.2	7.2	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

······································											
						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2751	2017					2.3	0.9	84.7	7.2		

[Summer seasonal total phosphorus data collected May-Sept]

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2751	09/06/17	10/12/17	2	305	319	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 Ashley Brook (MA32-37), so the Fish Consumption Use is Not Assessed.			

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Ashley Brook (MA32-37), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert			
Not Supporting	NO			
2022 Use Attainment Summary				
No recent bacteria data are available for Ashley Brook (MA32-37), so the Primary Contact Recreational Use will remain				
assessed as Not Supporting with the prior Escherichia Coli (E. Coli) impairment being carried forward.				

Secondary Contact Recreation

2022 Use Attainment	Alert			
Not Assessed	NO			
2022 Use Attainment Summary				
No recent bacteria data are available for Ashley Brook (MA32-37), so the Secondary Contact Recreational Use is Not				
Assessed.				

Ashley Cutoff (MA32001)

Location:	Holyoke.
AU Type:	FRESHWATER LAKE
AU Size:	31 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Ashley Cutoff (MA32001) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Ashley Pond (MA32002)

Location:	Holyoke.
AU Type:	FRESHWATER LAKE
AU Size:	133 ACRES
Classification/Qualifier:	A: PWS, ORW

2018/20 AU	2022 AU			Impairment Change
Category	Category	Impairment	ATTAINS Action ID	Summary
3	4c	(Water Chestnut*)		Added

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert			
Not Supporting	NO			
2022 Use Attainment Summary				

In 2013, USFWS staff observed an infestation of the non-native aquatic macrophyte, water chestnut (*Trapa natans*), in Ashley Pond and made a report on the USGS Nonindigenous Aquatic Species website which informs the MassDEP Freshwater Aquatic Invasive Species database.

The Aquatic Life Use of Ashley Pond (MA32002) is assessed as Not Supporting with a new impairment being added for the non-native aquatic macrophyte Water Chestnut.

Biological Monitoring Information

Non-native Aquatic Species Presence

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

Summary Statement

In 2013, USFWS staff observed an infestation of the non-native aquatic macrophyte, water chestnut (*Trapa natans*), in Ashley Pond and made a report on the USGS Nonindigenous Aquatic Species website which informs the MassDEP Freshwater Aquatic Invasive Species database.

Fish Consumption

2022 Use Attainment

Not Assessed	NO

2022 Use Attainment Summary

Fish toxics sampling has not been conducted in Ashley Pond (MA32002), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Ashley Pond (MA32002), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert		
Not Assessed	NO		
2022 Use Attainment Summary			
No bacteria data are available for Ashley Pond (MA32002), so the Primary Contact Recreational Use is Not Assessed.			

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No bacteria data are available for Ashley Pond (MA32002), so the Secondary Contact Recreational Use is Not Assessed.

Austin Brook (MA32-70)

Location:	Perennial portion, from outlet of Chester Water Works Dam (NATID# MA02644) west of Route 20, Chester to mouth at confluence with Walker Brook, Chester.
AU Type:	RIVER
AU Size:	0.5 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Austin Brook (MA32-70) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Barry Brook (MA32-57)

Location:	Headwaters, outlet Snake Pond, Holyoke to mouth at confluence with Trask Brook (forming headwaters Bush Brook), Westfield.
AU Type:	RIVER
AU Size:	2.6 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Barry Brook (MA32-57) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Bartlett Brook (MA32-50)

Location:	Headwaters (perennial portion), between Mountain and Prospect streets, Plainfield to mouth at confluence with Westfield River, Cummington.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Bartlett Brook (MA32-50) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Bedlam Brook (MA32-33)

Location:	Headwaters (perennial portion), north of Blandford Road, Blandford to mouth at confluence with Peebles Brook, Blandford.
AU Type:	RIVER
AU Size:	2.8 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Bedlam Brook (MA32-33) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Proximal

Stream Buffer

0.45

13.2%

2.1%

72.7%

12%

Billings Brook (MA32-69)

Location:	Headwaters west of Plainfield Road, Hawley to mouth at confluence with Swift River, Ashfield.
AU Type:	RIVER
AU Size:	1.6 MILES
Classification/Qualifier:	В

Billings Brook - MA32-69

Watershed Area: 2.04 square miles



Percent Wetland

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

Recommendations

2022 Recommendations
ALU: Data evaluated as part of the 2022 IR cycle indicates that consideration should be given to designating Billings
Brook (MA32-69) as a Coldwater Fishery in the next update of the MA SWQS.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted fish (Sample ID 5019), benthic (B0781), and water quality (W2243) surveys of Billings Brook in the summer of 2012 in Plainfield roughly 1600 ft downstream of the Plainfield Rd/North St crossing (which is just north in Hawley) as part of the MAP2 Wadeable Stream Probabilistic Monitoring Project. Although Billings Brook is not a designated Cold Water Fishery in the MA SWQS, it is mapped by MassDFG as a Cold-Water Fishery Resource (CFR) and has a Tier 1 Cold-Water Existing Use. The sample (n=182) collected in August was comprised of 41% cold-water individuals, including 43 Eastern brook trout ≤140 mm in length (multiple age classes were present). Eastern brook trout are considered to be indicative of excellent water quality conditions. Furthermore, the July benthic sample had an IBI score of 84, indicating excellent conditions for a high gradient stream in the Western Highlands region. A probe was deployed to measure dissolved oxygen (DO) for a total of 11 days (as three short-term deploys) and the minimum DO was 8.5 mg/L. Continuous temperature was measured over 107 days in the summer index period with a maximum of 19.6 °C, also indicating excellent conditions for a cold-water stream. Other water quality indicators are summarized as follows and were generally indicative of good conditions: pH ranged from 6.6-7.0 S.U. (n=3), there was no indication of nutrient enrichment (total phosphorus seasonal average was 0.011 mg/L with n=5, maximum DO diel shift was 0.7 mg/L, maximum DO saturation was 93.1%, there were no observations of excessive filamentous algae during six site visits), there were no exceedances among three clean metals samples or three aluminum samples (because dissolved Al data were compared to the total recoverable Al criteria, exceedances cannot be ruled out, however), and the maximum total ammonia nitrogen (TAN) was low (0.020 mg/L, n=5). Among five chloride samples, the maximum was only 3 mg/L. Similarly, the maximum specific conductance was 59 μ s/cm (n=3).

The Aquatic Life Use of Billings Brook (MA32-69) is assessed as Fully Supporting based on the biological and physicochemical data collected during the summer of 2012 indicating excellent habitat and water quality conditions. This stream should be protected as a Tier 1 Existing Use Cold Water Fishery.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5019	MassDEP	Fish	Billings	0.3mi DS of Plainfield Rd/North St	42.54141	-72.88420
		Community	Brook			
B0781	MassDEP	Benthic	Billings	[approximately 490 meters downstream of	42.541412	-72.884200
			Brook/	Plainfield Road, Hawley/Grant Street,		
				Plainfield, MA]		
W2243	MassDEP	Water	Billings	[approximately 1600 feet downstream of	42.541412	-72.884200
		Quality	Brook	Plainfield Road, Hawley/Grant Street,		
				Plainfield]		

Biological Monitoring Information

Benthic Macroinvertebrate Data

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

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

Station	Collection	Collection	Index Type	Organism	Index	Index Biological	
Code	Date	Method		Count	Score	Condition Class	
B0781	07/24/12	RBP kicknet	Western_Highlands_100ct	110	84	E	

Fish Community Data and DELTS

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

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

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	
5019	08/21/12	BP	TP	3	182	74	46	150	43	0	41%	100%	No	Yes	BND, CRC, EBT,	

[Species List: BND = Blacknose Dace, CRC = Creek Chub, EBT = Brook Trout]

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Note: Most deploys 3-5 days in length; Day Count= total # of days over all deploys; XDADMin= 3-5 Day Average of the Daily Minima, XDADA= 3-5 Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2243	2012	3	11	8.5	8.6	8.8	0.7	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Data	Count	lma(1)	(ma/1)		<f 0<="" th=""><th>Stages (1.0</th></f>	Stages (1.0
Coue	Start Date	Enu Date	Count	(1118/L)	(1118/ L)	CVV <5.0	<5.0	Stages <4.0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2243	06/01/12	09/15/12	107	107	18.5	19.6	18.0	17.1	0	0	0	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2243	2012	3	11	15.4	16.9	15.7	15.0	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2243	06/01/12	09/15/12	107	5136	18.5	0	0	0
W2243	06/21/12	08/27/12	67	530	15.8	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2243	05/17/12	09/20/12	5	3	14.7	12.9	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2243	05/17/12	09/20/12	3	6.6	7	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2243	2012	5	0.007	0.020	0.011	0.7	0.5	93.1	7.0	6	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

Station	Data	Metals	As CMC	Cd CMC	Cr III CMC	Cu CMC	Pb CMC	Ni CMC	Ag CMC	Zn CMC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2243	2012	3	0	0	0	0	0	0	0	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CCC	Cd CCC	Cr III CCC	Cu CCC	Pb CCC	Ni CCC	Se CCC	Zn CCC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2243	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Dissolved	Al Min	Al Max	Al Avg	Al CMC	Al CCC	Al CMC	Al CCC
Code	Year	Al Count	(mg/L)	(mg/L)	(mg/L)	TU Max	TU Max	TU >1	TU >1
W2243	2012	3	0.010	0.01	0.010	0.0	0.1	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [TAN= NH3 + NH4+]

Station	Data	TAN	TAN Min	TAN Max	TAN Avg	Count TAN	Count TAN
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	>Chronic	>Acute
W2243	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
W2243	2012	5	2	3	3	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

SpCond Count Count SpCond Count SpCond ount SpCond Count SpCond Station Code SpCond Max SpCond Min Consecutive Consecutive Start Date Date iets >904 sets >994 μs/cm) μs/cm) >3512 >3193 904 -994 End 05/17/12 09/20/12 W2243 3 46 59 0 0 0 0 0 0

Fish Consumption

Not Assessed NO	
2022 Use Attainment Summary	

Fish toxics sampling has not been conducted in Billings Brook (MA32-69), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff conducted water quality (W2243) surveys of Billings Brook during the summer of 2012 in F	lainfield
roughly 1600 ft downstream of the Plainfield Rd/North St crossing (which is just north in Hawley). There	were generally
no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded during any of the site	visits (n=6).

Based on this information, the Aesthetics Use of Billings Brook (MA32-69) is assessed as Fully Supporting.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2243	MassDEP	Water	Billings Brook	[approximately 1600 feet downstream of Plainfield	42.541412	-72.884200
		Quality		Road, Hawley/Grant Street, Plainfield]		

Aesthetic Observations

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

			Field	
Station		Data	Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W2243	Billings Brook	2012	6	MassDEP aesthetics observations for station W2243/MAP2-163 on Billings
				Brook can be summarized as follows: there were generally no noted
				objectionable conditions (odors, deposits, growths, or turbidity) recorded
				by DEP field sampling crews during summer 2012.

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

			Field Sheet Count w/ Film &	
Station			Filamentous Algae	Dense/ Very Dense
Code	Data Year	Field Sheet Count	Observations	Film/ Filamentous Algae
W2243	2012	6	6	0

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

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2243	Billings Brook	2012	Color	None	6	6
W2243	Billings Brook	2012	Objectionable Deposits	No	6	6
W2243	Billings Brook	2012	Odor	None	6	6
W2243	Billings Brook	2012	Scum	No	6	6
W2243	Billings Brook	2012	Turbidity	None	6	6

Primary Contact Recreation

2022 Use Attainment	Alert				
Fully Supporting	NO				
2022 Use Attainment Summary					
MassDEP staff conducted water quality (W2243) surveys of Billings Brook in Plainfield roughly 1600 ft downstream of the					
Plainfield Rd/North St crossing (which is just north in Hawley) during summer 2012. There were generally	no noted				

objectionable conditions (odors, deposits, growths, or turbidity) recorded. *E. coli* bacteria samples were collected during these site visits (n=6). Analysis of this limited frequency data indicated that none of the intervals had GMs exceeding 126 cfu/100mL and no samples exceeded the 410 cfu/100mL STV. The seasonal GM was very low at 13 cfu/100mL. Based on this data/information, the Primary Contact Recreational Use of Billings Brook (MA32-69) is assessed as Fully Supporting.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2243	MassDEP	Water Quality	Billings Brook	[approximately 1600 feet downstream of Plainfield Road, Hawley/Grant Street, Plainfield]	42.541412	-72.884200

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
					Sample	Sample	Sample	Geometric
Station Code	Organization	Indicator	Start Date	End Date	Count	Result	Result	Mean
W2243	MassDEP	E. coli	05/17/12	09/20/12	6	1	88	13

W2243 E. coli (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	13
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

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



Secondary Contact Recreation

2022 Use Attainment	Alert				
Fully Supporting	NO				
2022 Lise Attainment Summary					

MassDEP staff conducted water quality (W2243) surveys of Billings Brook in Plainfield roughly 1600 ft downstream of the Plainfield Rd/North St crossing (which is just north in Hawley) during summer 2012. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded. *E. coli* bacteria samples were collected during these site visits (n=6). Analysis of this limited frequency data indicated that none of the intervals had GMs exceeding 630 cfu/100mL and no samples exceeded the 1260 cfu/100mL STV. The seasonal GM was very low at 13 cfu/100mL. Based on this data/information, the Secondary Contact Recreational Use of Billings Brook (MA32-69) is assessed as Fully Supporting.

Monitoring Stations
Station	0	T	Mater Dade			I a constitue da
Code	Organization	туре	water Body	Station Description	Latitude	Longitude
W2243	MassDEP	Water	Billings Brook	[approximately 1600 feet downstream of Plainfield	42.541412	-72.884200
		Quality		Road, Hawley/Grant Street, Plainfield]		

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
						Sample	Sample	Geometric
						Result	Result	Mean
						(CFU/100ml	(CFU/100ml	(CFU/100ml
					Sample	or	or	or
Station Code	Organization	Indicator	Start Date	End Date	Count	MPN/100ml)	MPN/100ml)	MPN/100ml)
W2243	MassDEP	E. coli	05/17/12	09/20/12	6	1	88	13

W2243 E. coli (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	13
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

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



Blair Brook (MA32-71)

Location:	Headwaters, outlet Round Hill Pond, west of Round Hill Road, Chester in the Chester State Wildlife Management Area, to mouth at confluence with West Branch Westfield River, Chester.
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Blair Brook (MA32-71) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Blair Pond (MA32009)

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

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

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

Supporting Information for Removed Impairments

2018/20 Removed		
Impairment	Removal Reason	Removal Comment
Non-Native Aquatic Plants	Clarification of listing cause	The generic Non-Native Aquatic Plants impairment is being removed for Blair Pond (MA32009) and replaced with the
		specific Fanwort impairment.

Non-Native Aquatic Plants

MassDEP staff identified an infestation of the non-native aquatic macrophyte, fanwort (*Cabomba caroliniana*), in Blair Pond during an August 1996 synoptic survey. The generic Non-Native Aquatic Plants impairment is being removed and replaced with the specific Fanwort impairment.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert			
Not Supporting	NO			
2022 Use Attainment Summary				
As was previously reported, MassDEP staff identified an infestation of the non-native aquatic macrophyte, fanwort				
(Cabomba caroliniana), in Blair Pond during an August 1996 synoptic survey.				
The Aquatic Life Use of Blair Pond (MA32009) continues to be assessed as Not Supporting. The generic Non-Native				
Aquatic Plants impairment is being removed and replaced with the specific Fanwort impairment.				

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1996)

Summary Statement

As was previously reported, MassDEP staff identified an infestation of the non-native aquatic macrophyte, fanwort (*Cabomba caroliniana*), in Blair Pond during an August 1996 synoptic survey.

Fish Consumption

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
Fish toxics sampling has not been conducted in Blair Pond (MA32009), so the Fish Consumption Use is No	t Assessed.				

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Blair Pond (MA32009), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Blair Pond (MA32009), so the Primary Contact Recreational Use is Not	Assessed.

Secondary Contact Recreation

2022 Use Attainment					
Not Assessed	NO				
2022 Use Attainment Summary					

No bacteria data are available for Blair Pond (MA32009), so the Secondary Contact Recreational Use is Not Assessed.

Borden Brook Reservoir (MA32011)

Location:	Granville/Blandford.
AU Type:	FRESHWATER LAKE
AU Size:	211 ACRES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Borden Brook Reservoir (MA32011) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Bradley Brook (MA32-21)

Location:	Headwaters, confluence Black and Stage brooks, Russell to mouth at confluence with Westfield River, Russell.
AU Type:	RIVER
AU Size:	0.7 MILES
Classification/Qualifier:	В

No usable data were available for Bradley Brook (MA32-21) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Bronson Brook (MA32-45)

Location:	Headwaters, north of Trouble Road, Cummington to mouth at confluence with West Falls Branch, Worthington. (formerly identified by the Massachusetts Stream Classification Program as West Branch).
АU Туре:	RIVER
AU Size:	4.2 MILES
Classification/Qualifier:	B: CWF

BRONSON BROOK - MA32-45

Percent Natural

Percent Wetland

Watershed Area: 10.07 square miles



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

Percent A griculture

Percent Developed

2022 Use Attainment					
Fully Supporting	NO				
2022 Use Attainment Summary					

MassDFG biologists conducted backpack electrofishing in Bronson Brook, a designated Cold Water Fishery, downstream of the Cummington Rd/Dingle Rd/Rt 112 junction in Worthington (Sample ID 7627) and near the midway point of Capen St in Worthington (Sample ID 7618). The July 2018 samples (n= 85 & 49) were dominated by fluvial fish (totaling ≥99% of the samples) and were comprised of 89 and 41% cold-water individuals, including multiple age classes of Eastern brook trout (many ≤140 mm in length).

The Aquatic Life Use of Bronson Brook (MA32-45) is assessed as Fully Supporting based on the presence of multiple age classes of Eastern brook trout in two July 2018 samples- this species is indicative of excellent habitat and water quality conditions.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
7618	MassDFG	Fish	Bronson	Midway down Caper Rd. , Worthington	42.42266	-72.91861
		Community	Brook			
7627	MassDFG	Fish	Bronson	Downstream of Dingle Rd.(?)/112 junction ,	42.43801	-72.93882
		Community	Brook	Worthington		

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: BND = Blacknose Dace, EBT = Brook Trout, 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
7618	07/24/18	BP	TP	2	49	20	51	167	15	0	41%	100%	Yes	Yes	BND, EBT,
7627	07/24/18	BP	TP	3	85	76	49	186	61	0	89%	99%	No	Yes	BND, EBT, GS,

Fish Consumption

2022 Use Attainment					
Not Assessed	NO				
2022 Use Attainment Summary					

Fish toxics sampling has not been conducted in Bronson Brook (MA32-45), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Bronson Brook (MA32-45) so the Aesthetics Use is Not Assessed	

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Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Bronson Brook (MA32-45), so the Primary Contact Recreational Use is N	Not Assessed.

Secondary Contact Recreation

2022 Use Attainment

Alert

Not Assessed

NO

2022 Use Attainment Summary

No bacteria data are available for Bronson Brook (MA32-45), so the Secondary Contact Recreational Use is Not Assessed.

Buck Pond (MA32012)

Location:	Westfield.
AU Type:	FRESHWATER LAKE
AU Size:	23 ACRES
Classification/Qualifier:	В

No usable data were available for Buck Pond (MA32012) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, 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	(Non-Native Aquatic Plants*)		Unchanged
5	5	Chlorophyll-a		Unchanged
5	5	Dissolved Oxygen		Unchanged

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

Buckley-Dunton Lake (MA32013)

Location:	Becket.
AU Type:	FRESHWATER LAKE
AU Size:	154 ACRES
Classification/Qualifier:	В

				Impairment
2018/20 AU	2022 AU			Change
Category	Category	Impairment	ATTAINS Action ID	Summary
4a	4a	Mercury in Fish Tissue	42411	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)		Х			
Mercury in Fish Tissue	Source Unknown (N)		Х			

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available, so the Aguatic Life Use of Buckley-Dunton Lake (MA32013) is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MassDEP biologists conducted fish toxics sampling at Buckley-Dunton Lake in June 2016 as part of the probabilistic lake surveys (MAP2). Edible fillets were analyzed for the presence of mercury, metals, and organochlorine pesticides. MassDPH advisories recommend that "Children younger than 12 years or age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers should not eat any fish from this water body" and "The general public should not consume any of the affected fish species (largemouth bass) from this water body."

The Fish Consumption Use for Buckley-Dunton Lake (MA32013) will continue to be assessed as Not Supporting with the Mercury in Fish Tissue impairment being carried forward.

MassDEP fish toxics sampling information (2018-2020) and MassDPH Fish Consumption Advisory information (2019-2021) (MassDPH 2019, MassDEP 2016, MassDEP Undated 8)

MassDEP biologists conducted fish toxics sampling at Buckley Dunton Lake in June 2016 as part of the probabilistic lake surveys (MAP2). Edible fillets were analyzed for the presence of mercury, metals, and organochlorine pesticides. Since no change to the prior site-specific mercury advisory was made, the Fish Consumption Use for Buckley Dunton Lake (MA32013) will continue to be assessed as Not Supporting.

Aesthetic

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	

Cyanobacteria Harmful Algal Bloom (C-HAB) postings for Buckley-Dunton Lake (MA32013) were reported to MassDPH for 26 days in 2016. Since no blooms were reported in recent years, an impairment decision is not appropriate at this time. Too limited data are available to evaluate the Aesthetics Use of Buckley-Dunton Lake (MA32013), so it is assessed as having Insufficient Information. An Alert is being identified for C-HABs.

Algal Bloom Information

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

C-HAB Summary Statement

C-HAB postings for Buckley Dunton Lake (MA32013) were reported to MassDPH for 26 days in 2016. Since no blooms were reported in recent years, an impairment decision will not be made at this time. However, an Alert is identified for C-HABs.

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

		Bloom	Bloom	Bloom	Bloom	Bloom	# Years with	>1
Waterbody	Sample Analysis Used in Issuing Advisory	Days, 2015	Days, 2016	Days, 2017	Days, 2018	Days, 2019	>20 Days of Closure	Posting Per Year
Buckley Dunton	Not issued or confirmed		26				1	no
Lake	by sampling							

Primary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	

Cyanobacteria Harmful Algal Bloom (C-HAB) postings for Buckley-Dunton Lake (MA32013) were reported to MassDPH for 26 days in 2016. Since no blooms were reported in recent years, an impairment decision is not appropriate at this time. Too limited data are available to evaluate the Primary Contact Recreational Use of Buckley-Dunton Lake (MA32013), so it is assessed as having Insufficient Information. An Alert is being identified for C-HABs.

Secondary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Lice Attainment Summany	

Cyanobacteria Harmful Algal Bloom (C-HAB) postings for Buckley-Dunton Lake (MA32013) were reported to MassDPH for 26 days in 2016. Since no blooms were reported in recent years, an impairment decision is not appropriate at this time. Too limited data are available to evaluate the Secondary Contact Recreational Use of Buckley-Dunton Lake (MA32013), so it is assessed as having Insufficient Information. An Alert is being identified for C-HABs.

Bush Brook (MA32-56)

Location:	Headwaters, confluence of Barry and Trask brooks, east of Sherwood Avenue, Westfield to mouth at confluence with Pond Brook, Westfield.
AU Type:	RIVER
AU Size:	0.7 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Bush Brook (MA32-56) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Center Pond (MA32015)

Location:	Becket.
AU Type:	FRESHWATER LAKE
AU Size:	114 ACRES
Classification/Qualifier:	В

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

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
In 2003, MassDCR Lakes and Ponds staff noted infestations of the non-native aquatic macrophytes, Euras	ian water
milfoil (Myriophyllum spicatum) and curly-leaf pondweed (Potamogeton crispus), in Center Pond.	
The Aquatic Life Use of Center Pond (MA32015) will continue to be assessed as Not Supporting. The prior	impairment for
"Eurasian Water Milfoil, Myriophyllum Spicatum" is being carried forward and a new impairment is being	added for
Curly-leaf Pondweed.	

Biological Monitoring Information

Non-native Aquatic Species Presence

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

Summary Statement

In 2003, MassDCR Lakes and Ponds staff noted infestations of the non-native aquatic macrophytes, Eurasian water milfoil (*Myriophyllum spicatum*) and curly-leaf pondweed (*Potamogeton crispus*), in Center Pond.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent fish toxics sampling has been conducted in Center Pond (MA32015) and since there is no site-s	pecific advisory,
the Fish Consumption Use is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Center Pond (MA32015), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Center Pond (MA32015), so the Primary Contact Recreational Use is No	ot Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Center Pond (MA32015), so the Secondary Contact Recreational Use is	Not Assessed.

Clear Pond (MA32077)

Location:	Holyoke.
AU Type:	FRESHWATER LAKE
AU Size:	10 ACRES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Clear Pond (MA32077) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Cobble Mountain Reservoir (MA32018)

Location:	Blandford/Granville/Russell.		
AU Type:	FRESHWATER LAKE		
AU Size:	1034 ACRES		
Classification/Qualifier:	A: PWS, ORW		

No usable data were available for Cobble Mountain Reservoir (MA32018) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Cone Brook (MA32-72)

Location:	Headwaters, perennial portion, west of Curtin Road, Peru to mouth at confluence with			
	Tuttle Brook, Peru.			
AU Type:	RIVER			
AU Size:	1 MILES			
Classification/Qualifier:	A: PWS, ORW, CWF (Tributary)			

No usable data were available for Cone Brook (MA32-72) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Congamond Lakes (MA32021)

Location:	[Middle Basin] Southwick.		
AU Type:	FRESHWATER LAKE		
AU Size:	279 ACRES		
Classification/Qualifier:	В		

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Eurasian Water Milfoil, Myriophyllum		Unchanged
		Spicatum*)		
5	5	(Non-Native Fish/Shellfish/Zooplankton*)		Unchanged
5	5	Dissolved Oxygen		Unchanged
5	5	Harmful Algal Blooms		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Eurasian Water Milfoil, Myriophyllum	Introduction of Non-native Organisms	Х				
Spicatum*)	(Accidental or Intentional) (Y)					
(Non-Native Fish/Shellfish/Zooplankton*)	Introduction of Non-native Organisms	Х				
	(Accidental or Intentional) (Y)					
Dissolved Oxygen	Source Unknown (N)	Х				
Harmful Algal Blooms	Discharges from Municipal Separate Storm			Х	Х	Х
	Sewer Systems (MS4) (N)					
Harmful Algal Blooms	Source Unknown (N)			Х	Х	Х

Recommendations

2022 Recommendations

ALU: A qualified state agency/taxonomist should confirm the presence of the non-native aquatic macrophyte, curly-leaf pondweed (*Potamogeton crispus*), and live specimens of the non-native invertebrate, Asian clam (*Corbicula fluminea*), in the Congamond Lakes (Middle Basin).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	

A non-native aquatic macrophyte, curly-leaf pondweed (*Potamogeton crispus*), has been listed yearly on herbicide permit applications from 2005-2016 for the Congamond Lakes (of which this Middle Basin AU, MA32021, is one basin); the presence of this species should be confirmed by DEP biologists. Additionally, the MassDCR database of non-native species observations includes a record of Asian clam (*Corbicula fluminea*) in the Middle Basin (this was previously listed as an impairment in the 2016 IR cycle (MassDEP Undated 7)); the presence of live specimens should be confirmed by a qualified taxonomist.

The Aquatic Life Use of this Congamond Lakes [Middle Basin] AU (MA32021) is assessed as Not Supporting. The prior Dissolved Oxygen, "Eurasian Water Milfoil, Myriophyllum Spicatum", and Non-Native Fish/Shellfish/Zooplankton impairments are all being carried forward. An Alert is being identified due to a potential infestation of *P. crispus*.

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1996) (MassDEP 2017) (MassDCR 2008)

Summary Statement	Assessment Recommendation
As was previously noted, MassDEP staff identified an infestation of the non-native	Conduct an aquatic macrophyte
aquatic macrophyte, Eurasian water milfoil (Myriophyllum spicatum), in the	survey to confirm whether
Congamond Lakes Middle Basin during an August 1996 synoptic survey. Another	Potamogeton crispus is present in
non-native, curly-leaf pondweed (Potamogeton crispus), has been listed yearly on	the Congamond Lakes Middle
herbicide permit applications for the Congamond Lakes from 2005-2016; the	Basin and also collect voucher
presence of this species should be confirmed by DEP biologists. The DCR database	specimens of live Corbicula
of non-native species observations includes a record of Asian clam (Corbicula	<i>fluminea</i> (Asian clam).
<i>fluminea</i>) in the Middle Basin; the presence of live specimens should be confirmed	
by DEP biologists. An Alert status should be applied to this AU due to potential	
infestations of both P. crispus and C. fluminea.	

Herbicide Permit Application Records for Congamond Lakes (MassDEP 2017):

		AQUATIC CONTROL		CURLYLEAF	MICROSCOPIC
CONGAMOND LAKE	5/4/2010	TECHNOLOGY, INC.	EURASIAN MILFOIL	PONDWEED	ALGAE
		AQUATIC CONTROL			MICROSCOPIC
CONGAMOND LAKES	4/29/2005	TECHNOLOGY, INC.	M. SPICATUM	P. CRISPUS	ALGAE
		AQUATIC CONTROL			MICROSCOPIC
CONGAMOND LAKES	4/24/2006	TECHNOLOGY, INC.	M. SPICATUM	P. CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	3/12/2007	TECHNOLOGY, INC.	SPICATI	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	3/11/2008	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	3/12/2009	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	3/21/2011	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	2/28/2012	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	4/29/2013	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	EURASIAN	MICROSCOPIC	CURLYLEAF
CONGAMOND LAKES	4/15/2014	TECHNOLOGY, INC.	WATERMILFOI	ALGAE	PONDWEED
		AQUATIC CONTROL	EURASIAN	MICROSCOPIC	CURLYLEAF
CONGAMOND LAKES	4/28/2015	TECHNOLOGY, INC.	WATERMILFOI	ALGAE	PONDWEED
		SOLITUDE LAKE	EURASIAN	MICROSCOPIC	CURLYLEAF
CONGAMOND LAKES	4/1/2016	MANAGEMENT, LLC	WATERMILFOI	ALGAE	PONDWEED
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKE - NORTH	6/18/1998	TECHNOLOGY, INC.	ALGAE		
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKES	7/26/1999	TECHNOLOGY, INC.	ALGAE		
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKES	4/12/2001	TECHNOLOGY, INC.	ALGAE		
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKES	4/17/2002	TECHNOLOGY, INC.	ALGAE	M. SPICATUM	
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKES	5/1/2003	TECHNOLOGY, INC.	ALGAE	EURASIAN MILFOIL	
		AQUATIC CONTROL		CURLYLEAF	MICROSCOPIC
CONGOMOND LAKES	5/3/2004	TECHNOLOGY, INC.	EURASIAN MILFOIL	PONDWEED	ALGAE

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

Fish toxics sampling has not been conducted recently in this Congamond Lakes [Middle Basin] AU (MA32021) and since there is no site-specific advisory, the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert	
Not Supporting	NO	
2022 Use Attainment Summary		
No new data are available for this Congamond Lakes [Middle Basin] AU (MA32021), so the Aesthetics Use will continue		

to be assessed as Not Supporting with the prior Harmful Algal Blooms impairment being carried forward.

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No new data are available for this Congamond Lakes [Middle Basin] AU (MA32021), so the Primary Conta	ct Recreational
Use will continue to be assessed as Not Supporting with the prior Harmful Algal Blooms impairment being	g carried
forward.	

Secondary Contact Recreation

2022 Use Attainment	Alert	
Not Supporting	NO	
2022 Use Attainment Summary		
No new data are available for this Congamond Lakes [Middle Basin] AU (MA32021), so the Secondary Contact		
Recreational Use will continue to be assessed as Not Supporting with the prior Harmful Algal Blooms impairment being		
carried forward.		

Congamond Lakes (MA32022)

Location:	[North Basin] Southwick.
AU Type:	FRESHWATER LAKE
AU Size:	46 ACRES
Classification/Qualifier:	В

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Eurasian Water Milfoil, Myriophyllum		Unchanged
		Spicatum*)		
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	Introduction of Non-native Organisms	Х				
Spicatum*)	(Accidental or Intentional) (Y)					
Dissolved Oxygen	Source Unknown (N)	Х				

Recommendations

2022 Recommendations
ALU: A qualified state agency/taxonomist should confirm the presence of the non-native aquatic macrophyte, curly-leaf
pondweed (Potamogeton crispus), and live specimens of the non-native invertebrate, Asian clam (Corbicula fluminea), in
the Congamond Lakes (North Basin).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES

2022 Use Attainment Summary

A non-native aquatic macrophyte, curly-leaf pondweed (*Potamogeton crispus*), has been listed yearly on herbicide permit applications from 2005-2016 for the Congamond Lakes (of which this North Basin AU, MA32022, is one basin); the presence of this species should be confirmed by DEP biologists. Additionally, the MassDCR database of non-native species observations includes a record of Asian clam (*Corbicula fluminea*) in the North Basin; the presence of live specimens should be confirmed by a qualified taxonomist.

The Aquatic Life Use of this Congamond Lakes [North Basin] AU (MA32022) is assessed as Not Supporting. The prior Dissolved Oxygen and "Eurasian Water Milfoil, Myriophyllum Spicatum" impairments are both being carried forward. An Alert is being identified due to potential infestations of both *P. crispus* and *C. fluminea*.

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1996) (MassDEP 2017) (MassDCR 2008)

Summary Statement	Assessment Recommendation
As was previously noted, MassDEP staff identified an infestation of the non-native	Conduct an aquatic
aquatic macrophyte, Eurasian water milfoil (Myriophyllum spicatum), in the	macrophyte survey to confirm
Congamond Lakes North Basin during an August 1996 synoptic survey. Another non-	whether Potamogeton crispus
native, curly-leaf pondweed (Potamogeton crispus), has been listed yearly on herbicide	is present in the Congamond
permit applications for the Congamond Lakes from 2005-2016; the presence of this	Lakes North Basin and also
species should be confirmed by DEP biologists. The DCR database of non-native	collect voucher specimens of
species observations includes a record of Asian clam (Corbicula fluminea) in the North	live <i>Corbicula fluminea</i> (Asian
Basin; the presence of live specimens should be confirmed by DEP biologists. An Alert	clam).
status should be applied to this AU due to potential infestations of both <i>P. crispus</i> and	
C. fluminea.	

Herbicide Permit Application Records for Congamond Lakes (MassDEP 2017):

		-			
		AQUATIC CONTROL		CURLYLEAF	MICROSCOPIC
CONGAMOND LAKE	5/4/2010	TECHNOLOGY, INC.	EURASIAN MILFOIL	PONDWEED	ALGAE
		AQUATIC CONTROL			MICROSCOPIC
CONGAMOND LAKES	4/29/2005	TECHNOLOGY, INC.	M. SPICATUM	P. CRISPUS	ALGAE
		AQUATIC CONTROL			MICROSCOPIC
CONGAMOND LAKES	4/24/2006	TECHNOLOGY, INC.	M. SPICATUM	P. CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	3/12/2007	TECHNOLOGY, INC.	SPICATI	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	3/11/2008	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	3/12/2009	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	3/21/2011	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	2/28/2012	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	4/29/2013	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	EURASIAN	MICROSCOPIC	CURLYLEAF
CONGAMOND LAKES	4/15/2014	TECHNOLOGY, INC.	WATERMILFOI	ALGAE	PONDWEED
		AQUATIC CONTROL	EURASIAN	MICROSCOPIC	CURLYLEAF
CONGAMOND LAKES	4/28/2015	TECHNOLOGY, INC.	WATERMILFOI	ALGAE	PONDWEED
		SOLITUDE LAKE	EURASIAN	MICROSCOPIC	CURLYLEAF
CONGAMOND LAKES	4/1/2016	MANAGEMENT, LLC	WATERMILFOI	ALGAE	PONDWEED
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKE - NORTH	6/18/1998	TECHNOLOGY, INC.	ALGAE		
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKES	7/26/1999	TECHNOLOGY, INC.	ALGAE		
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKES	4/12/2001	TECHNOLOGY, INC.	ALGAE		
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKES	4/17/2002	TECHNOLOGY, INC.	ALGAE	M. SPICATUM	
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKES	5/1/2003	TECHNOLOGY, INC.	ALGAE	EURASIAN MILFOIL	
		AQUATIC CONTROL		CURLYLEAF	MICROSCOPIC
CONGOMOND LAKES	5/3/2004	TECHNOLOGY, INC.	EURASIAN MILFOIL	PONDWEED	ALGAE

Fish Consumption

2022 Use Attainment	Alert	
Not Assessed	NO	
2022 Use Attainment Summary		
Fish toxics sampling has not been conducted in this Congamond Lakes (North Basin) AU (MA32022), so the Fish		
Consumption Use is Not Assessed.		

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are sublable for this Concernent Lakes (North Desig) ALL (NAA22022), as the Acethetics Lies is No	+ ^

No data are available for this Congamond Lakes (North Basin) AU (MA32022), so the Aesthetics Use is Not Assessed.

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for this Congamond Lakes (North Basin) AU (MA32022), so the Primary Col	ntact
Recreational Use is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for this Congamond Lakes (North Basin) AU (MA32022), so the Secondary (Contact
Recreational Use is Not Assessed.	

Congamond Lakes (MA32023)

Location:	[South Basin] Southwick.
AU Type:	FRESHWATER LAKE
AU Size:	144 ACRES
Classification/Qualifier:	В

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Eurasian Water Milfoil, Myriophyllum		Unchanged
		Spicatum*)		
5	5	Dissolved Oxygen		Unchanged
5	5	Nutrient/Eutrophication Biological Indicators		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	Introduction of Non-native Organisms	Х				
Spicatum*)	(Accidental or Intentional) (Y)					
Dissolved Oxygen	Internal Nutrient Recycling (N)	Х				
Dissolved Oxygen	Source Unknown (N)	Х				
Nutrient/Eutrophication Biological	Internal Nutrient Recycling (N)	Х				
Indicators						
Nutrient/Eutrophication Biological	Source Unknown (N)	Х				
Indicators						

Recommendations

2022 Recommendations

ALU: A qualified state agency/taxonomist should confirm the presence of the non-native aquatic macrophyte, curly-leaf pondweed (*Potamogeton crispus*), and live specimens of the non-native invertebrate, Asian clam (*Corbicula fluminea*), in the Congamond Lakes (South Basin).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	

A non-native aquatic macrophyte, curly-leaf pondweed (*Potamogeton crispus*), has been listed yearly on herbicide permit applications from 2005-2016 for the Congamond Lakes (of which this South Basin AU, MA32023, is one basin); the presence of this species should be confirmed by DEP biologists. Additionally, the MassDCR database of non-native species observations includes a record of Asian clam (*Corbicula fluminea*) in the South Basin; the presence of live specimens should be confirmed by a qualified taxonomist.

The Aquatic Life Use of this Congamond Lakes [South Basin] AU (MA32023) is assessed as Not Supporting. The prior Dissolved Oxygen, "Eurasian Water Milfoil, Myriophyllum Spicatum", and Nutrient/Eutrophication Biological Indicators impairments are all being carried forward. An Alert is being identified due to potential infestations of both *P. crispus* and *C. fluminea*.

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1996) (MassDEP 2017) (MassDCR 2008)

Summary Statement	Assessment Recommendation
As was previously noted, MassDEP staff inferred there was an infestation of	Conduct an aquatic macrophyte survey
the non-native aquatic macrophyte, Eurasian water milfoil (Myriophyllum	to confirm whether Potamogeton
spicatum), in the Congamond Lakes South Basin due to their observations of	crispus is present in the Congamond
this species in the other two basins during an August 1996 synoptic survey (and	Lakes South Basin and also collect
reports from local observers). Another non-native, curly-leaf pondweed	voucher specimens of live Corbicula
(Potamogeton crispus), has been listed yearly on herbicide permit applications	<i>fluminea</i> (Asian clam).
for the Congamond Lakes from 2005-2016; the presence of this species should	
be confirmed by DEP biologists. The DCR database of non-native species	
observations includes a record of Asian clam (Corbicula fluminea) in the South	
Basin; the presence of live specimens should be confirmed by DEP biologists.	
An Alert status should be applied to this AU due to potential infestations of	
both P. crispus and C. fluminea.	

Herbicide Permit Application Records for Congamond Lakes (MassDEP 2017):

		AQUATIC CONTROL		CURLYLEAF	MICROSCOPIC
CONGAMOND LAKE	5/4/2010	TECHNOLOGY, INC.	EURASIAN MILFOIL	PONDWEED	ALGAE
		AQUATIC CONTROL			MICROSCOPIC
CONGAMOND LAKES	4/29/2005	TECHNOLOGY, INC.	M. SPICATUM	P. CRISPUS	ALGAE
		AQUATIC CONTROL			MICROSCOPIC
CONGAMOND LAKES	4/24/2006	TECHNOLOGY, INC.	M. SPICATUM	P. CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	3/12/2007	TECHNOLOGY, INC.	SPICATI	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	3/11/2008	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	3/12/2009	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	3/21/2011	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	2/28/2012	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	MYRIOPHYLLUM	POTAMOGETON	MICROSCOPIC
CONGAMOND LAKES	4/29/2013	TECHNOLOGY, INC.	SPICATU	CRISPUS	ALGAE
		AQUATIC CONTROL	EURASIAN	MICROSCOPIC	CURLYLEAF
CONGAMOND LAKES	4/15/2014	TECHNOLOGY, INC.	WATERMILFOI	ALGAE	PONDWEED
		AQUATIC CONTROL	EURASIAN	MICROSCOPIC	CURLYLEAF
CONGAMOND LAKES	4/28/2015	TECHNOLOGY, INC.	WATERMILFOI	ALGAE	PONDWEED
		SOLITUDE LAKE	EURASIAN	MICROSCOPIC	CURLYLEAF
CONGAMOND LAKES	4/1/2016	MANAGEMENT, LLC	WATERMILFOI	ALGAE	PONDWEED
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKE - NORTH	6/18/1998	TECHNOLOGY, INC.	ALGAE		
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKES	7/26/1999	TECHNOLOGY, INC.	ALGAE		
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKES	4/12/2001	TECHNOLOGY, INC.	ALGAE		
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKES	4/17/2002	TECHNOLOGY, INC.	ALGAE	M. SPICATUM	
		AQUATIC CONTROL	MICROSCOPIC		
CONGOMOND LAKES	5/1/2003	TECHNOLOGY, INC.	ALGAE	EURASIAN MILFOIL	
		AQUATIC CONTROL		CURLYLEAF	MICROSCOPIC
CONGOMOND LAKES	5/3/2004	TECHNOLOGY, INC.	EURASIAN MILFOIL	PONDWEED	ALGAE

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

MassDEP biologists conducted fish toxics sampling in this Congamond Lakes [South Basin] AU (MA32023) in May 2016 as part of the probabilistic lake surveys (MAP2). Edible fillets were analyzed for the presence of mercury, metals, and organochlorine pesticides. No site-specific fish consumption advisory was issued by MassDPH.

The Fish Consumption Use of this Congamond Lakes [South Basin] AU (MA32023) is Not Assessed since no site-specific fish consumption advisory was issued.

MassDEP fish toxics sampling information (2016-2020) and MassDPH Fish Consumption Advisory information (2019-

2021) (MassDPH 2021, MassDEP 2016, MassDEP Undated 8)

MassDEP biologists conducted fish toxics sampling in this Congamond Lakes [South Basin] AU (MA32023) in May 2016 as part of the probabilistic lake surveys (MAP2). Edible fillets were analyzed for the presence of mercury, metals, and organochlorine pesticides. No site-specific fish consumption advisory was issued by MassDPH.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No data are available for this Congamond Lakes [South Basin] AU (MA32023), so the Aesthetics Use is Not Assessed. The prior Alert from the 2016 cycle (MassDEP Undated 7) was identified due to a short duration Harmful Algal Bloom (12 days in 2012) and since there have been no reported blooms in recent years, the Alert is being removed.

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Comment	

2022 Use Attainment Summary

No bacteria data are available for this Congamond Lakes [South Basin] AU (MA32023), so the Primary Contact Recreational Use is Not Assessed. The prior Alert from the 2016 cycle (MassDEP Undated 7) was identified due to a short duration Harmful Algal Bloom (12 days in 2012) and since there have been no reported blooms in recent years, the Alert is being removed.

Secondary Contact Recreation

,					
2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
No bactoria data are available for this Congamond Lakes [South Pacin] ALL (MA22022) so the Secondary Contact					

No bacteria data are available for this Congamond Lakes [South Basin] AU (MA32023), so the Secondary Contact Recreational Use is Not Assessed. The prior Alert from the 2016 cycle (MassDEP Undated 7) was identified due to a short duration Harmful Algal Bloom (12 days in 2012) and since there have been no reported blooms in recent years, the Alert is being removed.

Connor Reservoir (MA32024)

Location:	Holyoke.
AU Type:	FRESHWATER LAKE
AU Size:	17 ACRES
Classification/Qualifier:	A: PWS, ORW (Tributary)

No usable data were available for Connor Reservoir (MA32024) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Cook Brook (MA32-38)

Location:	Headwaters, outlet small unnamed pond west of the intersection of Gorge and Granville roads, Westfield to mouth at confluence with Little River, Westfield.
AU Type:	RIVER
AU Size:	2 MILES
Classification/Qualifier:	В

Cook Brook - MA32-38

Watershed Area: 1.44 square miles



2018/20 AU	2022 AU	Impairment	ATTAINS Action ID	Impairment Change
category	category	inipairment	ATTAINS ACTOTTD	Summary
3	3	None		Unchanged

Recommendations

2022 Recommendations
ALU: Conduct fish/benthic/water quality surveys (including deployment of continuous temperature probes) in Cook
Brook at an upstream location (similar to 2011 fish sample #3706), as well as at a location downstream of the West
Parish Filters Water Treatment Plant discharge (such as at the Northwest Rd crossing in Westfield).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	

MassDEP staff conducted limited water quality monitoring in the lower reach of Cook Brook during summer 2018, at the Northwest Rd crossing in Westfield (W2827). This stream is mapped by DFG as a Coldwater Fisheries Resource (CFR) (as previously reported in the 2016 IR (MassDEP Undated 7), MassDFG biologists conducted backpack electrofishing in an upstream reach of Cook Brook along Granville Rd, upstream of Gorge Rd crossing in July 2011 (Sample ID 3706) and the sample was comprised entirely of eight Eastern brook trout with three ≤ 140 mm in length). In summer 2018 two dissolved oxygen (DO) measurements were made; the minimum was 9.3 mg/L. The maximum DO saturation was good at 98.9%. A probe was deployed to measure continuous temperatures over 84 days in the summer index period. The maximum temperature was 23.8°C; a total of 44 7DADMs were >20.0 °C (maximum 7DADM 22.4 °C) and the maximum 24-hr rolling average temperature was 22.2 °C. Specific conductance (SC) was measured continuously via a deployed probe (June-Sept 2018). The maximum SC was 135 µs/cm, indicating no estimated chloride toxicity. Too limited data were collected to evaluate the Aquatic Life Use of Cook Brook (MA32-38), so it is assessed as having Insufficient Information. An Alert for temperature is being identified until paired fish and water quality surveys can be conducted, and the effect of temperature on the fish community can be reevaluated. The prior Alert for potential impacts due to backwash from West Parish Filters Water Treatment Plant that discharges to Cook Brook is being carried forward.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2827	MassDEP	Water Quality	Cook Brook	[Northwest Road, Westfield]	42.123729	-72.820501

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2827	08/01/18	09/12/18	2	9.3	9.6	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2827	06/20/18	09/11/18	84	78	22.0	23.8	22.4	20.6	44	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2827	06/19/18	09/12/18	85	4032	22.2	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2827	08/01/18	09/12/18	2	2	17.7	16.3	0	0	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2827	2018							98.9			

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

MassDEP Long-term Continuous Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

			SpCond	SpCond	SpCond	Max	Max			Count	Count
Station	Start		Min	Max	Avg	4day Avg	1hr Avg	4Day	1hr	4day Avg	1hr Avg
Code	Date	End Date	(µs/cm)	(µs/cm)	(µs/cm)	(µs/cm)	(µs/cm)	Count	Count	>904	>3193
W2827	06/19/18	09/12/18	84	135	114	126	132	3888	4078	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (µs/cm)	SpCond Max (µs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2827	08/01/18	09/12/18	2	108	120	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment						
Not Assessed						
2022 Use Attainment Summary						

Fish toxics sampling has not been conducted in Cook Brook (MA32-38), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment				
Not Assessed	NO			
2022 Use Attainment Summary				
No data are available for Cook Brook (MA32-38), so the Aesthetics Use is Not Assessed.				

Primary Contact Recreation

2022 Use Attainment					
Not Assessed	NO				
2022 Use Attainment Summary					
No bacteria data are available for Cook Brook (MA32-38), so the Primary Contact Recreational Use is Not Assessed.					

Secondary Contact Recreation

NO

No bacteria data are available for Cook Brook (MA32-38), so the Secondary Contact Recreational Use is Not Assessed.

Cooley Lake (MA32026)

Location:	Granville.
AU Type:	FRESHWATER LAKE
AU Size:	66 ACRES
Classification/Qualifier:	В

No usable data were available for Cooley Lake (MA32026) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

2018/20 AU	2022 AU			Impairment Change
Category	Category	Impairment	ATTAINS Action ID	Summary
3	3	None		Unchanged
Crooked Pond (MA32028)

Location:	Plainfield.
AU Type:	FRESHWATER LAKE
AU Size:	34 ACRES
Classification/Qualifier:	В

No usable data were available for Crooked Pond (MA32028) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Damon Pond (MA32029)

Location:	Chesterfield/Goshen.
AU Type:	FRESHWATER LAKE
AU Size:	77 ACRES
Classification/Qualifier:	В

2018/20 AU	2022 AU			Impairment Change
Category	Category	Impairment	ATTAINS Action ID	Summary
3	5	Mercury in Fish Tissue		Added

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for Damon Pond (MA32029), so the Aquatic Life Use is Not Assessed.	

Fish Consumption

2022 Use Attainment	Alert
Not Supporting	NO
2022 Lise Attainment Summary	

MassDEP biologists conducted fish toxics sampling at Damon Pond in Chesterfield/Goshen in June 2016 as part of the probabilistic lake surveys (MAP2). Because of elevated mercury measured in chain pickerel and largemouth bass fillets, MassDPH issued the following fish consumption advisories: "*Children younger than 12 years of age, pregnant women, women of childbearing age who may become pregnant, and nursing mothers should not eat any of the affected fish species (chain pickerel and largemouth bass) from this water body*" and "*The general public should limit consumption of affected fish species (chain pickerel and largemouth bass) to two meals per month*."

Since there is a site specific DPH advisory for elevated mercury in fish tissue, the Fish Consumption Use for Damon Pond (MA32029) is assessed as Not Supporting. A Mercury in Fish Tissue impairment is being added. The likely source, although not confirmed, is atmospheric deposition.

MassDEP fish toxics sampling information (2018-2020) and MassDPH Fish Consumption Advisory information (2019-2021) (MassDPH 2019, MassDEP 2016, MassDEP Undated 8)

MassDEP biologists conducted fish toxics sampling at Damon Pond in Chesterfield/Goshen in June 2016 as part of the probabilistic lake surveys (MAP2). Because of elevated mercury measured in chain pickerel and largemouth bass fillets, MassDPH issued the following fish consumption advisories:

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

Since there is a site specific DPH advisory for elevated mercury in fish tissue, the Fish Consumption Use for Damon Pond (MA32029) is assessed as Not Supporting. The likely source, although not confirmed, is atmospheric deposition.

Aesthetic

2022 Use Attainment	Alert	
Not Assessed	NO	
2022 Use Attainment Summary		
No data are available for Damon Pond (MA32029), so the Aesthetics Use is Not Assessed.		

Primary Contact Recreation

2022 Use Attainment	Alert	
Not Assessed	NO	
2022 Use Attainment Summary		
No bacteria data are available for Damon Pond (MA32029), so the Primary Contact Recreational Use is Not Assessed.		

Secondary Contact Recreation

2022 Use Attainment	Alert		
Not Assessed	NO		
2022 Use Attainment Summary			

No bacteria data are available for Damon Pond (MA32029), so the Secondary Contact Recreational Use is Not Assessed.

Dead Branch (Brook) (MA32-63)

Location:	From outlet of Long Pond, Chesterfield to mouth at confluence with Westfield River (Knightville Reservoir), Huntington/Chesterfield.
AU Type:	RIVER
AU Size:	4.1 MILES
Classification/Qualifier:	B: CWF

100m

Stream Buffer

4.58

1.2%

3.5%

77.7%

17.6%

8.64

3.2%

3.5%

88.2%

5.1%

Proximal

Stream Buffer

1.95

1.9%

2.7%

80.9%

14.5%

DEAD BRANCH (BROOK) - MA32-63

Watershed Area: 21.63 square miles



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

2018/20 Removed		
Impairment	Removal Reason	Removal Comment
Lack of a Coldwater	Applicable WQS	The Aquatic Life Use of Dead Branch (Brook) (MA32-63) was first
Assemblage	attained; based on new	assessed as Not Supporting in the 2016 IR cycle based on a fish
	data	sample collected in August 2007 (Sample ID 2250) at the
		upstream end of the brook upstream of South St crossing,
		North of town line, Chesterfield: "[t]he aquatic life use is
		assessed as not supporting based on the near absence of cold
		water individuals (n=1 out of 486) and multiple age classes of
		any salmonid documented in one DFG fish community sample
		(2250) collected in August 2007 (MassDFG 2020, MassDEP
		Undated 7)". Note that the 2007 fish sampling reach was
		located roughly 1500 ft downstream of Long Pond and its
		surrounding wetland habitat. In the summer of 2016, MassDFG
		biologists conducted backpack electrofishing further
		downstream in Dead Branch (Brook) along Indian Hollow Rd,
		Chesterfield in mid-July 2016 (Sample ID 6027) and again with
		additional staff and backpacks a few weeks later in August 2016
		(Sample ID 6067). Both samples were dominated by fluvial fish
		(99%) and included multiple age classes of Eastern brook trout
		as well as slimy sculpin comprising 29% and 14% of each sample,
		respectively. The presence of these two cold water species is
		indicative of excellent habitat and water quality conditions in
		this designated Cold Water Fishery. The Dead Branch (Brook)
		subwatershed landcover is >92% natural/wetland and has <2%
		impervious surfaces. The stream has no water withdrawals or
		wastewater discharges, and there are no dams along its entire
		length (there are a few small dams in the upper watershed
		drainage area). Based on these data/information, the Lack of a
		Coldwater Assemblage impairment for Dead Branch (Brook)
		(MA32-63) is being removed.

Supporting Information for Removed Impairments

Lack of a Coldwater Assemblage

Data used for original impairment decision: MassDFG Fish Data from the 2016 IR Cycle (MassDFG 2020, MassDEP Undated 7)

Sample				cies	al Individuals	dwater Species	dwater Individuals	lndividuals < 140	y Sculpin Individual	2 Individuals	based on Fish	/ial Specialist + Fluvial bendent Species	vial Specialist+ Fluvial bendent Individuals	olerant + Moderately erant Species	olerant + Moderately erant Individuals
Sample ID	Date	Segment	Waterbody	Specie	Total I	Coldw	Coldw	EBT In	Slimy	Tier 2	Tier b	Fluvia Depen	Fluvia Depen	Intole Tolera	Intole Tolera
2250*	08/24/07	MA32-63	Dead Branch	7	486	1	1	1	0	1	3	5	481	4	257

* Habitat Comments: Culverted road xing - pipe ~8' in diameter. Started 20m above culvert. Many schools of YOY CS. Missed many small fish: CS, YB, BND, LND. Lots of crayfish. Large boulders, slippery, sediment in pools. Large flat deep pools throughout reach. Tannic H2O.



Location of Sample ID 2250 (red dot) just downstream of Long Pond and surrounding wetland habitat (MassGIS 2017):

Data used for impairment removal:

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

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

[Species List: BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LC = Lake Chub, LND = Longnose Dace, SC = Slimy Sculpin, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
6027*	07/14/16	RD	тр	7	295	5	63	1/19	л	80	29%	99%	Vec	Vac	BND, CS, EBT, LC,
0027	07/14/10			,	255	5	05	145	-	00	2370	5570	103	103	LND, SC, WS,
															BND, CRC, CS,
6067**	08/09/16	BP	ΤР	9	1268	15	53	156	12	156	14%	99%	No	Yes	EBT, LC, LND, SC,
															TD, WS,

*Field Notes: 2 packs. Could only sample 46 m b/c of batteries. Lots of fish in reach, missed some due to rocky habitat and flow. Lots of available habitat. Substrate mix of boulders, gravel, cobble and some high gradient. Wide. Site will be resurveyed again. 2 Fallfish recorded on data sheet, one vouchered. Both Fs on data sheet were changed to LC due to vouchered specimen.

**Field Notes: 3 packs used. Water level lower than it was 1 month ago. Lots of fish, including LC (a new site). Bank 60% full, mixed pools, cascades, riffles and some shallow runs. Canopy mostly open over stream channel, shaded and wooded along banks. Boulder, cobble, gravel substrate. Large boulders dominate. Good flow, just lower level. Missed some dace.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert					
Fully Supporting	NO					
2022 Use Attainment Summary						
MassDFG biologists conducted backpack electrofishing in Dead Branch (Brook) along Indian Hollow Rd, Cl	nesterfield in					
mid-July 2016 (Sample ID 6027) and again less than a month later (Sample ID 6067). The large samples (n= 295 & 1268)						
were comprised of 29% and 14% cold-water fish, respectively, including slimy sculpin and multiple age cla	asses of Eastern					

brook trout. Both of these species are indicative of excellent water quality conditions. The Aquatic Life Use of Dead Branch (Brook) (MA32-63) is assessed as Fully Supporting based on the summer 2016 fish

community data. The prior Lack of a Coldwater Assemblage impairment is being delisted (see Supporting Information for Removed Impairments for more information).

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
6027	MassDFG	Fish	Dead Branch	Along Indian Hallow Rd., Chesterfield	42.34379	-72.84471
		Community				
6067	MassDFG	Fish	Dead Branch	Along Indian Hollow Rd, Chesterfield	42.34391	-72.84441
		Community				

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LC = Lake Chub, LND = Longnose Dace, SC = Slimy Sculpin, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
6027*	07/14/16	DD	тр	7	205	5	62	140	л	<u>ە</u> م	20%	0.0%	Voc	Voc	BND, CS, EBT, LC,
0027	07/14/10	DF	IF		295	5	05	149	4	80	2970	3370	165	162	LND, SC, WS,
															BND, CRC, CS,
6067**	08/09/16	BP	TP	9	1268	15	53	156	12	156	14%	99%	No	Yes	EBT, LC, LND, SC,
															TD, WS,

*Field Notes: 2 packs. Could only sample 46 m b/c of batteries. Lots of fish in reach, missed some due to rocky habitat and flow. Lots of available habitat. Substrate mix of boulders, gravel, cobble and some high gradient. Wide. Site will be resurveyed again. 2 Fallfish recorded on data sheet, one vouchered. Both Fs on data sheet were changed to LC due to vouchered specimen.

**Field Notes: 3 packs used. Water level lower than it was 1 month ago. Lots of fish, including LC (a new site). Bank 60% full, mixed pools, cascades, riffles and some shallow runs. Canopy mostly open over stream channel, shaded and wooded along banks. Boulder, cobble, gravel substrate. Large boulders dominate. Good flow, just lower level. Missed some dace.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

Fish toxics sampling has not been conducted in Dead Branch (Brook) (MA32-63), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
There are no data available for Dead Branch (Brook) (MA32-63), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
There are no bacteria data available for Dead Branch (Brook) (MA32-63), so the Primary Contact Recreati	onal Use is Not
Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
There are no bacteria data available for Dead Branch (Brook) (MA32-63), so the Secondary Contact Recre	ational Use is
Not Assessed.	

Depot Brook (MA32-17)

Location:	Source, north of Beach Road, Washington to mouth at confluence with Yokum Brook (forming headwaters of West Branch Westfield River), Becket.
AU Type:	RIVER
AU Size:	5.9 MILES
Classification/Qualifier:	B: CWF

Depot Brook - MA32-17

Watershed Area: 12.99 square miles



2018/20 AU	2022 AU			Impairment Change
Category	Category	Impairment	ATTAINS Action ID	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	
MassDFG biologists conducted backpack electrofishing at two locations in Depot Brook. The upstream loc	ation,
downstream of the bridge on Lower Valley Rd in Washington (Sample IDs 5155, 5690, 6232, 6459, 7567, 8	3235) was
sampled multiple times from 2014-2019 in the month of August. The downstream location (Sample ID 60	83), off Rt 8 and
parallel to the railroad tracks in Washington, was sampled in August 2016. The large samples (n= 171-389) were
comprised entirely of fluvial fish including 4-35% cold-water individuals (slimy sculpin as well as multiple a	age classes of
Eastern brook trout).	

The Aquatic Life Use of Depot Brook (MA32-17) will continue to be assessed as Fully Supporting based on the presence of slimy sculpin as well as multiple age classes of Eastern brook trout indicative of excellent habitat and water quality conditions in this designated Cold Water Fishery.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5155	MassDFG	Fish	Depot Brook	DS of bridge on Lower Valley Rd,	42.35845	-73.09629
		Community		Washington		
5690	MassDFG	Fish	Depot Brook	DS of bridge on Lower Valley Rd,	42.35849	-73.09633
		Community		Washington		
6083	MassDFG	Fish	Depot Brook	Off Rt 8, parallel to RR tracks, Washington	42.33878	-73.08779
		Community				
6232	MassDFG	Fish	Depot Brook	DS of bridge on lower valley rd, Becket	42.35846	-73.09624
		Community				
6459	MassDFG	Fish	Depot Brook	DS of Bridge on lower valley rd, Washington	42.35842	-73.09626
		Community				
7567	MassDFG	Fish	Depot Brook	Downstream of bridge on Lower Valley Rd.,	42.35851	-73.09619
		Community		Washington		
8235	MassDFG	Fish	Depot Brook	DS of Br. on Lower Valley Rd, Washington	42.35825	-73.09612
		Community				

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3) [Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CP = Chain Pickerel, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LC = Lake Chub, 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
5155	08/12/14	BP	ТР	6	171	10	55	159	7	4	28%	100%	No	Yes	AS, BND, CRC, CS, EBT, SC,
5690	08/13/15	BP	ТР	6	253	35	58	175	33	19	24%	100%	No	Yes	AS, BND, CRC, CS, EBT, SC,
6083	08/08/16	BP	ТР	7	337	5	69	159	4	113	35%	100%	No	Yes	BND, CRC, EBT, LC, LND, SC, WS,
6232	08/04/16	BP	ТР	6	306	17	58	175	13	22	13%	100%	No	Yes	AS, BND, CRC, CS, EBT, SC,
6459	08/08/17	BP	ТР	6	244	12	57	218	9	11	9%	100%	No	Yes	BND, CRC, CS, EBT, LND, SC,
7567	08/08/18	BP	ТР	7	219	4	115	193	2	4	4%	100%	Yes	Yes	BND, CP, CRC, CS, EBT, LND, SC,
8235	08/15/19	BP	ТР	6	389	28	54	197	24	17	12%	100%	No	Yes	BND, CRC, CS, EBT, LND, SC,

Fish Consumption

2022 Use Attainment

Alert

Not Assessed	NO

2022 Use Attainment Summary

Fish toxics sampling has not been conducted in Depot Brook (MA32-17), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
No recent data are available for Depot Brook (MA32-17), so the Aesthetics Use is Not Assessed.					

Primary Contact Recreation

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						
No recent bacteria data are available for Depot Brook (MA32-17), so the Primary Contact Recreational Use is Not						
Assessed.						

Secondary Contact Recreation

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						
No recent bacteria data are available for Depot Brook (MA32-17), so the Secondary Contact Recreational Use is Not						
Assessed.						

Dickinson Brook (MA32-34)

Location:	Source, confluence of Trumble Brook and Seymour Brook, Granville to mouth at confluence with Munn Brook, Granville.
AU Type:	RIVER
AU Size:	3.4 MILES
Classification/Qualifier:	B: CWF

Dickinson Brook - MA32-34

Watershed Area: 13.03 square miles



2018/20 AU	2022 AU			Impairment Change
Category	Category	Impairment	ATTAINS Action ID	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						
MassDEG biologists conducted backpack electrofishing in Dickinson Brook on six occasions in the summer months from						

MassDFG biologists conducted backpack electrofishing in Dickinson Brook on six occasions in the summer months from July 2014 to Aug 2018. The upstream station (Sample ID 5377) was located downstream of Water St in Granville, while the other samples were clustered near a turn-off on Rt 57/Granville Rd (Sample IDs 5130, 5692, 6222, 6460, 7562). The large samples (n= 106-310) were all dominated (\geq 95%) by fluvial fish and all contained multiple age classes of Eastern brook trout.

The Aquatic Life Use of Dickinson Brook (MA32-34) will continue to be assessed as Fully Supporting based on the presence of multiple age classes of Eastern brook trout, a species indicative of excellent water quality conditions in a designated Cold Water Fishery such as Dickinson Brook.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5130	MassDFG	Fish	Dickinson	Turnoff on Granville Rd, Granville	42.07338	-72.84652
		Community	Brook			
5377	MassDFG	Fish	Dickinson	Downstream of Water St, Granville	42.06037	-72.86581
		Community	Brook			
5692	MassDFG	Fish	Dickinson	Turnoff on Rt 57, Granville	42.07329	-72.84618
		Community	Brook			
6222	MassDFG	Fish	Dickinson	Turn-off, Granville	42.07309	-72.84578
		Community	Brook			
6460	MassDFG	Fish	Dickinson	Turnout on Rt 57 US of Gorge, Granville	42.07309	-72.84632
		Community	Brook			
7562	MassDFG	Fish	Dickinson	Turnoff on Rt. 57, Granville	42.07294	-72.84625
		Community	Brook			

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AE = American Eel, AS = Atlantic Salmon, B = Bluegill, BB = Brown Bullhead, BND = Blacknose Dace, BT = Brown Trout, EBT = Brook Trout, LMB = Largemouth Bass, LND = Longnose Dace, TD = Tesselated Darter, WS = White Sucker, YP = Yellow Perch]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5130	07/29/14	BP	ТР	9	121	36	52	182	33	0	66%	95%	No	Yes	AE, AS, B, BND, BT, EBT, LND, TD, WS,
5377	07/22/14	BP	ТР	7	244	110	46	211	82	0	70%	98%	Yes	Yes	AE, AS, BB, BND, BT, EBT, WS,
5692	08/14/15	BP	ТР	7	203	36	57	148	32	0	39%	100%	No	Yes	AS, BND, BT, EBT, LND, TD, WS,
6222	08/10/16	BP	ТР	8	229	40	61	165	39	0	33%	99%	No	Yes	AE, AS, BND, BT, EBT, LND, TD, WS,
6460	08/23/17	BP	ТР	9	310	59	54	186	52	0	23%	98%	No	Yes	AE, BND, BT, EBT, LMB, LND, TD, WS, YP,
7562	08/08/18	BP	ТР	7	106	23	51	200	20	0	29%	97%	No	Yes	AE, BND, BT, EBT, LND, TD, WS,

Fish Consumption

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						

Fish toxics sampling has not been conducted in Dickinson Brook (MA32-34), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for Dickinson Brook (MA32-34), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert						
Not Assessed	NO						
2022 Use Attainment Summary							
No recent bacteria data are available for Dickinson Brook (MA32-34), so the Primary Contact Recreational Use is Not							
Assessed.							

Secondary Contact Recreation

2022 Use Attainment	Alert							
Not Assessed	NO							
2022 Use Attainment Summary								
No recent bacteria data are available for Dickinson Brook (MA32-34), so the Secondary Contact Recreational Use is Not								
Assessed.								

Factory Brook (MA32-42)

Location:	Headwaters, east of Ridge Road, in Middlefield State Forest, Peru to mouth at confluence with West Branch Westfield River, Middlefield.
AU Type:	RIVER
AU Size:	7.6 MILES
Classification/Qualifier:	B: CWF

FACTORY BROOK - MA32-42

Watershed Area: 11.28 square miles



Percent Wetland

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted backpack electrofishing in Factory Brook East of Town Hill Rd, ~4400 ft upstream of the confluence with the Westfield River in Middlefield, during the summer months from 2012-2015 (Sample IDs 5101, 5106, 6338, 6386). Downstream a short distance, MassDFG biologists conducted backpack electrofishing upstream of the bridge on Town Hill Rd in Middlefield, during the summer months from 2014-2019 (Sample IDs 5157, 5691, 6237, 6466, 8237). The samples (n=55-319) were comprised almost entirely of fluvial fish (≥98%) including 26-82% cold-water individuals. All of the samples included slimy sculpin as well as multiple age classes of Eastern brook trout. In the vicinity of the upstream fish sample location, MassDEP staff also collected multiple benthic samples (Station B0818) from 2012-2015, and also conducted water quality sampling during the same (primarily) summer seasons. The July and August benthic samples had IBI scores ranging from 56-75 on the Western Highlands index, indicating that conditions were satisfactory or excellent for a high gradient location. Probes were deployed to measure dissolved oxygen (DO) over periods ranging from 108-123 days from 2013-2015. The minimum DO from all this data was 8.1 mg/L, which is excellent. Continuous temperature measurements over 99-107 days during the summer index periods (2012-2015) were also recorded. Overall the maximum temperature recorded was 23.5 °C; 7DADMs exceed 20.0 °C from 7 to 30 times (excluding the 69 day index count in 2013) and the maximum 24-hour rolling average temperature was 22.5 °C (no exceedances of the 23.5 °C acute threshold). Factory Brook is not dammed along its length and there is very limited development in the subwatershed (1.1% impervious cover and >93% natural/wetland land cover also within the proximal stream buffer), so the temperature deviations from Cold Water standards/thresholds are considered natural. Other water quality data, indicative of good conditions, are summarized as follows: pH ranged from 7.1-7.7 S.U. (n=4/yr, 2013-2015), there was no indication of nutrient enrichment (total phosphorus seasonal average concentrations ranged from 0.007-0.011 mg/L with n= 4-5/yr from 2012-2015, the maximum diel DO shift was 1.4 mg/L, maximum DO saturation was 98.7%, and there were no observations of excessive filamentous algae), the maximum total ammonia nitrogen (TAN) was low (0.120 mg/L, n= 4-5/yr, 2012-2015), and the maximum chloride was only 6 mg/L (n= 4-5/yr, 2012-2015). Similarly, the maximum specific conductance measurement was $81 \,\mu$ s/cm (n=4/yr, 2013-2015).

The Aquatic Life Use of Factory Brook (MA32-42), a designated Cold Water Fishery, is assessed as Fully Supporting based on the benthic, fish, and physico-chemical water quality data collected between 2012 and 2019.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5101	MassDEP	Fish	Factory	East of Town Hill Rd, ~4400 ft US of	42.32001	-73.02775
		Community	Brook	confluence w/ Westfield R, .75 mi North of		
				Bancroft.		
5106	MassDEP	Fish	Factory	East off Town Hill Rd, 0.8mi US of Westfield	42.32001	-73.02775
		Community	Brook	R confluence		
5157	MassDFG	Fish	Factory	US of bridge on Town Hill Rd, Middlefield	42.31639	-73.02657
		Community	Brook			
5691	MassDFG	Fish	Factory	US of bridge on Town Hill Rd in Bancroft,	42.31577	-73.02674
		Community	Brook	Middlefield		
6237	MassDFG	Fish	Factory	US of bridge, Bancroft	42.31635	-73.02676
		Community	Brook			
6338	MassDEP	Fish	Factory	East of Town Hill Rd, ~4400 ft US of	42.32001	-73.02775
		Community	Brook	confluence w/ Westfield R, Middlefield		
6386	MassDEP	Fish	Factory	, Middlefield	42.32001	-73.02775
		Community	Brook			
6466	MassDFG	Fish	Factory	US of Bridge, Middlefield	42.31623	-73.02687
		Community	Brook			
8237	MassDFG	Fish	Factory	US of bridge on Bancroft Rd., Middlefield	42.31627	-73.02685
		Community	Brook			
B0818	MassDEP	Benthic	Factory	[east off Town Hill Road, approximately	42.320010	-73.027750
			Brook/	1340 meters upstream of confluence with		
				the Westfield River, Middlefield, MA]		

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2283	MassDEP	Water	Factory	[east off Town Hill Road, approximately	42.320010	-73.027750
		Quality	Brook	4400 feet upstream of confluence with the		
				Westfield River, Middlefield]		

Biological Monitoring Information

Benthic Macroinvertebrate Data

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

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

Station	Collection	Collection		Organism	Index	Index Biological
Code	Date	Method	Index Type	Count	Score	Condition Class
B0818	04/17/12	RBP kicknet	Western_Highlands_100ct	103	76	E
B0818	07/12/12	RBP kicknet	Western_Highlands_100ct	105	65	S
B0818	07/31/13	RBP kicknet	Western_Highlands_300ct	313	56R	S
B0818	08/07/14	RBP kicknet	Western_Highlands_300ct	321	62	S
B0818	07/20/15	RBP kicknet	Western_Highlands_300ct	286	75	E

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3) [Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE=

Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net] [Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, F = Fallfish, LC =

Lake Chub, LND = Longnose Dace, P = Pumpkinseed, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List		
5101	10/03/13	NS	ТР	5	81	4	70	85	4	30	74%	100%	No	Yes	AS, BND, EBT, LND, SC,		
5106	07/31/12	BP	ТР	5	87	6	56	140	6	43	82%	100%	No	Yes	AS, BND, EBT, LND, SC,		
5157	08/12/14	BP	ТР	8	158	15	53	172	13	27	34%	100%	Yes Yes		Yes	Yes	AS, BND, CRC, CS, EBT, LND, SC, WS,
5691	08/13/15	BP	ТР	6	197	28	54	154	26	42	36%	100%	No	Yes	BND, CRC, EBT, LND, SC, WS,		
6237	09/08/16	BP	ТР	7	309	34	71	243	18	44	26%	100%	No	Yes	BND, CRC, EBT, LC, LND, SC, WS,		
6338	08/29/14	BP	ТР	5	55	3	66	180	2	17	49%	100%	No	Yes	AS, BND, EBT, LND, SC,		
6386	09/04/15	BP	ТР	6	135	20	69	210	17	73	70%	100%	No	Yes	AS, BND, CRC, EBT, LND, SC,		
6466	08/08/17	BP	ТР	6	180	12	66	195	5	45	32%	98%	No	Yes	BND, EBT, LND, P, SC, WS,		

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
8237	08/15/19	BP	ТР	7	319	51	57	180	44	54	33%	100%	No	Yes	BND, EBT, F, LND, P, SC, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2283	05/15/13	09/15/13	123	111	94	8.1	8.3	8.5	1.4	0	0	0	0	0	0	0	0
W2283	05/23/14	09/07/14	108	102	79	8.6	8.8	9.1	1.1	0	0	0	0	0	0	0	0
W2283	05/21/15	09/14/15	117	111	88	8.6	8.7	8.9	1.3	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2283	05/14/13	09/16/13	4	8.5	9.5	0	0	0
W2283	06/17/14	09/08/14	4	8.9	9.2	0	0	0
W2283	06/17/15	09/15/15	4	8.7	9.1	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2283	06/01/12	09/15/12	107	107	20.6	21.6	20.4	19.5	17	0	0	0	0	0
W2283	06/01/13	09/15/13	107	104	22.1	23.4	22.4	21.3	30	0	7	0	0	0
W2283	06/01/13	09/15/13	69	60	22.2	23.5	22.2	21.2	4	0	1	0	0	0

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	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2283	06/01/14	09/07/14	99	96	20.3	21.4	20.3	19.1	11	0	0	0	0	0
W2283	06/01/15	09/14/15	106	103	20.0	21.2	20.7	19.7	7	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2283	06/01/12	09/15/12	107	5136	20.7	0	0	0
W2283	06/01/13	09/15/13	107	3264	22.5	0	0	0
W2283	06/01/13	09/15/13	107	5136	22.4	0	0	0
W2283	06/01/15	09/15/15	107	5118	20.2	0	0	0
W2283	06/01/14	09/08/14	100	4780	20.3	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2283	05/08/12	10/02/12	2	0	12.4	12.0	0	0	0	0
W2283	05/14/13	09/16/13	6	3	21.8	14.7	1	0	0	0
W2283	06/17/14	09/08/14	4	4	19.0	17.3	0	0	0	0
W2283	06/17/15	09/15/15	4	4	20.5	18.2	1	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station				pH Min	pH Max	pH Count	pH Count
Code	Start Date	End Date	pH Count	(SU)	(SU)	<6.5 & >8.3	<6.0 & >8.8
W2283	05/14/13	09/16/13	4	7.4	7.7	0	0
W2283	06/17/14	09/08/14	4	7.1	7.4	0	0
W2283	06/17/15	09/15/15	4	7.4	7.6	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2283	2012	4	0.006	0.011	0.007					5	0
W2283	2013	5	0.007	0.013	0.011	1.4	0.6	98.7	7.7	4	0
W2283	2014	4	0.005	0.017	0.011	1.1	0.6	97.6	7.4	4	0
W2283	2015	4	0.005	0.014	0.008	1.3	0.6	98.6	7.6	4	0

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

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [TAN= NH3 + NH4+]

Station Code	Data Year	TAN Count	TAN Min (mg/L)	TAN Max (mg/L)	TAN Avg (mg/L)	Count TAN >Chronic	Count TAN >Acute
W2283	2012	5	0.020	0.020	0.020	0	0
W2283	2013	4	0.020	0.030	0.023	0	0
W2283	2014	4	0.020	0.020	0.020	0	0
W2283	2015	4	0.040	0.120	0.060	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
W2283	2012	5	4	4	4	0	0
W2283	2013	4	4	5	5	0	0
W2283	2014	4	3	5	4	0	0
W2283	2015	4	4	6	5	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (µs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2283	05/14/13	09/16/13	4	44	72	0	0	0	0	0	0
W2283	06/17/14	09/08/14	4	41	71	0	0	0	0	0	0
W2283	06/17/15	09/15/15	4	55	81	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Factory Brook (MA32-42), so the Fish Consumption Use is	Not Assessed.

Fish toxics sampling has not been conducted in Factory Brook (MA32-42), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff conducted water quality (W2283) field surveys of this Factory Brook AU (MA32-42) in Mide	dlefield east off
Town Hill Road, approximately 4400 feet upstream of the confluence with the Westfield River during the	summers of
2012 (n=5), 2013 (n=5), 2014 (n=4), and 2015 (n=4). There were generally no noted objectionable conditionable cond	ons (odors,
deposits, growths, or turbidity) recorded by DEP field sampling crews during each year of sampling.	
Based on this information, the Aesthetics Use of this Factory Brook AU (MA32-42) is assessed as Fully Sup	porting.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2283	MassDEP	Water Quality	Factory Brook	[east off Town Hill Road, approximately 4400 feet upstream of confluence with the Westfield River, Middlefield]	42.320010	-73.027750

Aesthetic Observations

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

			Field	
Station		Data	Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W2283	Factory Brook	2012	5	MassDEP aesthetics observations for station W2283 on Factory 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.
W2283	Factory Brook	2013	5	MassDEP aesthetics observations for station W2283 on Factory Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2013.
W2283	Factory Brook	2014	4	MassDEP aesthetics observations for station W2283 on Factory Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2014.
W2283	Factory Brook	2015	4	MassDEP aesthetics observations for station W2283 on Factory Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2015.

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

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2283	2012	5	5	0
W2283	2013	5	4	0
W2283	2014	4	4	0

			Field Sheet Count w/ Film &	
Station			Filamentous Algae	Dense/ Very Dense
Code	Data Year	Field Sheet Count	Observations	Film/ Filamentous Algae
W2283	2015	4	4	0

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

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2283	Factory Brook	2012	Color	Light Yellow/Tan	2	5
W2283	Factory Brook	2012	Color	None	3	5
W2283	Factory Brook	2012	Objectionable Deposits	No	5	5
W2283	Factory Brook	2012	Odor	None	5	5
W2283	Factory Brook	2012	Scum	No	3	5
W2283	Factory Brook	2012	Scum	NR	1	5
W2283	Factory Brook	2012	Scum	Yes	1	5
W2283	Factory Brook	2012	Turbidity	None	5	5
W2283	Factory Brook	2013	Color	Light Yellow/Tan	4	5
W2283	Factory Brook	2013	Color	None	1	5
W2283	Factory Brook	2013	Objectionable Deposits	No	5	5
W2283	Factory Brook	2013	Odor	None	5	5
W2283	Factory Brook	2013	Scum	No	3	5
W2283	Factory Brook	2013	Scum	Yes	2	5
W2283	Factory Brook	2013	Turbidity	None	5	5
W2283	Factory Brook	2014	Color	Light Yellow/Tan	3	4
W2283	Factory Brook	2014	Color	None	1	4
W2283	Factory Brook	2014	Objectionable Deposits	No	4	4
W2283	Factory Brook	2014	Odor	None	4	4
W2283	Factory Brook	2014	Scum	No	3	4
W2283	Factory Brook	2014	Scum	Yes	1	4
W2283	Factory Brook	2014	Turbidity	None	4	4
W2283	Factory Brook	2015	Color	Light Yellow/Tan	1	4
W2283	Factory Brook	2015	Color	None	3	4
W2283	Factory Brook	2015	Objectionable Deposits	No	4	4
W2283	Factory Brook	2015	Odor	None	4	4
W2283	Factory Brook	2015	Scum	No	4	4
W2283	Factory Brook	2015	Turbidity	None	4	4

Primary Contact Recreation

2022 Use Attainment	Alert						
Not Assessed	NO						
2022 Use Attainment Summary							
MassDEP staff conducted water quality (W2283) field surveys of this Factory Brook ALL (MA32-42) in Middlefield east off							

MassDEP staff conducted water quality (W2283) field surveys of this Factory Brook AU (MA32-42) in Middleffield east off Town Hill Road, approximately 4400 feet upstream of the confluence with the Westfield River during the summers of 2012 (n=5), 2013 (n=5), 2014 (n=4), and 2015 (n=4). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during each year of sampling. Since bacteria data are not available for Factory Brook (MA32-42), the Primary Contact Recreational Use is Not Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
MassDEP staff conducted water quality (W2283) field surveys of this Factory Brook AU (MA32-42) in Mid	dlefield east off
Town Hill Road, approximately 4400 feet upstream of the confluence with the Westfield River during the	summers of
2012 (n=5), 2013 (n=5), 2014 (n=4), and 2015 (n=4). There were generally no noted objectionable conditi	ons (odors,
deposits, growths, or turbidity) recorded by DEP field sampling crews during each year of sampling.	
Since bacteria data are not available for Factory Brook (MA32-42), the Secondary Contact Recreational Us	se is Not
Assessed.	

Freeland Brook (MA32-73)

Location:	Headwaters, west of Schoolhouse Hill Road, Blandford to confluence with Wigwam Brook, creating headwater of Stage Brook, Russell.
AU Type:	RIVER
AU Size:	2.6 MILES
Classification/Qualifier:	B: CWF

Freeland Brook - MA32-73

Watershed Area: 4.3 square miles



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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert					
Fully Supporting	NO					
2022 Use Attainment Summary						
MassDFG biologists conducted backpack electrofishing in Freeland Brook in two general locations, descril	ped as follows:					
in the vicinity of Old Schoolhouse Rd, Blandford in July/Aug 2014-2019 (Sample IDs 5134, 5711, 6256, 653	33, 7566, 8230)					
and lower Russell Stage Rd crossing, Blandford in July and Aug 2018 (Sample IDs 7560, 7624). The sample	s were all					
dominated by fluvial fish (≥96% of the samples, n= 63-228) and were mainly comprised of cold-water indi	viduals (67-					
100%), including multiple age classes of Eastern brook trout (usually >100 that were ≤140 mm in length).						
The Aquatic Life Use of Freeland Brook (MA32-73), a designated Cold Water Fishery, is assessed as Fully Supporting						
based on the presence of multiple age classes of Eastern brook trout. A reproducing population of this species is						
indicative of excellent habitat and water quality conditions.						

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5134	MassDFG	Fish	Freeland	DS of bridge on Camp Rd, Blandford	42.18876	-72.90434
		Community	Brook			
5711	MassDFG	Fish	Freeland	Schoolhouse Hill Rd bridge DS, Blandford	42.18875	-72.90447
		Community	Brook			
6256	MassDFG	Fish	Freeland	Bridge on dirt rd, Russell	42.18879	-72.90395
		Community	Brook			
6533	MassDFG	Fish	Freeland	Dirt Rd off of Russell Rd, Blanford	42.18871	-72.90434
		Community	Brook			
7560	MassDFG	Fish	Freeland	Turnoff on Russel Stage Rd. (lower site),	42.18080	-72.88756
		Community	Brook	Russel/Blandford		
7566	MassDFG	Fish	Freeland	Downstream of bridge on dirt road off of	42.18828	-72.90398
		Community	Brook	Nye Brook Rd. (2nd Division Rd.) ,		
				Russel/Blandford		
7624	MassDFG	Fish	Freeland	Crossing on Russel Stage Rd.; Downstream	42.18057	-72.88825
		Community	Brook	of 2nd Division Rd., Blandford		
8230	MassDFG	Fish	Freeland	DIrt Rd off of Nye Br. Rd., Blandford	42.18865	-72.90448
		Community	Brook			

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AS = Atlantic Salmon, B = Bluegill, BND = Blacknose Dace, EBT = Brook Trout, K = Banded Killifish, P = Pumpkinseed, YP = Yellow Perch]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5134	07/30/14	BP	TP	2	133	120	45	177	110	0	100%	100%	No	Yes	AS, EBT,
5711	08/24/15	BP	TP	3	228	226	48	189	210	0	99%	99%	No	Yes	ЕВТ, К, ҮР,
6256	08/03/16	BP	TP	1	218	218	46	161	213	0	100%	100%	No	Yes	EBT,
6533	08/04/17	BP	TP	3	215	206	43	176	193	0	96%	96%	No	Yes	EBT, P, YP,
7560	08/07/18	BP	TP	2	63	52	61	211	34	0	83%	100%	No	Yes	BND, EBT,
7566	08/07/18	BP	TP	1	128	128	49	195	109	0	100%	100%	No	Yes	EBT,
7624	07/17/18	BP	TP	2	214	144	51	181	132	0	67%	100%	No	Yes	BND, EBT,
8230	08/12/19	BP	TP	2	179	178	54	207	145	0	99%	99%	No	Yes	B, EBT,

Fish Consumption

2022 Use Attainment	Alert	
Not Assessed	NO	
2022 Use Attainment Summary		
Fich toxics sampling has not been conducted in Freeland Brook (MA22-72), so the Fich Consumption Lise is Not Assessed		

Fish toxics sampling has not been conducted in Freeland Brook (MA32-73), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Freeland Brook (MA32-73), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert	
Not Assessed	NO	
2022 Use Attainment Summary		
No bacteria data are available for Freeland Brook (MA32-73), so the Primary Contact Recreational Use is Not Assessed.		

Secondary Contact Recreation

Not Assessed NO	2022 Use Attainment	Alert
	Not Assessed	NO
2022 Use Attainment Summary	2022 Use Attainment Summary	

No bacteria data are available for Freeland Brook (MA32-73), so the Secondary Contact Recreational Use is Not Assessed.

Fuller Brook (MA32-64)

Location:	Headwaters, outlet wetland west at Mongue Road, Peru to mouth at confluence with Middle Branch Westfield River, Worthington.
AU Type:	RIVER
AU Size:	4.2 MILES
Classification/Qualifier:	A: PWS, ORW, CWF (Tributary)

No usable data were available for Fuller Brook (MA32-64) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Garnet Lake (MA32037)

Location:	Peru.
AU Type:	FRESHWATER LAKE
AU Size:	17 ACRES
Classification/Qualifier:	В

No usable data were available for Garnet Lake (MA32037) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Geer Brook (MA32-43)

Location:	Headwaters, outlet Garnet Lake, Peru to mouth at confluence with Factory Brook, Middlefield.
AU Type:	RIVER
AU Size:	1.8 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Geer Brook (MA32-43) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Glendale Brook (MA32-10)

Location:	Headwaters in a wetland in Peru State Forest, Peru to mouth at confluence with Middle Branch Westfield River, Middlefield.
AU Type:	RIVER
AU Size:	6 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)

Glendale Brook - MA32-10

Watershed Area: 6.64 square miles



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

Recommendations

2022 Recommendations
ALU: Continuous temperature data should be collected in Glendale Brook in the vicinity of the Cone Rd crossing in
Middlefield (where a 2015 fish sample- ID 7512- was collected and contained multiple age classes of EBT) to potentially
provide evidence for designation of this stream as a Coldwater Fishery.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

MassDFG biologists conducted backpack electrofishing in Glendale Brook downstream of the Cone Rd bridge in Middlefield the end of July 2015 (Sample ID 7512). The sample (n=65) was comprised exclusively of Eastern brook trout, with the vast majority (n=62) being individuals ≤140 mm in length. The presence of a reproducing population of this species is indicative of excellent water quality conditions.

The Aquatic Life Use of Glendale Brook (MA32-10) is assessed as Fully Supporting based on the presence of a reproducing population of brook trout in 2015. Continuous temperature data should be recorded in the future to determine if this stream should be designated as a Cold Water Fishery. The prior Alert from the 2016 IR cycle (MassDEP Undated 7), for lack of cold-water fish, is being removed, while the Alert for a perched culvert noted in an upstream reach, is being carried forward.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
7512	MassDFG	Fish	Glendale	Downstream of Cone Rd. bridge, Middlefield	42.36190	-73.00611
		Community	Brook			

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: EBT = Brook Trout]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
7512	07/30/15	BP	TP	1	65	65	44	159	62	0	100%	100%	No	Yes	EBT

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Glandale Break (MA22, 10), so the Eich Consumption Lise	is Not Assossed

Fish toxics sampling has not been conducted in Glendale Brook (MA32-10), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for Glendale Brook (MA32-10), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No recent bacteria data are available for Glendale Brook (MA32-10), so the Primary Contact Recreational Use is Not Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for Clandale Break (NA22-10), so the Secondary Contact Personation	al Lico is Not

No recent bacteria data are available for Glendale Brook (MA32-10), so the Secondary Contact Recreational Use is Not Assessed.

Granville Reservoir (MA32038)

Location:	Granville.
AU Type:	FRESHWATER LAKE
AU Size:	74 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Granville Reservoir (MA32038) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Great Brook (MA32-25)

Location:	Source, outlet Congamond Lakes, Southwick to mouth at confluence with Westfield River, Westfield.
AU Type:	RIVER
AU Size:	10.8 MILES
Classification/Qualifier:	В

Great Brook - MA32-25

Watershed Area: 22.15 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	22. <mark>1</mark> 5	7.34	6.18	2.22
Agriculture	12.8%	10.6%	10%	5.7%
Developed	22.8%	26.5%	17.1%	18.3%
Natural	57.2%	56.8%	56%	62.1%
Wetland	7.2%	6.2%	16.9%	14%
Impervious	7.75%			

Cover

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

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

Recommendations

2022 Recommendations

ALU: Periodically reevaluate nutrient enrichment indicators (pH, DO diel shift, DO saturation, algal observations) in Great Brook (MA32-25), as 2012 data at W2276 were on the edge of cause for concern (TP seasonal average 0.068 mg/L, maximum DO saturation 123%).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert							
Not Supporting	NO							
2022 Use Attainment Summary								
MassDEP staff conducted fish (Sample ID 5035), benthic (Station B0813), and water quality (W2276) surveys in Great								
Brook (MA32-25) ~175 ft downstream of the Shaker Rd crossing nearest the Kellog Brook confluence in W	/estfield during							
summer 2012 as part of the MAP2 Probabilistic Wadeable Streams Monitoring Project. The September ba	ackpack							
electrofishing sample (n=157) was dominated by fluvial fish (97%) and was comprised of 20% cold-water	individuals,							
including multiple age classes of Eastern brook trout (EBT) (seven individuals ≤140 mm in length as well a	s a number of							
EBT and brown trout larger than 140 mm). The presence of multiple age classes of EBT is indicative of exc	ellent water							
quality conditions and Great Brook will be assessed as having a Tier 1 Cold Water Existing Use. The July be	enthic sample							
had an IBI score of 45, indicating that conditions were moderately degraded for a high gradient location in	n the Central							
Hills ecoregion, however since these data were collected in the year following Hurricane Irene, a benthic	impairment is							
not being added at this time. Three short-term probe deploys were conducted to measure dissolved oxyg	en (DO) for a							
total of 12 days. The minimum DO was excellent at 7.7 mg/L. Continuous temperature measurements we	re recorded							
over 107 days in the summer index period with the following results: maximum temperature 22.7 °C, 7DA	ADM maximum							
21.9 °C (and was >20.0 °C 57 times indicating chronically elevated temperature exceeding the cold-water	criterion and							
thresholds), and maximum 24-hour rolling average temperature 22.0 °C (below the acute cold-water thre	shold of 23.5							
°C). It is noted that impervious cover in this subwatershed is 7.75%. Other water quality data, generally in	dicative of							
good conditions, can be summarized as follows: pH ranged from 8.0-8.6 S.U. (n=3; one measurement >8.3	3 S.U.), there							
was little indication of nutrient enrichment (total phosphorus seasonal average 0.068 mg/L with n=5, max	kimum diel DO							
shift 2.3 mg/L, maximum DO saturation 123.3%, and no observations of excessive filamentous algae), the	re were no							
exceedances among three clean metals samples or three aluminum samples (because dissolved Al data w	ere compared							
to the total recoverable Al criteria, exceedances cannot be ruled out, however), and the maximum total a	immonia							
nitrogen (TAN) was 0.050 mg/L (n=5). Among five chloride samples, the maximum concentration was only	y 28 mg/L and							
the maximum specific conductance (SC) measurement was 265 μ s/cm (n=2).								
The Aquatic Life Use of Great Brook (MA32-25), which has a Tier 1 Cold Water Existing Use, is assessed as	Not							

Supporting. While the presence of multiple age classes of Eastern brook trout was documented during summer 2012, temperatures above Cold Water standards/use attainment impairment thresholds were identified, so an impairment for Temperature is being added.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5035	MassDEP	Fish	Great Brook	~175ft DS of Shaker Rd xing nearest Kellog	42.08622	-72.72793
		Community		Br confluence		
B0813	MassDEP	Benthic	Great Brook/	[approximately 55 meters downstream of	42.086216	-72.727932
				the Shaker Road crossing nearest the Kellog		
				Brook confluence (which is approximately		
				180 meters downstream of station),		
				Westfield]		

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2276	MassDEP	Water	Great Brook	[approximately 175 feet downstream of the	42.086216	-72.727932
		Quality		Shaker Road crossing nearest the Kellog		
				Brook confluence (which is approximately		
				600 feet downstream of station), Westfield]		

Biological Monitoring Information

Benthic Macroinvertebrate Data

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

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

Station	Collection	Collection		Organism	Index	Index Biological
Code	Date	Method	Index Type	Count	Score	Condition Class
B0813	07/10/12	RBP kicknet	Central_Hills_100ct	103	45	MD

Fish Community Data and DELTS

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

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

[Species List: BND = Blacknose Dace, BT = Brown Trout, EBT = Brook Trout, LND = Longnose Dace, SL = Sea Lamprey, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5035	09/10/12	BP	ТР	7	157	12	70	249	7	0	20%	97%	No	Yes	BND, BT, EBT, LND, SL, TD, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Note: Most deploys 3-5 days in length; Day Count= total # of days over all deploys; XDADMin= 3-5 Day Average of the Daily Minima, XDADA= 3-5 Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2276	2012	3	12	7.7	8.2	8.8	2.3	0	0	0	0	0	0
MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2276	05/10/12	09/20/12	2	10.1	10.1	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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



MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2276	2012	3	12	20.2	21.2	20.4	18.8	1	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2276	06/01/12	09/15/12	107	5136	22.0	0	0	0
W2276	06/14/12	08/21/12	68	580	20.4	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
11/2276	OF /10 /12	00/20/12	4	C	21.2	17.2	1	0	0	Δ

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2276	05/10/12	09/20/12	3	8	8.6	1	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Summer seasonal total phosphorus data collected May-Sept]

Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2276	2012	5	0.016	0.140	0.068	2.3	1.6	123.3	8.6	4	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CMC	Cd CMC	Cr III CMC	Cu CMC	Pb CMC	Ni CMC	Ag CMC	Zn CMC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2276	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CCC	Cd CCC	Cr III CCC	Cu CCC	Pb CCC	Ni CCC	Se CCC	Zn CCC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2276	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Dissolved	Al Min	Al Max	Al Avg	Al CMC	Al CCC	Al CMC	Al CCC
Code	Year	Al Count	(mg/L)	(mg/L)	(mg/L)	TU Max	TU Max	TU >1	TU >1
W2276	2012	3	0.010	0.014	0.011	0.0	0.1	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [TAN= NH3 + NH4+]

Station	Data	TAN	TAN Min	TAN Max	TAN Avg	Count TAN	Count TAN
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	>Chronic	>Acute
W2276	2012	5	0.020	0.050	0.030	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
W2276	2012	5	16	28	20	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8)

(MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2276	05/10/12	09/20/12	2	248	265	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
Fish taxies compling has not been conducted in Creat Dreak (MA22, 25), so the Fish Consumption Lise is Not Accessed					

Fish toxics sampling has not been conducted in Great Brook (MA32-25), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Lise Attainment Summary	

MassDEP staff conducted water quality field surveys of this Great Brook AU (MA32-25) in Westfield (Station W2276) approximately 175 feet downstream of the Shaker Road crossing nearest the Kellog Brook confluence (which is approximately 600 feet downstream of station). There were generally no objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during the summer of 2012 (n=6). However, there were two observations of highly turbid water.

The Aesthetics Use of this Great Brook AU (MA32-25) is assessed as Fully Supporting with an Alert identified for turbidity based on field observations during the summer of 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2276	MassDEP	Water	Great Brook	[approximately 175 feet downstream of the Shaker	42.086216	-72.727932
		Quality		Road crossing nearest the Kellog Brook confluence		
				(which is approximately 600 feet downstream of		
				station), Westfield]		

Aesthetic Observations

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

			Field	
Station		Data	Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W2276	Great Brook	2012	6	The Aesthetics Use for Great Brook is assessed as Fully Supporting based
				on observations (generally no odors, deposits, or growths) by MassDEP
				staff during field surveys at station W2276/MAP2-215 in summer 2012
				(n=6). However, the use is identified with an Alert status due to 2
				observations of highly turbid water.

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

			Field Sheet Count w/ Film &	
Station			Filamentous Algae	Dense/ Very Dense
Code	Data Year	Field Sheet Count	Observations	Film/ Filamentous Algae
W2276	2012	6	4	0

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

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2276	Great Brook	2012	Color	Light Yellow/Tan	4	6
W2276	Great Brook	2012	Color	None	2	6
W2276	Great Brook	2012	Objectionable Deposits	No	6	6
W2276	Great Brook	2012	Odor	Musty (Basement)	2	6
W2276	Great Brook	2012	Odor	None	4	6
W2276	Great Brook	2012	Scum	No	6	6
W2276	Great Brook	2012	Turbidity	Highly Turbid	2	6
W2276	Great Brook	2012	Turbidity	None	2	6
W2276	Great Brook	2012	Turbidity	Slightly Turbid	2	6

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	
MassDEP staff conducted water quality field surveys of this Great Brook AU (MA32-25) in Westfield (Stati	on W2276)
approximately 175 feet downstream of the Shaker Road crossing nearest the Kellog Brook confluence (wh	nich is
approximately 600 feet downstream of station) between May and September 2012. E. coli bacteria samp	les were
collected during each of these site visits (n=6). Analysis of this limited frequency single year dataset indica	nted that 100%
of intervals had GMs exceeding 126 CFU/100mL and three samples exceeded the 410 CFU/100mL STV. The	e seasonal GM
was 380 CFU/100mL. There were generally no objectionable conditions (odors, deposits, growths) record	ed by DEP field
sampling crews during the site visits, but there were two observations of highly turbid water.	
The Primary Contact Recreational Use for this Great Brook AU (MA32-25) is assessed as Not Supporting b	ased on the E.
coli data collected at DEP station W2276 during summer 2012 which exceeded the use attainment impair	ment
thresholds. An Alert is being identified for turbidity based on field crew observations.	

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2276	MassDEP	Water	Great Brook	[approximately 175 feet downstream of the Shaker	42.086216	-72.727932
		Quality		Road crossing nearest the Kellog Brook confluence		
				(which is approximately 600 feet downstream of		
				station), Westfield]		

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
					Sample	Sample	Sample	Geometric
Station Code	Organization	Indicator	Start Date	End Date	Count	Result	Result	Mean
W2276	MassDEP	E. coli	05/10/12	09/20/12	6	36	1990	380

W2276 E. coli (90-day Interval), Primary Contact Recreational Use Season







Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

MassDEP staff conducted water quality field surveys of this Great Brook AU (MA32-25) in Westfield (Station W2276) approximately 175 feet downstream of the Shaker Road crossing nearest the Kellog Brook confluence (which is approximately 600 feet downstream of station) between May and September 2012. *E. coli* bacteria samples were collected during each of these site visits (n=6). Analysis of this limited frequency single year dataset indicated that none of the intervals had GMs exceeding 630 CFU/100mL and two samples exceeded the 1260 CFU/100mL STV. The seasonal GM was 380 CFU/100mL. There were generally no objectionable conditions (odors, deposits, growths) recorded by DEP field sampling crews during the site visits, but there were two observations of highly turbid water.

The Secondary Contact Recreational Use for this Great Brook AU (MA32-25) is assessed as Fully Supporting since the *E. coli* data collected at DEP station W2276 during summer 2012 did not exceed use attainment impairment guidance. An Alert is being identified for turbidity based on field crew observations.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2276	MassDEP	Water	Great Brook	[approximately 175 feet downstream of the Shaker	42.086216	-72.727932
		Quality		Road crossing nearest the Kellog Brook confluence		
				(which is approximately 600 feet downstream of		
				station), Westfield]		

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
						Sample	Sample	Geometric
						Result	Result	Mean
						(CFU/100ml	(CFU/100ml	(CFU/100ml
					Sample	or	or	or
Station Code	Organization	Indicator	Start Date	End Date	Count	MPN/100ml)	MPN/100ml)	MPN/100ml)
W2276	MassDEP	E. coli	05/10/12	09/20/12	6	36	1990	380

W2276 E. coli (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	380
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	2
%n>STV	33

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



Hamilton Brook (MA32-74)

Location:	Perennial portion, from outlet of Chimney Corners Pond Dam (NATID# MA00203) west of Hamilton Road, Becket to mouth at confluence with Walker Brook, Becket.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Hamilton Brook (MA32-74) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Hammond Pond (MA32040)

Location:	Goshen.
AU Type:	FRESHWATER LAKE
AU Size:	38 ACRES
Classification/Qualifier:	В

No usable data were available for Hammond Pond (MA32040) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Hollister Brook (MA32-75)

Location:	Headwaters, perennial portion, west of Wildcat Road, Granville to mouth at inlet Granville Reservoir, Granville		
	Resevoir, Granvine.		
АU Туре:	RIVER		
AU Size:	0.9 MILES		
Classification/Qualifier:	A: PWS, ORW, CWF (Tributary)		

No usable data were available for Hollister Brook (MA32-75) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Horse Pond (MA32043)

Location:	Westfield.
AU Type:	FRESHWATER LAKE
AU Size:	24 ACRES
Classification/Qualifier:	В

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	(Eurasian Water Milfoil, Myriophyllum		Unchanged
		Spicatum*)		
5	5	(Non-Native Aquatic Plants*)		Unchanged
5	5	Chlorophyll-a		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	Introduction of Non-native Organisms	Х				
Spicatum*)	(Accidental or Intentional) (Y)					
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms	Х				
	(Accidental or Intentional) (Y)					
Chlorophyll-a	Source Unknown (N)	Х				
Dissolved Oxygen	Source Unknown (N)	Х				

Recommendations

2022 Recommendations

ALU: Because the Horse Pond 1996 survey field sheet said "Myriophyllum heterophyllum (likely)" an aquatic macrophyte survey should be conducted when flowering heads are present in order to confirm the presence of this species in the Pond.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

As was previously reported, MassDEP staff identified infestations of the non-native aquatic macrophytes, Eurasian water milfoil (*Myriophyllum spicatum*) and variable milfoil (*Myriophyllum heterophyllum*), in Horse Pond during an August 1996 synoptic survey. However, the presence of the specific species, *M. heterophyllum*, should be confirmed when flowering heads are present.

The Aquatic Life Use of Horse Pond (MA32043) will continue to be assessed as Not Supporting. The prior impairments for Chlorophyll-a, Dissolved Oxygen, "Eurasian Water Milfoil, Myriophyllum Spicatum," and Non-Native Aquatic Plants impairments are all being carried forward.

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1996)

Summary Statement	Assessment Recommendation
As was previously reported, MassDEP staff identified infestations	The synoptic survey field sheet said "Myriophyllum
of the non-native aquatic macrophytes, Eurasian water milfoil	heterophyllum (likely)" so conduct an aquatic
(Myriophyllum spicatum) and variable milfoil (Myriophyllum	macrophyte survey when flowering heads would be
heterophyllum), in Horse Pond during an August 1996 synoptic	present to confirm the presence of this species in
survey.	Horse Pond.

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Horse Pond (MA32043), so the Fish Consumption Use is N	ot Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for Horse Pond (MA32043), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Horse Pond (MA32043), so the Primary Contact Recreational Use is Not	Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Horse Pond (MA32043), so the Secondary Contact Recreational Use is N	Not Assessed

Hume Brook (MA32-76)

Location:	Headwaters north of Shaw Road, Windsor to mouth at confluence with Westfield Brook,
	Windsor.
AU Type:	RIVER
AU Size:	2.1 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Hume Brook (MA32-76) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Hundred Acre Brook (MA32-77)

Location:	Headwaters, perennial portion, north of Birch Bluffs Drive, Westfield to mouth at confluence with Little River, Westfield.
AU Type:	RIVER
AU Size:	0.6 MILES
Classification/Qualifier:	B: CWF

Hundred Acre Brook - MA32-77

Watershed Area: 0.75 square miles



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

Recommendations

2022 Recommendations
ALU: Conduct water quality monitoring in Hundred Acre Brook (especially deployment of a temperature probe) in the
vicinity of fish sample 7640 to evaluate whether temperature is impaired.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

MassDFG biologists conducted backpack electrofishing in Hundred Acre Brook off a bike path ~100m upstream from its mouth in Westfield in July 2018 (Sample ID 7640). The sample (n=96) was dominated by fluvial fish (96%) including multiple age classes of Eastern brook trout (eight individuals ≤140 mm in length). The presence of a reproducing population of this species is usually indicative of excellent habitat and water quality conditions in a designated Cold Water Fishery, however it should be noted that DFG field staff comments indicated that the stream was "[a] bit warm and too shallow with real fine sediment issues" (MassDFG 2020).

The Aquatic Life Use of Hundred Acre Brook (MA32-77), a designated Cold Water Fishery, is assessed as Fully Supporting based on the July 2018 fish sample data since multiple age classes of Eastern brook trout were in the sample. Alerts are being identified, however, for temperature and sedimentation/siltation based on DFG field staff comments.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
7640	MassDFG	Fish	Hundred Acre	Off bike path, 100m upstream from	42.10239	-72.74478
		Community	Brook	mouth, Westfield		

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, F = Fallfish, GS = Golden Shiner, 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
7640	07/03/18	BP	ΤР	8	96	9	57	151	8	0	9%	96%	Yes	Yes	BND, CRC, CS, EBT, F, GS, LND, WS,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Hundred Acre Brook (MA32-77), so the Fish Consumption	Use is Not
Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Hundred Acre Brook (MA32-77), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Hundred Acre Brook (MA32-77), so the Primary Contact Recreational U	se is Not
Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Hundred Acre Brook (MA32-77), so the Secondary Contact Recreationa	l Use is Not

Assessed.

Jacks Brook (MA32-39)

Location:	Headwaters (perennial portion), east of Fowler Road, Westfield to inlet of Crane Pond/Little River, Westfield.
AU Type:	RIVER
AU Size:	2.4 MILES
Classification/Qualifier:	В

No usable data were available for Jacks Brook (MA32-39) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

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

Kearnery Brook (MA32-46)

Location:	Headwaters, north of Powell Road and east of FAA Road, Cummington to mouth at confluence with Bronson Brook, Worthington.
AU Type:	RIVER
AU Size:	3.2 MILES
Classification/Qualifier:	B: CWF

KEARNERY BROOK - MA32-46

Watershed Area: 2.21 square miles



2018/20 AU	2022 AU			Impairment Change
Category	Category	Impairment	ATTAINS Action ID	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						
MassDFG biologists conducted backpack electrofishing in Kearnery Brook (MA32-46), a designated Cold Water Fishery,						
deverte and a fith a Dt 442 and a in Conversion to a (Converse ID 7557) in Ave 2040, as well as from 2044 2040 (months in						

downstream of the Rt 112 crossing in Cummington (Sample ID 7557) in Aug 2018, as well as from 2014-2019 (mostly in Aug) near the downstream end of the AU at the Worthington Rod & Gun Club upstream of a footbridge (Sample IDs 5151, 5664, 6262, 6618, 7611, 8240). All the samples (n= 29-191) were comprised entirely of fluvial fish and were dominated by multiple age classes of Eastern brook trout (many individuals ≤140 mm).

The Aquatic Life Use of Kearnery Brook (MA32-46) will continue to be assessed as Fully Supporting based on the presence of multiple age classes of Eastern brook trout, which is indicative of excellent habitat and water quality conditions.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5151	MassDFG	Fish Community	Kearney Brook	Worthington Rod & Gun Club (upstream of footbridge), Worthington	42.43513	-72.93025
5664	MassDFG	Fish Community	Kearney Brook	behind Worthington Rod & Gun Club, Worthington	42.43520	-72.93012
6262	MassDFG	Fish Community	Kearney Brook	@ Sportsman's club, Worthington	42.43528	-72.93013
6618	MassDFG	Fish Community	Kearney Brook	Worthington Rd and Gun Club, Worthington	42.43522	-72.93004
7557	MassDFG	Fish Community	Kearney Brook	Downstream of Rt. 112 crossing, Cummington	42.44533	-72.93477
7611	MassDFG	Fish Community	Kearney Brook	Sportmans Club (Upstream of ped. bridge), Worthington	42.43519	-72.92991
8240	MassDFG	Fish Community	Kearney Brook	US of Foot bridge @ Rod & Gun Club, Worthington	42.43530	-72.93005

Biological Monitoring Information

Fish Community Data and DELTS

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

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

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

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
5151	08/07/14	BP	TP	3	119	104	44	144	102	0	92%	100%	No	Yes	AS, BND, EBT,
5664	07/29/15	BP	TP	3	191	180	44	220	170	0	96%	100%	No	Yes	AS, BND, EBT,
6262	08/08/16	BP	TP	2	172	165	47	160	154	0	96%	100%	No	Yes	BND, EBT,
6618	08/09/17	BP	TP	2	102	100	39	183	95	0	98%	100%	No	Yes	BND, EBT,
7557	08/02/18	BP	TP	1	29	29	49	192	22	0	100%	100%	Yes	Yes	EBT,
7611	09/24/18	BP	TP	2	45	32	62	170	25	0	71%	100%	Yes	Yes	BND, EBT,
8240	08/19/19	BP	TP	2	189	164	53	181	151	0	87%	100%	No	Yes	BND, EBT,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO

2022 Use Attainment Summary

No fish toxics sampling has been conducted in Kearnery Brook (MA32-46), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available, so the Aesthetics Use of Kearnery Brook (MA32-46) is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available, so the Primary Contact Recreational Use of Kearnery Brook (MA32-46) is I	Not Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available, so the Secondary Contact Recreational Lise of Kearnery Brook (MA32-46)	is Not Assessed

No bacteria data are available, so the Secondary Contact Recreational Use of Kearnery Brook (MA32-46) is Not Assessed.

Kellog Brook (MA32-55)

Location:	Headwaters (perennial portion), east of College Highway (Route 202), Southwick to mouth at confluence with Great Brook, Westfield.
AU Type:	RIVER
AU Size:	2.8 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Kellog Brook (MA32-55) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Kinne Brook (MA32-32)

Location:	Headwaters (perennial portion), north of Adams Road, Worthington to mouth at confluence with Middle Branch Westfield River, Chester.
AU Type:	RIVER
AU Size:	4 MILES
Classification/Qualifier:	A: PWS, ORW, CWF (Tributary)

Kinne Brook - MA32-32

Watershed Area: 5.73 square miles



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					
Fully Supporting	NO				
2022 Use Attainment Summary					

MassDFG biologists conducted backpack electrofishing at sites throughout the downstream 2/3 of Kinne Brook on 11 occasions in August or September 2014-2019. From upstream to downstream, fish community Sample IDs were as follows: 8498, 6729, 6728, 8497, 6758, 6757, 5176, 5720, 6474, 6227, 6756. The samples were all dominated by fluvial fish (\geq 99%), were relatively large in size (n= 93-304), and were comprised of 4-78% cold-water individuals. Most samples included slimy sculpin and all included multiple age classes of Eastern brook trout. MassDEP staff collected water quality data at three stations in Kinne Brook during summer 2017: near the upstream end of the AU at Adams Rd in Worthington (W2750), ~250 m south (downstream) of confluence of Skunk Brook off the west side of Kinne Brook Road, Chester(W0265), and west off Kinney Brook Road ~0.1 mile from the confluence with the Middle Branch Westfield River (W1459). Probes were deployed to measure dissolved oxygen (DO) for 78 days (end of July thru early Oct 2017) at the upstream and downstream stations. The minimum DO was 7.6 mg/L. Continuous temperature data were measured over 53 days in the summer index period at all three stations and these data can be summarized as follows: the overall maximum temperature was 21.0 °C (at W0265), the maximum 7DADM was 19.4 °C, and the maximum 24-hr rolling average temp was 19.9 °C, all meeting cold water standards and thresholds. The other very limited water quality data, indicative of good conditions, can be summarized as follows: the two pH measurements at the upstream and downstream stations were 7.3 and 7.5 S.U, there was no indication of nutrient enrichment (maximum DO diel shift was 1.3 mg/L, maximum DO saturation was 96.6%), the maximum specific conductance (SC) measurement from the upstream and downstream stations (n=2 each) was 91 µs/cm. The Division of Ecological Restoration partnered with Trout Unlimited, the Town of Chester, and others to remove the Stroud Dam in 2014, improving fish passage as part of the Kinne Brook Restoration Project (Banks May 19, 2021). The Skunk Brook (a tributary of Kinne Brook and not an AU) crossing at Kinne Brook Road was replaced in the Spring of 2020 (construction completed late June) (Banks May 19, 2021). An additional project on a tributary, The Kinne Brook Tributary culvert replacement project final design project funding was just recently awarded (EOEEA 2022).

The Aquatic Life Use of Kinne Brook (MA32-32), a designated Cold Water Fishery, is assessed as Fully Supporting based the presence of slimy sculpin and multiple age classes of Eastern brook trout in the brook between 2014 and 2019, as well as the water quality data collected during the summer of 2017. The prior Alert for temperature is being removed since the three long-term datasets had no violations of criteria (the prior Alert was based on short-term continuous data collected at W1459 between 21 and 26 July 2006 (MassDEP Undated 7)).

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5176	MassDFG	Fish	Kinne Brook	Kinne Brook Rd, <1mi N of Dayville, Chester	42.31361	-72.90997
		Community				
5720	MassDFG	Fish	Kinne Brook	Turnoff on Kinne Brook Rd, Chester	42.31339	-72.91001
		Community				
6227	MassDFG	Fish	Kinne Brook	Kinnie Br Rd, Chester	42.31282	-72.90977
		Community				
6474	MassDFG	Fish	Kinne Brook	Follow the Kinne Brook Rd, Chester	42.31334	-72.90970
		Community				
6728	MassDFG	Fish	Kinne Brook	Along Kinne Brook Rd, DS of Skunk Brook,	42.32754	-72.91298
		Community		Chester		
6729	MassDFG	Fish	Kinne Brook	Along Kinne Brook Rd, US of Sunk Br	42.33366	-72.91666
		Community		confluence, Chester		
6756	MassDFG	Fish	Kinne Brook	Along Kinne Brook Rd, at Telephone # 29.,	42.31221	-72.90918
		Community		Chester		
6757	MassDFG	Fish	Kinne Brook	Along Kinne Brook Rd, at telephone pole #	42.31427	-72.91035
		Community		VZ33, Chester		
6758	MassDFG	Fish	Kinne Brook	Along Kinne Brook, Chester	42.31681	-72.91000
		Community				
8497	MassDFG	Fish	Kinne Brook	Along Kinne Brook Rd, ~1.5mi N of Dayville,	42.32468	-72.91179
		Community		Chester		

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
8498	MassDFG	Fish	Kinne Brook	Along Kinne Brook Rd, US of UNT	42.33772	-72.91902
		Community		confluence, just S of Worthington town line,		
				Chester		
W0265	MassDEP	Water	Kinne Brook	[approximately 250 meters south	42.325740	-72.912524
		Quality		(downstream) of confluence of Skunk Brook		
				off the west side of Kinne Brook Road,		
				Chester]		
W1459	MassDEP	Water	Kinne Brook	[west off Kinney Brook Road approximately	42.306040	-72.906705
		Quality		0.1 mile from the confluence with the		
				Middle Branch Westfield River, Chester]		
W2750	MassDEP	Water	Kinne Brook	[Adams Road, Worthington]	42.353089	-72.928659
		Quality				

Biological Monitoring Information

Fish Community Data and DELTS

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

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

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

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5176	09/15/14	BP	ТР	6	93	10	68	247	8	0	17%	100%	Yes	Yes	AS, BND, CRC, EBT, LND, WS,
5720	09/08/15	BP	ТР	7	171	29	59	167	25	3	19%	100%	No	Yes	AS, BND, CRC, EBT, LND, SC, WS,
6227	08/15/16	BP	ТР	6	193	24	66	145	23	3	14%	100%	No	Yes	BND, CRC, EBT, LND, SC, WS,
6474	09/05/17	BP	ТР	6	178	7	77	171	4	7	8%	100%	No	Yes	BND, CRC, EBT, LND, SC, WS,
6728	09/05/17	BP	ТР	5	160	50	55	186	45	43	58%	100%	Yes	Yes	BND, CRC, EBT, LND, SC,
6729	09/05/17	BP	TP	3	178	52	60	183	43	54	60%	100%	No	Yes	BND, EBT, SC,
6756	08/09/17	BP	ТР	6	128	7	70	170	6	14	16%	100%	Yes	Yes	BND, CRC, EBT, LND, SC, WS,
6757	08/09/17	BP	ТР	6	214	8	55	187	5	15	11%	100%	No	Yes	BND, CRC, EBT, LND, SC, WS,
6758	08/10/17	BP	ТР	7	234	8	68	160	6	1	4%	100%	No	Yes	BND, CRC, CS, EBT, LND, SC, WS,
8497	08/05/19	BP	ТР	6	304	97	49	200	81	7	34%	100%	No	Yes	BND, CRC, EBT, GS, LND, SC,
8498	08/05/19	BP	TP	5	171	108	43	240	84	25	78%	99%	No	Yes	BND, CRC, EBT, P, SC,

Habitat and Flow Data (anthropogenic alterations)

Status of MassDER habitat restoration priority projects as of 2021 (Wildman April 15, 2021)

The Division of Ecological Restoration partnered with Trout Unlimited, the Town of Chester, and others to remove the Stroud Dam in 2014, improving fish passage as part of the Kinne Brook Restoration Project (Banks May 19, 2021). The Skunk Brook crossing (a tributary of Kinne Brook and not an AU) at Kinne Brook Road was replaced in the Spring of 2020. Due to the COVID-19 pandemic and supply chain issues for the guardrail, this resulted in the closure of Kinne Brook Road until late June, when construction was completed. An additional project on a tributary, The Kinne Brook Tributary culvert replacement project, has not been completed, as the design is still under review and construction funding has not been secured for the 2021 season (Banks May 19, 2021).

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W1459	07/25/17	10/10/17	78	72	49	7.6	7.9	8.2	1.3	0	0	0	0	0	0	0	0
W2750	07/25/17	10/10/17	78	72	49	8	8.4	8.7	1.1	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W1459	08/31/17	10/11/17	2	9.6	9.6	0	0	0
W2750	08/31/17	10/11/17	2	9.3	9.4	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W0265	07/25/17	09/15/17	53	50	19.1	21.0	19.4	17.8	0	0	0	0	0	0
W1459	07/25/17	09/15/17	53	50	19.4	20.4	19.3	18.3	0	0	0	0	0	0
W2750	07/25/17	09/15/17	53	50	17.0	18.4	17.0	16.1	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W0265	07/24/17	09/15/17	53	2518	19.6	0	0	0
W1459	07/24/17	09/15/17	53	2516	19.9	0	0	0
W2750	07/24/17	09/15/17	53	2520	17.6	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W0265	08/28/17	10/02/17	1	1	14.4	14.4	0	0	0	0
W1459	08/31/17	10/11/17	2	1	15.0	14.7	0	0	0	0
W2750	08/31/17	10/11/17	2	1	14.0	13.9	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W1459	08/31/17	10/11/17	1	7.5	7.5	0	0
W2750	08/31/17	10/11/17	1	7.3	7.3	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W1459	2017					1.3	0.8	96.6	7.5		
W2750	2017					1.1	0.6	93.5	7.3		

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W1459	08/31/17	10/11/17	2	90	91	0	0	0	0	0	0
W2750	08/31/17	10/11/17	2	78	82	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Kinne Brook (MA32-32), so the Fish Consumption Use is N	lot Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for Kinne Brook (MA32-32), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for Kinne Brook (MA32-32), so the Primary Contact Recreational Us	e is Not
Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for Kinne Brook (MA32-32), so the Secondary Contact Recreational	Use is Not
Assessed.	

Little River (MA32-08)

Location:	Horton's Bridge, Westfield to confluence with Westfield River, Westfield.
AU Type:	RIVER
AU Size:	4.9 MILES
Classification/Qualifier:	B: CWF

Little River - MA32-08

Watershed Area: 85.32 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer	
Land Use Area (square miles)	85.32	5.97	23.1	1.6	
Agriculture	3.3%	9.9%	3.1%	13%	
Developed	6.9%	41.3%	5.1%	19.9%	
Natural	84.8%	43.1%	81.3%	52.7%	
Wetland	5%	5.6%	10.4%	14.4%	
Impervious	2.93%				

Cover

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

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Escherichia Coli (E. Coli)	Discharges from Municipal Separate Storm				Х	Х
	Sewer Systems (MS4) (N)					
Escherichia Coli (E. Coli)	Source Unknown (N)				х	Х
Fecal Coliform	Discharges from Municipal Separate Storm				Х	
	Sewer Systems (MS4) (N)					
Fecal Coliform	Source Unknown (N)				Х	
Temperature	Impervious Surface/Parking Lot Runoff (N)	Х				
Temperature	Loss of Riparian Habitat (N)	Х				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	

This Little River AU (MA32-08) is a designated Cold Water Fishery although it should be noted that this designation appears to be based on marginal historical data (i.e., fish community sample 517 in July 2001 contained only one Eastern brook trout (EBT) \leq 140 mm and one slimy sculpin, as well as several larger brook/brown trout individuals (MassDFG 2020)). MassDEP staff conducted limited water quality monitoring off the Rt 20 bridge, Westfield during summer 2012 (Station W0808). A probe was deployed to measure temperature for 36 days in the summer index period, starting the end of July. The temperature data can be summarized as follows: maximum 26.2 °C, maximum 7DADM 24.4 °C with 7DADMs above 20.0 °C 23 times, and the maximum 24-hour rolling average was 24.5 °C, so both acute and chronic cold water criteria/thresholds were exceeded. Although the total phosphorus seasonal average was low at 0.011 mg/L (n=5), there were three observations of dense or very dense filamentous algae, indicating some possible issue with nutrient enrichment. The maximum total ammonia nitrogen (TAN) was 0.020 mg/L (n=5) and the maximum chloride concentration was 23 mg/L (n=5).

The Aquatic Life Use of this Little River AU (MA32-08) is assessed as Not Supporting. Since this AU is a designated Cold Water Fishery, a Temperature impairment is being added based on data collected in summer 2012 where both acute and chronic cold water criteria/thresholds were exceeded. An Alert is also being identified due to the excessive algal growth noted on three occasions in summer 2012.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W0808	MassDEP	Water Quality	Little River	[Route 20 bridge, Westfield]	42.116647	-72.733666

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W0808	07/27/12	09/15/12	36	27	24.1	26.2	24.4	23.2	23	2	18	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W0808	07/26/12	09/15/12	51	2326	24.5	172	69	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W0808	2012	5	0.009	0.015	0.011					5	3

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

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [TAN= NH3 + NH4+]

Station	Data	TAN	TAN Min	TAN Max	TAN Avg	Count TAN	Count TAN
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	>Chronic	>Acute
W0808	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
W0808	2012	5	15	23	19	0	0

Fish Consumption

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
No recent fish toxics sampling has been conducted in this Little River AU (MA32-08), and since there is no advisory, the					
Fish Consumption Use is Not Assessed.					

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

MassDEP staff conducted water quality (W0808) surveys of this Little River AU (MA32-08) in Westfield on the Route 20 bridge. There were generally no noted objectionable conditions (odors, deposits, or turbidity) recorded by DEP sampling crews during summer 2012 (n=5). However, there were observations of dense/very dense filamentous algae on three site visits.

The Aesthetics Use of this Little River AU (MA32-08) will continue to be assessed as Fully Supporting. An Alert is being identified, however, due to some observations of excessive algal growth in summer 2012.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W0808	MassDEP	Water Quality	Little River	[Route 20 bridge, Westfield]	42.116647	-72.733666

Aesthetic Observations

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

Station		Data	Field Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W0808	Little River	2012	5	The Aesthetics Use for the Little River is assessed as Fully Supporting based on observations (generally no odors, deposits, growths, or turbidity) by
				MassDEP staff during field surveys at station W0808 in summer 2012
				(n=5). However, the use is identified with an Alert status due to
				observations of dense/very dense filamentous algae on 3 site visits.

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

			Field Sheet Count w/ Film &	
Station			Filamentous Algae	Dense/ Very Dense
Code	Data Year	Field Sheet Count	Observations	Film/ Filamentous Algae
W0808	2012	5	5	3

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

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W0808	Little River	2012	Color	None	5	5
W0808	Little River	2012	Objectionable Deposits	No	5	5
W0808	Little River	2012	Odor	None	5	5
W0808	Little River	2012	Scum	No	5	5
W0808	Little River	2012	Turbidity	None	5	5

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	

MassDEP staff conducted water quality (W0808) surveys of this Little River AU (MA32-08) in Westfield on the Route 20 bridge. There were generally no noted objectionable conditions (odors, deposits, or turbidity) recorded by DEP sampling crews during summer 2012 (n=5). However, there were observations of dense/very dense filamentous algae on three site visits.

No recent bacteria data are available for this Little River AU (MA32-08), so the Primary Contact Recreational Use will continue to be assessed as Not Supporting with the prior Escherichia Coli (E. Coli) and Fecal Coliform impairments being carried forward. Additionally, an Alert is being identified for excessive algal growth.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	

MassDEP staff conducted water quality (W0808) surveys of this Little River AU (MA32-08) in Westfield on the Route 20 bridge. There were generally no noted objectionable conditions (odors, deposits, or turbidity) recorded by DEP sampling crews during summer 2012 (n=5). However, there were observations of dense/very dense filamentous algae on three site visits.

No recent bacteria data are available for this Little River AU (MA32-08), so the Secondary Contact Recreational Use will continue to be assessed as Not Supporting with the prior Escherichia Coli (E. Coli) impairment being carried forward. Additionally, an Alert is being identified for excessive algal growth.

Little River (MA32-16)

Location:	Headwaters, confluence of Watts and Wards streams, Ringville (locality in Worthington), to mouth at confluence with Westfield River, Huntington.
AU Type:	RIVER
AU Size:	5.7 MILES
Classification/Qualifier:	В

Little River - MA32-16

Watershed Area: 15.26 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer	
Land Use Area (square miles)	15.26	3.14	3.41	0.51	
Agriculture	8.5%	3.7%	2.7%	0%	
Developed	4.9%	2.5%	4.5%	6.3%	
Natural	80.7%	89.9%	78.9%	79.9%	
Wetland	5.9%	3.9%	13.9%	13.9%	
Impervious	1.87%				

Cover

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

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MassDFG biologists conducted backpack electrofishing in this Little River AU (MA32-16) between August and September 2014-2018 in three general locations, described from upstream to downstream as follows: upstream of Goss Hill Rd., Worthington (Sample ID 7556); downstream of bridge on Rt 112 (WMA) at Higgins Rd, Worthington (Sample IDs 5140, 5709, 6228, 6628); turnoff on Rt 112 (mile 8.0), 1 mi S of Ireland St, Huntington (Sample ID 5139, 5708, 6223, 6485). The samples, all dominated (≥93%) by fluvial fish, were moderate to large in size (n= 53-294), and all included multiple age classes of Eastern brook trout.

Although the presence of multiple age classes of Eastern brook trout is indicative of excellent habitat and water quality conditions, the Aquatic Life Use for this Little River AU (MA32-16) will continue to be assessed as Not Supporting with the prior Temperature impairment being carried forward.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5139	MassDFG	Fish	Little River	Turnoff on Rt 112 (mile 8.0), Huntington	42.33230	-72.88088
		Community	(2)			
5140	MassDFG	Fish	Little River	DS of bridge on Rt 112 (on WMA), just N of	42.34784	-72.89726
		Community	(2)	Ireland St, Worthington		
5708	MassDFG	Fish	Little River	Turn off on Rt 112, 1mi S of Ireland St,	42.33227	-72.88101
		Community	(2)	Huntington		
5709	MassDFG	Fish	Little River	DS of Bridge on Rt 112 (WMA) @ Higgins Rd,	42.34766	-72.89750
		Community	(2)	Worthington		
6223	MassDFG	Fish	Little River	Turn-off on Rt 112, Huntington	42.33216	-72.88091
		Community	(2)			
6228	MassDFG	Fish	Little River	DS of bridge on 112, Worthington	42.34805	-72.89753
		Community	(2)			
6485	MassDFG	Fish	Little River	Turn off on Rt 112., Worthington	42.33209	-72.88110
		Community	(2)			
6628	MassDFG	Fish	Little River	DS of Bridge on rt 112, Worthington	42.34774	-72.89752
		Community	(2)			
7556	MassDFG	Fish	Little River	Upstream of Goss Hill Rd., Worthington	42.35051	-72.90344
		Community				

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CP = Chain Pickerel, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, P = Pumpkinseed, WS = White Sucker, YP = Yellow Perch]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5139	08/01/14	BP	ТР	7	83	13	49	159	8	0	43%	100%	Yes	Yes	AS, BND, CRC, CS, EBT, LND, WS,
5708	08/24/15	BP	ТР	7	166	32	48	194	26	0	19%	99%	No	Yes	BND, CRC, CS, EBT, LND, WS, YP,

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
5709	08/24/15	BP	ТР	6	185	8	74	181	3	0	4%	100%	No	Yes	BND, CRC, CS, EBT, LND, WS,
6223	08/11/16	BP	ТР	5	294	105	49	206	92	0	36%	100%	No	Yes	BND, CP, EBT, LND, WS,
6485	08/07/17	BP	ТР	7	218	31	54	219	15	0	14%	93%	No	Yes	BND, CRC, CS, EBT, LND, P, WS,
6628	09/05/17	BP	ТР	6	294	9	62	233	7	0	3%	100%	No	Yes	BND, CRC, CS, EBT, LND, WS,
7556	08/02/18	BP	ТР	6	53	4	78	127	4	0	8%	100%	Yes	Yes	BND, CRC, CS, EBT, LND, WS,

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

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net; Trout= any combination of brook trout, brown trout, rainbow trout, tiger trout; Other Tier2 Species= any size and any combination of American brook lamprey, Atlantic salmon, lake chub, lake trout, longnose sucker, slimy sculpin]

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

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	Trout ≤140mm Ind	LLS<200mm Ind	Other Tier2 Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5140	08/01/14	BP	TP	7	115	1	0	32	30%	100%	No	Yes	AS, BND, CRC, CS, EBT, LNS, WS,

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

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

[Species List: BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, 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	/MT MG Ind %	Notables	CFR	Species List
6228	08/15/16	BP	ТР		6	166	2%	6	100%	2%	0	0%	Yes	Yes	BND, CRC, CS, EBT, LND, WS,

Fish Consumption

2022 Use Attainment	Alert						
Not Assessed	NO						
2022 Use Attainment Summary							
Fish toxics sampling has not been conducted in this Little River AU (MA32-16), so the Fish Consumption U	se is Not						
Assessed.							

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for this Little River AU (MA32-16), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for this Little River AU (MA32-16), so the Primary Contact Recreatio	nal Use is Not
Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for this Little River AU (MA32-16), so the Secondary Contact Recrea	tional Use is Not
Assessed.	
Little River (MA32-35)

Location:	Source, outlet of Cobble Mountain Reservoir, Russell to Springfield Water Works Intake Dam (NATID: MA00708) northwest of Gorge Road, Russell (formerly part of 2004 segment: Little River MA32-26).
AU Type:	RIVER
AU Size:	2.6 MILES
Classification/Qualifier:	A: PWS, ORW, CWF (part PWS and Tributary to PWS)

No usable data were available for Little River (MA32-35) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Little River (MA32-36)

Location:	From Springfield Water Works Intake Dam (NATID: MA00708) northwest of Gorge Road, Russell to Horton's Bridge, Westfield (formerly part of 2004 segment: Little River MA32- 26).
AU Type:	RIVER
AU Size:	5.8 MILES
Classification/Qualifier:	B: CWF

Little River - MA32-36

Watershed Area: 78.38 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	78.38	9.78	21.37	2.72
Agriculture	2.8%	4.8%	2.3%	7.5%
Developed	4.2%	11.2%	4.1%	9.7%
Natural	88.2%	79.4%	83.6%	72.3%
Wetland	4.8%	4.6%	10%	10.4%
Impervious	1.71%			

Cover

2018/20 AU Category	2022 AU Category	Impairment	ATTAINS Action ID	Impairment Change Summary
5	5	Combined Biota/Habitat Bioassessments		Unchanged
5	5	Escherichia Coli (E. Coli)		Unchanged
5	5	Temperature		Added

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Combined Biota/Habitat Bioassessments	Source Unknown (N)	Х				
Escherichia Coli (E. Coli)	Discharges from Municipal Separate Storm Sewer Systems (MS4) (N)				Х	
Escherichia Coli (E. Coli)	Source Unknown (N)				Х	
Escherichia Coli (E. Coli)	Wet Weather Discharges (Non-Point Source) (N)				Х	
Temperature	Dam or Impoundment (Y)	Х				
Temperature	Source Unknown (N)	Х				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	YES

2022 Use Attainment Summary

MassDFG biologists conducted backpack electrofishing in this Little River AU (MA32-36), a designated Cold Water Fishery, at the Northwest Rd crossing in Westfield (Sample ID 5522) in September 2015. The sample (n=570) included several slimy sculpins and multiple age classes of Eastern brook trout (nine ≤140 mm in length). The presence of these two cold-water species is indicative of excellent water quality conditions but the number of cold-water individuals is small considering the overall sample size. At the same location (Station W1462), MassDEP staff conducted limited water quality monitoring during summer 2018, and limited monitoring was also conducted at the downstream border of the AU at the Horton Bridge on Granville Rd in Westfield (Station W0237). Two discrete dissolved oxygen (DO) measurements were taken at each site- the upstream minimum concentration was 9.0 mg/L and the downstream minimum was 6.8 mg/L. Probes were deployed to measure continuous temperature over 84 days in the summer index period at both stations. The 7 DADMs exceeded 20.0 °C 31 and 40 times, respectively at the two sites, while the maximum 24-hour rolling average temperatures were acceptable (at 22.1 °C and 22.4 °C). The maximum DO saturations did not indicate enrichment (97.4% and 84.1%). Continuous specific conductance data (measured mid-June through mid-Sept) had maxima of 104 µs/cm and 225 µs/cm, respectively.

The Aquatic Life Use of this Little River AU (MA32-36) is assessed as Not Supporting. The Combined Biota/Habitat Bioassessments impairment is being carried forward and a Temperature impairment is being added based on results of continuous temperature monitoring during summer 2018. An Alert is also being identified based on the low numbers of cold water fish in the sample collected in September 2015. Although the sub-watershed as a whole contains a lot of natural/wetlands landuse (93%), the proximal stream buffer landuse does not pass the natural condition screening criterion (MassDEP 2022), and it should be noted satellite imagery indicates that development is more concentrated in the downstream portion of the sub-watershed (Google Earth Pro Undated) where there are more temperature exceedances. There are also dams along the AU and in the subwatershed area.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5522	MassDFG	Fish	Little River	Northwest Rd xing US, Westfield	42.13092	-72.82334
		Community	(1)			
W0237	MassDEP	Water	Little River	[Horton Bridge on Granville Road,	42.120299	-72.786920
		Quality		Westfield]		
W1462	MassDEP	Water	Little River	[Northwest Road bridge, Westfield]	42.130364	-72.822661
		Quality				

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AE = American Eel, B = Bluegill, BND = Blacknose Dace, BT = Brown Trout, CS = Common Shiner, EBT = Brook Trout, F = Fallfish, LND = Longnose Dace, P = Pumpkinseed, SC = Slimy Sculpin, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5522	09/03/15	BP	ТР	12	570	18	71	228	9	3	6%	98%	No	Yes	AE, B, BND, BT, CS, EBT, F, LND, P, SC, TD, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W0237	08/01/18	09/12/18	2	6.8	7.5	0	0	0
W1462	08/01/18	09/12/18	2	9	9.3	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W0237	06/20/18	09/11/18	84	78	22.4	23.9	22.5	21.3	40	0	6	0	0	0
W1462	06/20/18	09/11/18	84	78	22.0	25.3	23.5	20.2	31	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Codo	Data	Final Data	Devilopment	C	T		> 24 1 %	> 20 2°C
coue	Date	End Date	Deployed	Count	Temp (°C)	>23.5 C	>24.1 C	>28.3 C
W0237	06/19/18	09/12/18	85	4032	22.4	23.5 C	>24.1 C	>28.3 C

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Alert

				- /						
					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W0237	08/01/18	09/12/18	2	2	19.6	17.9	0	0	0	0
W1462	08/01/18	09/12/18	2	2	18.6	16.3	0	0	0	0

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

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W0237	2018							84.1			
W1462	2018							97.4			

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

MassDEP Long-term Continuous Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

			SpCond	SpCond	SpCond	Max	Max			Count	Count
Station	Start		Min	Max	Avg	4day Avg	1hr Avg	4Day	1hr	4day Avg	1hr Avg
Code	Date	End Date	(µs/cm)	(µs/cm)	(µs/cm)	(µs/cm)	(µs/cm)	Count	Count	>904	>3193
W0237	06/19/18	09/12/18	95	225	143	186	207	3888	4078	0	0
W1462	06/19/18	09/12/18	36	104	83	95	100	3888	4078	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (µs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W0237	08/01/18	09/12/18	2	104	139	0	0	0	0	0	0
W1462	08/01/18	09/12/18	2	60	74	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					

No recent fish toxics sampling has been conducted in this Little River AU (MA32-36), and since no advisory has been issued, the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment

NO

Not Assessed

2022 Use Attainment Summary

No recent data are available for this Little River AU (MA32-36), so the Aesthetics Use is Not Assessed.

Primary Contact Recreation

2022 Use Attainment	Alert			
Not Supporting	NO			
2022 Use Attainment Summary				
No recent bacteria data are available for this Little River ALL (MA22-26) so the Primary Contact Recreational Lise will				

No recent bacteria data are available for this Little River AU (MA32-36), so the Primary Contact Recreational Use will continue to be assessed as Not Supporting with the prior Escherichia Coli (E. Coli) impairment being carried forward.

Secondary Contact Recreation

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
No recent bacteria data are available for this Little River AU (MA32-36), so the Secondary Contact Recreational Use is Not					
Assessed.					

Littleville Lake (MA32046)

Location:	Chester/Huntington.
AU Type:	FRESHWATER LAKE
AU Size:	252 ACRES
Classification/Qualifier:	A: PWS, ORW

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert			
Not Assessed	NO			
2022 Use Attainment Summary				
No recent data are available, so the Aquatic Life Use of Littleville Lake (MA32046) is Not Assessed.				

Fish Consumption

2022 Use Attainment	Alert		
Not Assessed	NO		
2022 Use Attainment Summary			
Fish toxics sampling has not been conducted in Littleville Lake (MA32046), so the Fish Consumption Use is Not Assessed.			

Aesthetic

2022 Use Attainment	Alert			
Insufficient Information	YES			
2022 Use Attainment Summary				
Cyanobacteria-Harmful Algal Bloom (C-HAB) postings for Littleville Lake (MA32046, called Littleville Pond by MassDPH)				
were reported to MassDPH for 33 days in 2015. Since no blooms were reported in recent years, a use impairment				

were reported to MassDPH for 33 days in 2015. Since no blooms were reported in recent years, a use impairment decision is not appropriate at this time.

Too limited data are available to evaluate the Aesthetics Use of Littleville Lake (MA32046) so it is assessed as having Insufficient Information. An Alert is being identified for C-HABs.

Algal Bloom Information

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

C-HAB Summary Statement

C-HAB postings for Littleville Pond (MA32046) were reported to MassDPH for 33 days in 2015. Since no blooms were reported in recent years, an impairment decision will not be made at this time. However, an Alert is identified for C-HABs.

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

Waterbody	Sample Analysis Used in Issuing Advisory	Bloom Days, 2015	Bloom Days, 2016	Bloom Days, 2017	Bloom Days, 2018	Bloom Days, 2019	# Years with >20 Days of Closure	>1 Posting Per Year
Littleville Pond	Not issued or confirmed	33					1	no
	by sampling							

Primary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	
2022 Use Attainment Summary	
Cyanobacteria-Harmful Algal Bloom (C-HAB) postings for Littleville Lake (MA32046, called Littleville Pond	by MassDPH)
were reported to MassDPH for 33 days in 2015. Since no blooms were reported in recent years, a use imp	pairment
decision is not appropriate at this time.	
Too limited data are available to evaluate the Primary Contact Recreational Use of Littleville Lake (MA320	046), so it is
assessed as having Insufficient Information. An Alert is being identified for C-HABs.	

Secondary Contact Recreation

2022 Use Attainment	Alert	
Insufficient Information		
2022 Use Attainment Summary		
Cyanobacteria-Harmful Algal Bloom (C-HAB) postings for Littleville Lake (MA32046, called Littleville Pond	by MassDPH)	
were reported to MassDPH for 33 days in 2015. Since no blooms were reported in recent years, a use impairment		
decision is not appropriate at this time.		
Too limited data are available to evaluate the Secondary Contact Recreational Use of Littleville Lake (MA32046), so it is		
assessed as having Insufficient Information. An Alert is being identified for C-HABs.		

Mclean Reservoir (MA32050)

Location:	Holyoke.
AU Type:	FRESHWATER LAKE
AU Size:	55 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Mclean Reservoir (MA32050) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Meadow Brook (MA32-11)

Location:	Headwaters, outlet unnamed pond south of Route 116, Plainfield to mouth at confluence with Westfield River, Cummington.
AU Type:	RIVER
AU Size:	4.6 MILES
Classification/Qualifier:	В

No usable data were available for Meadow Brook (MA32-11) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Mica Mill Brook (MA32-78)

Location:	Headwaters, west of Mica Mill Road, Chester to mouth at confluence with West Branch Westfield River, Chester.
AU Type:	RIVER
AU Size:	1.6 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Mica Mill Brook (MA32-78) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Middle Branch Westfield River (MA32-03)

Location:	Outlet Littleville Dam, Chester/Huntington to mouth at confluence with Westfield River,
	Huntington.
AU Type:	RIVER
AU Size:	1.1 MILES
Classification/Qualifier:	B: WWF, HQW

Middle Branch Westfield River - MA32-03



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

Recommendations

2022 Recommendations
ALU: Conduct benthic macroinvertebrate sampling in this Middle Branch Westfield River AU (MA32-03) ~2000 feet
upstream of Goss Hill Road, Huntington (B0807) to better evaluate biological conditions, since summer 2012 survey
results post Hurricane Irene were indicative of severely degraded conditions for a Western Highlands stream.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

Eighty-seven fish community samples were collected by MassDFG and MassDEP staff from 2005-2017 in the Westfield River (MA32-04, MA32-05) and its major tributaries (Middle Branch Westfield River MA32-65, MA32-03; West Branch Westfield River MA32-01). The overall percent similarity with the Westfield Target Fish Community was 75.39% (which would be slightly higher if Atlantic salmon, a stocked species, was removed from the analysis, as was done by DFG in their 2009 study). Of the four most common species in the TFC (blacknose dace, longnose dace, common shiner, slimy sculpin), excluding Atlantic salmon, all four of these fluvial specialist/dependent species were among the top four in the study samples, and in the same ranked order. While the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it should be noted that the percent similarity for just the four fish community samples (Sample IDs 6028, 6069, 5026, 6068) collected in this Middle Branch Westfield River AU (MA32-03) was 54.71% similarity. Although this AU is identified as a Coldwater Fisheries Resource (CFR) by DFG, it is a designated Warm Water Fishery (WWF) per the MA SWQS. According to DFG staff (Kautza November 19, 2021), brown trout were last collected in 1952, prior to the construction of the Littleville Dam. There were also records of Atlantic salmon from a 1990 survey, but whether they were stocked fish or wild juveniles is unclear (Kautza November 19, 2021). MassDEP staff conducted benthic (B0807) and water quality surveys (W2270) in the vicinity of the #5026 fish sample ~2000 feet upstream of Goss Hill Road, Huntington during summer 2012. The July benthic sample had an IBI score of 22, indicating that conditions were severely degraded for a high gradient Western_Highlands location, however since these data were collected in the year following Hurricane Irene, a benthic impairment is not being added at this time. Three short-term probe deploys recorded dissolved oxygen (DO) for a total of 11 days; the minimum concentration was 7.6 mg/L. Continuous temperature measurements were recorded over 107 days in the summer index period and these data can be summarized as follows: maximum temperature 29.4 °C, 7DADM >27.7 °C three times (maximum 7DADM 27.8 °C), and the maximum 24-hr average rolling temperature was 27.0 °C (adequate for a WWF). Other water quality indicators were generally indicative of good conditions: pH ranged from 7.6-8.2 S.U. (n=3), there was no indication of nutrient enrichment (total phosphorus seasonal average 0.005 mg/L with n=5, maximum diel DO shift 1.0 mg/L, maximum DO saturation 106.8%, and there were no observations of excessive filamentous algae), there were no exceedances among three clean metals samples or three aluminum samples (because dissolved Al data were compared to the total recoverable AI criteria, exceedances cannot be ruled out, however), and the maximum total ammonia nitrogen (TAN) was 0.020 mg/L (n=5). Among five chloride samples, the maximum was only 3 mg/L and the maximum specific conductance was 53 μ s/cm (n=3).

The Aquatic Life Use for this Middle Branch Westfield River AU (MA32-03) is assessed as Fully Supporting based on the fish and water quality data collected during the summer of 2012 which were indicative of good conditions for a Warm Water Fishery. An Alert is being added due to the summer 2012 benthic macroinvertebrate survey results with an IBI score indicative of severely degraded conditions post Hurricane Irene; additional sampling is being recommended.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5026	MassDEP	Fish	Middle Branch	0.3mi US of Goss Hill Rd, along Littleville	42.26069	-72.87868
		Community	Westfield River	Rd below dam		
6028	MassDFG	Fish	Middle Branch	Below Littleville Res dam, Huntington	42.26221	-72.87946
		Community	Westfield River			
6068	MassDFG	Fish	Middle Branch	US of Goss Hill Rd xing, Huntington	42.25879	-72.87345
		Community	Westfield River			
6069	MassDFG	Fish	Middle Branch	DS of Litleville Res. Dam., Huntington	42.26166	-72.87919
		Community	Westfield River			
B0807	MassDEP	Benthic	Middle Branch	[approximately 610 meters upstream of	42.260688	-72.878683
			Westfield River/	Goss Hill Road, Huntington, MA]		
W2270	MassDEP	Water	Middle Branch	[approximately 2000 feet upstream of	42.260688	-72.878683
		Quality	Westfield River	Goss Hill Road, Huntington]		

Monitoring Stations

Biological Monitoring Information

Benthic Macroinvertebrate Data

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

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

Station	Collection	Collection		Organism	Index	Index Biological
Code	Date	Method	Index Type	Count	Score	Condition Class
B0807	07/17/12	RBP kicknet	Western_Highlands_100ct	108	22	SD

Fish Community Data and DELTS

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

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net; Trout= any combination of brook trout, brown trout, rainbow trout, tiger trout; Other Tier2 Species= any size and any combination of American brook lamprey, Atlantic salmon, lake chub, lake trout, longnose sucker, slimy sculpin]

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CS = Common Shiner, K = Banded Killifish, LMB = Largemouth Bass, LND = Longnose Dace, P = Pumpkinseed, SMB = Smallmouth Bass, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	Trout ≤140mm Ind	LLS<200mm Ind	Other Tier2 Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5026	08/28/12	BP	ТР	10	169	0	0	2	1%	95%	Yes	Yes	AS, BND, CS, K, LMB, LND, P, SMB, TD, WS,

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

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

[Species List: AE = American Eel, B = Bluegill, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LMB = Largemouth Bass, LND = Longnose Dace, SMB = Smallmouth Bass, TD = Tesselated Darter, WS = White Sucker, YB = Yellow Bullhead]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
6028	07/14/16	BP	ТР	н	6	171	1%	5	97%	1%	1	3%	Yes	Yes	BND, CS, EBT, LND, SMB, WS,
6068	08/09/16	BP	ТР	Н	11	393	0%	6	83%	0%	2	16%	No	Yes	AE, B, BND, CRC, CS, LMB, LND, SMB, TD, WS, YB,
6069	08/09/16	BP	ТР	Н	10	475	0%	6	90%	0%	2	9%	No	Yes	AE, B, BND, CRC, CS, LMB, LND, SMB, TD, WS,

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

Eighty-seven fish community samples were collected from 2005-2017 in the Westfield River (MA32-04, MA32-05) and its major tributaries (Middle Branch Westfield River MA32-65, MA32-03; West Branch Westfield River MA32-01). The overall

percent similarity with the Westfield Target Fish Community was 75.39% (which would be slightly higher if Atlantic salmon, a stocked species, was removed from the analysis, as was done by DFG in their 2009 study). Of the 4 most common species in the TFC (blacknose dace, longnose dace, common shiner, slimy sculpin), excluding Atlantic salmon, all 4 of these fluvial specialist/dependent species were among the top 4 in the study samples, and in the same ranked order. While the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it should be noted that the percent similarity for just the four fish community samples (Sample IDs 5026, 6028, 6068, 6069) collected in the Middle Branch Westfield River (MA32-03) was 54.71% similarity. Although this AU is identified as a CFR by DFG, it is a designated WWF per the MA SWQS. According to DFG staff (Kautza November 19, 2021), brown trout were last collected in 1952, prior to the construction of the Littleville Dam. There were also records of Atlantic salmon from a 1990 survey, but whether they were stocked fish or wild juveniles is unclear (Kautza November 19, 2021).

Based on the comparison of fish community data from the mainstem Westfield River and major tributaries with the Westfield TFC model, the Aquatic Life Use of this Middle Branch Westfield River AU (MA32-03) should be assessed as Fully Supporting.

Fish Community Samples in the Middle Branch Westfield River (MA32-03). [To view locations of additional samples included in the Westfield TFC analysis that were located in other AUs, go to the sections for MA32-65, MA32-01, MA32-04, MA32-05]:



Westfield TFC Model:

Table A16. Species percent composition for reference rivers used to develop the Westfield 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).

							NB				
	Third Branch	Tenmile	Ashuelot	Ammonoosuc	Piscataquog	Cold	Sugar	North			Expected
Species	White River	River	River	River	River	River	River	River	Total	Rank	Proportion
Blacknose dace	25.0	14.9	19.8	24.1	22.5	53.8	6.9	38.4	205.4	1	32.4
Longnose dace	19.9	9.3	12.7	38.5	15.2	16.9	44.6	29.1	186.2	2	16.2
Common shiner	2.6	13.8	22.3	1.4	15.8	6.5	20.8	1.1	84.3	3	10.8
Atlantic salmon	0.0	0.0	2.2	24.1	3.4	6.5	0.0	15.1	51.3		
Slimy sculpin	33.1	0.0	0.0	6.0	0.0	2.7	0.0	8.9	50.6	5	6.5
Fallfish	0.0	18.7	26.8	0.0	2.8	0.0	1.0	0.3	49.5	6	5.4
White sucker	0.3	15.8	7.9	0.5	2.8	6.2	10.9	1.9	46.1	7	4.6
Smallmouth bass	0.0	12.2	1.3	0.0	12.0	0.4	0.0	0.0	25.9		
Longnose sucker	5.6	0.0	0.0	4.8	2.8	0.6	4.0	2.9	20.8	9	3.6
Tessellated darter	0.1	7.3	3.8	0.2	0.0	0.6	0.0	0.3	12.3	10	3.2
Creek chub	1.4	0.6	0.2	0.0	0.0	2.8	5.0	0.8	10.8	11	2.9
Brown trout	3.3	0.1	0.3	0.0	0.4	0.0	5.0	0.3	9.4		
Rainbow trout	7.5	0.1	0.0	0.0	0.2	0.2	0.0	0.2	8.1		
Brook trout	1.2	0.1	0.0	0.6	0.0	2.4	0.0	0.6	4.9	14	2.3
Cutlips minnow	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	4.6		
Yellow bullhead	0.0	0.0	1.0	0.0	3.0	0.0	0.0	0.0	4.0		
Redbreast sunfish	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	2.7	17	1.9
Pumpkinseed	0.0	0.6	0.3	0.0	1.4	0.1	0.0	0.0	2.4	18	1.8
American eel	0.0	0.0	0.2	0.0	1.4	0.0	0.0	0.0	1.6	19	1.7
Largemouth bass	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	1.4		
Bluegill	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.3		
Spottail shiner	0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.8	22	1.5
Golden shiner	0.0	0.3	0.0	0.0	0.5	0.0	0.0	0.0	0.8	22	1.5
Brown bullhead	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.2	0.6	23	1.4
Bluntnose minnow	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4		
Rock bass	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.4		
Chain pickerel	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.3	26	1.2
Yellow perch	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	26	1.2

Fish Community Analysis:

Combined analysis of samples from all 5 AUs (MA32-65, MA32-03, MA32-01, MA32-04, MA32-05)

		Values]
		# of	% of	Applicable	TFC	% Sim to		
Watershed	于 Common Name 📑	Fish	catch	TFC	Difference	TFC	Rov Labels 🛛 🕂	
🗏 Westfield	American Brook Lamprey	1	0.00%	-	-		🖻 Westfield	
Westfield	American Eel	148	0.43%	1.7	1.3		1224	4691
Westfield	Atlantic Salmon	2150	6.23%	-	6.2		1245	4682
Westfield	Banded Killifish	1	0.00%	-	0.0		1248	4683
Westfield	Banded Sunfish		0.00%	-	-		1249	4684
Westfield	Black Crappie		0.00%	-	-		1319	5018
Westfield	Blacknose Dace	13706	39.71%	32.4	7.3		1808	5025
Westfield	Bluegill	15	0.04%	-	0.0		1815	5026
Westfield	Bluntnose Minnow	1	0.00%	-	0.0		1816	5040
Westfield	Bridle Shiner		0.00%	-	-		1821	5105
Westfield	Brook Trout	399	1.16%	2.3	1.1		1828	5164
Westfield	Brown Bullhead		0.00%	1.4	1.4		1829	5165
Westfield	Brown Trout	18	0.05%	-	0.1		2044	5177
Westfield	Central Mudminnow		0.00%	-	-		2045	5178
Westfield	Chain Pickerel		0.00%	1.2	1.2		2047	5429
Westfield	Channel Catfish		0.00%	-	-		2048	5686
Westfield	Common Carp		0.00%	-	-		2050	5687
Westfield	Common Shiner	3825	11.08%	10.8	0.3		2062	5719
Westfield	Creek Chub	431	1.25%	2.9	1.7		2165	5721
Westfield	Creek Chubsucker		0.00%	-	-		2346	6028
Westfield	Cutlips Minnow		0.00%	-	-		2425	6029
Westfield	Fallfish	137	0.40%	5.4	5.0		2477	6068
Westfield	Fathead Minnow		0.00%	-	-		2480	6069
Westfield	Golden Shiner	12	0.03%	1.5	1.5		2481	6218
Westfield	Green Sunfish		0.00%	-	-		2482	6229
Westfield	Lake Chub	433	1.25%	-	1.3		2483	6239
Westfield	Largemouth Bass	7	0.02%	-	0.0		2569	6266
Westfield	Longnose Dace	6229	18.05%	16.2	1.8		2976	6267
Westfield	Longnose Sucker		0.00%	3.6	3.6		2977	6268
Westfield	Northern Pike		0.00%	-	-		2989	6277
Westfield	Pumpkinseed	24	0.07%	1.8	1.7		2990	6278
Westfield	Rainbow Trout	22	0.06%	-	0.1		2991	6385
Westfield	Redbreast Sunfish		0.00%	1.9	1.9		2993	6462
Westfield	Redfin Pickerel		0.00%	-	-		3176	6552
Westfield	Rock Bass	46	0.13%	-	0.1		3210	6629
Westfield	Sea Lamprey		0.00%	-	-		3211	6674
Westfield	Slimy Sculpin	3803	11.02%	6.5	4.5		3228	6694
Westfield	Smallmouth Bass	513	1.49%	-	1.5		3229	6695
Westfield	Spottail Shiner	1	0.00%	1.5	1.5		3230	6696
Westfield	Swamp Darter		0.00%	-	-		3618	7072
Westfield	Tadpole Madtom		0.00%	-	-		3619	
Westfield	Tesselated Darter	205	0.59%	-	0.6		3626	
Westfield	White Catfish		0.00%	-	-		4088	
Westfield	White Perch		0.00%	-	-		4089	
Westfield	White Sucker	2376	6.88%	4.6	2.3		4090	
Westfield	Yellow Bullhead	15	0.04%	-	0.0		4093	
Westfield	Yellow Perch	2	0.01%	1.2	1.2		4094	
Westfield	(blank)		0.00%	-	-	75.39	4096	
Grand Total		34519	*****	-	100.0		4097	

		Values					Samples used
	с н Т	to #	7 of	Applicable	TEC	% Sim to	in TFC analysis:
Watershed 💌	Common Name 📑	rish	catch	TEC	Difference	IFC	
Westfield	American brook Lamprey	F	0.00%				4681
Westfield	American Lei Adaptia Calman	5	0.41%	. r. r	1.3		4682
Westfield	Readed Million		0.17%	-	0.2		4683
Westfield	Danded Nillirish Baa da d Suatiala	1	0.00%	-	0.1		4684
Westfield	Danded Sunrish Risely Crossie		0.00%	_	-		5018
Westheld	Diack Grappie	227	19.62%	22.4	12.0		5025
Westheld	Diacknose Dace	201	0.22%	52.4	12.0		5026
Westheld	Diuegiii Phuese and Mission	4	0.33%	_	0.5		5040
Westfield	Bridle Shiper		0.00%				5105
Westfield	Brook Trout	1	0.00%	23	- 22		5104
Westfield	Brown Bullhoard		0.00%	2.5	2.2		5105
Westfield	Brown Trout		0.00%				5177
Westfield	Control Mudminnow		0.00%				5170
Westfield	Central Modernal		0.00%	12	12		5423
Westfield	Chapped Cattick		0.00%		1.2		5000
Westfield	Common Corp		0.00%				5001
Westfield	Common Shiper	381	31.54%	10.8	20.7		5721
Westfield	Crook Chub	60	4 97%	29	20.1		6029
Westfield	Creek Chubsucker	00	0.00%		-		6020
Westfield	Creek Chabsacker		0.00%	_	_		6068
Westfield	Fallfish		0.00%	54	54		6060
Westfield	Fathead Minnow		0.00%	-	-		6218
Westfield	Golden Shiner		0.00%	15	15		6229
Westfield	Green Sunfish		0.00%	-			0223
Westfield	Lake Chub		0.00%	-	-		
Westfield	Largemouth Bass	6	0.50%	-	0.5		
Westfield	Longnose Dace	352	29.14%	16.2	12.9		
Westfield	Lonanose Sucker		0.00%	3.6	3.6		
Westfield	Northern Pike		0.00%	_	_		
Westfield	Pumpkinseed	1	0.08%	1.8	1.7		
Westfield	Rainbow Trout		0.00%	-	-		
Westfield	Redbreast Sunfish		0.00%	1.9	1.9		
Westfield	Redfin Pickerel		0.00%	-	-		
Westfield	Rock Bass		0.00%	-	-		
Westfield	Sea Lamprey		0.00%	-	-		
Westfield	Slimy Sculpin		0.00%	6.5	6.5		
Westfield	Smallmouth Bass	108	8.94%	-	8.9		
Westfield	Spottail Shiner		0.00%	1.5	1.5		
Westfield	Swamp Darter		0.00%	-	-		
Westfield	Tadpole Madtom		0.00%	-	-		
Westfield	Tesselated Darter	11	0.91%	-	0.9		
Westfield	White Catfish		0.00%	-	-		
Westfield	White Perch		0.00%	-	-		
Westfield	White Sucker	37	3.06%	4.6	1.5		
Westfield	Yellow Bullhead	2	0.17%	-	0.2		
Westfield	Yellow Perch		0.00%	1.2	1.2		
Westfield	(blank)		0.00%	-	-	54.71	
Grand Total		1208	100.00%	-	100.0		

Analysis of the Middle Branch Westfield River (MA32-03) samples alone

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Note: Most deploys 3-5 days in length; Day Count= total # of days over all deploys; XDADMin= 3-5 Day Average of the Daily Minima, XDADA= 3-5 Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2270	2012	3	11	7.6	7.7	8	1	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2270	05/16/12	09/20/12	3	8.2	8.5	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2270	06/01/12	09/15/12	107	107	27.0	29.4	27.8	25.7	97	66	88	49	3	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

coluwater,	, , , , , , , , , , , , , , , , , , , ,	aiiiwa	aterj										
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
W2270	2012	3	12	25.2	27.6	26.8	24.4	3	8	2	5	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2270	06/01/12	09/15/12	107	5136	27.0	3150	2388	0
W2270	06/14/12	08/21/12	68	579	25.5	382	203	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2270	05/16/12	09/20/12	5	3	27.0	21.4	2	2	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2270	05/16/12	09/20/12	3	7.6	8.2	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2270	2012	5	0.005	0.006	0.005	1.0	0.6	106.8	8.2	5	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CMC	Cd CMC	Cr III CMC	Cu CMC	Pb CMC	Ni CMC	Ag CMC	Zn CMC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2270	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CCC	Cd CCC	Cr III CCC	Cu CCC	Pb CCC	Ni CCC	Se CCC	Zn CCC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2270	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Selected TU Calculations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station							
Code	Sample Date	Cd CMC TU	Cd CCC TU	Cu CMC TU	Cu CCC TU	Pb CMC TU	Pb CCC TU
W2270	06/27/12	0.3	0.5	0.2	0.26	0.0	0.6
W2270	07/24/12	0.4	0.8	0.4	0.48	0.0	0.5
W2270	09/04/12	0.3	0.5	0.2	0.26	0.0	0.6

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Dissolved	Al Min	Al Max	Al Avg	Al CMC	Al CCC	Al CMC	AI CCC
Code	Year	Al Count	(mg/L)	(mg/L)	(mg/L)	TU Max	TU Max	TU >1	TU >1
W2270	2012	3	0.010	0.013	0.011	0.0	0.1	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[TAN= NH3 + NH4+]

Station	Data	TAN	TAN Min	TAN Max	TAN Avg	Count TAN	Count TAN
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	>Chronic	>Acute
W2270	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
					• • • •		

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (µs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2270	05/16/12	09/20/12	3	45	53	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO

2022 Use Attainment Summary

Fish toxics sampling has not been conducted recently in this Middle Branch Westfield River AU (MA32-03), and since there is no site-specific advisory, the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Lise Attainment Summary	

MassDEP staff conducted water quality (W2270) surveys of this Middle Branch Westfield River AU (MA32-03) in Huntington approximately 2000 feet upstream of Goss Hill Road. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP sampling crews during summer 2012 (n=6). The Aesthetics Use of this Middle Branch Westfield River AU (MA32-03) is assessed as Fully Supporting based on the lack of aesthetically objectionable conditions in summer 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2270	MassDEP	Water	Middle	[approximately 2000 feet upstream of Goss Hill Road,	42.260688	-72.878683
		Quality	Branch	Huntington]		
			Westfield			
			River			

Aesthetic Observations

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

			Field	
Station		Data	Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W2270	Middle Branch	2012	6	MassDEP aesthetics observations for station W2270/MAP2-207 on Middle
	Westfield River			Branch Westfield River can be summarized as follows: there were
				generally no noted objectionable conditions (odors, deposits, growths, or
				turbidity) recorded by DEP field sampling crews during summer 2012.

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

			Field Sheet Count w/ Film &	
Station			Filamentous Algae	Dense/ Very Dense
Code	Data Year	Field Sheet Count	Observations	Film/ Filamentous Algae
W2270	2012	6	5	0

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

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2270	Middle Branch	2012	Color	Light Yellow/Tan	1	6
	Westfield River					
W2270	Middle Branch	2012	Color	None	5	6
	Westfield River					

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2270	Middle Branch	2012	Objectionable Deposits	No	6	6
	Westfield River					
W2270	Middle Branch	2012	Odor	None	6	6
	Westfield River					
W2270	Middle Branch	2012	Scum	No	6	6
	Westfield River					
W2270	Middle Branch	2012	Turbidity	None	6	6
	Westfield River					

Primary Contact Recreation

2022 Use Attainment	Alert			
Fully Supporting	NO			
2022 Use Attainment Summary				
MassDEP staff conducted water quality (W2270) surveys of this Middle Branch Westfield River (MA32-03) in Huntington			
approximately 2000 feet upstream of Goss Hill Road. There were generally no noted objectionable conditions (odors,				
deposits, growths, or turbidity) recorded by DEP sampling crews during summer 2012 (n=6). E. coli bacteria samples				
were collected during all these site visits (n=6). Analysis of this limited frequency single year dataset indicated that none				
of the intervals had GMs exceeding 126 cfu/100mL and no samples exceeded the 410 cfu/100mL STV. The seasonal GM				
was 7 cfu/100mL.				
The Primary Contact Recreational Use of this Middle Branch Westfield River AU (MA32-03) will continue	to be assessed			

The Primary Contact Recreational Use of this Middle Branch Westfield River AU (MA32-03) will continue to be assessed as Fully Supporting based on the low *E. coli* concentration data and lack of aesthetically objectionable conditions in summer 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2270	MassDEP	Water	Middle	[approximately 2000 feet upstream of Goss Hill Road,	42.260688	-72.878683
		Quality	Branch	Huntington]		
			Westfield			
			River			

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
					Sample	Sample	Sample	Geometric
Station Code	Organization	Indicator	Start Date	End Date	Count	Result	Result	Mean
W2270	MassDEP	E. coli	05/16/12	09/20/12	6	1	39	7

W2270 E. coli (90-day Interval), Primary Contact Recreational Use Season

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

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



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP staff conducted water quality (W2270) surveys of this Middle Branch Westfield River AU (MA32-03) in Huntington approximately 2000 feet upstream of Goss Hill Road. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP sampling crews during summer 2012 (n = 6). *E. coli* bacteria samples were collected during all these site visits (n=6). Analysis of this limited frequency single year dataset indicated that none of the intervals had GMs exceeding 630 cfu/100mL and no samples exceeded the 1260 cfu/100mL STV. The overall GM was 7 cfu/100mL.

The Secondary Contact Recreational Use of this Middle Branch Westfield River AU (MA32-03) will continue to be assessed as Fully Supporting based on the low *E. coli* concentration data and lack of aesthetically objectionable conditions in summer 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2270	MassDEP	Water	Middle	[approximately 2000 feet upstream of Goss Hill Road,	42.260688	-72.878683
		Quality	Branch	Huntington]		
			Westfield			
			River			

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
						Sample	Sample	Geometric
						Result	Result	Mean
						(CFU/100ml	(CFU/100ml	(CFU/100ml
					Sample	or	or	or
Station Code	Organization	Indicator	Start Date	End Date	Count	MPN/100ml)	MPN/100ml)	MPN/100ml)
W2270	MassDEP	E. coli	05/16/12	09/20/12	6	1	39	7

W2270 E. coli (90-day Interval), Secondary Contact Recreational Use Season

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

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



Middle Branch Westfield River (MA32-65)

Location:	Source in Peru State Wildlife Management Area, north of Pierce Road, Peru to Kinnebrook Road, Dayville (locality in Chester) (formerly part of 2014 segment: Middle Branch Westfield River MA32-02).
AU Type:	RIVER
AU Size:	13.7 MILES
Classification/Qualifier:	A: PWS, ORW, CWF (PWS and Tributary to PWS)

MIDDLE BRANCH WESTFIELD RIVER - MA32-65

Watershed Area: 48.15 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	<mark>48.1</mark> 5	9.79	10	2.01
Agriculture	2.4%	2.7%	2.8%	2.2%
Developed	2.3%	2.2%	2.7%	3.4%
Natural	91.5%	91.1%	88.8%	87.5%
Wetland	3.8%	3.9%	5.7%	6.9%
Impervious	1.03%			

Cover

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

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

Recommendations

2022 Recommendations

OTHER: Efforts to improve the riparian buffer zone along this Middle Branch Westfield River AU (MA32-65) should be prioritized wherever possible to increase shading for the river (Cold Water habitat restoration efforts).

Designated Use Attainment Decisions

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
Eighty-seven fish community samples were collected from 2005-2017 in the Westfield River (MA32-04, N	1A32-05) and its
major tributaries (Middle Branch Westfield River MA32-65, MA32-03; West Branch Westfield River MA32	2-01). The
overall percent similarity with the Westfield Target Fish Community model was 75.39% (which would be	slightly higher if
Atlantic salmon, a stocked species, was removed from the analysis, as was done by DFG in their 2009 stud	dy). Of the four
most common species in the TFC (blacknose dace, longnose dace, common shiner, slimy sculpin), excludi	ng Atlantic
salmon, all four of these fluvial specialist/dependent species were among the top four in the study sampl	es, and in the
same ranked order. While the TFC comparison was not specifically designed to evaluate individual reache	es of a large
mainstem river, it should be noted that the percent similarity for the 21 samples collected just in this Mic	dle Branch
Westfield River AU (MA32-65) was 66.73% similarity. Of note, multiple age classes of Eastern brook trout	were also
collected in this designated Cold Water Fishery (CWF). MassDEP staff conducted benthic and water qualit	ty surveys at
three sites from up to downstream as follows: ~200ft downstream of River Rd, Worthington in 2012 (Stat	tions
B0799/W2262 part of MAP2 monitoring project); ~1000ft upstream/north of Bailey Rd, Chester in 2015 (B0943/W2545);
~550ft downstream of Smith Rd, Chester in 2017 (B0947/W2719) latter two stations part of Reference Sit	te Network
monitoring project). Benthic samples were all collected in July and IBI scores ranged from 60-68, indicatir	ng satisfactory
conditions for high gradient Western Highlands sites. Probes were deployed to record dissolved oxygen (DO) over 117
days at site W2545 and 132 days at site W2719; minimum DO concentrations were excellent (8.0 & 7.5m	g/L,
respectively). Continuous temperature (T) measurements were recorded over 107 days in the summer in	dex period of
the sample year for each station with a pattern of increased T from up to downstream as follows (W2262	in 2012,
W2545 in 2015, and W2719 in 2017, respectively): maximum T 21.4, 24.9, and 26.3°C, 7DADMs >20.0°C 2	2, 55, and 66
times with max 7DADMs of 20.1, 23.5, and 24.8°C, and max 24-hr rolling average T of 20.3, 21.8, and 23.2	2°C. T exceeded
chronic CWF thresholds at both downstream sites; none exceeded the acute threshold. Other data were	generally
indicative of good conditions: pH 7.0-7.7SU (n= 3-4/station), little indication of nutrient enrichment (total	l phosphorus
seasonal averages 0.006-0.008mg/L n= 4-5/station, max diel DO shift 2.2 mg/L, max DO saturation 105%,	and of 15 site
visits, two observations of dense/very dense filamentous algae were noted at the upstream site and one	at the middle
site). There were no exceedances among three clean metals or aluminum samples at the upstream site (k	because
dissolved Al data were compared to the total recoverable Al criteria, exceedances cannot be ruled out). I	ne maximum
total ammonia nitrogen, chloride, and specific conductance data among all three sites were low (0.074 ar	nd 6mg/L, n= 4-
S/site and 64 μ s/cm, n= 3-4/site).	
Although the blotic community (fish and benthic macroinvertebrates) was indicative of good water quality	y conditions,
the Aquatic Life use of this Middle Branch Westfield River AU (MA32-65) will continue to be assessed as i	vot supporting.

the Aquatic Life Use of this Middle Branch Westfield River AU (MA32-65) will continue to be assessed as Not Supporting. The Temperature impairment is being carried forward due to CWF chronic threshold exceedances at two sites, but landuse in this subwatershed and proximal stream buffer is primarily natural/wetland (95.3 and 94.4%, respectively) with very low Impervious Cover (1.03%), so these exceedances are most likely naturally occurring. There may be one small dam (Ideal Lodge Dam), however, aerial images do not show it or any impounded area in this river reach. There are no water withdrawals or discharges. The Temperature impairment may be removed in a future IR reporting cycle.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5105	MassDEP	Fish	Middle Branch	200ft DS of River Rd	42.40227	-72.97959
		Community	Westfield River			
5177	MassDFG	Fish	Middle Branch	E River Rd site of suspension bridge (now	42.37349	-72.96945
		Community	Westfield River	gone), 1/2mi S of Cone Rd,		
				Worthington/Middlefield		

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5721	MassDFG	Fish	Middle Branch	Old foot bridge on E. River Rd,	42.37320	-72.96902
		Community	Westfield River	Worthington/Middlefield		
6229	MassDFG	Fish	Middle Branch	foot bridge site on river rd, Chester	42.37338	-72.96906
		Community	Westfield River			
6385	MassDEP	Fish	Middle Branch	, Chester, Middlefield	42.34377	-72.95334
		Community	Westfield River			
6629	MassDFG	Fish	Middle Branch	River Rd, old tootbridge site (toot bridge is	42.37316	-72.96899
		Community	Westfield River	gone), Worthington/Middlefield		
7072	MassDEP	Fish	Middle Branch	Road on right bank within 12 m., Chester	42.32284	-72.92628
		Community	Westfield River			
8232	MassDFG	Fish	Middle Branch	Old Ped. Bridge site on River Rd.,	42.37326	-72.96873
		Community	Westfield River	Middlefield		
B0799	MassDEP	Benthic	Middle Branch	[approximately 60 meters downstream of	42.402270	-72.979591
			Westfield	River Road, Worthington, MA]		
			River/			
B0943	MassDEP	Benthic	Middle Branch	[approximately 305 meters	42.343768	-72.953342
			Westfield	upstream/north of Bailey Road, Chester,		
			River/	MA]		
B0947	MassDEP	Benthic	Middle Branch	approximately 170 meters downstream	42.322853	-72.926200
			Westfield	from Smith Road, Chester, MA]		
			River/			
W2262	MassDEP	Water	Middle Branch	[approximately 200 feet downstream of	42.402270	-72.979591
		Quality	Westfield River	River Road, Worthington]		
W2545	MassDEP	Water	Middle Branch	[approximately 1000 feet upstream/north	42.343768	-72.953342
		Quality	Westfield River	of Bailey Road, Chester]		
W2719	MassDEP	Water	Middle Branch	[approximately 550 feet downstream of	42.322853	-72.926200
		Quality	Westfield River	Smith Road, Chester]		

Biological Monitoring Information

Benthic Macroinvertebrate Data

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

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

Station	Collection	Collection		Organism	Index	Index Biological
Code	Date	Method	Index Type	Count	Score	Condition Class
B0799	07/18/12	RBP kicknet	Western_Highlands_100ct	101	68	S
B0943	07/20/15	RBP kicknet	Western_Highlands_300ct	331	68	S
B0947	07/26/17	RBP kicknet	Western_Highlands_300ct	283	60	S

Fish Community Data and DELTS

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

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

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

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5105	07/31/12	BP	ТР	6	205	23	55	190	21	35	38%	100%	No	Yes	AS, BND, EBT, LND, SC, WS,
5177	09/15/14	BP	ТР	9	427	10	76	177	6	114	33%	100%	Yes	Yes	AS, BND, CRC, CS, EBT, LND, RT, SC, WS,
5721	09/08/15	BP	ТР	9	549	20	79	187	12	178	36%	100%	No	Yes	AS, BND, CRC, CS, EBT, LND, P, SC, WS,
6229	08/15/16	BP	ТР	9	550	29	71	159	19	88	21%	100%	No	Yes	BND, BT, CRC, CS, EBT, LND, P, SC, WS,
6385	09/04/15	BP	ТР	7	187	2	153	153	0	26	15%	100%	Yes	Yes	BND, CRC, CS, EBT, LND, SC, WS,
6629	09/05/17	BP	ТР	6	520	6	69	188	4	132	27%	100%	No	Yes	BND, CRC, EBT, LND, SC, WS,
7072	08/09/17	BP	ТР	8	101	2	64	73	2	4	8%	100%	No	Yes	BND, BT, CRC, CS, EBT, LND, SC, WS,
8232	08/14/19	ВР	ТР	7	750	5	70	238	3	164	23%	100%	No	Yes	BND, CRC, CS, EBT, LND, SC, WS,

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

Eighty-seven fish community samples were collected from 2005-2017 in the Westfield River (MA32-04, MA32-05) and its major tributaries (Middle Branch Westfield River MA32-65, MA32-03; West Branch Westfield River MA32-01). The overall percent similarity with the Westfield Target Fish Community model was 75.39% (which would be slightly higher if Atlantic salmon, a stocked species, was removed from the analysis, as was done by DFG in their 2009 study). Of the 4 most common species in the TFC (blacknose dace, longnose dace, common shiner, slimy sculpin), excluding Atlantic salmon, all 4 of these fluvial specialist/dependent species were among the top 4 in the study samples, and in the same ranked order. While the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it should be noted that the percent similarity for just the twenty-one samples (Sample IDs 1224, 1245, 1815, 1816, 2047, 2048, 2477, 2481, 2976, 2977, 3210, 3211, 4096, 4097, 4683, 5177, 5721, 6229, 6385, 6629, 7072) collected in the Middle Branch Westfield River (MA32-65) was 66.73% similarity. Of note, multiple age classes of Eastern brook trout were also collected in this CWF, an additional positive indicator.

Fish Community Samples in the Middle Branch Westfield River (MA32-65). [To view locations of additional samples included in the Westfield TFC analysis that were located in other AUs, go to the sections for MA32-03, MA32-01, MA32-04, MA32-05]:



Westfield TFC Model:

Table A16. Species percent composition for reference rivers used to develop the Westfield 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).

	NB										
	Third Branch	Tenmile	Ashuelot	Ammonoosuc	Piscataquog	Cold	Sugar	North			Expected
Species	White River	River	River	River	River	River	River	River	Total	Rank	Proportion
Blacknose dace	25.0	14.9	19.8	24.1	22.5	53.8	6.9	38.4	205.4	1	32.4
Longnose dace	19.9	9.3	12.7	38.5	15.2	16.9	44.6	29.1	186.2	2	16.2
Common shiner	2.6	13.8	22.3	1.4	15.8	6.5	20.8	1.1	84.3	3	10.8
Atlantic salmon	0.0	0.0	2.2	24.1	3.4	6.5	0.0	15.1	51.3		
Slimy sculpin	33.1	0.0	0.0	6.0	0.0	2.7	0.0	8.9	50.6	5	6.5
Fallfish	0.0	18.7	26.8	0.0	2.8	0.0	1.0	0.3	49.5	6	5.4
White sucker	0.3	15.8	7.9	0.5	2.8	6.2	10.9	1.9	46.1	7	4.6
Smallmouth bass	0.0	12.2	1.3	0.0	12.0	0.4	0.0	0.0	25.9		
Longnose sucker	5.6	0.0	0.0	4.8	2.8	0.6	4.0	2.9	20.8	9	3.6
Tessellated darter	0.1	7.3	3.8	0.2	0.0	0.6	0.0	0.3	12.3	10	3.2
Creek chub	1.4	0.6	0.2	0.0	0.0	2.8	5.0	0.8	10.8	11	2.9
Brown trout	3.3	0.1	0.3	0.0	0.4	0.0	5.0	0.3	9.4		
Rainbow trout	7.5	0.1	0.0	0.0	0.2	0.2	0.0	0.2	8.1		
Brook trout	1.2	0.1	0.0	0.6	0.0	2.4	0.0	0.6	4.9	14	2.3
Cutlips minnow	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	4.6		
Yellow bullhead	0.0	0.0	1.0	0.0	3.0	0.0	0.0	0.0	4.0		
Redbreast sunfish	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	2.7	17	1.9
Pumpkinseed	0.0	0.6	0.3	0.0	1.4	0.1	0.0	0.0	2.4	18	1.8
American eel	0.0	0.0	0.2	0.0	1.4	0.0	0.0	0.0	1.6	19	1.7
Largemouth bass	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	1.4		
Bluegill	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.3		
Spottail shiner	0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.8	22	1.5
Golden shiner	0.0	0.3	0.0	0.0	0.5	0.0	0.0	0.0	0.8	22	1.5
Brown bullhead	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.2	0.6	23	1.4
Bluntnose minnow	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4		
Rock bass	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.4		
Chain pickerel	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.3	26	1.2
Yellow perch	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	26	1.2

Fish Community Analysis:

Combined analysis of samples from all 5 AUs (MA32-65, MA32-03, MA32-01, MA32-04, MA32-05)

		Values						
	_	# of	% of	Applicable	TFC	% Sim to		
Watershed	📲 Common Name 🛛 📑	Fish	catch	TFC	Difference	TFC	Rov Labels 🛛 🕂	
Westfield	American Brook Lamprey	1	0.00%	-	-		🗏 Westfield	
Westfield	American Eel	148	0.43%	1.7	1.3		1224	4681
Westfield	Atlantic Salmon	2150	6.23%	-	6.2		1245	4682
Westfield	Banded Killifish	1	0.00%	-	0.0		1248	4683
Westfield	Banded Sunfish		0.00%	-	-		1249	4684
Westfield	Black Crappie		0.00%	-	-		1319	5018
Westfield	Blacknose Dace	13706	39.71%	32.4	7.3		1808	5025
Westfield	Bluegill	15	0.04%	-	0.0		1815	5026
Westfield	Bluntnose Minnow	1	0.00%	-	0.0		1816	5040
Westfield	Bridle Shiner		0.00%	-	-		1821	5105
Westfield	Brook Trout	399	1.16%	2.3	1.1		1828	5164
Westfield	Brown Bullhead		0.00%	1.4	1.4		1829	5165
Westfield	Brown Trout	18	0.05%	-	0.1		2044	5177
Westfield	Central Mudminnow		0.00%	-	-		2045	5178
Westfield	Chain Pickerel		0.00%	1.2	1.2		2047	5429
Westfield	Channel Catfish		0.00%	-	-		2048	5686
Westfield	Common Carp		0.00%	-	-		2050	5687
Westfield	Common Shiner	3825	11.08%	10.8	0.3		2062	5719
Westfield	Creek Chub	431	1.25%	2.9	1.7		2165	5721
Westfield	Creek Chubsucker		0.00%	-	-		2346	6028
Westfield	Cutlips Minnow		0.00%	-	-		2425	6029
Westfield	Fallfish	137	0.40%	5.4	5.0		2477	6068
Westfield	Fathead Minnow		0.00%	-	-		2480	6069
Westfield	Golden Shiner	12	0.03%	1.5	1.5		2481	6218
Westfield	Green Sunfish		0.00%	-	-		2482	6229
Westfield	Lake Chub	433	1.25%	-	1.3		2483	6239
Westfield	Largemouth Bass	7	0.02%	-	0.0		2569	6266
Westfield	Longnose Dace	6229	18.05%	16.2	1.8		2976	6267
Westfield	Longnose Sucker		0.00%	3.6	3.6		2977	6268
Westfield	Northern Pike		0.00%	-	-		2989	6277
Westfield	Pumpkinseed	24	0.07%	1.8	1.7		2990	6278
Westfield	Rainbow Trout	22	0.06%	-	0.1		2991	6385
Westfield	Redbreast Sunfish		0.00%	1.9	1.9		2993	6462
Westfield	Redfin Pickerel		0.00%	-	-		3176	6552
Westfield	Rock Bass	46	0.13%	-	0.1		3210	6629
Westfield	Sea Lamprey		0.00%	-	-		3211	6674
Westfield	Slimy Sculpin	3803	11.02%	6.5	4.5		3228	6694
Westfield	Smallmouth Bass	513	1.49%	-	1.5		3229	6695
Westfield	Spottail Shiner	1	0.00%	1.5	1.5		3230	6696
Westfield	Swamp Darter		0.00%	-	-		3618	7072
Westfield	Tadpole Madtom		0.00%	-	-		3619	
Westfield	Tesselated Darter	205	0.59%	-	0.6		3626	
Westfield	White Catfish		0.00%	-	-		4088	
Westfield	White Perch		0.00%	-	-		4089	
Westfield	White Sucker	2376	6.88%	4.6	2.3		4090	
Westfield	Yellow Bullhead	15	0.04%	-	0.0		4093	
Westfield	Yellow Perch	2	0.01%	1.2	1.2		4094	
Westfield	(blank)		0.00%	-	-	75.39	4096	
Grand Total		34519	*****	-	100.0		4097	

Analysis of the Middle Branch Westfield River (MA32-65) samples alone

		Values			la TEC V Simila			
	-	# of	% of	Applicable	TFC	% Sim to		
Watershed 🚽 🖓	🛭 Common Name 🚽 🖃	Fish	catch	TFC	Difference	TFC	Rov Labels 🕂	
🖻 Westfield	American Brook Lampre	9	0.00%	-	-		🗏 🛛 🖶 🖶	
Westfield	American Eel		0.00%	1.7	1.7		1224	4681
Westfield	Atlantic Salmon	518	6.01%	-	6.0		1245	4682
Westfield	Banded Killifish		0.00%	-	-		1248	4683
Westfield	Banded Sunfish		0.00%	-	-		1249	4684
Westfield	Black Crappie		0.00%	-	-		1319	5018
Westfield	Blacknose Dace	3793	44.03%	32.4	11.6		1808	5025
Westfield	Bluegill		0.00%	-	-		1815	5026
Westfield	Bluntnose Minnow		0.00%	-	-		1816	5040
Westfield	Bridle Shiner		0.00%	-	-		1821	5105
Westfield	Brook Trout	137	1.59%	2.3	0.7		1828	5105
Westfield	Brown Bullhead		0.00%	1.4	1.4		1829	5104
Westfield	Brown Trout	7	0.08%	-	0.1		2044	5105
Westfield	Central Mudminnow		0.00%	-	-		2045	5177
Westfield	Chain Pickerel		0.00%	1.2	1.2		2047	51/8
Westfield	Channel Catfish		0.00%	-	-		2048	5429
Westfield	Common Carp		0.00%	-	-		2050	5686
Westfield	Common Shiner	465	5.40%	10.8	5.4		2062	5687
Westfield	Creek Chub	47	0.55%	2.9	2.4		2165	5719
Westfield	Creek Chubsucker		0.00%	-	-		2346	5721
Westfield	Cutlips Minnow		0.00%	-	-		2425	6028
Westfield	Fallfish	1	0.01%	5.4	5.4		2477	6029
Westfield	Fathead Minnow		0.00%	-	-		2480	6068
Westfield	Golden Shiner		0.00%	1.5	1.5		2481	6069
Westfield	Green Sunfish		0.00%	-	-		2482	6218
Westfield	Lake Chub		0.00%	-	-		2483	6229
Westfield	Largemouth Bass	1	0.01%	-	0.0		2569	6239
Westfield	Longnose Dace	1216	14.11%	16.2	2.1		2976	6266
Westfield	Longnose Sucker		0.00%	3.6	3.6		2977	6267
Westfield	Northern Pike		0.00%				2989	6268
Westfield	Pumpkinseed	2	0.02%	1.8	1.8		2990	6277
Westfield	Rainbow Trout	4	0.05%		0.0		2991	6278
Westfield	Redbreast Sunfish		0.00%	1.9	1.9		2993	6385
Westfield	Redfin Pickerel		0.00%	-	-		3176	6462
Westfield	Rock Bass		0.00%	-	-		3210	6552
Westfield	SeaLamprey		0.00%	-	-		3211	6629
Westfield	Slimy Sculpin	1256	14.58%	6.5	8.1		3228	6674
Westfield	Smallmouth Bass		0.00%	-	-		3229	6694
Westfield	Spottail Shiner		0.00%	1.5	1.5		3230	0034
Westfield	Swamp Darter		0.00%	-	-		3618	0035
Westfield	Ladpole Madtom		0.00%	-	-		3619	0030
Westfield	Tesselated Darter		0.00%	-	-		3626	1072
Westfield	White Cathish		0.00%	-	-		4088	
Westfield	White Perch	4455	0.00%		-		4089	
Westfield	White Sucker	1168	13.56%	4.6	9.0		4090	
Westfield	Yellow Bullhead		0.00%	-	-		4093	
Westfield	Yellow Perch		0.00%	1.2	1.2	00.70	4094	
Westhield	(blank)	0.077	0.00%		-	66.73	4096	
Grand Lotal		8615	100.00%	-	100.0		4097	

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2545	05/22/15	09/15/15	117	111	88	8	8.4	9.1	2.2	0	0	0	0	0	0	0	0
W2719	05/11/17	09/19/17	132	126	103	7.5	7.6	8.3	2	0	0	0	0	0	0	0	0

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

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

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2262	2012	3	12	7.9	8.2	8.7	1.2	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2262	05/16/12	09/20/12	3	8.9	9.4	0	0	0
W2545	06/18/15	09/16/15	4	9.3	9.8	0	0	0
W2719	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 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2262	06/01/12	09/15/12	107	107	20.3	21.4	20.1	19.1	2	0	0	0	0	0
W2545	06/01/15	09/15/15	107	104	21.6	24.9	23.5	20.8	55	0	0	0	0	0
W2719	06/01/17	09/15/17	107	107	23.0	26.3	24.8	22.1	66	0	4	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated

6)

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

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2262	2012	3	12	17.9	19.1	18.4	17.1	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2262	06/01/12	09/15/12	107	5136	20.3	0	0	0
W2262	06/14/12	08/21/12	68	576	18.7	0	0	0
W2545	06/01/15	09/15/15	107	5136	21.8	0	0	0
W2719	06/01/17	09/15/17	107	5136	23.2	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2262	05/16/12	09/20/12	5	3	18.4	14.3	0	0	0	0
W2545	06/18/15	09/16/15	4	3	20.5	16.6	1	0	0	0
W2719	06/14/17	09/20/17	4	3	20.8	20.3	3	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station				pH Min	рН Мах	pH Count	pH Count
Code	Start Date	End Date	pH Count	(SU)	(SU)	<6.5 & >8.3	<6.0 & >8.8
W2262	05/16/12	09/20/12	3	7	7.5	0	0
W2545	06/18/15	09/16/15	4	7.2	7.5	0	0
W2719	06/14/17	09/20/17	4	7.3	7.7	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Summer seasonal total phosphorus data collected May-Sept]
Station Code	Data Year	Seasonal TP Count	Seasonal TP Min (mg/L)	Seasonal TP Max (mg/L)	Seasonal TP Avg (mg/L)	Delta DO Max (mg/L)	Delta DO Avg (mg/L)	DO Sat Max (%)	pH Max (SU)	Count Algal Obsv.	Dense/V. Dense Film/Fila. Algae
W2262	2012	5	0.005	0.010	0.007	1.2	0.7	99.3	7.5	6	2
W2545	2015	4	0.005	0.007	0.006	2.2	1.2	104.9	7.5	4	1
W2719	2017	5	0.0069	0.009	0.008	2.0	1.1	103.9	7.7	5	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CMC	Cd CMC	Cr III CMC	Cu CMC	Pb CMC	Ni CMC	Ag CMC	Zn CMC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2262	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CCC	Cd CCC	Cr III CCC	Cu CCC	Pb CCC	Ni CCC	Se CCC	Zn CCC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2262	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Dissolved	Al Min	Al Max	Al Avg	Al CMC	Al CCC	Al CMC	Al CCC
Code	Year	Al Count	(mg/L)	(mg/L)	(mg/L)	TU Max	TU Max	TU >1	TU >1
W2262	2012	3	0.011	0.032	0.020	0.1	0.2	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[TAN= NH3 + NH4+]

Station	Data	TAN	TAN Min	TAN Max	TAN Avg	Count TAN	Count TAN
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	>Chronic	>Acute
W2262	2012	5	0.020	0.020	0.020	0	0
W2545	2015	4	0.040	0.074	0.049	0	0
W2719	2017	4	0.040	0.040	0.040	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
W2262	2012	5	2	6	4	0	0

W2545	2015	4	4	5	5	0	0
W2719	2017	5	4	6	5	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2262	05/16/12	09/20/12	3	44	61	0	0	0	0	0	0
W2545	06/18/15	09/16/15	4	46	60	0	0	0	0	0	0
W2719	06/14/17	09/20/17	4	49	64	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Figh toying compliant has not been conducted recently in this Middle Dranch Westfield Diver ALL (MA22 CE) and since

Fish toxics sampling has not been conducted recently in this Middle Branch Westfield River AU (MA32-65), and since there is no site-specific advisory, the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff conducted water quality surveys at three stations in this Middle Branch Westfield River AL	l (MA32-65).
These stations are described from upstream to downstream as follows: approximately 200 feet downstre	am of River
Road in Worthington (W2262 in 2012, n=6), approximately 1000 feet upstream/north of Bailey Road in Cl	hester (W2545
in 2015, n=4), and approximately 550 feet downstream of Smith Road in Chester (W2719 in 2017, n=5). T	here were
generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP sam	pling crews at

any of the stations.

The Aesthetics Use of this Middle Branch Westfield River AU (MA32-65) is assessed as Fully Supporting based on the lack of objectionable conditions during site visits conducted in summers 2012, 2015, and 2017.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2262	MassDEP	Water	Middle	[approximately 200 feet downstream of River Road,	42.402270	-72.979591
		Quality	Branch	Worthington]		
			Westfield			
			River			
W2545	MassDEP	Water	Middle	[approximately 1000 feet upstream/north of Bailey	42.343768	-72.953342
		Quality	Branch	Road, Chester]		
			Westfield			
			River			

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2719	MassDEP	Water	Middle	[approximately 550 feet downstream of Smith Road,	42.322853	-72.926200
		Quality	Branch	Chester]		
			Westfield			
			River			

Aesthetic Observations

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

Station		Data	Field	
Code	Waterbody	Voor	Count	Assthatics Summany Statement
Coue	waterbouy	Tear	count	
W2262	Middle Branch	2012	6	MassDEP aesthetics observations for station W2262/MAP2-195 on Middle
	Westfield River			Branch Westfield 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.
W2545	Middle Branch	2015	4	MassDEP aesthetics observations for station W2545 on Middle Branch
	Westfield River			Westfield River can be summarized as follows: there were generally no
				noted objectionable conditions (odors, deposits, growths, or turbidity)
				recorded by DEP field sampling crews during summer 2015.
W2719	Middle Branch	2017	5	MassDEP aesthetics observations for station W2719 on Middle Branch
	Westfield River			Westfield River can be summarized as follows: there were generally no
				noted objectionable conditions (odors, deposits, growths, or turbidity)
				recorded by DEP field sampling crews during summer 2017.

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

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2262	2012	6	6	2
W2545	2015	4	4	1
W2719	2017	5	5	0

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

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2262	Middle Branch	2012	Color	Light Yellow/Tan	2	6
	Westfield River					
W2262	Middle Branch	2012	Color	None	4	6
	Westfield River					
W2262	Middle Branch	2012	Objectionable Deposits	No	6	6
	Westfield River					
W2262	Middle Branch	2012	Odor	None	6	6
	Westfield River					
W2262	Middle Branch	2012	Scum	No	6	6
	Westfield River					

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2262	Middle Branch	2012	Turbidity	None	6	6
	Westfield River					
W2545	Middle Branch	2015	Color	None	4	4
	Westfield River					
W2545	Middle Branch	2015	Objectionable Deposits	No	4	4
	Westfield River					
W2545	Middle Branch	2015	Odor	None	4	4
	Westfield River					
W2545	Middle Branch	2015	Scum	No	4	4
	Westfield River					
W2545	Middle Branch	2015	Turbidity	None	4	4
	Westfield River					
W2719	Middle Branch	2017	Color	Light Yellow/Tan	1	5
	Westfield River					
W2719	Middle Branch	2017	Color	None	4	5
	Westfield River					
W2719	Middle Branch	2017	Objectionable Deposits	No	5	5
	Westfield River					
W2719	Middle Branch	2017	Odor	None	5	5
	Westfield River					
W2719	Middle Branch	2017	Scum	No	5	5
	Westfield River					
W2719	Middle Branch	2017	Turbidity	None	5	5
	Westfield River					

Primary Contact Recreation

2022 Use Attainment	Alert			
Fully Supporting	NO			
2022 Use Attainment Summary				
MassDEP staff conducted water quality field surveys in this Middle Branch Westfield River AU (MA32-65)	during the			
summer of 2012 approximately 200 feet downstream of River Road in Worthington (Station W2262). E. c	<i>oli</i> bacteria			
samples were collected during all these site visits (n = 6). Analysis of this limited frequency single year dat	aset indicated			
that none of the intervals had GMs exceeding 126 CFU/100mL and no samples exceeded the 410 CFU/100mL STV. The				
seasonal GM was 43 CFU/100mL. There were generally no noted objectionable conditions (odors, deposit	s, growths, or			
turbidity) recorded by DEP sampling crews at this station.				
The Primary Contact Recreational Use of this Middle Branch Westfield River AU (MA32-65) is assessed as	Fully			
Supporting based on the low E. coli concentrations as well as the lack of objectionable conditions during	six site visits in			

Monitoring Stations

summer 2012.

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2262	MassDEP	Water	Middle	[approximately 200 feet downstream of River Road,	42.402270	-72.979591
		Quality	Branch	Worthington]		
			Westfield			
			River			

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
					Sample	Sample	Sample	Geometric
Station Code	Organization	Indicator	Start Date	End Date	Count	Result	Result	Mean
W2262	MassDEP	E. coli	05/16/12	09/20/12	6	11	172	43

W2262 E. coli (90-day Interval), Primary Contact Recreational Use Season







Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted water quality field surveys in this Middle Branch Westfield River AU (MA32-65) during the summer of 2012 approximately 200 feet downstream of River Road in Worthington (Station W2262). *E. coli* bacteria samples were collected during all these site visits (n = 6). Analysis of this limited frequency single year dataset indicated that none of the intervals had GMs exceeding 630 CFU/100mL and no samples exceeded the 1260 CFU/100mL STV. The overall GM was 43 CFU/100mL. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP sampling crews at this station.

The Secondary Contact Recreational Use of this Middle Branch Westfield River AU (MA32-65) is assessed as Fully Supporting based primarily on the low *E. coli* concentrations as well as the lack of objectionable conditions during six site visits in summer 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2262	MassDEP	Water	Middle	[approximately 200 feet downstream of River Road,	42.402270	-72.979591
		Quality	Branch	Worthington]		
			Westfield			
			River			

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
						Sample	Sample	Geometric
						Result	Result	Mean
						(CFU/100ml	(CFU/100ml	(CFU/100ml
					Sample	or	or	or
Station Code	Organization	Indicator	Start Date	End Date	Count	MPN/100ml)	MPN/100ml)	MPN/100ml)
W2262	MassDEP	E. coli	05/16/12	09/20/12	6	11	172	43

W2262 E. coli (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	43
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

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



Middle Branch Westfield River (MA32-66)

Location:	From Kinnebrook Road, Dayville (locality in Chester) to inlet of Littleville Lake, just upstream from boat ramp (off southern end of Kinnebrook Road), Chester (formerly part of 2014 segment: Middle Branch Westfield River MA32-02).
AU Type:	RIVER
AU Size:	0.6 MILES
Classification/Qualifier:	A: PWS, ORW (PWS and Tributary to PWS)

MIDDLE BRANCH WESTFIELD RIVER - MA32-66

Percent Natural

Percent Wetland





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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

Percent A griculture

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

Eighty-seven fish community samples were collected from 2005-2017 in the Westfield River (MA32-04, MA32-05) and its major tributaries (Middle Branch Westfield River MA32-65, MA32-03; West Branch Westfield River MA32-01). The overall percent similarity with the Westfield Target Fish Community model was 75.39% (which would be slightly higher if Atlantic salmon, a stocked species, was removed from the analysis, as was done by DFG in their 2009 study). Of the four most common species in the TFC (blacknose dace, longnose dace, common shiner, slimy sculpin), excluding Atlantic salmon, all four of these fluvial specialist/dependent species were among the top four in the study samples, and in the same ranked order. While no samples were collected in the small Middle Branch Westfield River AU (MA32-66) wedged between the upstream riverine MA32-65 AU and Littleville Lake (MA32046), it is reasonable to apply the TFC analysis to this AU as well. Although the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it should be noted that the percent similarity for the upstream/downstream Middle Branch Westfield River AUs (MA32-65/MA32-03) were 66.73%/54.71%, respectively.

Based on the comparison of fish community data from the mainstem Westfield River and major tributaries with the Westfield TFC model, the Aquatic Life Use of this Middle Branch Westfield River AU (MA32-66) is assessed as Fully Supporting. The prior Temperature Alert, which was noted in the 2016 IR cycle based on survey data collected in summer 2006 at sampling site W0263 (MassDEP Undated 7), is being carried forward.

Biological Monitoring Information

Fish Community Data and DELTS

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

Eighty-seven fish community samples were collected from 2005-2017 in the Westfield River (MA32-04, MA32-05) and its major tributaries (Middle Branch Westfield River MA32-65, MA32-03; West Branch Westfield River MA32-01). The overall percent similarity with the Westfield Target Fish Community model was 75.39% (which would be slightly higher if Atlantic salmon, a stocked species, was removed from the analysis, as was done by DFG in their 2009 study). Of the 4 most common species in the TFC (blacknose dace, longnose dace, common shiner, slimy sculpin), excluding Atlantic salmon, all 4 of these fluvial specialist/dependent species were among the top 4 in the study samples, and in the same ranked order. While no samples were collected in the small Middle Branch Westfield River AU (MA32-66) wedged between the upstream riverine MA32-65 AU and Littleville Lake (MA32046), it is reasonable to apply the TFC analysis to this AU as well. Although the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it should be noted that the percent similarity for the upstream/downstream Middle Branch Westfield River AUs (MA32-65/MA32-03) were 66.73%/54.71%, respectively. Based on the comparison of fish community data from the mainstem Westfield River and major tributaries with the Westfield TFC model, the Aquatic Life Use of this Middle Branch Westfield River AU (MA32-66) should be assessed as Fully Supporting.

Middle Branch Westfield River (MA32-66) highlighted in turquoise. [No fish samples were collected in this AU. To view locations of samples included in the Westfield TFC analysis, go to the sections for MA32-65, MA32-03, MA32-01, MA32-04, MA32-05]:



Westfield TFC Model:

Table A16. Species percent composition for reference rivers used to develop the Westfield 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).

							NB				
	Third Branch	Tenmile	Ashuelot	Ammonoosuc	Piscataquog	Cold	Sugar	North			Expected
Species	White River	River	River	River	River	River	River	River	Total	Rank	Proportion
Blacknose dace	25.0	14.9	19.8	24.1	22.5	53.8	6.9	38.4	205.4	1	32.4
Longnose dace	19.9	9.3	12.7	38.5	15.2	16.9	44.6	29.1	186.2	2	16.2
Common shiner	2.6	13.8	22.3	1.4	15.8	6.5	20.8	1.1	84.3	3	10.8
Atlantic salmon	0.0	0.0	2.2	24.1	3.4	6.5	0.0	15.1	51.3		
Slimy sculpin	33.1	0.0	0.0	6.0	0.0	2.7	0.0	8.9	50.6	5	6.5
Fallfish	0.0	18.7	26.8	0.0	2.8	0.0	1.0	0.3	49.5	6	5.4
White sucker	0.3	15.8	7.9	0.5	2.8	6.2	10.9	1.9	46.1	7	4.6
Smallmouth bass	0.0	12.2	1.3	0.0	12.0	0.4	0.0	0.0	25.9		
Longnose sucker	5.6	0.0	0.0	4.8	2.8	0.6	4.0	2.9	20.8	9	3.6
Tessellated darter	0.1	7.3	3.8	0.2	0.0	0.6	0.0	0.3	12.3	10	3.2
Creek chub	1.4	0.6	0.2	0.0	0.0	2.8	5.0	0.8	10.8	11	2.9
Brown trout	3.3	0.1	0.3	0.0	0.4	0.0	5.0	0.3	9.4		
Rainbow trout	7.5	0.1	0.0	0.0	0.2	0.2	0.0	0.2	8.1		
Brook trout	1.2	0.1	0.0	0.6	0.0	2.4	0.0	0.6	4.9	14	2.3
Cutlips minnow	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	4.6		
Yellow bullhead	0.0	0.0	1.0	0.0	3.0	0.0	0.0	0.0	4.0		
Redbreast sunfish	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	2.7	17	1.9
Pumpkinseed	0.0	0.6	0.3	0.0	1.4	0.1	0.0	0.0	2.4	18	1.8
American eel	0.0	0.0	0.2	0.0	1.4	0.0	0.0	0.0	1.6	19	1.7
Largemouth bass	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	1.4		
Bluegill	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.3		
Spottail shiner	0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.8	22	1.5
Golden shiner	0.0	0.3	0.0	0.0	0.5	0.0	0.0	0.0	0.8	22	1.5
Brown bullhead	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.2	0.6	23	1.4
Bluntnose minnow	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4		
Rock bass	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.4		
Chain pickerel	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.3	26	1.2
Yellow perch	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	26	1.2

Fish Community Analysis:

Combined analysis of samples from all 5 AUs (MA32-65, MA32-03, MA32-01, MA32-04, MA32-05)

				Values						
				# of	% of	Applicable	TFC	% Sim to		
Watershed	- T	Common Name	- T	Fish	catch	TFC	Difference	TFC	Rov Labels 🛛 🕂	
Westfield		American Brook Lam	prey		0.00%	- 1	-		🖻 Westfield	
Westfield		American Eel		148	0.43%	1.7	1.3		1224	4681
Westfield		Atlantic Salmon		2150	6.23%	-	6.2		1245	4682
Westfield		Banded Killifish		1	0.00%	-	0.0		1248	4683
Westfield		Banded Sunfish			0.00%	-	-		1249	4684
Westfield		Black Crappie			0.00%	-	-		1319	5018
Westfield		Blacknose Dace		13706	39.71%	32.4	7.3		1808	5025
Westfield		Bluegill		15	0.04%	-	0.0		1815	5026
Westfield		Bluntnose Minnow		1	0.00%	-	0.0		1816	5040
Westfield		Bridle Shiner			0.00%	-	-		1821	5105
Westfield		Brook Trout		399	1.16%	2.3	1.1		1828	5164
Westfield		Brown Bullhead			0.00%	1.4	1.4		1829	5165
Westfield		Brown Trout		18	0.05%	-	0.1		2044	5177
Westfield		Central Mudminnow			0.00%	-	-		2045	5178
Westfield		Chain Pickerel			0.00%	1.2	1.2		2047	5429
Westfield		Channel Catfish			0.00%	-	-		2048	5686
Westfield		Common Carp			0.00%	-	-		2050	5687
Westfield		Common Shiner		3825	11.08%	10.8	0.3		2062	5719
Westfield		Creek Chub		431	1.25%	2.9	1.7		2165	5721
Westfield		Creek Chubsucker			0.00%	-	-		2346	6028
Westfield		Cutlips Minnow			0.00%	-	-		2425	6029
Westfield		Fallfish		137	0.40%	5.4	5.0		2477	6068
Westfield		Fathead Minnow			0.00%	-	-		2480	6069
Westfield		Golden Shiner		12	0.03%	1.5	1.5		2481	6218
Westfield		Green Sunfish			0.00%	-	-		2482	6229
Westfield		Lake Chub		433	1.25%	-	1.3		2483	6239
Westfield		Largemouth Bass		7	0.02%	-	0.0		2569	6266
Westfield		Longnose Dace		6229	18.05%	16.2	1.8		2976	6267
Westfield		Longnose Sucker			0.00%	3.6	3.6		2977	6268
Westfield		Northern Pike			0.00%	-	-		2989	6277
Westfield		Pumpkinseed		24	0.07%	1.8	1.7		2990	6278
Westfield		Rainbow Trout		22	0.06%	-	0.1		2991	6385
Westfield		Redbreast Sunfish			0.00%	1.9	1.9		2993	6462
Westfield		Redfin Pickerel			0.00%	-	-		3176	6552
Westfield		Rock Bass		46	0.13%	-	0.1		3210	6629
Westfield		Sea Lamprey			0.00%	-	-		3211	6674
Westfield		Slimy Sculpin		3803	11.02%	6.5	4.5		3228	6694
Westfield		Smallmouth Bass		513	1.49%	-	1.5		3229	6695
Westfield		Spottail Shiner		1	0.00%	1.5	1.5		3230	6696
Westfield		Swamp Darter			0.00%	-	-		3618	7072
Westfield		Tadpole Madtom			0.00%	-	-		3619	
Westfield		Tesselated Darter		205	0.59%	-	0.6		3626	
Westfield		White Catfish			0.00%	-	-		4088	
Westfield		White Perch			0.00%	-	-		4089	
Westfield		White Sucker		2376	6.88%	4.6	2.3		4090	
Westfield		Yellow Bullhead		15	0.04%	-	0.0		4093	
Westfield		Yellow Perch		2	0.01%	1.2	1.2		4094	
Westfield		(blank)			0.00%	-	-	75.39	4096	
Grand Total				34519	*****	-	100.0		4097	

Fish Consumption

2022 Use Attainment	Alert			
Not Assessed	NO			
2022 Use Attainment Summary				
Fish toxics sampling has not been conducted in this Middle Branch Westfield River AU (MA32-66), so the Fish				
Consumption Use is Not Assessed.				

Aesthetic

2022 Use Attainment					
Not Assessed	NO				
2022 Use Attainment Summary					

No recent data are available for this Middle Branch Westfield River AU (MA32-66), so the Aesthetics Use is Not Assessed.

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for this Middle Branch Westfield River AU (MA32-66), so the Primar	y Contact
Recreational Use is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for this Middle Branch Westfield River AU (MA32-66), so the Second	lary Contact
Recreational Use is Not Assessed.	

0.67

0.9%

2.9% 91.9%

4.3%

Mill Brook (MA32-49)

Location:	Headwaters, south of Hawley Street, Plainfield to mouth at confluence with Westfield
	River, Cummington.
AU Type:	RIVER
AU Size:	6 MILES
Classification/Qualifier:	B: CWF

MILL BROOK - MA32-49

Watershed Area: 7.63 square miles



Percent Wetland

2018/20 AU	2022 AU	Impairment	ATTAINS Action ID	Impairment Change Summany
Category	category	inipairment	ATTAINS ACTOTIO	Summary
2	2	None		Unchanged

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted water quality sampling (WQ) at three sites in the summer of 2017 and MassDFG biologists conducted 15 backpack electrofishing surveys in two general reaches of Mill Brook between 2014 and 2019 (from July to early September), described from upstream to downstream as follows: WQ sampling at West Hill Road (a.k.a. High Street), Plainfield (W2758), a group of fish samples clustered shortly downstream around the River Rd crossing (Sample IDs 5135, 5717, 6220, 6620, 6768, 7561, 7571, 8224), WQ sampling at South Union St, Plainfield (W2759), and a 2nd group of fish samples (Sample IDs 5136, 5718, 6219, 6621, 6767, 7551, 8226) along with a 3rd WQ station (W2760) clustered at the Stage Rd crossing in Cummington. All fish samples (n= 85-294) were comprised almost entirely of fluvial fish (≥98%), including multiple age classes of Eastern brook trout with slimy sculpin also present in the samples in the downstream cluster. Probes were deployed to measure continuous dissolved oxygen (DO) at the two upstream WQ sites (W2758 and W2759). The minimum DO was 7.2 mg/L, maximum DO saturation was 96.7% and the maximum diel DO shift was low (1.5 mg/L). Continuous temperature data were measured over 60 days in the 2017 summer index period at all three WQ stations. The data for the three sites (W2758, W2759, and W2760) up to downstream, respectively, can be summarized as follows: maximum temperatures 25.3, 20.3, 20.1 °C), 7DADMs >20.0 °C 27, 0, 0 times with maximum 7DADMs 23.6, 19.1, 18.9 °C, and maximum 24 hour rolling average temperatures 22.8, 19.0, and 18.6 °C. Specific conductance was measured two times each at the two upstream stations and the maximum was 104 μ s/cm. The Aquatic Life Use of Mill Brook (MA32-49), a designated Cold Water Fishery (CWF), is assessed as Fully Supporting based on the extensive fish sample data documenting the presence of multiple age classes of Eastern brook trout throughout the brook as well as slimy sculpin in the downstream sampled reach. Both species are indicators of excellent habitat and water quality conditions. The subwatershed is largely natural/wetland (93%) and there is a beaver dam upstream of the most upstream station (W2758), so the elevated temperatures recorded at this location are judged to be natural conditions.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5135	MassDFG	Fish	Mill Brook	DS of bridge on River Rd, Plainfield	42.51328	-72.92230
		Community				
5136	MassDFG	Fish	Mill Brook	DS of old dam @ Stage Rd xing, Cummington	42.48048	-72.90505
		Community				
5717	MassDFG	Fish	Mill Brook	Bridge on River Rd, Plainfield	42.51324	-72.92232
		Community				
5718	MassDFG	Fish	Mill Brook	Bridge on Stage Rd (WMA), Cummington	42.48053	-72.90508
		Community				
6219	MassDFG	Fish	Mill Brook	Stage Rd xing, Goshen	42.48038	-72.90488
		Community				
6220	MassDFG	Fish	Mill Brook	River Rd DS of bridge, Plainfield	42.51337	-72.92226
		Community				
6620	MassDFG	Fish	Mill Brook	River Rd DS of bridge, Plainfield	42.51340	-72.92258
		Community				
6621	MassDFG	Fish	Mill Brook	Stage Rd xing, Cummington	42.48039	-72.90507
		Community				
6767	MassDFG	Fish	Mill Brook	DS of Stage Rd xing, 40m down,	42.48021	-72.90536
		Community		Cummington		
6768	MassDFG	Fish	Mill Brook	US of River Rd xing ~ 80 m, 1/4 miles. S. of	42.51392	-72.92305
		Community		West Hill Rd, Plainfield		
7551	MassDFG	Fish	Mill Brook	Shaw WMA/Upstream of Stage Rd. crossing,	42.48103	-72.90499
		Community		Cummington		
7561	MassDFG	Fish	Mill Brook	Downstream of bridge on River Rd. ,	42.51239	-72.92142
		Community		Plainfield		
7571	MassDFG	Fish	Mill Brook	Upstream from River Rd. crossing , Plainfield	42.51347	-72.92273
		Community				

Monitoring Stations

8224	MassDFG	Fish	Mill Brook	DS of bridge on River Rd. (Off W Hill St),	42.51344	-72.92226
		Community		Plainfield		
8226	MassDFG	Fish	Mill Brook	DS of Stage Rd Crossing, Cummington	42.48045	-72.90504
		Community				
W2758	MassDEP	Water	Mill Brook	[West Hill Road (a.k.a. High Street),	42.515829	-72.924807
		Quality		Plainfield]		
W2759	MassDEP	Water	Mill Brook	[South Union Street, Plainfield]	42.502301	-72.915717
		Quality				
W2760	MassDEP	Water	Mill Brook	[Stage Road, Cummington]	42.480665	-72.904907
		Quality				

Biological Monitoring Information

Fish Community Data and DELTS

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

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

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

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5135	07/31/14	BP	TP	4	101	6	47	125	6	0	26%	100%	No	Yes	AS, BND, CRC, EBT,
5136	07/31/14	BP	ТР	6	105	14	65	204	12	59	72%	100%	No	Yes	AS, BND, CRC, EBT, LND, SC,
5717	09/04/15	BP	ТР	5	98	27	67	182	24	0	29%	100%	No	Yes	AS, BND, CRC, EBT, WS,
5718	09/04/15	BP	ТР	6	176	48	62	227	42	88	78%	100%	No	Yes	AS, BND, CRC, EBT, LND, SC,
6219	07/28/16	BP	TP	4	294	75	51	215	68	175	85%	100%	No	Yes	BND, EBT, LND, SC,
6220	07/28/16	BP	TP	4	131	40	54	194	35	0	31%	100%	No	Yes	AS, BND, CRC, EBT,
6620	08/10/17	BP	TP	4	141	19	52	210	16	0	13%	99%	No	Yes	BND, CRC, EBT, P,
6621	08/10/17	BP	ТР	6	124	54	55	156	52	53	86%	100%	No	Yes	BND, CRC, EBT, LND, SC, WS,
6767	07/19/17	BP	ТР	5	129	48	50	160	46	59	83%	100%	No	Yes	BND, CRC, EBT, LND, SC,
6768	07/19/17	BP	TP	3	147	7	54	194	6	0	5%	100%	No	Yes	BND, CRC, EBT,
7551	07/31/18	BP	TP	5	93	58	57	207	49	27	91%	98%	No	Yes	BND, EBT, LND, P, SC,
7561	08/06/18	BP	TP	3	156	9	69	192	5	0	6%	100%	No	Yes	BND, CRC, EBT,
7571	08/05/18	BP	TP	3	85	10	112	221	5	0	12%	100%	Yes	Yes	BND, CRC, EBT,
8224	08/22/19	BP	TP	4	210	11	69	201	7	0	5%	100%	No	Yes	BND, CRC, EBT, LND,
8226	08/22/19	BP	ТР	6	179	67	69	229	54	68	75%	99%	No	Yes	BND, CRC, EBT, LND, P, SC,

Physico-chemical Water Quality Information

DO, pH, Temperature

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

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2758	07/18/17	08/13/17	27	21	0	7.2	7.4	7.8	1.5	0	0	0	0	0	0	0	0
W2759	07/18/17	10/02/17	77	71	48	8.7	9	9.3	1.1	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2758	08/29/17	10/03/17	2	9.3	9.6	0	0	0
W2759	08/29/17	10/03/17	2	10.1	10.4	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2758	07/18/17	09/15/17	60	57	22.7	25.3	23.6	21.5	27	0	1	0	0	0
W2759	07/18/17	09/15/17	60	57	18.9	20.3	19.1	17.9	0	0	0	0	0	0
W2760	07/18/17	09/15/17	60	57	18.4	20.1	18.9	17.4	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 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2758	07/17/17	09/15/17	60	2855	22.8	0	0	0
W2759	07/17/17	09/15/17	60	2852	19.0	0	0	0
W2760	07/17/17	09/15/17	60	2853	18.6	0	0	0

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W2758	08/29/17	10/03/17	2	1	14.2	12.9	0	0	0	0
W2759	08/29/17	10/03/17	2	1	12.6	11.7	0	0	0	0
W2760	08/28/17	10/02/17	2	1	13.1	11.4	0	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2758	2017					1.5	1.0	91.4			
W2759	2017					1.1	0.6	96.7			

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (µs/cm)	SpCond Max (µs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2758	08/29/17	10/03/17	2	77	92	0	0	0	0	0	0
W2759	08/29/17	10/03/17	2	92	104	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Mill Brook (MA32-49), so the Fish Consumption Use is No	t Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available, so the Aesthetics Use of Mill Brook (MA32-49) is Not Assessed.	

Primary Contact Recreation

|--|

Not Assessed	NO

2022 Use Attainment Summary

No bacteria data are available, so the Primary Contact Recreational Use of Mill Brook (MA32-49) is Not Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No bacteria data are available, so the Secondary Contact Recreational Use of Mill Brook (MA32-49) is Not Assessed.

Miller Brook (MA32-27)

Location:	Source, outlet small unnamed pond in Robinson State Park, north of North Street, Agawam to mouth at confluence with Westfield River, Agawam.
AU Type:	RIVER
AU Size:	0.6 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Miller Brook (MA32-27) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

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

Mongue Meadow Brook (MA32-79)

Location:	Headwaters, south of East Windsor Road, Windsor to mouth at confluence with Alder Meadow Brook, Windsor
AU Type:	RIVER
AU Size:	1.4 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Mongue Meadow Brook (MA32-79) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Moose Meadow Brook (MA32-40)

Location:	Headwaters, west of Bungay Mountain, east of New State Road, Montgomery to inlet Westfield Reservoir, Montgomery (formerly part of 2014 segment: Moose Meadow Brook MA32-23).
AU Type:	RIVER
AU Size:	2.9 MILES
Classification/Qualifier:	В

100m

Stream

Buffer

0.53

0.8%

3%

73.1%

23.1%

Proximal

Stream Buffer

0.53

0.8%

3%

73.1%

23.1%

MOOSE MEADOW BROOK - MA32-40

Watershed Area: 1.77 square miles 5km Radius Entire Proximal Subbasin Landuse Type Basin Land Use Area (square miles) 1.77 1.77 3% 3% Agriculture Developed 4.2% 4.2% Natural 82.1% 82.1% Wetland 10.7% 10.7% Impervious 2.05% Cover Percent A griculture Percent Natural Percent Developed Percent Wetland

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

Recommendations

2022 Recommendations
ALU: Additional fish surveys should be conducted to determine whether this Moose Meadow Brook AU (MA32-40)
supports a reproducing Eastern brook trout population (since 1 EBT ≤140 mm was captured in MassDFG sample 4692
and temperature data recorded in summer 2017 indicate the stream serves as cold-water habitat).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDFG biologists conducted backpack electrofishing in this Moose Meadow Brook AU (MA32-40) downstream of the Russell Rd crossing in Montgomery in Sept 2013 (Sample ID 4692). The sample (n=201) was comprised of 95% fluvial individuals, including two Eastern brook trout (one of these was ≤140 mm in length) (MassDFG 2020)). MassDFG maps this stream as a Coldwater Fisheries Resource (CFR) (however, the DFG database does not contain any other samples from this AU, only the downstream AU (MassDFG 2020)), but two Eastern brook trout smaller than 140 mm or any sized slimy sculpins need to be collected in the same sample in order to identify the stream as having a Tier 1 Cold Water Existing Use. MassDEP staff conducted limited water quality monitoring in this Moose Meadow Brook AU downstream of the fire pond at Old House Rd, Montgomery (W2752) during summer 2017. A probe was deployed to measure dissolved oxygen (DO) for 77 days from late July through mid-October. The minimum DO was 7.4 mg/L. Continuous temperature data were measured over 51 days in the summer index period. The maximum temperature was 20.7 °C and the maximum 7DADM was 19.6 °C. These temperature data meet cold water criteria/thresholds. The single pH measurement was 6.5 S.U. There was no indication of nutrient enrichment (maximum diel DO shift was 1.3 mg/L and the maximum DO saturation was 91.5%). Specific conductance was measured twice with a maximum of 67 μ s/cm. The Aquatic Life Use of this Moose Meadow Brook AU (MA32-40) is assessed as Fully Supporting based primarily on the dominance of fluvial species in the fish community, as well as on limited water quality data indicating the stream provides cold water habitat. Additional fish surveys should be conducted to determine whether this Moose Meadow Brook AU supports a reproducing Eastern brook trout population.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
4692	MassDFG	Fish	Moose	Russell Rd xing DS (300' to start)	42.208112	-72.815481
		Community	Meadow			
			Brook			
W2752	MassDEP	Water	Moose	[downstream of the fire pond at Old House	42.205672	-72.811394
		Quality	Meadow	Road, Montgomery]		
			Brook			

Biological Monitoring Information

Fish Community Data and DELTS

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

[FS = FIUVIAI Specialist, IVIG = I	viacronabilal Generalistj		
Station Code	4692	Sampling Date	9/18/2013
Species	Habitat Use Classification	Number of Individuals	Comments
Blacknose Dace	FS	29	
Brook Trout	FS	2	Length of fish 180 and
			129 mm
Creek Chub	FS	159	
Golden Shiner	MG	11	
Total Number of Fish		201	

Physico-chemical Water Quality Information

[FC Fluxial Crasic list NAC Nasarahabitat Conservation]

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2752	07/27/17	10/11/17	77	71	48	7.4	7.7	8	1.3	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2752	07/27/17	09/15/17	51	48	18.9	20.7	19.6	18.1	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2752	07/26/17	09/15/17	52	2425	19.5	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2752	09/06/17	10/12/17	2	1	15.7	14.2	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2752	09/06/17	10/12/17	1	6.5	6.5	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2752	2017					1.3	0.6	91.5	6.5		

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2752	09/06/17	10/12/17	2	62	67	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Moose Meadow Brook AU (MA32-40), so the Fish Col	nsumption Use
is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						
No recent data are available for this Moose Meadow Brook AU (MA32-40), so the Aesthetics Use is Not Assessed.						

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for this Moose Meadow Brook AU (MA32-40), so the Primary Conta	ct Recreational
Use is Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for this Moose Meadow Brook AU (MA32-40), so the Secondary Cor	ntact
Recreational Use is Not Assessed.	

Moose Meadow Brook (MA32-41)

Location:	Outlet Westfield Reservoir to mouth at confluence with Westfield River, Westfield (formerly part of 2014 segment: Moose Meadow Brook MA32-23).
AU Type:	RIVER
AU Size:	4.8 MILES
Classification/Qualifier:	В

MOOSE MEADOW BROOK - MA32-41

Watershed Area: 8.07 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	8.07	4.23	2.66	1.52
Agriculture	7%	11.9%	8.6%	14.6%
Developed	6%	8.4%	7%	9.8%
Natural	80%	74.4%	73%	67.9%
Wetland	6.9%	5.3%	11.4%	7.6%
Impervious	2.15%			

Cover

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

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Escherichia Coli (E. Coli)	Agriculture (N)				Х	Х
Escherichia Coli (E. Coli)	Grazing in Riparian or Shoreline Zones (N)				Х	х
Fecal Coliform	Agriculture (N)				Х	Х
Fecal Coliform	Grazing in Riparian or Shoreline Zones (N)				Х	Х

Recommendations

2022 Recommendations

ALU: With the removal of the Tekoa Reservoir Dam, the fish community and water quality parameters (continuous DO and temperature data) of this Moose Meadow Brook AU (MA32-41) should be sampled ~400 m north of the old Tekoa Reservoir and at the Pochassic St crossing (site of historical fish samples 7110 and 329 which included young brook trout). The health of the cold-water fish assemblage needs to be determined and the appropriateness of DO/temperature impairments should be reevaluated.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	YES
2022 Use Attainment Summary	
MassDFG biologists conducted backpack electrofishing in this Moose Meadow Brook AU (MA32-41) down	nstream of the
staff gage at the outflow of the Westfield Reservoir, Montgomery (Sample ID 5379) in July 2014. The same	ple (n=118) was
comprised of 31% fluvial individuals but no cold-water species were collected (note that Eastern brook tr	out were
previously collected at other downstream locations, so the brook has a Tier 1 Cold Water Existing Use) (N	1assDFG 2020,
MassDEP Undated 7)). UMass Amherst students collected long-term continuous temperature data in the	2014, 2015, and
2016 summer index periods at four stations ranging from 1-613 m downstream of the Westfield Reservoi	r (UMassA-
MOODS1, -MOODS2, -MOODS3, -MOODS4). From datasets of 106 or 107 days, the majority of 7DADMs e	xceeded 20.0
°C. The City of Westfield's Department of Public Works supervised the removal of the Tekoa Reservoir Da	m on Moose
Meadow Brook (located in the middle of the AU). From Google Earth satellite imagery, it appears that the	e construction
phase of the project took place in late 2019 or early 2020 (Google Earth Pro Undated). The removal was p	partially funded
by a \$396,000 grant from the Executive Office of Energy and Environmental Affair's Dam and Seawall Rep	air or Removal
Fund (EOEEA 2018). The Tekoa Reservoir was originally constructed to provide drinking water but had no	t been
functioning in that capacity for decades. The City decided to remove the dam due to safety concerns and	maintenance
costs (Serreze 2019). Additionally, the dam's removal restored connectivity to 2.3 miles of Coldwater Fish	iery Resource
habitat (EOEEA 2018). MassDEP staff conducted limited water quality monitoring during summer 2017 in	the
downstream part of this Moose Meadow Brook AU ~150 ft downstream of Pochassic Rd, Westfield (Stati	on W2753) and
~260 ft upstream from the mouth at the confluence with the Westfield River, Westfield (~100 ft downstr	eam of farm
crossing) (Station W2754). Probes were deployed to measure dissolved oxygen (DO) for 76 days and 34 d	ays (starting the
end of July) at the upstream/downstream stations, respectively. The minimum DO at the upstream site w	/as 6.8 mg/L but
downstream it was 2.6 mg/L (minimum 7DADMin for the downstream station was 3.5 mg/L and all 14 7D	ADMins were
<6.0 mg/L). Continuous temperatures were recorded over 51 days in the summer index period at both st	ations and can
be summarized as follows (up to downstream, respectively): maximum temperatures 24.0 and 23.7 °C, m	aximum
7DADMs 22.0 and 22.6 °C exceeding 20.0 °C 27 times each, maximum 24-hour rolling averages 21.0 and 2	22.7 °C (neither
site exceeding 23.5 °C). pH was measured once at each station (7.4 and 6.6 S.U., respectively). The maxim	າum DO diel
shifts were elevated at both stations (3.6 and 5.0 mg/L), indicating potential nutrient enrichment althoug	h maximum DO,
saturations were acceptable (109 and 84%, respectively). Specific conductance was measured twice at bo	oth stations- the
maxima were 511 and 393 μ s/cm, respectively.	
The Aquatic Life Use of this Moose Meadow Brook AU (MA32-41) is assessed as having Insufficient Inform	nation because
the Tekoa Reservoir Dam was removed after water quality data were collected. Therefore, all prior alerts	for low DO,
elevated temperature, elevated nutrients, and lack of intact riparian zone (through the farm property near	ar the

the Tekoa Reservoir Dam was removed after water quality data were collected. Therefore, all prior alerts for low DO, elevated temperature, elevated nutrients, and lack of intact riparian zone (through the farm property near the downstream end of the AU) are being carried forward. Additionally, an Alert is being identified due to the lack of a cold-water fish assemblage documented just downstream of the Westfield Reservoir (however, this location is not one where brook trout were previously collected, and the location is not representative of the rest of the AU due to proximity to the reservoir). With the removal of the Tekoa Reservoir Dam, fish and water quality surveys should be conducted ~400 m north of the old Tekoa Reservoir and at the Pochassic St crossing (site of historical fish samples 7110 and 329 which included young brook trout).

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5379	MassDFG	Fish	Moose	DS of staff gage @ outlfow of Westfield Res,	42.18785	-72.81014
		Community	Meadow	Montgomery		
			Brook			
W2753	MassDEP	Water	Moose	[approximately 150 feet downstream of	42.148569	-72.793185
		Quality	Meadow	Pochassic Road, Westfield]		
			Brook			
W2754	MassDEP	Water	Moose	[approximately 260 feet upstream from	42.137838	-72.784587
		Quality	Meadow	mouth at confluence with the Westfield		
			Brook	River, Westfield (approximately 100 feet		
				downstream of farm crossing)]		

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
UMassA_MOODS1	UMass	Water	Moose	1m downstream dam	42.19056	-72.81105
	Amherst	Quality	Meadow			
			Brook			
UMassA_MOODS2	UMass	Water	Moose	368m downstream dam	42.18738	-72.80994
	Amherst	Quality	Meadow			
			Brook			
UMassA_MOODS3	UMass	Water	Moose	543m downstream dam	42.185953	-72.810237
	Amherst	Quality	Meadow			
			Brook			
UMassA_MOODS4	UMass	Water	Moose	613m downstream dam	42.185422	-72.810587
	Amherst	Quality	Meadow			
			Brook			

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AE = American Eel, BB = Brown Bullhead, BND = Blacknose Dace, CRC = Creek Chub, GS = Golden Shiner, LMB = Largemouth Bass, P = Pumpkinseed, SMB = Smallmouth Bass, 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
5379	07/23/14	BP	ТР		9	118	0%	2	31%	0%	4	15%	No	Yes	AE, BB, BND, CRC, GS, LMB, P, SMB, YP,

Habitat and Flow Data (anthropogenic alterations)

Status of MassDER habitat restoration priority projects as of 2021 (Wildman April 15, 2021)

The City of Westfield's Department of Public Works supervised the removal of the Tekoa Reservoir Dam (located in Montgomery) on Moose Meadow Brook. From Google Earth satellite imagery, it appears that the construction phase of the project took place in late 2019 or early 2020 (Google Earth Pro Undated). The removal was partially funded by a \$396,000 grant from the Executive Office of Energy and Environmental Affair's Dam and Seawall Repair or Removal Fund (EOEEA 2018). The Tekoa Reservoir was originally constructed to provide drinking water but had not been functioning in that capacity in for decades. The City decided to remove the dam due to safety concerns and maintenance costs (Serreze 2019). Additionally, the dam's removal restores connectivity to 2.3 miles of Moose Meadow Brook, a Coldwater Fishery Resource (EOEEA 2018).

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2753	07/27/17	10/11/17	76	64	46	6.8	7.1	8.4	3.6	0	0	0	0	0	0	0	0
W2754	07/27/17	09/20/17	34	14	0	2.6	3.5	4.5	5	14	14	0	0	7	7	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2753	09/06/17	10/12/17	2	9.3	9.9	0	0	0
W2754	09/06/17	10/12/17	2	5.8	6.9	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2753	07/27/17	09/15/17	51	48	20.3	24.0	22.0	19.2	27	0	0	0	0	0
W2754	07/27/17	09/15/17	51	48	22.4	23.7	22.6	20.7	27	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

			Count	24hr	Max 24hr Avg	Count CWTier1 24hr	Count CWTier2 24hr	Count WW 24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2753	07/26/17	09/15/17	51	2422	21.0	0	0	0
W2754	07/26/17	09/15/17	51	2420	22.7	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Temp Count	Index Count	Temp Max (°C)	Temp Avg (°C)	Count CW >20	Count CW >22	Count WW >28.3	Count WW >30.3
W2753	09/06/17	10/12/17	2	1	16.5	16.2	0	0	0	0
W2754	09/06/17	10/12/17	2	1	17.1	16.2	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2753	09/06/17	10/12/17	1	7.4	7.4	0	0
W2754	09/06/17	10/12/17	1	6.6	6.6	0	0

UMass Amherst Dam Study Long-term Continuous Temperature Data (Summer Index 2014-2017). (UMass-Amherst 2018) (MassDEP Undated 4)

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

Station Code	Start Date	End Date	Index Count	Max 24hr Rolling Avg Temp (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier2 7DADA >21	Count WW 7DADM >27.7
UMassA_MOODS1	05/20/14	12/31/14	107	27.3	30.3	28.1	28.0	106	103	3
UMassA_MOODS1	01/01/15	12/31/15	106	28.2	32.3	28.2	28.0	105	100	8
UMassA_MOODS1	01/01/16	10/24/16	106	28.1	30.1	28.3	28.1	105	102	11
UMassA_MOODS2	05/20/14	12/31/14	107	26.0	27.6	25.7	25.6	104	100	0
UMassA_MOODS2	01/01/15	12/31/15	106	27.4	29.8	26.3	25.9	101	87	0
UMassA_MOODS2	01/01/16	10/24/16	106	24.7	26.0	24.3	24.1	89	75	0
UMassA_MOODS3	05/20/14	12/31/14	107	25.6	27.1	25.3	25.2	103	98	0
UMassA_MOODS3	01/01/15	12/31/15	106	26.9	29.2	26.1	25.9	99	95	0
UMassA_MOODS3	01/01/16	10/24/16	106	24.2	25.4	23.7	23.5	85	39	0
UMassA_MOODS4	05/20/14	12/31/14	107	25.3	26.7	24.9	24.8	101	88	0
UMassA_MOODS4	01/01/15	12/31/15	106	26.5	28.4	25.6	25.4	99	85	0
UMassA_MOODS4	01/01/16	10/24/16	106	23.8	24.9	23.1	23.0	69	20	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2753	2017					3.6	1.9	108.8	7.4		
W2754	2017					5.0	2.8	84.0	6.6		

[Summer seasonal total phosphorus data collected May-Sept]

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2753	09/06/17	10/12/17	2	158	511	0	0	0	0	0	0
W2754	09/06/17	10/12/17	2	173	393	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Moose Meadow Brook AU (MA32-41), so the Fish Col	sumption Use
is Not Assessed.	

Aesthetic

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
No recent data are available for this Magoe Meadow Brook ALL (MA22.41), so the Aesthetics Use is Not Accessed					

No recent data are available for this Moose Meadow Brook AU (MA32-41), so the Aesthetics Use is Not Assessed.

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
No recent besterie data are available for this Massa Maadaw Brack All (MA22, 41), so the Driman Conta	at Degraational

No recent bacteria data are available for this Moose Meadow Brook AU (MA32-41), so the Primary Contact Recreational Use will continue to be assessed as Not Supporting with the prior impairments for Escherichia Coli (E. Coli) and Fecal Coliform being carried forward.

Secondary Contact Recreation

2022 Use Attainment	Alert				
Not Supporting	NO				
2022 Use Attainment Summary					
No recent bacteria data are available for this Moose Meadow Brook AU (MA32-41), so the Secondary Con	ntact				
Recreational Use will continue to be assessed as Not Supporting with the prior impairments for Escherichia Coli (E. Coli)					
and Fecal Coliform being carried forward.					

Munn Brook (MA32-59)

Location:	Headwaters, outlet Winchell Reservoir, Granville to mouth at confluence with Little River, Westfield.
AU Type:	RIVER
AU Size:	5.5 MILES
Classification/Qualifier:	B: CWF

MUNN BROOK - MA32-59

Watershed Area: 22.22 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer	
Land Use Area (square miles)	22.22	5.9	5.22	1.28	
Agriculture	4.7%	4.8%	5.5%	10.2%	
Developed	6.3%	8.1%	8%	9.4%	
Natural	84.6%	82%	77%	68.8%	
Wetland	4.4%	5.2%	9.4%	11.5%	
Impervious	2 47%				

Cover

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

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

Recommendations

2022 Recommendations

ALU: Collect continuous temperature data in Munn Brook downstream of the former Winchell Reservoir Dam and further downstream in the vicinity of DEP station W2264 to better evaluate the effects of dam removal; REC: Conduct follow-up bacteria monitoring in Munn Brook (in the vicinity of DEP station W2264) of sufficient frequency to reevaluate whether a use impairment should be identified for the Secondary Contact Recreational Use.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife	
2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
The Winchell Reservoir Dam (Winchell Reservoir is not an AU), just upstream of the Munn Brook AU, was	completely
removed as of May 2016 to improve fish passage and river function, and to eliminate a safety hazard (Th	omas-Blate
2021). The dam was originally built in 1899 to create a reservoir and serve as a water supply impoundment	nt for the city of
Westfield (Tighe and Bond Undated). MassDEP and MassDFG biologists conducted backpack electrofishin	g at multiple
locations in Munn Brook from 2012-2018 (in June, July, Aug), described as follows. At the upstream end o	of the AU, just
downstream of the former Winchell Reservoir, MassDFG sampling was conducted downstream of Winche	ell Rd in
Granville (Sample IDs 5378, 7746, 7748; the latter two samples were collected in June 2018 after dam rer	noval). In the
middle of the AU, MassDFG sampling was clustered around Loomis Rd in Southwick (Sample IDs 5129, 56	93, 6224, 6495,
7747). Farther downstream, a MassDEP MAP2 project sample was collected 550 ft upstream of Loomis St	in Westfield
(Sample ID 5115). The samples (n = 43-745) were all dominated by fluvial fish (\geq 93%) including multiple a	ge classes of
Eastern brook trout and most of the samples collected at the two downstream locations also included ma	any slimy
sculpins. The presence of these two cold-water species is indicative of excellent water quality conditions i	in a designated
Cold Water Fishery such as Munn Brook. UMass-Amherst students deployed probes between June 2014 a	and Dec 2016 to
study thermal effects of the former Winchell Reservoir Dam (UMass-Amherst 2018) at three stations (UM	lassA_MUNDS1,
UMassA_MUNDS2, UMassA_MUNDS3) ranging from 42 m to 347 m downstream of the dam and collecte	d temperature
data over 90-106 days during the index period of each year. Temperature 7DADMs were above 20.0 °C >1	L1 times/year at
the two most upstream stations but only in 2016 at the downstream station (note that a drought warning	g occurred much
of the latter half of 2016 (Drought Management Task Force 2021). MassDEP staff also conducted benthic	(Station B0801)
and water quality surveys (Station W2264) in Munn Brook during summer 2012 ~550 ft upstream of Loon	nis Street,
Westfield (in the vicinity of the downstream fish sample). The July benthic sample had an IBI score of 66,	indicating that
conditions were satisfactory for a low gradient location. A probe was deployed to measure dissolved oxyg	gen (DO) for 54
days from late July to mid-September with a minimum DO of 7.2 mg/L. Continuous temperature measure	ements over 107
days in the summer index period of 2012 can be summarized as follows: maximum temperature 23.1 °C, i	maximum
/DADM 22.1 °C (>20 °C 49 times), maximum 24-nour rolling average 21.9 °C. Other data were generally in	idicative of
good conditions: pH ranged from 6.8-7.3 S.U. (n=5), there was no indication of nutrient enrichment (total	phosphorus
seasonal average 0.021 mg/L with n=5, maximum diel DO shift 1.5 mg/L, maximum DO saturation 104.5%	, no
observations of excessive filamentous algae during five site visits), there were no exceedances among thr	ee clean metals
samples or three aluminum samples (because dissolved AI data were compared to the total recoverable A	Al criteria,
exceedances cannot be ruled out, nowever), and the maximum Total Ammonia Nitrogen (TAN) was low (I	0.020 mg/L,
n=5). Maximum chloride and specific conductance were also low (15 mg/L and 106 μs/cm, respectively, n	1=5).
an the biological data (healthy cold water fich community and caticfactory benthes) as well as water such	porting based
indicative of good conditions. Since the Winchell Personalise Dam was removed, no Alert is being identified	liy udla
temporature but additional monitoring is being recommended	
temperature, but additional monitoring is being recommended.	

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5115	MassDEP	Fish	Munn Brook	550ft US of Loomis St	42.10080	-72.80859
		Community				
5129	MassDFG	Fish	Munn Brook	DS of bridge on Loomis Rd, Southwick	42.09074	-72.81351
		Community				
5378	MassDFG	Fish	Munn Brook	DS of "Winchell Rd" & Winchell Reservoir,	42.08239	-72.84222
		Community		Granville		

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5693	MassDFG	Fish	Munn Brook	US of Bridge on Loomis Rd, Granville	42.09077	-72.81313
		Community				
6224	MassDFG	Fish	Munn Brook	US of bridge on Loomis rd, Granville	42.09065	-72.81375
		Community				
6495	MassDFG	Fish	Munn Brook	US of bridge on N. Loomis St, Southwick	42.09087	-72.81308
		Community				
7746	MassDFG	Fish	Munn Brook	Access at gates off Winchell Rd., Gate Code	42.08270	-72.84246
		Community		# 4427, Granville		
7747	MassDFG	Fish	Munn Brook	N. Loomis St. crossing at old gravel depot	42.09072	-72.81360
		Community		house, Southwick		
7748	MassDFG	Fish	Munn Brook	Access off Winchell Rd., Gate Code # 4427,	42.08339	-72.84232
		Community		Granville		
B0801	MassDEP	Benthic	Munn	[approximately 170 meters upstream of	42.099769	-72.808644
			Brook/	Loomis Street, Westfield, MA]		
W2264	MassDEP	Water	Munn Brook	[approximately 550 feet upstream of Loomis	42.099769	-72.808644
		Quality		Street, Westfield]		

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
UMassA_MUNDS1	UMass	Water	Munn	42m downstream dam	42.083493	-72.842247
	Amherst	Quality	Brook			
UMassA_MUNDS2	UMass	Water	Munn	204m downstream dam	42.082247	-72.841898
	Amherst	Quality	Brook			
UMassA_MUNDS3	UMass	Water	Munn	347m downstream dam	42.081617	-72.840367
	Amherst	Quality	Brook			

Biological Monitoring Information

Benthic Macroinvertebrate Data

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

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

Station	Collection	Collection		Organism	Index	Index Biological
Code	Date	Method	Index Type	Count	Score	Condition Class
B0801	07/10/12	RBP multihab	Statewide_Low_Gradient	104	66	S

Fish Community Data and DELTS

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

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

[Species List: AE = American Eel, AS = Atlantic Salmon, B = Bluegill, BB = Brown Bullhead, BND = Blacknose Dace, BT = Brown Trout, CS = Common Shiner, EBT = Brook Trout, F = Fallfish, GS = Golden Shiner, LND = Longnose Dace, RT = Rainbow Trout, SC = Slimy Sculpin, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5115	08/07/12	BP	ТР	12	153	23	56	380	14	25	42%	99%	Yes	Yes	AE, AS, BND, BT, CS, EBT, F, GS, LND, SC, TD, WS,
5129	07/29/14	BP	ТР	9	558	26	50	221	15	256	58%	100%	No	Yes	AS, BB, BND, BT, CS, EBT, LND, SC, WS,
5378	07/22/14	BP	TP	4	153	47	61	173	43	0	31%	95%	Yes	Yes	AE, BND, EBT, LND,
5693	08/14/15	BP	ТР	13	745	53	46	283	40	332	59%	99%	Yes	Yes	AE, AS, BB, BND, BT, CS, EBT, F, LND, RT, SC, TD, WS,
6224	08/11/16	BP	ТР	11	689	43	59	205	32	201	39%	99%	No	Yes	AE, BND, BT, CS, EBT, F, GS, LND, SC, TD, WS,
6495	08/23/17	BP	ТР	10	531	16	49	94	16	0	5%	99%	No	Yes	AE, B, BND, BT, CS, EBT, LND, RT, TD, WS,
7746	06/22/18	BP	TP	3	43	31	40	194	25	0	72%	93%	No	Yes	AE, BND, EBT,
7747	06/22/18	BP	ТР	12	384	14	53	244	10	170	49%	98%	No	Yes	AE, BB, BND, BT, CS, EBT, F, LND, RT, SC, TD, WS,
7748	06/22/18	BP	TP	3	112	22	50	156	21	0	20%	98%	No	Yes	AE, BND, EBT,

Habitat and Flow Data (anthropogenic alterations)

Status of MassDER habitat restoration priority projects as of 2021 (Wildman April 15, 2021)

The Winchell Reservoir Dam removal was completed May of 2016, meeting the approved deadline. The purpose of this dam removal was to improve fish passage and river function, and to eliminate a safety hazard (Thomas-Blate 2021). The dam was originally built in 1899 to create a reservoir and serve as a water supply impoundment for the city of Westfield (Tighe and Bond Undated). Studies on the thermal effects of the Winchell Reservoir Dam on Munn Brook were conducted by UMass students between June 2014 and October 2017. Investigators monitored continuous water temperature using data loggers throughout this period (UMass-Amherst 2018).

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2264	07/25/12	09/19/12	54	36	25	7.2	7.4	7.9	1.5	0	0	0	0	0	0	0	0
MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2264	2012	3	12	7.5	7.8	8.2	1.5	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2264	05/10/12	09/24/12	7	8.8	9.4	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2264	07/25/12	09/15/12	53	50	21.6	22.8	22.1	20.8	22	0	0	0	0	0
W2264	06/01/12	09/15/12	107	107	21.7	23.1	22.1	20.8	49	0	0	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2264	2012	3	12	19.3	20.7	20.4	18.7	1	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2264	06/01/12	09/15/12	107	5136	21.9	0	0	0
W2264	06/14/12	09/15/12	93	1836	21.7	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2264	05/10/12	09/24/12	9	5	21.8	16.7	2	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2264	05/10/12	09/24/12	5	6.8	7.3	0	0

UMass Amherst Dam Study Long-term Continuous Temperature Data (Summer Index 2014-2017). (UMass-Amherst 2018) (MassDEP Undated 4)

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

Station Code	Start Date	End Date	Index Count	Max 24hr Rolling Avg Temp (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier2 7DADA >21	Count WW 7DADM >27.7
UMassA_MUNDS1	06/07/14	12/31/14	101	22.8	24.8	23.0	22.7	60	27	0
UMassA_MUNDS1	01/01/15	12/31/15	106	22.2	24.9	22.7	22.6	82	65	0
UMassA_MUNDS1	01/01/16	12/31/16	106	20.4	26.0	22.2	22.1	50	21	0
UMassA_MUNDS2	06/07/14	12/31/14	101	21.6	23.2	21.3	21.1	9	2	0
UMassA_MUNDS2	01/01/15	12/31/15	106	21.7	23.5	22.1	21.9	70	24	0
UMassA_MUNDS2	01/01/16	12/31/16	90	20.1	24.6	21.5	21.4	39	6	0
UMassA_MUNDS3	06/07/14	12/31/14	101	20.8	22.2	20.2	20.0	3	0	0
UMassA_MUNDS3	01/01/15	12/31/15	106	20.0	20.6	19.7	19.6	0	0	0
UMassA_MUNDS3	01/01/16	12/31/16	106	21.5	22.7	21.2	21.1	25	2	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Summer seasonal total phosphorus data collected May-Sept]

Station	Data	Seasonal TP	Seasonal TP Min	Seasonal TP Max	Seasonal TP Avg	Delta DO Max	Delta DO Avg	DO Sat Max	pH Max	Count Algal	Dense/V. Dense Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2264	2012	5	0.011	0.035	0.021	1.5	1.1	104.5	7.3	5	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CMC	Cd CMC	Cr III CMC	Cu CMC	Pb CMC	Ni CMC	Ag CMC	Zn CMC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2264	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CCC	Cd CCC	Cr III CCC	Cu CCC	Pb CCC	Ni CCC	Se CCC	Zn CCC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2264	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Dissolved	Al Min	Al Max	Al Avg	Al CMC	Al CCC	Al CMC	Al CCC
Code	Year	Al Count	(mg/L)	(mg/L)	(mg/L)	TU Max	TU Max	TU >1	TU >1
W2264	2012	3	0.006	0.012	0.009	0.0	0.1	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [TAN= NH3 + NH4+]

Station	Data	TAN	TAN Min	TAN Max	TAN Avg	Count TAN	Count TAN
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	>Chronic	>Acute
W2264	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
W2264	2012	5	8	15	11	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2264	05/10/12	09/24/12	5	94	106	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Munn Brook (MA32-59), so the Fish Consumption Use is N	Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted water quality (W2264) surveys of this Munn Brook AU (MA32-59) in Westfield approximately 550 feet upstream of Loomis Street. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2012 (n=6).

The Aesthetics Use of this Munn Brook AU (MA32-59) is assessed as Fully Supporting based on the general lack of objectionable conditions observed by MassDEP staff during the summer of 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2264	MassDEP	Water	Munn Brook	[approximately 550 feet upstream of Loomis Street,	42.099769	-72.808644
		Quality		Westfield]		

Aesthetic Observations

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

			Field	
Station		Data	Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W2264	Munn Brook	2012	6	MassDEP aesthetics observations for station W2264/MAP2-199 on Munn
				Brook can be summarized as follows: there were generally no noted
				objectionable conditions (odors, deposits, growths, or turbidity) recorded
				by DEP field sampling crews during summer 2012.

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

			Field Sheet Count w/ Film &	
Station			Filamentous Algae	Dense/ Very Dense
Code	Data Year	Field Sheet Count	Observations	Film/ Filamentous Algae
W2264	2012	6	5	0

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2264	Munn Brook	2012	Color	Light Yellow/Tan	3	6
W2264	Munn Brook	2012	Color	None	3	6
W2264	Munn Brook	2012	Objectionable Deposits	No	6	6
W2264	Munn Brook	2012	Odor	None	6	6
W2264	Munn Brook	2012	Scum	No	6	6
W2264	Munn Brook	2012	Turbidity	None	5	6
W2264	Munn Brook	2012	Turbidity	Slightly Turbid	1	6

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

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
MassDEP staff conducted water quality (W2264) surveys of this Munn Brook AU (MA32-59) in Westfield a	approximately
550 feet upstream of Loomis Street. There were generally no noted objectionable conditions (odors, dep	osits, growths,
or turbidity) recorded by DEP field sampling crews during summer 2012 (n=6). E. coli bacteria samples we	ere collected
during all these site visits (n=6). Analysis of this limited frequency single year dataset indicated that 100%	of the intervals
had GMs exceeding 126 CFU/100mL and three samples exceeded the 410 CFU/100mL STV. The seasonal	GM was
elevated at 567 CFU/100mL.	
The Primary Contact Recreational Use of this Munn Brook AU (MA32-59) is assessed as Not Supporting si	nce F. <i>coli</i>

The Primary Contact Recreational Use of this Munn Brook AU (MA32-59) is assessed as Not Supporting since *E. coli* concentrations exceeded the use attainment impairment thresholds for a single year, limited frequency dataset during the summer of 2012.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2264	MassDEP	Water Quality	Munn Brook	[approximately 550 feet upstream of Loomis Street, Westfield]	42.099769	-72.808644

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
					Sample	Sample	Sample	Geometric
Station Code	Organization	Indicator	Start Date	End Date	Count	Result	Result	Mean
W2264	MassDEP	E. coli	05/10/12	09/20/12	6	147	2420	567

W2264 E. coli (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	567
#GMI	6
#GMI Ex	6
%GMI Ex	100
n>STV	3
%n>STV	50

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



Secondary Contact Recreation

2022 Use Attainment	Alert
Insufficient Information	YES

2022 Use Attainment Summary MassDEP staff conducted water quality (W2264) surveys of this Munn Brook AU (MA32-59) in Westfield approximately 550 feet upstream of Loomis Street. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2012 (n=6). *E. coli* bacteria samples were collected during all these site visits (n=6). Analysis of this limited frequency single year dataset indicated that none of the intervals had GMs exceeding 630 CFU/100mL and two samples exceeded the 1260 CFU/100mL STV. The seasonal GM was 567

CFU/100mL. Because multiple *E. coli* samples exceeded the STV but the interval GMs did not exceed the GM criterion (MassDEP 2022), there is Insufficient Information to make a use impairment for the Secondary Contact Recreational Use of this Munn Brook AU (MA32-59). An Alert is being identified.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2264	MassDEP	Water	Munn Brook	[approximately 550 feet upstream of Loomis Street,	42.099769	-72.808644
		Quality		Westfield]		

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
						Sample	Sample	Geometric
						Result	Result	Mean
						(CFU/100ml	(CFU/100ml	(CFU/100ml
					Sample	or	or	or
Station Code	Organization	Indicator	Start Date	End Date	Count	MPN/100ml)	MPN/100ml)	MPN/100ml)
W2264	MassDEP	E. coli	05/10/12	09/20/12	6	147	2420	567

W2264 E. coli (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	567
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	2
%n>STV	33

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



North Branch Swift River (MA32-54)

Location:	Headwaters, outlet small unnamed pond west of Grant Street, Plainfield to mouth at confluence with Swift River, Cummington.
AU Type:	RIVER
AU Size:	6.9 MILES
Classification/Qualifier:	B: CWF

NORTH BRANCH SWIFT RIVER - MA32-54

Percent Wetland

Watershed Area: 6.92 square miles



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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDFG biologists conducted five backpack electrofishing surveys in July, August, or September 2014-20)19 near the
downstream end of the North Branch Swift River, across from a red barn and upstream from Rt 9 in Cumr	nington
(Sample IDs 5181, 5703, 6264, 6611, 8284). The samples (n= 164-316) were all comprised entirely of fluvi	al fish including
slimy sculpin as well as multiple age classes of Eastern brook trout.	

The Aquatic Life Use of the North Branch Swift River (MA32-54), a designated Cold Water Fishery, is assessed as Fully Supporting based on the presence of both slimy sculpin as well as multiple age classes of Eastern brook trout in the river between summers 2014 through 2019 since both of these species are indicative of excellent habitat and water quality conditions.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5181	MassDFG	Fish	North	Off Swift River Rd across from red barn,	42.44878	-72.86205
		Community	Branch Swift	Cummington		
			River			
5703	MassDFG	Fish	North	Access from Red barn (pullout) on Rt 9,	42.44634	-72.85949
		Community	Branch Swift	index site. Parallel to Swift River Rd,		
			River	Cummington		
6264	MassDFG	Fish	North	, Goshen	42.44865	-72.86195
		Community	Branch Swift			
			River			
6611	MassDFG	Fish	North	Off Swft R. Rd, Cummington	42.44875	-72.86224
		Community	Branch Swift			
			River			
8284	MassDFG	Fish	WB Swift	down hill from barn on dirt rd ,	42.44873	-72.86206
		Community	River	Cummington. [DEP water body name is		
				North Branch Swift River]		

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, 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
5181	09/22/14	RP	тр	8	179	16	76	167	13	19	21%	100%	No	Yes	AS, BND, CRC, CS,
5101	03/22/14	ы		Ŭ	175	10	70	107	15	15	21/0	100/0		105	EBT, LND, SC, WS,
5703	08/10/15	BD	тр	Q	180	12	57	170	12	22	20%	100%	No	Voc	AS, BND, CRC, CS,
5705	08/19/15	DF	11	0	105	15	57	170	12	22	2070	10070	NO	163	EBT, LND, SC, WS,
6264	07/27/16	DD	тр	7	164	٥	50	124	٥	10	16%	100%	No	Voc	BND, CRC, CS, EBT,
0204	07/27/10	DP	IP		104	9	52	154	9	10	10%	100%	NO	res	LND, SC, WS,
6611	09/02/17	DD	тр	7	171	2	125	140	2	2	10/	100%	No	Voc	BND, CRC, CS, EBT,
0011	08/02/17	DP	IP		1/1	5	125	140	5	5	470	100%	NO	res	LND, SC, WS,
0201	00/10/10	DD	тр	7	216	11	74	105	11	10	7%	100%	No	Voc	BND, CRC, CS, EBT,
0204	09/10/19	DP	IP	/	510	ТŢ	74	102	11	10	770	100%	NO	162	LND, SC, WS,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No fish toxics sampling has been conducted in the North Branch Swift River (MA32-54), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available, so the Aesthetics Use of the North Branch Swift River (MA32-54) is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available, so the Primary Contact Recreational Use of the North Branch Swift River (MA32-54) is Not
Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available, so the Secondary Contact Recreational Use of the North Branch Swift Rive Not Assessed.	r (MA32-54) is

North Railroad Pond (MA32053)

Location:	Holyoke.
AU Type:	FRESHWATER LAKE
AU Size:	9 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for North Railroad Pond (MA32053) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Norwich Pond (MA32054)

Location:	Huntington.
AU Type:	FRESHWATER LAKE
AU Size:	116 ACRES
Classification/Qualifier:	В

No usable data were available for Norwich Pond (MA32054) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Otis Wait Brook (MA32-80)

Location:	Headwaters, west of Lynes Road, Chester to mouth at confluence with West Branch Westfield River, Chester.
AU Type:	RIVER
AU Size:	1.8 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Otis Wait Brook (MA32-80) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Paucatuck Brook (MA32-29)

Location:	From outlet of Bearhole Reservoir, West Springfield to mouth at confluence with Westfield River, West Springfield.
AU Type:	RIVER
AU Size:	1.5 MILES
Classification/Qualifier:	В

Paucatuck Brook - MA32-29

Watershed Area: 6.37 square miles



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

Recommendations

2022 Recommendations
ALU: Work with MassDFG to reevaluate whether the CFR status of Paucatuck Brook is appropriate.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDFG biologists conducted backpack electrofishing in Paucatuck Brook upstream of Sikes Ave in West Springfield in September 2014 (Sample ID 5220). The sample (n=113) contained 74% fluvial individuals from eight taxa (with a total of 11 taxa). One Eastern brook trout >140 mm was captured in the sample. Although the AU is considered a Coldwater Fisheries Resource (CFR) by DFG, it is a short brook (~1.5 miles) and its source is Bearhole Reservoir. Impervious cover is acceptable at 2.92% and there is a large percentage of natural/wetland landcover (89.4% in the subwatershed and 92.1% in the proximal stream buffer).

The Aquatic Life Use of Paucatuck Brook (MA32-29) is assessed as Fully Supporting based on the large percentage of fluvial species in the September 2014 fish sample. Although an Alert was previously identified in the 2016 IR cycle (MassDEP Undated 7) due to the lack of cold-water species in this MassDFG-identified CFR, multiple age classes of Eastern brook trout have never been collected in this stream (previous samples were collected in 2006 (MassDFG 2020)), so the prior alert for lack of cold-water species is being removed.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5220	MassDFG	Fish	Paucatuck	Upstream Sikes Ave, West Springfield	42.11283	-72.68230
		Community	Brook			

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AE = American Eel, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, F = Fallfish, GSF = Green Sunfish, LND = Longnose Dace, SL = Sea Lamprey, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	1/MT MG Ind %	Notables	CFR	Species List
5220	00/10/1/	RD	тр		11	112	1%	Q	74%	1%	0	0%	No	Voc	AE, BND, CRC, CS, EBT, F,
5220	03/13/14	Dr	11		11	113	170	0	7470	170	0	070	NO	163	GSF, LND, SL, TD, WS,

Fish Consumption

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
Fish toxics sampling has not been conducted in Paucatuck Brook (MA32-29), so the Fish Consumption Use is Not					
Assessed.					

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for Paucatuck Brook (MA32-29), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
No recent bacteria data are available for Paucatuck Brook (MA32-29), so the Primary Contact Recreational Use is Not					
Assessed.					

Secondary Contact Recreation

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
No recent bacteria data are available for Paucatuck Brook (MA32-29), so the Secondary Contact Recreational Use is Not					
Assessed.					

Pequot Pond (MA32055)

Location:	Westfield/Southampton.
AU Type:	FRESHWATER LAKE
AU Size:	155 ACRES
Classification/Qualifier:	В

				Impairment
2018/20 AU	2022 AU			Change
Category	Category	Impairment	ATTAINS Action ID	Summary
5	5	(Curly-leaf Pondweed*)		Added
5	5	(Eurasian Water Milfoil, Myriophyllum		Unchanged
		Spicatum*)		
5	5	(Non-Native Aquatic Plants*)		Unchanged
5	5	(Water Chestnut*)		Added
5	5	Chlorophyll-a		Unchanged
5	5	Dissolved Oxygen		Unchanged
5	5	Enterococcus		Unchanged
5	5	Phosphorus, Total		Unchanged

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
(Curly-leaf Pondweed*)	Introduction of Non-native Organisms	Х				
	(Accidental or Intentional) (Y)					
(Eurasian Water Milfoil, Myriophyllum	Introduction of Non-native Organisms	Х				
Spicatum*)	(Accidental or Intentional) (Y)					
(Non-Native Aquatic Plants*)	Introduction of Non-native Organisms	Х				
	(Accidental or Intentional) (Y)					
(Water Chestnut*)	Introduction of Non-native Organisms	Х				
	(Accidental or Intentional) (Y)					
Chlorophyll-a	Source Unknown (N)	Х				
Dissolved Oxygen	Source Unknown (N)	Х				
Enterococcus	Discharges from Municipal Separate Storm				Х	
	Sewer Systems (MS4) (N)					
Enterococcus	Source Unknown (N)				Х	
Phosphorus, Total	Source Unknown (N)	Х				

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

As was previously noted, MassDEP staff observed infestations of three non-native aquatic macrophyte species in Pequot Pond during a 1996 synoptic survey: curly-leaf pondweed (*Potamogeton crispus*), Eurasian water milfoil (*Myriophyllum spicatum*), and variable milfoil (*Myriophyllum heterophyllum*). Additionally, USFWS staff have reported the presence of water chestnut (*Trapa natans*) three times from 2007-2013 on the USGS Nonindigenous Aquatic Species website which informs the MassDEP Freshwater Aquatic Invasive Species database.

The Aquatic Life Use of Pequot Pond (MA32055) will continue to be assessed as Not Supporting with the prior Chlorophyll-a, Dissolved Oxygen, "Eurasian Water Milfoil, Myriophyllum Spicatum," Non-Native Aquatic Plants (generic impairment in lieu of *M. heterophyllum*), and "Phosphorus, Total" impairments all being carried forward. Curly-leaf Pondweed and Water Chestnut impairments are being added.

Biological Monitoring Information

Non-native Aquatic Species Presence

MassDEP Non-Native Aquatic Invasive Species Records as of May 2021. (MassDEP 1996) (MassDEP Undated 1)

Summary Statement

As was previously noted, MassDEP staff observed infestations of 3 non-native aquatic macrophyte species in Pequot Pond during a 1996 synoptic survey: curly-leaf pondweed (*Potamogeton crispus*), Eurasian water milfoil (*Myriophyllum spicatum*), and variable milfoil (*Myriophyllum heterophyllum*). Additionally, USFWS staff have reported the presence of water chestnut (*Trapa natans*) 3 times from 2007-2013 on the USGS Nonindigenous Aquatic Species website which informs the MassDEP Freshwater Aquatic Invasive Species database.

Fish Consumption

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
Fish toxics sampling has not been conducted in Pequot Pond (MA32055) recently, and since there is no site-specific					
advisory, the Fish Consumption Use is Not Assessed.					

Aesthetic

2022 Use Attainment	Alert				
Not Assessed	YES				
2022 Use Attainment Summary					
No recent data are available for Pequot Pond (MA32055), so the Aesthetics Use is Not Assessed. The prior Alerts for					

excessive algal growth and high chlorophyll-a concentrations (MassDEP Undated 7) are being carried forward.

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	YES
2022 Use Attainment Summary	

Swimming advisory postings exceeded 10% (20-52%) of the recreational season in five of six years between 2014 and 2019 at DCR's Kingsley Beach at Pequot Pond. Postings exceeded 10% of the season only in 2015 (11%) at DCR's Lamberts Beach.

The Primary Contact Recreational Use of Pequot Pond (MA32055) will continue to be assessed as Not Supporting based on frequent swimming advisory postings at the DCR Kingsley Beach between summers 2014 and 2019. The previous Enterococcus impairment is being carried forward. The prior Alerts for excessive algal growth and high chlorophyll-a concentrations (MassDEP Undated 7) are also being carried forward.

Beach Postings

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

Beach ID	Beach Name/Town	Left Boundary (Latitude)	Left Boundary (Longitude)	Right Boundary (Latitude)	Right Boundary (Longitude)	2014	2015	2016	2017	2018	2019	# years> 10%
5177	Kingsley Beach	42.17948	-72.69290	42.18102	-72.69130	29%	24%	44%	10%	52%	20%	6
5170	Lomborts Boach	42 18001	72 60600	12 17079	72 60200	19/	110/	0%	E 9/	6%	0%	1
21/0	(DCR)/Westfield	42.10001	-72.09000	42.1/9/0	-72.09590	470	1170	0%	70 د	0%	5%	T

Secondary Contact Recreation

2022 Use Attainment	Alert						
Insufficient Information	YES						
2022 Use Attainment Summary							
Since swimming advisories at DCR's Kingsley Beach occurred during more than 10% of the recreational season in five of							
six years between 2014 and 2019, as well as in 2015 at DCR's Lamberts Beach at Pequot Pond, too limited	l data are						

available to evaluate. The Secondary Contact Recreational Use of Pequot Pond (MA32055) is assessed as having Insufficient Information since no bacteria data are available. The prior Alerts for excessive algal growth and high chlorophyll-a concentrations (MassDEP Undated 7) are being carried forward.

Pixley Brook (MA32-81)

Location:	Headwaters, east of Long Pond, Blandford to mouth at confluence with Peebles Brook,
	Blandford.
AU Type:	RIVER
AU Size:	1.7 MILES
Classification/Qualifier:	A: PWS, ORW, CWF (Tributary)

No usable data were available for Pixley Brook (MA32-81) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Pond Brook (MA32-24)

Location:	Headwaters, outlet Chapin Pond, Westfield to mouth at confluence with Powdermill Brook, Westfield.
AU Type:	RIVER
AU Size:	3.9 MILES
Classification/Qualifier:	В

Pond Brook - MA32-24

Percent Developed

Watershed Area: 8.78 square miles



Percent Wetland

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

Recommendations

2022 Recommendations

ALU: The upper watershed of this Pond Brook AU (MA32-24) has multiple ponds/impoundments (including Chapin Pond at the top of this brook) which likely affect the thermal regime; long-term temperature and DO data, as well as surveys to identify areas with erosion/sedimentation problems should be collected/conducted (DFG staff noted they thought this brook was too warm to support a year-round cold-water fishery) to better assess the Aquatic Life Use and determine whether Temperature or other impairments are warranted (other pollutants may be present as well, given development in the subwatershed). DFG biologist field sampling notes (from Sample 7639) indicated this stream may have pockets of cold water so efforts to protect this marginal Existing Cold Water Use/habitat should be developed and implemented. Additionally, MassDEP staff should coordinate with Connecticut River Conservancy staff to acquire information about a potential Water Chestnut (*Trapa natans*) infestation in this AU.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

MassDFG biologists conducted backpack electrofishing in this Pond Brook AU (MA32-24) near its mouth with Powdermill Brook from up to downstream as follows: adjacent to Paper Mill Rd in July 2018 (Sample ID 7639) and upstream of Union St and along Papermill Rd, Westfield in August 2015 (Sample ID 5465). The upstream sample (n=87) contained multiple age classes of brown trout (13 individuals including four individuals ≤140 mm in length), as well as one small Eastern brook trout (81 mm). These species are typically indicative of excellent water quality conditions, but it should be noted that DFG staff indicated "All trout were near plume of small coldwater inlet. (16.1 degrees) on RL about halfway through reach. Stream is far too warm outside of select pockets to be a productive, viable quality fishery year round. Habitat is shallow, warm and very sedimented." Slightly downstream, the sample (n=150) contained multiple age classes of Eastern brook trout (three of the 150 fish), as well as eight brown trout (also multiple age classes). DFG biologists map this Pond Brook AU as a Coldwater Fisheries Resource (CFR). In the public comments on the draft 2022 IR, Connecticut River Conservancy (CRC) staff indicated that an infestation of the non-native aquatic macrophyte, water chestnut (*Trapa natans*), was identified in this brook.

The Aquatic Life Use of this Pond Brook AU (MA32-24) is assessed as Fully Supporting since multiple age classes of Eastern brook trout and brown trout were captured in two recent samples. The prior Alert for Temperature, identified in the 2016 cycle (MassDEP Undated 7), is being carried forward. A new Alert is being identified for Sedimentation/Siltation based on DFG biologist comments (impervious cover is >9% in this subwatershed) and a new Alert is also being identified for Water Chestnut until such time as CRC staff can provide details about the potential infestation.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5465	MassDFG	Fish	Pond Brook	US of Union St & along Papermill Rd,	42.12517	-72.72135
		Community	(1)	Westfield		
7639	MassDFG	Fish	Pond Brook	Paper Mill Rd. adjacent, Westfield	42.12626	-72.72076
		Community	(1)			

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AE = American Eel, BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, F = Fallfish, 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
5465	08/12/15	RD	тр	٩	150	2	51	1/12	2	0	7%	96%	No	Voc	AE, BND, BT, CRC, CS,
5405	00/12/13	DF	1F	9	130	5	51	142	2	0	1 /0	50%	NU	165	EBT, F, LND, WS,

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

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net; Trout= any combination of brook trout, brown trout,

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

[Species List: AE = American Eel, BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, F = Fallfish, LND = Longnose Dace, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	Trout ≤140mm Ind	Ind LLS<200mm	Other Tier2 Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
7639	07/02/18	BP	ТР	9	87	4	0	0	16%	98%	Yes	Yes	AE, BND, BT, CRC, CS, EBT, F, LND, WS,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Pond Brook AU (MA32-24), so the Fish Consumption	Use is Not
Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Recent data are not available for this Pond Brook AU (MA32-24), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Recent bacteria data are not available for this Pond Brook AU (MA32-24), so the Primary Contact Recreat	ional Use is Not
Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Recent bacteria data are not available for this Pond Brook AU (MA32-24), so the Secondary Contact Recre	eational Use is
Not Assessed.	

Pond Brook (MA32-44)

Location:	Headwaters, outlet Norwich Pond, Huntington to mouth at confluence with Westfield
	River, Huntington.
AU Type:	RIVER
AU Size:	3.1 MILES
Classification/Qualifier:	B: CWF

POND BROOK - MA32-44

Watershed Area: 2.77 square miles



2018/20 AU	2022 AU			Impairment Change
Category	Category	Impairment	ATTAINS Action ID	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				
MassDFG biologists conducted six backpack electrofishing surveys (Sample IDs 5138, 5670, 6259, 6515, 7555, 8234) in				

this Pond Brook AU (MA32-44), a designated Cold Water Fishery, in July or August 2014 through 2019 downstream of Lyman Rd, in Huntington. All the samples (n= 29-155) were dominated by fluvial fish (≥97%) and contained multiple age classes of Eastern brook trout and all but one sample also contained multiple slimy sculpins.

The Aquatic Life Use of this Pond Brook AU (MA32-44) is assessed as Fully Supporting based on the presence of slimy sculpin and multiple age classes of Eastern brook trout in samples collected during summers 2014 through 2019. Both species are indicative of excellent habitat and water quality conditions.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5138	MassDFG	Fish	Pond Brook	DS of bridge on Lyman Rd, Huntington	42.28429	-72.85447
		Community	(4)			
5670	MassDFG	Fish	Pond Brook	Rt 66 & Lyman Rd xing DS, Huntington	42.28409	-72.85424
		Community	(4)			
6259	MassDFG	Fish	Pond Brook	Br on Lyman Rd (DS), Russell	42.28419	-72.85465
		Community	(4)			
6515	MassDFG	Fish	Pond Brook	DS of Lyman Rd Br, Huntington	42.28414	-72.85467
		Community	(4)			
7555	MassDFG	Fish	Pond Brook	Downstream of Lyman Rd. crossing,	42.28439	-72.85489
		Community		Huntington		
8234	MassDFG	Fish	Pond Brook	DS of Bridge on Lyman Rd (@ Rt. 66),	42.28409	-72.85468
		Community		Huntington		

Biological Monitoring Information

Fish Community Data and DELTS

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

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

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

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5138	08/01/14	BP	ТР	6	101	37	47	197	31	19	62%	100%	No	Yes	AS, BND, CRC, EBT,
_															LND, SC,
5670	07/31/15	RP	тр	5	136	55	41	200	43	31	63%	100%	No	Yes	BND, CRC, EBT, LND,
5070	07/01/10				150	55	71	200	75	51	03/0	100%	110	105	SC,
6259	08/05/16	BP	TP	5	117	42	57	184	40	30	62%	99%	No	Yes	BND, CS, EBT, GS, SC,
6515	08/07/17	BP	TP	4	155	49	34	249	33	0	32%	100%	No	Yes	BND, CRC, CS, EBT,
7555	09/02/19	DD	тр	c	20	10	70	156	7	2	410/	070/	Vac	Vac	B, BND, CRC, EBT,
/555	08/02/18	БР	IP	0	29	10	12	120		Z	41%	97%	res	162	LND, SC,
8234	08/14/19	BP	TP	4	139	14	56	219	4	20	24%	100%	No	Yes	BND, CRC, EBT, SC,

Fish Consumption

2022 Use Attainment	Alert			
Not Assessed	NO			
2022 Use Attainment Summary				
Fish toxics sampling has not been conducted in this Pond Brook AU (MA32-44), so the Fish Consumption	Use is Not			
Assessed.				

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for this Pond Brook AU (MA32-44), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for this Pond Brook AU (MA32-44), so the Primary Contact Recreational Us	e is Not
Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for this Pond Brook AU (MA32-44), so the Secondary Contact Recreational	Use is Not
Assessed.	

Pond Brook (MA32-67)

Location:	Headwaters, outlet Blair Pond, Blandford to mouth at confluence with Peebles Brook, Blandford.
AU Type:	RIVER
AU Size:	2.2 MILES
Classification/Qualifier:	A: PWS, ORW (Tributary)

Pond Brook - MA32-67

Watershed Area: 10.73 square miles



Percent Wetland

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted fish, benthic, and water quality (WQ) surveys from 2011-2013 at two locations in this Pond Brook AU (MA32-67) in Blandford: near the upstream end of the AU ~1450 ft downstream of Otis Stage Rd (Rt 23) during summer 2012 as part of the Probabilistic Wadeable Streams Monitoring Project (MAP2) and near the downstream end of the AU ~275 ft upstream of Beech Hill Rd as part of the Reference Site Network Monitoring Project during summers 2011, 2012, and 2013. At the upstream location, MassDEP biologists conducted backpack electrofishing in Aug 2012 (Sample ID 5112). The sample (n=181) was dominated by fluvial species (99%) including two small Eastern brook trout (<140 mm in length), so this AU will be assessed as a Tier 1 Cold Water Existing Use. The benthic survey (Station ID B0794) was conducted in July 2012- the sample had an IBI score of 45, indicating moderately degraded conditions for a Western Highlands location (sample was post-Hurricane Irene, however, so no impairment will be made). Two shortterm probe deployments (total of 7 days) were conducted at this location (W2257) to measure dissolved oxygen (DO) (minimum 6.9 mg/L). Continuous temperature (T) data were recorded over 104 days in the summer index period: maximum T 27.6 °C, 7DADMs (maximum 25.6 °C) were >20.0°C 94 times, maximum 24-hr rolling average 26.0 °C (exceeding 23.5°C acute threshold). Other data: pH 6.8 to 6.9 S.U. (n=3), no indication of nutrient enrichment (total phosphorus seasonal average 0.013 mg/L n=5, max diel DO shift 0.6 mg/L, max DO saturation 91%, no observations of excessive filamentous algae during six site visits), no exceedances among three clean metals or aluminum samples (because dissolved AI data were compared to the total recoverable AI criteria, exceedances cannot be ruled out, however), maximum Total Ammonia Nitrogen (TAN) was low (0.020 mg/L, n=5), as were chloride (n=5) and specific conductance (n=3) at 13 mg/L and 92 μ s/cm, respectively. Further downstream, backpack electrofishing in Aug 2012 (Sample ID 5113) and Oct 2013 (Sample ID 5095) yielded samples (n= 148 & 69) dominated by fluvial fish (≥83%), with multiple age classes of brown trout (many \leq 140 mm in length). Benthic surveys (B0740) in April and July 2011 and 2012 as well as in Aug 2013 had IBI scores that ranged from 46 to 84 indicative of conditions ranging from excellent to moderately degraded conditions for a Western Highlands location. The only sample indicating moderately degraded conditions was the July 2012 sample (post-Hurricane Irene so no impairment will be made). Furthermore, the Aug 2013 IBI (based on a ~300-organism count) was 76, indicative of excellent conditions. More extensive WQ data at the downstream location (W2223) are summarized as follows: minimum DO was 7.8 mg/L during a continuous 122-day deploy from mid-May to Sept 2013, continuous T data (94 days in 2011, 107 days in both 2012 and 2013 summer index periods) had maximum T 25.5 °C, 7DADMs (maximum 24.4 °C) >20.0 °C 37- 50 times these three years, maximum 24-hr rolling average 24.6 °C (>23.5 °C acute threshold only in 2013), pH 6.9-7.6 SU (n=6), there was no indication of nutrient enrichment (maximum total phosphorus seasonal average 0.02 mg/L, max diel DO shift 1.1 mg/L, max DO saturation 99%, no dense/very dense filamentous algae observations n= 3-5/yr), maximum TAN/chloride 0.02 and 14 mg/L (n= 3-4/yr), and maximum specific conductance 59 µs/cm (n= 2-4/yr).

The Aquatic Life Use of this Pond Brook AU (MA32-67) is assessed as Fully Supporting based on the biological and water quality monitoring data collected during summers 2011 through 2013. Although temperature is elevated in this Tier 1 Cold Water Existing Use stream, it is considered natural due to the natural pond at the headwaters (Blair Pond), the high natural/wetlands land cover in the subwatershed and proximal stream buffer (>97%), low impervious cover (0.53%), and lack of any water withdrawals or discharges.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5095	MassDEP	Fish	Pond Brook	US of raod, ~275 ft US of Beech Hill Rd	42.16783	-72.94935
		Community	(2)			
5112	MassDEP	Fish	Pond Brook	0.25mi DS of Otis Stage Rd (Rt 23)	42.16952	-72.97368
		Community	(2)			
5113	MassDEP	Fish	Pond Brook	275ft US of Beech Hill Rd	42.16783	-72.94935
		Community	(2)			
B0740	MassDEP	Benthic	Pond Brook/	[approximately 85 meters upstream of	42.167827	-72.949352
				Beech Hill Road, Blandford, MA]		
B0794	MassDEP	Benthic	Pond Brook/	[approximately 440 meters downstream of	42.169521	-72.973683
				Otis Stage Road (Route 23), Blanford, MA]		
W2223	MassDEP	Water	Pond Brook	[approximately 275 feet upstream of Beech	42.167827	-72.949352
		Quality		Hill Road, Blandford]		

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2257	MassDEP	Water	Pond Brook	[approximately 1450 feet downstream of	42.169521	-72.973683
		Quality		Otis Stage Road (Route 23), Blanford]		

Biological Monitoring Information

Benthic Macroinvertebrate Data

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

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

Station	Collection	Collection		Organism	Index	Index Biological
Code	Date	Method	Index Type	Count	Score	Condition Class
B0740	04/27/11	RBP kicknet	Western_Highlands_100ct	99	84	E
B0740	07/21/11	RBP kicknet	Western_Highlands_100ct	100	57	S
B0740	04/26/12	RBP kicknet	Western_Highlands_100ct	101	66	S
B0740	07/12/12	RBP kicknet	Western_Highlands_100ct	100	46	MD
B0740	08/05/13	RBP kicknet	Western_Highlands_300ct	304	76	E
B0794	07/12/12	RBP kicknet	Western_Highlands_100ct	97	45	MD

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3) [Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net]

[Species	List: BND =	Blackn	ose Da	ice, CP	= Chai	n Picke	erel, EBT	= Brook	Trout,	LND =	Longnos	se Dace,	WS = V	White S	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
5112	08/02/12	BP	ТР	5	181	2	66	74	2	0	1%	99%	No	Yes	BND, CP, EBT, LND, WS,

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

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net; Trout= any combination of brook trout, brown trout, rainbow trout, tiger trout; Other Tier2 Species= any size and any combination of American brook lamprey, Atlantic salmon, lake chub, lake trout, longnose sucker, slimy sculpin]

[Species List: B = Bluegill, BB = Brown Bullhead, BND = Blacknose Dace, BT = Brown Trout, GS = Golden Shiner, LND = Longnose Dace, WS = White Sucker, YP = Yellow Perch]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	Trout ≤140mm Ind	LLS<200mm LLS	Other Tier2 Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5095	10/01/13	BP	TP	3	69	36	0	0	57%	100%	No	Yes	BND, BT, LND,
5113	08/02/12	BP	TP	8	148	22	0	0	43%	83%	No	Yes	B, BB, BND, BT, GS, LND, WS, YP,

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2223	05/15/13	09/15/13	122	108	93	7.8	8	8.2	1.1	0	0	0	0	0	0	0	0

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

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

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2223	2011	1	6	7.9	8.1	8.4	0.6	0	0	0	0	0	0
W2257	2012	2	7	6.9	7.1	7.3	0.6	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2223	06/13/11	10/14/11	2	9.1	9.2	0	0	0
W2223	05/14/13	09/16/13	4	8	9	0	0	0
W2257	05/10/12	09/13/12	3	8.1	8.1	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2223	06/14/11	09/15/11	94	91	22.6	24.2	22.3	21.0	50	0	0	0	0	0
W2223	06/01/12	09/15/12	107	107	21.6	23.0	21.3	20.0	37	0	0	0	0	0
W2223	06/01/13	09/15/13	107	101	24.5	25.5	24.3	23.6	39	6	27	2	0	0
W2223	06/01/13	09/15/13	107	104	24.6	25.5	24.4	23.6	42	7	27	2	0	0
W2257	06/01/12	09/12/12	104	101	25.8	27.6	25.6	23.9	94	11	52	5	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2223	2011	1	6	19.6	20.8	19.8	18.8	0	0	0	0	0	0
W2257	2012	3	11	25.7	27.2	25.5	24.1	2	2	1	2	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2223	06/13/11	09/15/11	94	4488	22.6	0	0	0
W2223	06/01/12	09/15/12	107	5136	21.8	0	0	0
W2223	06/01/13	09/15/13	107	5136	24.6	294	128	0
W2223	06/01/13	09/15/13	107	5135	24.6	279	107	0
W2223	08/15/11	08/22/11	7	289	19.7	0	0	0
W2257	06/01/12	09/13/12	104	5011	26.0	545	241	0
W2257	06/21/12	08/27/12	67	532	26.0	129	87	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater]

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2223	06/13/11	10/14/11	4	3	18.1	16.2	0	0	0	0
W2223	05/08/12	10/02/12	2	0	13.5	12.9	0	0	0	0
W2223	05/14/13	09/16/13	6	3	24.3	16.6	1	1	0	0
W2257	05/10/12	09/13/12	5	4	19.8	18.0	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station				pH Min	pH Max	pH Count	pH Count
Code	Start Date	End Date	pH Count	(SU)	(SU)	<6.5 & >8.3	<6.0 & >8.8
W2223	06/13/11	10/14/11	2	7.3	7.6	0	0
W2223	05/14/13	09/16/13	4	6.9	7.5	0	0
W2257	05/10/12	09/13/12	3	6.8	6.9	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Summer seasonal total phosphorus data collected May-Sept]

Station	Data	Seasonal TP	Seasonal TP Min	Seasonal TP Max	Seasonal TP Avg	Delta DO Max	Delta DO Avg	DO Sat Max	pH Max	Count Algal	Dense/V. Dense Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2223	2011	3	0.019	0.022	0.020	0.6	0.5	98.6	7.6	3	0
W2223	2012	3	0.01	0.015	0.013	-		-		4	0
W2223	2013	5	0.009	0.020	0.014	1.1	0.6	97.7	7.5	5	0
W2257	2012	5	0.007	0.032	0.013	0.6	0.5	90.9	6.9	6	0

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CMC	Cd CMC	Cr III CMC	Cu CMC	Pb CMC	Ni CMC	Ag CMC	Zn CMC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2257	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CCC	Cd CCC	Cr III CCC	Cu CCC	Pb CCC	Ni CCC	Se CCC	Zn CCC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2257	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Dissolved	Al Min	Al Max	Al Avg	Al CMC	Al CCC	Al CMC	Al CCC
Code	Year	Al Count	(mg/L)	(mg/L)	(mg/L)	TU Max	TU Max	TU >1	TU >1
W2257	2012	3	0.010	0.017	0.012	0.1	0.1	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [TAN= NH3 + NH4+]

Station	Data	TAN	TAN Min	TAN Max	TAN Avg	Count TAN	Count TAN
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	>Chronic	>Acute
W2223	2011	3	0.020	0.020	0.020	0	0
W2223	2012	4	0.020	0.020	0.020	0	0
W2223	2013	4	0.020	0.020	0.020	0	0
W2257	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
W2223	2011	3	6	8	7	0	0
W2223	2012	4	6	8	7	0	0
W2223	2013	4	5	14	8	0	0
W2257	2012	5	11	13	12	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8)

(MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (µs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2223	06/13/11	10/14/11	2	53	59	0	0	0	0	0	0
W2223	05/14/13	09/16/13	4	43	48	0	0	0	0	0	0
W2257	05/10/12	09/13/12	3	71	92	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert					
Not Assessed						
2022 Use Attainment Summary						
Fish toxics sampling has not been conducted in this Pond Brook AU (MA32-67), so the Fish Consumption Use is Not						
Assessed.						

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP staff conducted water quality field surveys in this Pond Brook AU (MA32-67) at two stations in the summers of 2011, 2012, and 2013. These stations are described as follows: approximately 1450 feet downstream of Otis Stage Road (Route 23) in Blandford (W2257, n=6 in 2012) and farther downstream approximately 275 feet upstream of Beech Hill Road in Blandford (W2223, n=3 in 2011, n=4 in 2012, n=5 in 2013). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews at either station in any year. The Aesthetics Use of this Pond Brook AU (MA32-67) is assessed as Fully Supporting based on the lack of objectionable conditions observed by MassDEP staff during the summers of 2011, 2012, and 2013.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2223	MassDEP	Water	Pond Brook	[approximately 275 feet upstream of Beech Hill Road,	42.167827	-72.949352
		Quality		Blandford]		
W2257	MassDEP	Water	Pond Brook	[approximately 1450 feet downstream of Otis Stage	42.169521	-72.973683
		Quality		Road (Route 23), Blandford]		

Aesthetic Observations

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

Station		Data	Field Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W2223	Pond Brook	2011	3	MassDEP aesthetics observations for station W2223 on Pond Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2011.
W2223	Pond Brook	2012	4	MassDEP aesthetics observations for station W2223 on Pond 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.
W2223	Pond Brook	2013	5	MassDEP aesthetics observations for station W2223 on Pond Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2013.
W2257	Pond Brook	2012	6	MassDEP aesthetics observations for station W2257/MAP2-184 on Pond Brook can be summarized as follows: there were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews during summer 2012.

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

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2223	2011	3	3	0
W2223	2012	4	4	0
W2223	2013	5	5	0

			Field Sheet Count w/ Film &	
Station			Filamentous Algae	Dense/ Very Dense
Code	Data Year	Field Sheet Count	Observations	Film/ Filamentous Algae
W2257	2012	6	6	0

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

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2223	Pond Brook	2011	Color	Brownish	1	3
W2223	Pond Brook	2011	Color	Light Yellow/Tan	2	3
W2223	Pond Brook	2011	Objectionable Deposits	No	3	3
W2223	Pond Brook	2011	Odor	None	3	3
W2223	Pond Brook	2011	Scum	No	3	3
W2223	Pond Brook	2011	Turbidity	None	3	3
W2223	Pond Brook	2012	Color	Light Yellow/Tan	3	4
W2223	Pond Brook	2012	Color	None	1	4
W2223	Pond Brook	2012	Objectionable Deposits	No	4	4
W2223	Pond Brook	2012	Odor	None	4	4
W2223	Pond Brook	2012	Scum	No	3	4
W2223	Pond Brook	2012	Scum	Yes	1	4
W2223	Pond Brook	2012	Turbidity	None	4	4
W2223	Pond Brook	2013	Color	Dark Tan	1	5
W2223	Pond Brook	2013	Color	Light Yellow/Tan	3	5
W2223	Pond Brook	2013	Color	Rusty	1	5
W2223	Pond Brook	2013	Objectionable Deposits	No	5	5
W2223	Pond Brook	2013	Odor	None	5	5
W2223	Pond Brook	2013	Scum	No	4	5
W2223	Pond Brook	2013	Scum	Yes	1	5
W2223	Pond Brook	2013	Turbidity	None	5	5
W2257	Pond Brook	2012	Color	Light Yellow/Tan	1	6
W2257	Pond Brook	2012	Color	None	5	6
W2257	Pond Brook	2012	Objectionable Deposits	No	6	6
W2257	Pond Brook	2012	Odor	Musty (Basement)	1	6
W2257	Pond Brook	2012	Odor	None	5	6
W2257	Pond Brook	2012	Scum	No	4	6
W2257	Pond Brook	2012	Scum	Yes	2	6
W2257	Pond Brook	2012	Turbidity	None	6	6

Primary Contact Recreation

2022 Use Attainment					
Fully Supporting	NO				
2022 Use Attainment Summary					
MassDEP staff conducted water quality field surveys in this Pond Brook AU (MA32-67) approximately 1450 feet downstream of Otis Stage Road (Route 23) in Blandford (W2257, n=6) in summer 2012. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews. *E. coli* bacteria samples were collected during all these site visits (n=6). Analysis of this single year limited frequency dataset indicated that none of the intervals had GMs exceeding 126 cfu/100mL and one sample exceeded the 410 CFU/100mL STV. The seasonal GM was quite low at 14 CFU/100mL.

The Primary Contact Recreational Use for this Pond Brook AU (MA32-67) is assessed as Fully Supporting based on the low *E. coli* concentration data and lack of aesthetically objectionable conditions documented during summer 2012.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2257	MassDEP	Water Quality	Pond Brook	[approximately 1450 feet downstream of Otis Stage Road (Route 23), Blandford]	42.169521	-72.973683

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
					Sample	Sample	Sample	Geometric
Station Code	Organization	Indicator	Start Date	End Date	Count	Result	Result	Mean
W2257	MassDEP	E. coli	05/10/12	09/13/12	6	1	1300	14

W2257 E. coli (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	14
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	17

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



Secondary Contact Recreation

2022 Use Attainment	
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP staff conducted water quality field surveys in this Pond Brook AU (MA32-67) approximately 1450 feet downstream of Otis Stage Road (Route 23) in Blandford (W2257, n=6) in summer 2012. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews. *E. coli* bacteria samples were collected during all these site visits (n=6). Analysis of this single year limited frequency dataset indicated that none of the intervals had GMs exceeding 630 CFU/100mL and one sample exceeded the 1260 CFU/100mL STV. The overall GM was quite low at 14 CFU/100mL.

The Secondary Contact Recreational Use for this Pond Brook AU (MA32-67) is assessed as Fully Supporting based on the low *E. coli* concentration data and lack of aesthetically objectionable conditions documented during summer 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2257	MassDEP	Water	Pond Brook	[approximately 1450 feet downstream of Otis Stage	42.169521	-72.973683
		Quality		Road (Route 23), Blanford]		

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
						Sample	Sample	Geometric
						Result	Result	Mean
						(CFU/100ml	(CFU/100ml	(CFU/100ml
					Sample	or	or	or
Station Code	Organization	Indicator	Start Date	End Date	Count	MPN/100ml)	MPN/100ml)	MPN/100ml)
W2257	MassDEP	E. coli	05/10/12	09/13/12	6	1	1300	14

W2257 E. coli (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	14
#GMI	7
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	17

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



Potash Brook (MA32-22)

Location:	Source, outlet Dunlap Pond, Blandford to mouth at confluence with Westfield River, Village of Woronoco, Russell.
AU Type:	RIVER
AU Size:	5.2 MILES
Classification/Qualifier:	B: CWF

Potash Brook - MA32-22

Watershed Area: 6.6 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Stream Buffer
Land Use Area (square miles)	6.6	4.98	1.82	1.38
Agriculture	0.9%	0.2%	0.8%	0.1%
Developed	9.1%	6.8%	10.7%	10%
Natural	86.9%	90%	83.1%	85.2%
Wetland	3.1%	3.1%	5.4%	4.6%
Impervious Cover	4.17%			

Cover

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

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Chloride	Highway/Road/Bridge Runoff (Non-	Х				
	construction Related) (Y)					
Chloride	Historical Source, No Longer Present (N)	Х				
Chloride	Source Unknown (N)	Х				
Escherichia Coli (E. Coli)	Wet Weather Discharges (Non-Point Source)				Х	
	(N)					
Temperature	Dam or Impoundment (Y)	Х				

Recommendations

2022 Recommendations

ALU: Given the new chloride impairment identified in the 2022 IR cycle, as well as the regional trend of increasing chloride, the use of de-icing products containing chloride should be minimized by all parties (i.e., highways/roads, municipalities, businesses, residences) in the Potash Brook sub-watershed.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	
MassDEP staff conducted water quality (WQ) monitoring as part of the 2016-2017 chloride study at five s	tations along
Potash Brook, a designated Cold Water Fishery (CWF), which runs along and is crossed multiple times by	I-90 and Rt 23.
From upstream (US) to downstream (DS), the WQ stations are as follows: North of I-90, ~1/4 mile DS from	n outlet of
Dunlap Pond, Blandford (W2723), South of I90 ~30 ft US from Rt 23, Blandford (W2724), South of I90 ~0.	4 miles DS from
Rt 23, Russell (~200 ft US from unnamed tributary to southern bank) (W2725), North of I90, ~1000 ft DS f	rom Rt 23,
Russell (W2726), and near the DS end of brook at the Woronoco Rd bridge, Russell (W0244). Between No	vember 2016
and July 2017 four discrete dissolved oxygen (DO) measurements were taken at each site; the minimum I	DO was 7.3mg/L
and the maximum saturation was 103%. Probes were deployed to record continuous temperature (T) in t	his CWF for 41
days in the 2017 summer index period at all the stations except W2726 (2 nd most downstream) and from	US to DS these
data can be summarized as follows: maximum T 24.0, 22.2, 20.4 and 20.3°C, maximum 7DADM 22.1, 20.6	5, 19.4, and
19.5°C exceeding 20.0°C 29, 9, 0, and 0 times, respectively, and maximum 24 hour rolling averages 22.8, 2	20.4, 19.6, and
19.5°C, respectively. The chronic T exceedances are most likely a function of proximity of the upstream to	vo stations to
Dunlap Pond, which feeds Potash Brook, as well as proximity to I90 and Rt 23 at these locations (more de	velopment in
upstream portion of watershed; overall natural/wetland land cover is 90% but impervious cover is 4.17%). pH ranged
from 6.7 to 7.3 SU (n=1/site). Chloride was measured once at each site- the upstream three measuremen	ts (W2723,
W2724, W2725) exceeded the chronic chloride criterion (230 mg/L) with range of 240-280mg/L. Continue	ous specific
conductance (SC) measurements, used to estimate chloride concentrations, were recorded at from 11 No	ovember 2016
through 12 July 2017 (only recorded through 21 March at W2726). SC was most consistently elevated at the	the most
upstream station (W2723), >994 μs/cm (the estimated chloride chronic criterion plus a 10% margin of er	or) for most of
the period beginning 10 Dec through 24 Feb (maximum SC 1435 μ s/cm) with the number of exceedances	gradually
declined moving downstream. SC at both W2724 and W2725 (maximum 2095 and 2386µs/cm, respectiv	ely) had
multiple 4-day periods where nearly all measurements were >994 µs/cm, and even W2726 had multiple	4-day averages
>994 µs/cm (MassDEP Undated 8). MassDFG biologists collected seven backpack electrofishing samples (Sample IDs
5128, 5673, 6255, 6516, 7570, 7633, 8228) in July/Aug 2014 through 2019 downstream of the Rt 23 bridg	e near I-90 in
Russell, a little way upstream of the W2726 WQ station. All samples (n= 41-134) were dominated by fluvi	al fish (≥97%)
including multiple age classes of Eastern brook trout ≤140 mm in length.	
Although Potash Brook (MA32-22) supports a reproducing population of Eastern brook trout in its lower	reach, the
Aquatic Life Use is assessed as Not Supporting based on results of the 2016-2017 chloride study. Tempera	ature and

Aquatic Life Use is assessed as Not Supporting based on results of the 2016-2017 chloride study. Temperature and Chloride impairments are being added (based on continuous T and SC data since the upstream site nearest Dunlap Pond Dam exceeded CWF chronic criteria thresholds and four sites had estimated chloride chronic toxicity exceedances: W2723/W2724/W2725/W2726). While there is a large percentage of natural/wetlands land cover in the subwatershed, the dam affects the thermal regime, the stream is crossed multiple times by I-90 and Rt 23, and the little development is concentrated in the upstream portion of the subwatershed- all these factors likely contribute chloride loading to the brook. It is also considered likely the historic practice of refining ashes and black salts from hardwood forests (potash) may also be a potential historic/legacy source of elevated chloride levels given the brook's name "Potash Brook".

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5128	MassDFG	Fish	Potash	DS of Blandford Rd (Rt 23) bridge, Russell	42.16524	-72.85021
		Community	Brook			
5673	MassDFG	Fish	Potash	DS o f Rt 23 xing, just E of Mass Pike bridge,	42.16539	-72.85025
		Community	Brook	Russell		
6255	MassDFG	Fish	Potash	First bridge on 23, Russell	42.16510	-72.85027
		Community	Brook			
6516	MassDFG	Fish	Potash	DS of RT 23 BR, Russell	42.16525	-72.85021
		Community	Brook			
7570	MassDFG	Fish	Potash	Downstream of bridge on 23 a I-90, Russell	42.16519	-72.85016
		Community	Brook			
7633	MassDFG	Fish	Potash	Upstream of 1st Rt. 23/Blandford Rd.	42.16585	-72.85045
		Community	Brook	crossing, Russell		
8228	MassDFG	Fish	Potash	DS of Rt 23 Bridge, Russell	42.16536	-72.85027
		Community	Brook			
W0244	MassDEP	Water	Potash	[Woronoco Road bridge, Russell]	42.165992	-72.830563
		Quality	Brook			
W2723	MassDEP	Water	Potash	[North of Route 90, approximately 1/4 mile	42.174408	-72.906391
		Quality	Brook	downsteam from outlet of Dunlop Pond,		
				Blandford]		
W2724	MassDEP	Water	Potash	[South of Route 90, approximately 30 feet	42.170068	-72.896861
		Quality	Brook	upstream from Route 23, Blandford]		
W2725	MassDEP	Water	Potash	[South of Route 90, approximately 0.4 miles	42.166696	-72.881019
		Quality	Brook	downstream from Route 23, Russell		
				(approximately 200 feet upstream from		
				unnamed trubutary to southern bank]		
W2726	MassDEP	Water	Potash	[North of Route 90, approximately 1000 feet	42.164298	-72.847059
		Quality	Brook	downstream from Route 23, Russell]		

Biological Monitoring Information

Fish Community Data and DELTS

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

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine SI = Sporkel NS= Not Stated MT= Minnow Tran GN= Gillnet EV= Evke Net]

Seine, Si Species	Species List: AS = Atlantic Salmon, BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, EBT = Brook Trout, P = Pumpkinseed]														
Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5128	07/29/14	BP	ТР	5	41	20	66	192	19	0	95%	100%	No	Yes	AS, BND, BT, CRC, EBT,
5673	08/04/15	BP	TP	4	46	39	66	210	26	0	87%	100%	No	Yes	BND, BT, CRC, EBT,
6255	08/03/16	BP	ТР	3	58	36	72	212	18	0	62%	100%	No	Yes	BND, CRC, EBT,
6516	08/04/17	BP	TP	4	83	41	19	205	32	0	52%	100%	No	Yes	BND, BT, CRC, EBT,
7570	08/07/18	BP	TP	4	60	33	67	237	9	0	58%	100%	No	Yes	BND, BT, CRC, EBT,
7633	07/24/18	BP	ТР	4	82	36	66	220	18	0	45%	100%	Yes*	Yes	BND, BT, CRC, EBT,
8228	08/12/19	BP	ТР	5	134	16	63	225	12	0	15%	97%	No	Yes	BND, BT, CRC, EBT, P,

* Field Notes: Interesting habitat, large slabs of bedrock and old concrete. Some issues with fine sediment filling in spaces. Surprised at size structure of EBT. Warm, although trout seem to be doing fine!

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W0244	11/16/16	11/16/16	1	11.7	11.7	0	0	0
W0244	01/10/17	07/12/17	3	9.5	11.7	0	0	0
W2723	11/16/16	11/16/16	1	10.2	10.2	0	0	0
W2723	01/10/17	07/12/17	3	7.3	10.2	0	0	0
W2724	11/16/16	11/16/16	1	10.8	10.8	0	0	0
W2724	01/10/17	07/12/17	3	8.6	11	0	0	0
W2725	11/16/16	11/16/16	1	11.1	11.1	0	0	0
W2725	01/10/17	07/12/17	3	8.9	11.2	0	0	0
W2726	11/16/16	11/16/16	1	11.2	11.2	0	0	0
W2726	01/10/17	07/12/17	3	9.2	11.5	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W0244	06/01/17	07/11/17	41	38	19.5	20.3	19.5	18.7	0	0	0	0	0	0
W2723	06/01/17	07/11/17	41	38	22.8	24.0	22.1	21.1	29	0	1	0	0	0
W2724	06/01/17	07/11/17	41	38	20.3	22.2	20.6	19.2	9	0	0	0	0	0
W2725	06/01/17	07/11/17	41	38	19.5	20.4	19.4	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 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W0244	06/01/17	07/12/17	41	1988	19.5	0	0	0

Station	Start		Count	24hr Bolling	Max 24hr Avg Bolling	Count CWTier1 24hr	Count CWTier2 24hr	Count WW 24hr Avg Polling
Station	Start		Days	Rolling	Rolling	Avg Kolling	Avg Kolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2723	06/01/17	07/12/17	42	1994	22.8	0	0	0
W2724	06/01/17	07/12/17	42	1993	20.4	0	0	0
W2725	06/01/17	07/12/17	41	1991	19.6	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W0244	11/16/16	11/16/16	1	0	7.5	7.5	0	0	0	0
W0244	01/10/17	07/12/17	4	1	17.7	6.8	0	0	0	0
W2723	11/16/16	11/16/16	1	0	7.1	7.1	0	0	0	0
W2723	01/10/17	07/12/17	4	1	21.1	8.0	1	0	0	0
W2724	11/16/16	11/16/16	1	0	7.6	7.6	0	0	0	0
W2724	01/10/17	07/12/17	4	1	18.9	7.1	0	0	0	0
W2725	11/16/16	11/16/16	1	0	7.7	7.7	0	0	0	0
W2725	01/10/17	07/12/17	4	1	17.8	6.8	0	0	0	0
W2726	11/16/16	11/16/16	1	0	7.7	7.7	0	0	0	0
W2726	01/10/17	07/12/17	4	1	18.7	6.9	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station				pH Min	рН Мах	pH Count	pH Count
Code	Start Date	End Date	pH Count	(SU)	(SU)	<6.5 & >8.3	<6.0 & >8.8
W0244	01/10/17	07/12/17	1	7	7	0	0
W2723	01/10/17	07/12/17	1	6.7	6.7	0	0
W2724	01/10/17	07/12/17	1	6.9	6.9	0	0
W2725	01/10/17	07/12/17	1	7.3	7.3	0	0
W2726	01/10/17	07/12/17	1	7.1	7.1	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

		Seasonal	Seasonal	Seasonal	Seasonal	Delta DO	Delta DO	DO Sat	ΒHα	Count	Dense/V. Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W0244	2016							99.3			
W0244	2017							103.3	7.0	4	0
W2723	2016							85.8			
W2723	2017							94.5	6.7	4	0
W2724	2016							92.0			
W2724	2017							98.9	6.9	4	0

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
W2725	2016							95.0			
W2725	2017							99.7	7.3	3	0
W2726	2016							95.5			
W2726	2017							101.5	7.1	4	0

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

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
W0244	2017	1	120	120	120	0	0
W2723	2017	1	280	280	280	1	0
W2724	2017	1	250	250	250	1	0
W2725	2017	1	240	240	240	1	0
W2726	2017	1	190	190	190	0	0

MassDEP Long-term Continuous Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

			SpCond	SpCond	SpCond	Max	Max			Count	Count
Station	Start		Min	Max	Avg	4day Avg	1hr Avg	4Day	1hr	4day Avg	1hr Avg
Code	Date	End Date	(µs/cm)	(µs/cm)	(µs/cm)	(µs/cm)	(µs/cm)	Count	Count	>904	>3193
W0244	11/16/16	12/31/16	325	1482	617	813	1468	1836	2030	0	0
W0244	01/01/17	07/12/17	85	1092	419	713	1085	9224	9224	0	0
W2723	11/16/16	12/31/16	604	1220	951	1171	1219	1571	1974	855	0
W2723	01/01/17	07/12/17	352	1435	858	1370	1428	8905	9095	3280	0
W2724	11/16/16	12/31/16	562	2055	920	1160	2046	1921	2142	1287	0
W2724	01/01/17	07/12/17	327	2095	761	1210	2053	9227	9227	2424	0
W2725	11/16/16	12/31/16	554	2386	917	1181	2366	1988	2178	1291	0
W2725	01/01/17	07/12/17	176	1907	597	1293	1894	9229	9229	1954	0
W2726	11/16/16	12/31/16	434	2319	766	1013	2231	1993	2183	186	0
W2726	01/01/17	03/21/17	197	1840	690	1001	1752	3805	3805	356	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W0244	11/16/16	11/16/16	1	471	471	0	0	0	0	0	0
W0244	01/10/17	07/12/17	4	273	512	0	0	0	0	0	0
W2723	11/16/16	11/16/16	1	724	724	0	0	0	0	0	0
W2723	01/10/17	07/12/17	4	639	1041	2	1	0	0	0	0

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
W2724	11/16/16	11/16/16	1	660	660	0	0	0	0	0	0
W2724	01/10/17	07/12/17	4	510	887	0	0	0	0	0	0
W2725	11/16/16	11/16/16	1	693	693	0	0	0	0	0	0
W2725	01/10/17	07/12/17	4	464	834	0	0	0	0	0	0
W2726	11/16/16	11/16/16	1	549	549	0	0	0	0	0	0
W2726	01/10/17	07/12/17	4	393	712	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert		
Not Assessed	NO		
2022 Use Attainment Summary			
Fish toxics sampling has not been conducted in Potash Brook (MA32-22), so the Fish Consumption Use is Not Assessed.			

Fish toxics sampling has not been conducted in Potash Brook (MA32-22), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert		
Fully Supporting	NO		
2022 Use Attainment Summary			
MassDEP staff conducted water quality field surveys in this Potash Brook AU (MA32-22) at five stations in	the summer of		
2017. These stations are described as follows: North of I-90, approximately 1/4 mile downstream from th	e outlet of		
Dunlap Pond in Blandford (W2723), farther downstream South of I-90, approximately 30 feet upstream fi	om Route 23 in		
Blandford (W2724), farther downstream South of I-90, approximately 0.4 miles downstream from Route 23 in Russell			
(approximately 200 feet upstream from the unnamed tributary to the southern bank) (W2725), farther downstream			
North of I-90, approximately 1000 feet downstream from Route 23 in Russell (W2726), and farthest dowr	istream on the		
Woronoco Road bridge in Russell (W0244) (n=4 for each). There were generally no noted objectionable c	onditions		
(odors, deposits, growths, or turbidity) recorded by DEP field sampling crews at any of these stations.			
The Aesthetics Use of this Potash Brook AU (MA32-22) is assessed as Fully Supporting based on the lack c	f objectionable		
conditions at five stations during summer 2017.			

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W0244	MassDEP	Water	Potash Brook	[Woronoco Road bridge, Russell]	42.165992	-72.830563
		Quality				
W2723	MassDEP	Water	Potash Brook	[North of Route 90, approximately 1/4 mile	42.174408	-72.906391
		Quality		downsteam from outlet of Dunlop Pond, Blandford]		
W2724	MassDEP	Water	Potash Brook	[South of Route 90, approximately 30 feet upstream	42.170068	-72.896861
		Quality		from Route 23, Blandford]		
W2725	MassDEP	Water	Potash Brook	[South of Route 90, approximately 0.4 miles	42.166696	-72.881019
		Quality		downstream from Route 23, Russell (approximately		
				200 feet upstream from unnamed trubutary to		
				southern bank]		
W2726	MassDEP	Water	Potash Brook	[North of Route 90, approximately 1000 feet	42.164298	-72.847059
		Quality		downstream from Route 23, Russell]		

Aesthetic Observations

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

			Field	
Station		Data	Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W0244	Potash Brook	2017	4	MassDEP aesthetics observations for station W0244 on Potash 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.
W2723	Potash Brook	2017	4	MassDEP aesthetics observations for station W2723 on Potash 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.
W2724	Potash Brook	2017	4	MassDEP aesthetics observations for station W2724 on Potash 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.
W2725	Potash Brook	2017	4	MassDEP aesthetics observations for station W2725 on Potash 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.
W2726	Potash Brook	2017	4	MassDEP aesthetics observations for station W2726 on Potash 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 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W0244	2017	4	4	0
W2723	2017	4	4	0
W2724	2017	4	4	0
W2725	2017	4	3	0
W2726	2017	4	4	0

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

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W0244	Potash Brook	2017	Color	None	4	4
W0244	Potash Brook	2017	Objectionable Deposits	No	4	4
W0244	Potash Brook	2017	Odor	None	4	4
W0244	Potash Brook	2017	Scum	No	4	4
W0244	Potash Brook	2017	Turbidity	None	3	4
W0244	Potash Brook	2017	Turbidity	Unobservable	1	4

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2723	Potash Brook	2017	Color	None	4	4
W2723	Potash Brook	2017	Objectionable Deposits	No	4	4
W2723	Potash Brook	2017	Odor	None	4	4
W2723	Potash Brook	2017	Scum	No	4	4
W2723	Potash Brook	2017	Turbidity	None	4	4
W2724	Potash Brook	2017	Color	None	4	4
W2724	Potash Brook	2017	Objectionable Deposits	No	3	4
W2724	Potash Brook	2017	Objectionable Deposits	NR	1	4
W2724	Potash Brook	2017	Odor	None	4	4
W2724	Potash Brook	2017	Scum	No	3	4
W2724	Potash Brook	2017	Scum	NR	1	4
W2724	Potash Brook	2017	Turbidity	None	4	4
W2725	Potash Brook	2017	Color	None	4	4
W2725	Potash Brook	2017	Objectionable Deposits	No	4	4
W2725	Potash Brook	2017	Odor	None	4	4
W2725	Potash Brook	2017	Scum	No	3	4
W2725	Potash Brook	2017	Scum	Unobservable	1	4
W2725	Potash Brook	2017	Turbidity	None	4	4
W2726	Potash Brook	2017	Color	None	4	4
W2726	Potash Brook	2017	Objectionable Deposits	No	4	4
W2726	Potash Brook	2017	Odor	None	4	4
W2726	Potash Brook	2017	Scum	No	4	4
W2726	Potash Brook	2017	Turbidity	None	4	4

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted water quality field surveys in this Potash Brook AU (MA32-22) at five stations in the summer of 2017. These stations are described as follows: North of I-90, approximately 1/4 mile downstream from the outlet of Dunlap Pond in Blandford (W2723), farther downstream South of I-90, approximately 30 feet upstream from Route 23 in Blandford (W2724), farther downstream South of I-90, approximately 0.4 miles downstream from Route 23 in Russell (approximately 200 feet upstream from the unnamed tributary to the southern bank) (W2725), farther downstream North of I-90, approximately 1000 feet downstream from Route 23 in Russell (W2726), and farthest downstream on the Woronoco Road bridge in Russell (W0244) (n=4 for each). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews at any of these stations. Since no recent bacteria data are available for Potash Brook (MA32-22), the Primary Contact Recreational Use will remain assessed as Not Supporting with the prior Escherichia Coli (E. Coli) impairment being carried forward.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
MassDEP staff conducted water quality field surveys in this Potash Brook AU (MA32-22) at five stations in	the summer of
2017. These stations are described as follows: North of I-90, approximately 1/4 mile downstream from th	e outlet of
Dunlap Pond in Blandford (W2723), farther downstream South of I-90, approximately 30 feet upstream fr	om Route 23 in
Blandford (W2724), farther downstream South of I-90, approximately 0.4 miles downstream from Route	23 in Russell
(approximately 200 feet upstream from the unnamed tributary to the southern bank) (W2725), farther do	ownstream
North of I-90, approximately 1000 feet downstream from Route 23 in Russell (W2726), and farthest down	stream on the
Woronoco Road bridge in Russell (W0244) (n=4 for each). There were generally no noted objectionable co	onditions
(odors, deposits, growths, or turbidity) recorded by DEP field sampling crews at any of these stations.	
No recent bacteria data are available for Potash Brook (MA32-22), so the Secondary Contact Recreational	Use is Not
Assessed.	

Powdermill Brook (MA32-09)

Location:	Headwaters, perennial portion northeast of Montgomery Road (west of Grindstone Mountain), Westfield to mouth at confluence with Westfield River, Westfield.
AU Type:	RIVER
AU Size:	8.4 MILES
Classification/Qualifier:	В

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

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Algae	Source Unknown (N)			Х	Х	Х
Escherichia Coli (E. Coli)	Discharges from Municipal Separate Storm				Х	
	Sewer Systems (MS4) (N)					
Escherichia Coli (E. Coli)	Source Unknown (N)				Х	
Sedimentation/Siltation	Post-development Erosion and	Х				
	Sedimentation (Y)					
Sedimentation/Siltation	Streambank Modifications/Destabilization (Y)	Х				
Turbidity	Source Unknown (N)			Х	Х	Х

Recommendations

2022 Recommendations

ALU: MassDEP staff should coordinate with Connecticut River Conservancy staff to acquire information about a potential Water Chestnut (*Trapa natans*) infestation in Powdermill Brook (MA32-09).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	
Not Supporting	
2022 Use Attainment Summary	

As part of the public comments on the draft 2022 IR, Connecticut River Conservancy (CRC) staff indicated that an infestation of the non-native aquatic macrophyte, water chestnut (*Trapa natans*), was identified in Powdermill Brook (MA32-09).

No other new data are available for Powdermill Brook (MA32-09), so the Aquatic Life Use will continue to be assessed as Not Supporting, with the prior Sedimentation/Siltation impairment being carried forward. However, a new Alert is being identified for Water Chestnut until such time as CRC staff can provide details about the potential infestation.

Fish Consumption

2022 Use Attainment	Alert			
Not Assessed	NO			
2022 Use Attainment Summary				
Fish toxics sampling has not been conducted in Powdermill Brook (MA32-09), so the Fish Consumption Use is Not				
Assessed.				

Aesthetic

2022 Use Attainment			
Not Supporting	NO		
2022 Use Attainment Summary			

No recent data are available for Powdermill Brook (MA32-09), so the Aesthetics Use will continue to be assessed as Not Supporting, with the Algae and Turbidity impairments being carried forward.

Primary Contact Recreation

2022 Use Attainment	Alert		
Not Supporting	NO		
2022 Use Attainment Summary			
No recent bacteria data are available for Powdermill Brook (MA32-09), so the Primary Contact Recreational Use will continue to be assessed as Not Supporting, with the Algae, Escherichia Coli (E. Coli), and Turbidity impairments being carried forward			

Secondary Contact Recreation

2022 Use Attainment	Alert		
Not Supporting	NO		
2022 Use Attainment Summary			
No recent bacteria data are available for Powdermill Brook (MA32-09), so the Secondary Contact Recreational Use will			

continue to be assessed as Not Supporting, with the Algae and Turbidity impairments being carried forward.

Powell Brook (MA32-82)

Location:	Headwater, south of Powell Road, Cummington to mouth at confluence with Kearnery	
	Brook, Cummington.	
AU Type:	RIVER	
AU Size:	0.9 MILES	
Classification/Qualifier:	B: CWF	

No usable data were available for Powell Brook (MA32-82) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Roaring Brook (MA32-30)

Location:	Headwaters (perennial portion), north of Horse Hill in Huntington State Forest, east of County Road, Huntington to mouth at confluence with Westfield River, Montgomery.
AU Type:	RIVER
AU Size:	4.3 MILES
Classification/Qualifier:	B: CWF

Roaring Brook - MA32-30

Watershed Area: 5.85 square miles



Percent Wetland

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

Percent Developed

2022 Use Attainment		
Fully Supporting	NO	
2022 Use Attainment Summary		

MassDFG biologists conducted backpack electrofishing in this Roaring Brook AU (MA32-30), a designated Cold Water Fishery, in two general locations described as follows: downstream of the Rt 112 crossing in Montgomery in August 2018 (Sample ID 7553) and downstream of the 2nd bridge on Carrington Rd, also in Montgomery in July 2014 and August 2015, 2016, 2018, and 2019 (Sample IDs 5133, 5672, 6260, 7569, 8231). The samples (n= 126-548) were comprised almost entirely of fluvial fish (≥98%) including slimy sculpins (usually dozens) as well as multiple age classes of Eastern brook trout. MassDEP staff collected limited water quality data downstream of all the fish stations, at the Carrington Road crossing east of Thomas Road, Montgomery during summer 2017 (W2766). A probe was deployed to measure dissolved oxygen (DO) for 75 days from late July through mid-October and the minimum DO during the deploy was 8.0 mg/L. Continuous temperature measurements were also recorded over 51 days in the summer index period: the maximum temperature was 20.9 °C, the maximum 7DADM was 19.6 °C, and the maximum 24-hour rolling average temperature was 19.6 °C. The single pH measurement was 7.3 S.U. There was no indication of nutrient enrichment issues based on these limited data (maximum diel DO shift 1.4 mg/L and maximum DO saturation 99.3%). Specific conductance was measured twice (maximum 85 µs/cm).

The Aquatic Life Use of this Roaring Brook AU (MA32-30) is assessed as Fully Supporting based primarily on the presence of slimy sculpin and multiple age classes of Eastern brook trout between summers 2015 and 2019, as well as limited water quality data collected during summer 2017.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5133	MassDFG	Fish	Roaring	DS of middle bridge on Carrington Rd,	42.23074	-72.85730
		Community	Brook (1)	Montgomery		
5672	MassDFG	Fish	Roaring	DS of 2nd bridge on Carrington Rd,	42.23132	-72.85715
		Community	Brook (1)	Montgomery		
6260	MassDFG	Fish	Roaring	DS of 2nd bridge on carrington rd,	42.23074	-72.85739
		Community	Brook (1)	Huntington		
7553	MassDFG	Fish	Roaring	Downstream of Rt. 112 crossing,	42.23715	-72.85145
		Community	Brook (1)	Montgomery		
7569	MassDFG	Fish	Roaring	Downstream of bridge on Carrington Rd.	42.23100	-72.85758
		Community	Brook (1)	East Branch, Montgomery		
8231	MassDFG	Fish	Roaring	DS at bridge on Carrington Rd, Montgomery	42.23083	-72.85740
		Community	Brook			
W2766	MassDEP	Water	Roaring	[Carrington Road crossing east of Thomas	42.226192	-72.856463
		Quality	Brook	Road, Montgomery]		

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, P = Pumpkinseed, SC = Slimy Sculpin, TT = Tiger Trout (Hybrid Brook Trout/Brown Trout), WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5133	07/30/14	BP	ТР	8	328	79	45	178	70	28	34%	100%	No	Yes	AS, BND, CRC, CS, EBT, LND, SC, TT,
5672	08/04/15	BP	ТР	6	258	62	53	196	60	51	44%	100%	No	Yes	AS, BND, CRC, EBT, LND, SC,
6260	08/05/16	BP	ТР	5	363	93	57	210	76	53	40%	100%	No	Yes	BND, CRC, EBT, LND, SC,
7553	08/01/18	BP	TP	4	126	70	48	175	61	23	74%	100%	Yes	Yes	BND, CRC, EBT, SC,
7569	08/07/18	BP	ТР	7	229	23	54	222	15	13	16%	98%	No	Yes	BND, CRC, EBT, LND, P, SC, WS,
8231	08/12/19	BP	ТР	7	548	81	39	227	71	57	25%	100%	No	Yes	BND, CRC, CS, EBT, LND, SC, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2766	07/27/17	10/11/17	75	60	46	8	8.4	8.9	1.4	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2766	09/06/17	10/12/17	2	9.6	9.9	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2766	07/27/17	09/15/17	51	48	19.1	20.9	19.6	18.0	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2766	07/26/17	09/15/17	52	2427	19.6	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2766	09/06/17	10/12/17	2	1	15.5	14.3	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2766	09/06/17	10/12/17	1	7.3	7.3	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Jummer 3c	aniner seasonal total phosphoras data concerca may sept]										
						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2766	2017					1.4	0.8	99.3	7.3		

[Summer seasonal total phosphorus data collected May-Sent]

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2766	09/06/17	10/12/17	2	73	85	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in this Roaring Brook AU (MA32-30), so the Fish Consumptic	on Use is Not
Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for this Roaring Brook AU (MA32-30), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for this Roaring Brook AU (MA32-30), so the Primary Contact Recrea	ational Use is
Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for this Roaring Brook AU (MA32-30), so the Secondary Contact Rec	reational Use is
Not Assessed.	

Roaring Brook (MA32-61)

Location:	Headwaters, outlet small unnamed pond north of Lyman Road, Chester to mouth at confluence with West Branch Westfield River, Huntington.
AU Type:	RIVER
AU Size:	4.5 MILES
Classification/Qualifier:	B: CWF

ROARING BROOK - MA32-61

Watershed Area: 3.64 square miles



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	

MassDFG biologists conducted seven backpack electrofishing surveys in this Roaring Brook AU (MA32-61), a designated Cold Water Fishery, during July and/or August each summer from 2014 to 2019 off the Skyline Trail turnoff roughly 1/3 of a mile north of the Chester town line (Sample IDs 5132, 5671, 6265, 6523, 6524, 7568, 8227). All samples (n= 61-349) were dominated (≥86%) by fluvial fish and most samples (n= 61-349) contained several Eastern brook trout ≤140 mm in length, while the 2017 sample also included slimy sculpin. Natural factors are presumed to be influencing the fish samples in different years. MassDEP staff collected limited water quality data at the downstream end of the brook off Old Chester Rd (Fiske Ave) in Huntington (W2767) during summer 2017. A probe was deployed to measure dissolved oxygen (DO) for 28 days from late July to late August and the minimum DO was 8.8 mg/L. Continuous temperature measurements over the same time period had a maximum of 19.7 °C. The maximum diel DO shift was 0.7 mg/L. The Aquatic Life Use of this Roaring Brook AU (MA32-61) is assessed as Fully Supporting based primarily on the presence of Eastern brook trout ≤140 mm and/or slimy sculpin in the brook during summers 2014 to 2019 (both of these species are indicative of excellent habitat and water quality conditions), as well as on the continuous DO and temperature data from summer 2017.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5132	MassDFG	Fish	Roaring	Turnoff on Skyline Trail, 1/3mi N of	42.24984	-72.90343
		Community	Brook (2)	townline, Chester		
5671	MassDFG	Fish	Roaring	Along Skyline Trl, 1/3mi N of townline,	42.24997	-72.90341
		Community	Brook (2)	Chester		
6265	MassDFG	Fish	Roaring	Turnoff on Skyline Dr, Chester	42.25024	-72.90386
		Community	Brook (2)			
6523	MassDFG	Fish	Roaring	DS of Bridge, Huntington	42.24976	-72.90298
		Community	Brook (2)			
6524	MassDFG	Fish	Roaring	Off Skyline Trail, Chester	42.24981	-72.90289
		Community	Brook (2)			
7568	MassDFG	Fish	Roaring	Pulloff on Skyline Trail. West Branch,	42.24951	-72.90314
		Community	Brook (2)	Chester		
8227	MassDFG	Fish	Roaring	Turn off on Skyling Tr. (US of shack), Chester	42.25048	-72.90397
		Community	Brook			
W2767	MassDEP	Water	Roaring	[Old Chester Road (Fiske Avenue),	42.239459	-72.902884
		Quality	Brook	Huntington]		

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

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

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

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

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5132	07/30/14	BP	ТР	5	71	6	66	191	3	0	46%	100%	No	Yes	AS, BND, CRC, CS, EBT,

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
5671	07/31/15	BP	TP	4	88	4	61	78	4	0	14%	100%	No	Yes	AS, BND, CRC, EBT,
6523	08/07/17	BP	ТР	5	349	65	52	406	56	45	32%	100%	No	Yes	BND, CRC, EBT, LND, SC,
7568	08/07/18	BP	TP	4	61	5	74	87	5	0	8%	93%	No	Yes	BND, CRC, EBT, P,
8227	08/14/19	BP	TP	3	190	7	62	172	5	0	4%	100%	No	Yes	BND, CRC, EBT,

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

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

[Species List: B = Bluegill, BND = Blacknose Dace, CRC = Creek Chub, EBT = Brook Trout, P = Pumpkinseed]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
6265	08/15/16	BP	TP		3	120	3%	3	100%	3%	0	0%	No	Yes	BND, CRC, EBT,
6524	08/07/17	BP	TP		5	122	1%	3	86%	1%	1	13%	Yes*	Yes	B, BND, CRC, EBT, P,

* only 1 EBT.

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2767	07/25/17	08/21/17	28	22	0	8.8	9	9.2	0.7	0	0	0	0	0	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA	Count CWTier2 Daily Mean >24.1	Count WW 7DADM	Count WW Daily Mean >28.3
W2767	07/25/17	08/21/17	28	22	19.0	19.7	18.8	17.9	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2767	07/24/17	08/22/17	29	1338	19.0	0	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

ummer seasonal tota	l phosphorus data	collected May-Sept1

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2767	2017					0.7	0.4				

Fish Consumption

2022 Use Attainment	Alert		
Not Assessed	NO		
2022 Use Attainment Summary			
Fish toxics sampling has not been conducted in this Roaring Brook AU (MA32-61), so the Fish Consumptic	on Use is Not		
Assessed.			

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for this Roaring Brook AU (MA32-61), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert		
Not Assessed	NO		
2022 Use Attainment Summary			
No bacteria data are available for this Roaring Brook AU (MA32-61), so the Primary Contact Recreational Use is Not			
Assessed.			

Secondary Contact Recreation

2022 Use Attainment	Alert		
Not Assessed	NO		
2022 Use Attainment Summary			
No bacteria data are available for this Roaring Brook AU (MA32-61), so the Secondary Contact Recreational Use is Not			
Assessed.			

Robin Hood Lake (MA32057)

Location:	Becket.
AU Type:	FRESHWATER LAKE
AU Size:	63 ACRES
Classification/Qualifier:	В

No usable data were available for Robin Hood Lake (MA32057) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Rudd Pond (MA32060)

Location:	Becket.
AU Type:	FRESHWATER LAKE
AU Size:	72 ACRES
Classification/Qualifier:	В

No usable data were available for Rudd Pond (MA32060) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Russell Pond (MA32061)

Location:	Russell.
AU Type:	FRESHWATER LAKE
AU Size:	82 ACRES
Classification/Qualifier:	В

No usable data were available for Russell Pond (MA32061) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Sanderson Brook (MA32-31)

Location:	Headwaters (perennial portion), in the Chester/Blandford State Forest, north of Chester Road, Blandford to mouth at confluence with West Branch Westfield River, Chester.
AU Type:	RIVER
AU Size:	2.7 MILES
Classification/Qualifier:	В

Sanderson Brook - MA32-31

Watershed Area: 4.62 square miles



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

Recommendations

2022 Recommendations
ALU: Sanderson Brook (MA32-31) should be considered for designation as a Coldwater Fishery in a future promulgation
of the MA SWQS due to its excellent fish community and water temperature data.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP biologists sampled Sanderson Brook at Sanderson Brook Road bridge nearest (just upstream of) Rt 20 in Chester MA during the summers of 2011, 2012, 2013, 2014, 2015, and 2017 as part of the Reference Site Network monitoring project. Survey results can be briefly summarized as follows: backpack electrofishing in July 2012, August 2014, 2015, 2017, and October 2013 (Sample IDs 5093, 5107, 6339, 6373, 7071) resulted in samples (n= 91-171) that were comprised entirely of fluvial fish including slimy sculpin and multiple age classes of Eastern brook trout. This brook supports a Tier 1 Existing Use Coldwater Fishery. Benthic sample (Station B0700) IBI scores were all indicative of excellent/satisfactory conditions for a Western Highlands stream (56 to 87, n=8), and water quality sampling data including both deployed probe and discrete sampling efforts (Station W1458) were indicative of excellent conditions with a minimum dissolved oxygen (DO) of 7.5 mg/L, maximum temperature 21.0 °C (maximum 7DADM 20.0 °C, and maximum 24-hour rolling average temperature 20.2 °C), pH range 6.9-7.6 S.U. (n= 2-4/yr), no indication of nutrient enrichment (total phosphorus seasonal average concentrations 0.005-0.010 mg/L (n= 3-5/season), maximum diel DO shift 1.6 mg/L, maximum DO saturation 100%, no observations of any excessive filamentous algae), maximum total ammonia nitrogen and chloride 0.065 and 18 mg/L, respectively (n= 3-5/yr), and maximum specific conductance 96 µs/cm (n= 2-4/yr).

The Aquatic Life Use of Sanderson Brook (MA32-31), a Tier 1 Existing Use Coldwater Fishery, is assessed as Fully Supporting based on the evidence of good biological conditions (exceptional/satisfactory benthos and presence of slimy sculpin and multiple age classes of Eastern brook trout) and water quality data indicative of excellent conditions during summers 2011-2015 and 2017).

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5093	MassDEP	Fish	Sanderson	Sanderson Brook Rd bridge nearest to Rt 20.	42.25418	-72.94870
		Community	Brook			
5107	MassDEP	Fish	Sanderson	Sanderson Brk Rd xing	42.25418	-72.94870
		Community	Brook			
6339	MassDEP	Fish	Sanderson	Sanderson Brook Rd bridge nearest Rt 20.,	42.25418	-72.94870
		Community	Brook	Chester		
6373	MassDEP	Fish	Sanderson	From bridge to 65' past probe, Chester	42.25418	-72.94870
		Community	Brook			
7071	MassDEP	Fish	Sanderson	Fire road along right bank, Chester	42.25409	-72.94870
		Community	Brook			
B0700	MassDEP	Benthic	Sanderson	[Sanderson Brook Road bridge nearest	42.254183	-72.948699
			Brook/	Route 20, Chester, MA]		
W1458	MassDEP	Water	Sanderson	[Sanderson Brook Road bridge nearest	42.254183	-72.948699
		Quality	Brook	Route 20, Chester]		

Monitoring Stations

Biological Monitoring Information

Benthic Macroinvertebrate Data

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

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

Station	Collection	Collection		Organism	Index	Index Biological
Code	Date	Method	Index Type	Count	Score	Condition Class
B0700	04/27/11	RBP kicknet	Western_Highlands_100ct	107	80	E
B0700	07/21/11	RBP kicknet	Western_Highlands_100ct	102	87	E
B0700	04/26/12	RBP kicknet	Western_Highlands_100ct	100	62	S

Station	Collection	Collection		Organism	Index	Index Biological
Code	Date	Method	Index Type	Count	Score	Condition Class
B0700	07/12/12	RBP kicknet	Western_Highlands_100ct	107	56	S
B0700	07/31/13	RBP kicknet	Western_Highlands_300ct	312	64	S
B0700	08/07/14	RBP kicknet	Western_Highlands_300ct	352	59R	S
B0700	07/20/15	RBP kicknet	Western_Highlands_300ct	306	64	S
B0700	07/26/17	RBP kicknet	Western_Highlands_300ct	342	61	S

Fish Community Data and DELTS

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

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

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, BT = Brown Trout, 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
5093	10/01/13	BP	ТР	6	161	26	66	180	17	80	76%	100%	No	Yes	AS, BND, BT, EBT, LND, SC,
5107	07/31/12	BP	ТР	5	155	39	57	159	35	38	54%	100%	No	Yes	AS, BND, EBT, LND, SC,
6339	08/29/14	BP	ТР	6	171	37	55	190	30	91	80%	100%	No	Yes	AS, BND, BT, EBT, LND, SC,
6373	08/25/15	BP	ТР	5	130	22	55	193	19	74	75%	100%	No	Yes	BND, BT, EBT, LND, SC,
7071	08/09/17	BP	ТР	5	91	20	66	205	16	21	45%	100%	No	Yes	BND, EBT, LND, SC, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W1458	05/15/13	09/15/13	124	118	95	8.5	8.9	9.1	1.1	0	0	0	0	0	0	0	0
W1458	05/23/14	09/07/14	108	102	79	9	9.4	9.6	0.9	0	0	0	0	0	0	0	0
W1458	05/21/15	09/14/15	117	111	88	8.9	9.3	9.5	1.2	0	0	0	0	0	0	0	0
W1458	05/11/17	09/19/17	132	126	103	8.6	8.9	9.1	1.2	0	0	0	0	0	0	0	0

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

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

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W1458	2011	1	6	7.5	7.8	8.2	1.6	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W1458	06/13/11	10/14/11	2	9.5	9.6	0	0	0
W1458	05/14/13	09/16/13	4	9.1	10	0	0	0
W1458	06/17/14	09/08/14	4	9.4	9.7	0	0	0
W1458	06/17/15	09/15/15	3	9.4	9.7	0	0	0
W1458	06/14/17	09/20/17	4	9.1	9.5	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W1458	06/14/11	08/27/11	75	69	19.8	21.0	19.4	18.5	0	0	0	0	0	0
W1458	06/01/12	09/15/12	107	107	19.8	20.5	19.7	18.7	0	0	0	0	0	0
W1458	06/01/13	09/15/13	107	104	20.0	20.8	20.0	19.2	0	0	0	0	0	0
W1458	06/01/13	09/15/13	107	104	20.0	20.8	20.0	19.2	0	0	0	0	0	0
W1458	06/01/14	09/07/14	99	96	17.8	18.9	17.5	16.8	0	0	0	0	0	0
W1458	06/01/15	09/14/15	106	103	18.4	19.1	18.5	17.8	0	0	0	0	0	0
W1458	06/01/17	09/15/17	107	107	18.4	19.2	18.6	17.8	0	0	0	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W1458	2011	1	6	17.0	17.6	17.1	16.4	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 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W1458	06/13/11	08/27/11	76	3579	19.8	0	0	0
W1458	06/01/12	09/15/12	107	5136	19.8	0	0	0
W1458	06/01/13	09/15/13	107	5136	20.2	0	0	0
W1458	06/01/13	09/15/13	107	5136	20.2	0	0	0
W1458	08/15/11	08/22/11	7	289	17.0	0	0	0
W1458	06/01/15	09/15/15	107	5120	18.6	0	0	0
W1458	06/01/14	09/08/14	100	4781	17.9	0	0	0
W1458	06/01/17	09/15/17	107	5136	18.4	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W1458	06/13/11	10/14/11	3	3	16.3	15.0	0	0	0	0
W1458	05/08/12	10/02/12	2	0	12.0	10.8	0	0	0	0
W1458	05/14/13	09/16/13	6	3	19.7	13.6	0	0	0	0
W1458	06/17/14	09/08/14	4	4	17.3	15.7	0	0	0	0
W1458	06/17/15	09/15/15	3	3	16.6	15.5	0	0	0	0
W1458	06/14/17	09/20/17	4	3	17.1	16.2	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station				pH Min	рН Мах	pH Count	pH Count
Code	Start Date	End Date	pH Count	(SU)	(SU)	<6.5 & >8.3	<6.0 & >8.8
W1458	06/13/11	10/14/11	2	7	7.1	0	0
W1458	05/14/13	09/16/13	4	7.2	7.6	0	0
W1458	06/17/14	09/08/14	4	6.9	7.2	0	0
W1458	06/17/15	09/15/15	3	7.2	7.4	0	0
W1458	06/14/17	09/20/17	4	7.1	7.3	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W1458	2011	3	0.005	0.015	0.009	1.6	0.7	100.4	7.1	3	0
W1458	2012	4	0.005	0.007	0.006					5	0
W1458	2013	5	0.005	0.006	0.005	1.1	0.5	100.1	7.6	3	0
W1458	2014	4	0.005	0.008	0.006	0.9	0.5	100.1	7.2	4	0
W1458	2015	4	0.005	0.006	0.005	1.2	0.5	99.7	7.4	4	0
W1458	2017	5	0.0073	0.014	0.010	1.2	0.5	100.1	7.3	5	0

[Summer seasonal total phosphorus data collected May-Sept]

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

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [TAN= NH3 + NH4+]

Station	Data	TAN	TAN Min	TAN Max	TAN Avg	Count TAN	Count TAN	
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	>Chronic	>Acute	
W1458	2011	3	0.020	0.020	0.020	0	0	
W1458	2012	5	0.020	0.020	0.020	0	0	
W1458	2013	4	0.020	0.020	0.020	0	0	
W1458	2014	4	0.020	0.020	0.020	0	0	
W1458	2015	4	0.040	0.065	0.046	0	0	
W1458	2017	4	0.040	0.040	0.040	0	0	

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
W1458	2011	3	5	14	8	0	0
W1458	2012	5	4	13	9	0	0
W1458	2013	4	6	11	9	0	0
W1458	2014	4	7	9	8	0	0
W1458	2015	4	8	18	12	0	0
W1458	2017	5	7	13	10	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W1458	06/13/11	10/14/11	2	57	96	0	0	0	0	0	0
W1458	05/14/13	09/16/13	4	47	70	0	0	0	0	0	0
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
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W1458	06/17/14	09/08/14	4	59	72	0	0	0	0	0	0
W1458	06/17/15	09/15/15	3	65	91	0	0	0	0	0	0
W1458	06/14/17	09/20/17	4	59	85	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 Sanderson Brook (MA32-31), so the Fish Consumption Use	is Not
Assessed.	

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted water quality field surveys of this Sanderson Brook AU (MA32-31) in Chester on the Sanderson Brook Road bridge nearest Route 20 (W1458) during the summers of 2011 (n=3), 2012 (n=5), 2013 (n=5), 2014 (n=4), 2015 (n=4), and 2017 (n=5). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP sampling crews during each year of sampling.

The Aesthetics Use of Sanderson Brook (MA32-31) is assessed as Fully Supporting based on the lack of objectionable conditions observed by MassDEP staff during the summers 2011-2015 and 2017.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W1458	MassDEP	Water	Sanderson	[Sanderson Brook Road bridge nearest Route 20,	42.254183	-72.948699
		Quality	Brook	Chester]		

Aesthetic Observations

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

			Field	
Station		Data	Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W1458	Sanderson	2011	3	MassDEP aesthetics observations for station W1458 on Sanderson Brook
	Brook			can be summarized as follows: there were generally no noted
				objectionable conditions (odors, deposits, growths, or turbidity) recorded
				by DEP field sampling crews during summer 2011.
W1458	Sanderson	2012	5	MassDEP aesthetics observations for station W1458 on Sanderson Brook
	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.

Charlier		Data	Field	
Station	Waterbody	Data	Sneet	Aasthatics Summany Statement
Code	waterbouy	rear	Count	Aesthetics Summary Statement
W1458	Sanderson	2013	5	MassDEP aesthetics observations for station W1458 on Sanderson Brook
	Brook			can be summarized as follows: there were generally no noted
				objectionable conditions (odors, deposits, growths, or turbidity) recorded
				by DEP field sampling crews during summer 2013.
W1458	Sanderson	2014	4	MassDEP aesthetics observations for station W1458 on Sanderson Brook
	Brook			can be summarized as follows: there were generally no noted
				objectionable conditions (odors, deposits, growths, or turbidity) recorded
				by DEP field sampling crews during summer 2014.
W1458	Sanderson	2015	4	MassDEP aesthetics observations for station W1458 on Sanderson Brook
	Brook			can be summarized as follows: there were generally no noted
				objectionable conditions (odors, deposits, growths, or turbidity) recorded
				by DEP field sampling crews during summer 2015.
W1458	Sanderson	2017	5	MassDEP aesthetics observations for station W1458 on Sanderson Brook
	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 8) (MassDEP Undated 6)

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W1458	2011	3	3	0
W1458	2012	5	5	0
W1458	2013	5	3	0
W1458	2014	4	4	0
W1458	2015	4	4	0
W1458	2017	5	5	0

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

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W1458	Sanderson Brook	2011	Color	Blackish	1	3
W1458	Sanderson Brook	2011	Color	None	2	3
W1458	Sanderson Brook	2011	Objectionable Deposits	No	3	3
W1458	Sanderson Brook	2011	Odor	None	3	3
W1458	Sanderson Brook	2011	Scum	No	3	3
W1458	Sanderson Brook	2011	Turbidity	None	3	3
W1458	Sanderson Brook	2012	Color	None	5	5
W1458	Sanderson Brook	2012	Objectionable Deposits	No	5	5
W1458	Sanderson Brook	2012	Odor	None	5	5
W1458	Sanderson Brook	2012	Scum	No	5	5
W1458	Sanderson Brook	2012	Turbidity	None	5	5
W1458	Sanderson Brook	2013	Color	None	5	5
W1458	Sanderson Brook	2013	Objectionable Deposits	No	5	5
W1458	Sanderson Brook	2013	Odor	None	5	5

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W1458	Sanderson Brook	2013	Scum	No	5	5
W1458	Sanderson Brook	2013	Turbidity	None	5	5
W1458	Sanderson Brook	2014	Color	None	4	4
W1458	Sanderson Brook	2014	Objectionable Deposits	No	4	4
W1458	Sanderson Brook	2014	Odor	None	4	4
W1458	Sanderson Brook	2014	Scum	No	4	4
W1458	Sanderson Brook	2014	Turbidity	None	4	4
W1458	Sanderson Brook	2015	Color	None	4	4
W1458	Sanderson Brook	2015	Objectionable Deposits	No	4	4
W1458	Sanderson Brook	2015	Odor	None	4	4
W1458	Sanderson Brook	2015	Scum	No	4	4
W1458	Sanderson Brook	2015	Turbidity	None	4	4
W1458	Sanderson Brook	2017	Color	None	5	5
W1458	Sanderson Brook	2017	Objectionable Deposits	No	5	5
W1458	Sanderson Brook	2017	Odor	None	5	5
W1458	Sanderson Brook	2017	Scum	No	5	5
W1458	Sanderson 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 for Sanderson Brook (MA32-31), so the Primary Contact Recreation	al Use is Not
Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for Sanderson Brook (MA32-31), so the Secondary Contact Recreati	onal Use is Not
Assessed.	

Scout Pond (MA32063)

Location:	Chesterfield.
AU Type:	FRESHWATER LAKE
AU Size:	37 ACRES
Classification/Qualifier:	В

No usable data were available for Scout Pond (MA32063) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Shaker Mill Brook (MA32-18)

Location:	Headwaters, west of Watson Road, Washington to mouth at confluence with Depot Brook					
	Becket.					
AU Type:	RIVER					
AU Size:	4.1 MILES					
Classification/Qualifier:	B: CWF					

Shaker Mill Brook - MA32-18

Watershed Area: 6.37 square miles



2018/20 AU	2022 AU			Impairment Change
Category	Category	Impairment	ATTAINS Action ID	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			
MassDFG biologists conducted backpack electrofishing seven times in Shaker Mill Brook, a designated Cold Water			
Fishery, in the vicinity of Lovers Lane, Becket in July and/or August 2014 through 2019 (Sample IDs 5154,	5689, 6233,		
6526, 7565, 7636, 8233). The samples (n= 36-119) were dominated (≥98%) by fluvial fish including multip	le age classes of		
Eastern brook trout.			

The Aquatic Life Use of Shaker Mill Brook (MA32-18) will continue to be assessed as Fully Supporting based on the presence of multiple age classes of Eastern brook trout (which are indicative of excellent habitat and water quality conditions) in the brook in summers 2014 through 2019.

Alert

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5154	MassDFG	Fish	Shaker Mill	Off Lovers Lane, US of crossing, Becket	42.33170	-73.09348
		Community	Brook			
5689	MassDFG	Fish	Shaker Mill	US of bridge on Lovers Ln, Becket	42.33116	-73.09174
		Community	Brook			
6233	MassDFG	Fish	Shaker Mill	US of bridge on Lovers Lane, Becket	42.33101	-73.09180
		Community	Brook			
6526	MassDFG	Fish	Shaker Mill	DS of Br on Lovers Lane, Becket	42.33113	-73.09183
		Community	Brook			
7565	MassDFG	Fish	Shaker Mill	Upstream of bridge on Lovers Lane Rd.,	42.33117	-73.09205
		Community	Brook	Becket		
7636	MassDFG	Fish	Shaker Mill	Downstream of Lovers Lane crossing, Becket	42.33070	-73.09088
		Community	Brook			
8233	MassDFG	Fish	Shaker Mill	US of bridge on Lovers Ln, Becket	42.33102	-73.09212
		Community	Brook			

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3) [Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net]

										-					
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
5154	08/12/14	BP	TP	4	119	57	51	202	46	0	79%	99%	No	Yes	AS, BB, BND, EBT,
5689	08/13/15	BP	TP	3	109	101	51	169	95	0	93%	98%	No	Yes	BB, BND, EBT,
6233	08/04/16	BP	TP	2	106	101	54	199	88	0	95%	100%	No	Yes	BND, EBT,
6526	08/07/17	BP	TP	2	86	66	50	174	58	0	77%	100%	No	Yes	BND, EBT,
7565	08/08/18	BP	TP	2	65	61	52	194	50	0	94%	100%	Yes	Yes	BND, EBT,
7636	07/20/18	BP	TP	2	36	33	58	207	23	0	92%	100%	Yes	Yes	BND, EBT,
8233	08/15/19	BP	TP	2	94	90	45	209	70	0	96%	100%	No	Yes	BND, EBT,

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

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

Fish toxics sampling has not been conducted in Shaker Mill Brook (MA32-18), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment

NO

Not Assessed

2022 Use Attainment Summary

No recent data are available for Shaker Mill Brook (MA32-18), so the Aesthetics Use is Not Assessed.

Primary Contact Recreation

2022 Use Attainment					
Not Assessed	NO				

2022 Use Attainment Summary

No recent bacteria data are available for Shaker Mill Brook (MA32-18), so the Primary Contact Recreational Use is Not Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for Shaker Mill Brook (MA32-18), so the Secondary Contact Recreat	ional Use is Not
Assessed.	

Shaw Brook (MA32-52)

Location:	Headwaters, north of Shaw Road, Windsor to mouth at confluence with Westfield Brook, Windsor.
AU Type:	RIVER
AU Size:	2.2 MILES
Classification/Qualifier:	B: CWF

SHAW BROOK - MA32-52

Watershed Area: 1.14 square miles



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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff conducted water quality monitoring in Shaw Brook, a designated Cold Water Fishery (CWF), approximately
250 feet upstream of Berkshire Trail (Route 9), Windsor (Station W2764) during summer 2017. A probe w	as deployed to
measure dissolved oxygen (DO) for 71 days from mid-July through early October and the minimum DO wa	as 8.2 mg/L.
Continuous temperature measurements were recorded over 60 days in the summer index period: the ma	ximum
temperature was 19.1 °C. There were no indications of enrichment based on these limited data (maximur	n diel DO shift
0.9 mg/L, maximum DO saturation 93%). The maximum specific conductance measurement was 66 μs/cn	n (n=2).
The Aquatic Life Use of Shaw Brook (MA32-52) will continue to be assessed as Fully Supporting based on	the DO and
temperature deployed probe data, collected during summer 2017, which meet CWF standards and use at	tainment
thresholds.	

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2764	MassDEP	Water	Shaw Brook	[approximately 250 feet upstream of Berkshire	42.497707	-73.009617
		Quality		Trail (Route 9), Windsor]		

Physico-chemical Water Quality Information

DO, pH, Temperature

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

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2764	07/18/17	10/02/17	71	47	42	8.2	8.7	9	0.9	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2764	08/29/17	10/03/17	2	10.1	10.3	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2764	07/18/17	09/15/17	60	57	17.7	19.1	17.9	16.9	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Start		Count Days	24hr Rolling	Max 24hr Avg Rolling	Count CWTier1 24hr Avg Rolling	Count CWTier2 24hr Avg Rolling	Count WW 24hr Avg Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2764	07/17/17	09/15/17	61	2857	18.4	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2764	08/29/17	10/03/17	2	1	11.3	10.4	0	0	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal t	otal phosphorus	data colle	cted May-Sep	t]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2764	2017					0.9	0.5	93.3			

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (µs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2764	08/29/17	10/03/17	2	64	66	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						
Fish toxics sampling has not been conducted in Shaw Brook (MA32-52), so the Fish Consumption Use is N	ot Assessed.					

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Shaw Brook (MA32-52), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Shaw Brook (MA32-52), so the Primary Contact Recreational Use is Not	Assessed.

No bacteria data are available for Shaw Brook (MA32-52), so the Primary Contact Recreational Use is Not Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No bacteria data are available for Shaw Brook (MA32-52), so the Secondary Contact Recreational Use is Not Assessed.

Skunk Brook (MA32-83)

Location:	Headwaters, north of Fisk Road, Chester to mouth at confluence with Kinne Brook,
	Chester.
AU Type:	RIVER
AU Size:	0.6 MILES
Classification/Qualifier:	A: PWS, ORW, CWF (Tributary)

Skunk Brook - MA32-83

Watershed Area: 0.64 square miles



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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

Fully Supporting	
runy supporting NO	
2022 Use Attainment Summary	

MassDFG biologists conducted backpack electrofishing in Skunk Brook upstream of the Kinne Brook Rd. crossing, Chester (Sample ID 7337) in September 2018. The sample (n=52) was comprised entirely of fluvial fish and was dominated by multiple age classes of Eastern brook trout (58% of sample).

The Aquatic Life Use of Skunk Brook (MA32-83), a designated Cold Water Fishery, is assessed as Fully Supporting based on the presence of multiple age classes of Eastern brook trout in the September 2018 sample. A reproducing population of this species is an indication of excellent habitat and water quality conditions.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
7337	MassDFG	Fish	Skunk Brook	upstream of Kinne Brook Rd. crossing,	42.32845	-72.91312
		Community		Chester		

Biological Monitoring Information

Fish Community Data and DELTS

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

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

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

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
7337	09/04/18	BP	TP	2	52	30	54	142	29	0	58%	100%	No	Yes	BND, EBT,

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Skunk Brook (MA32-83), so the Fish Consumption Use is N	lot Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Skunk Brook (MA32-83), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Skunk Brook (MA32-83), so the Primary Contact Recreational Use is No	t Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Skunk Brook (MA32-83), so the Secondary Contact Recreational Use is	Not Assessed.

Sodum Brook (MA32-84)

Location:	Headwaters, perennial portion southeast of South Quarter Road, Russell to mouth at confluence with Little River, Russell.
AU Type:	RIVER
AU Size:	0.9 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Sodum Brook (MA32-84) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Proximal

Stream Buffer

2.2

0.6%

3.2%

92.2%

4%

Stage Brook (MA32-60)

Location:	Headwaters, confluence of Freeland Brook and Wigwam Brook, Russell to mouth at confluence with Black Brook (forming headwaters Bradley Brook), Russell.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B: CWF

STAGE BROOK - MA32-60

Watershed Area: 9.93 square miles



Percent Wetland

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDFG biologists conducted backpack electrofishing in Stage Brook, a designated Cold Water Fishery (CWF), in two general locations as follows: near the upstream end of the AU, upstream of Blandford Stage Rd bridge, Russell in July 2014 and August 2015, 2016, 2017, and 2019 (Sample IDs 5131, 5710, 6257, 6532, 8229) and near Town crossing upstream of Moss Hill Rd., Russell in July 2018 (Sample ID 7641). The samples (n= 61-175) were dominated (≥98%) by fluvial fish including multiple age classes of Eastern brook trout. Toward the middle of the AU, MassDEP staff collected limited water quality data at the Blandford Stage Rd crossing east of Upper Moss Hill Rd, Russell (W2765) during summer 2017. A probe was deployed to measure dissolved oxygen (DO) for 76 days from the end of July through mid October and the minimum DO was 8.4 mg/L. Continuous temperature measurements were recorded over 51 days in the summer index period- the maximum temperature was 19.7 °C. The single pH measurement was 7.4 S.U. There was no indication of nutrient enrichment based on the limited data (maximum diel DO shift 1.3 mg/L and maximum DO saturation 101.4%). The maximum specific conductance was 211 µs/cm (n=2).

The Aquatic Life Use of Stage Brook (MA32-60) will continue to be assessed as Fully Supporting based primarily on the presence of multiple age classes of Eastern brook trout (indicative of excellent habitat and water quality conditions) during summers 2014 through 2019, as well as on the DO and temperature deployed probe data, collected during summer 2017, that meet CWF standards and use attainment thresholds.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5131	MassDFG	Fish	Stage Brook	US of bridge on Blandford Stage Rd, Russell	42.18266	-72.87838
		Community				
5710	MassDFG	Fish	Stage Brook	Turn off on Blandford Stage Rd, US of	42.18257	-72.87852
		Community		bridge, Russell		
6257	MassDFG	Fish	Stage Brook	2nd bridge (US) on stage rd, Russell	42.18262	-72.87830
		Community				
6532	MassDFG	Fish	Stage Brook	Turn off on Stage Rd, Russell	42.18261	-72.87843
		Community				
7641	MassDFG	Fish	Stage Brook	Town crossing upstream of Moss Hill Rd.,	42.18322	-72.87302
		Community		Russel/Blandford		
8229	MassDFG	Fish	Stage Brook	US od 3rd bridge on Russel Stage Rd., Russell	42.18269	-72.87839
		Community				
W2765	MassDEP	Water	Stage Brook	[Blandford Stage Road crossing east of	42.184332	-72.871424
		Quality		Upper Moss Hill Road, Russsell]		

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AE = American Eel, AS = Atlantic Salmon, B = Bluegill, BND = Blacknose Dace, EBT = Brook Trout, P = Pumpkinseed]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5131	07/30/14	BP	TP	4	94	47	52	198	39	0	68%	99%	No	Yes	AE, AS, BND, EBT,
5710	08/24/15	BP	TP	4	170	123	49	186	109	0	74%	99%	No	Yes	AE, AS, BND, EBT,
6257	08/03/16	BP	TP	3	145	113	59	182	94	0	78%	99%	No	Yes	AE, BND, EBT,

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
6532	08/04/17	BP	TP	5	175	77	22	184	65	0	44%	98%	No	Yes	AE, B, BND, EBT, P,
7641	07/16/18	BP	TP	2	61	25	52	152	22	0	41%	100%	Yes	Yes	BND, EBT,
8229	08/12/19	BP	TP	3	139	63	53	204	52	0	45%	99%	No	Yes	AE, BND, EBT,

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min ≺4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2765 07/27/	.7 10/10/17	76	70	47	8.4	8.7	9.1	1.3	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
								•

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2765	07/27/17	09/15/17	51	48	18.9	19.7	18.7	17.8	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2765	07/26/17	09/15/17	52	2426	19.2	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2765	08/31/17	10/11/17	2	1	15.2	14.9	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2765	08/31/17	10/11/17	1	7.4	7.4	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2765	2017					1.3	0.8	101.4	7.4		

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2765	08/31/17	10/11/17	2	184	211	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
	-

Fish toxics sampling has not been conducted in Stage Brook (MA32-60), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Stage Brook (MA32-60), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Stage Brook (MA32-60), so the Primary Contact Recreational Use is Not	Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert						
Not Assessed	NO						
2022 Use Attainment Summary							
No bacteria data are available for Stage Brook (MA32-60), so the Secondary Contact Recreational Use is Not Assessed.							

Steep Bank Brook (MA32-53)

Location:	Headwaters (perennial portion), northeast of Bates Road, Windsor to mouth at confluence with Westfield River, Windsor.
AU Type:	RIVER
AU Size:	1 MILES
Classification/Qualifier:	B: CWF

STEEP BANK BROOK - MA32-53

Watershed Area: 0.95 square miles



Percent Wetland

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDFG biologists conducted backpack electrofishing in Steep Bank Brook upstream of the confluence v	vith the
Westfield River, adjacent to River Rd in Windsor in August 2015 (Sample ID 7749). The sample (n=97) was	comprised
entirely of slimy sculpin and multiple age classes of Eastern brook trout.	
The Aquatic Life Use of Steep Bank Brook (MA32-53), a designated Cold Water Fishery (CWF), is assessed	as Fully
Supporting based on the presence of slimy sculpin and multiple age classes of Eastern brook trout, two co	old-water
species indicative of excellent habitat and water quality conditions.	

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
7749	MassDFG	Fish	Steep Bank	Upstream of confluence with Westfield	42.52378	-73.00993
		Community	Brook	River (EB), Adjacent to River Rd., Windsor		

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: EBT = Brook Trout, 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
7749	08/13/15	BP	TP	2	97	83	49	170	79	14	100%	100%	No	Yes	EBT, SC,

Fish Consumption

2022 Use Attainment	Alert							
Not Assessed	NO							
2022 Use Attainment Summary								
Fish toxics sampling has not been conducted in Steep Bank Brook (MA32-53), so the Fish Consumption Use is Not								
assessed.								

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available, so the Aesthetics Use of Steep Bank Brook (MA32-53) is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available, so the Primary Contact Recreational Use of Steep Bank Brook (MA32-53) i	s Not Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert						
Not Assessed	NO						
2022 Use Attainment Summary							
No bacteria data are available, so the Secondary Contact Recreational Use of Steep Bank Brook (MA32-53) is Not							
Assessed.							

Stones Brook (MA32-48)

Location:	Headwaters, outlet small unnamed pond north of Dyers Road, Ashfield to mouth at confluence with Swift River, Goshen.
AU Type:	RIVER
AU Size:	4.7 MILES
Classification/Qualifier:	B: CWF

STONES BROOK - MA32-48

Watershed Area: 8.02 square miles



Percent Wetland

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted water quality surveys in the summer of 2017 in Stones Brook, a designated Cold Water Fishery (CWF), at two stations from up to downstream as follows: at the Dyer Rd crossing in Ashfield (W2756) and near the downstream end of the AU ~50 ft downstream of Loomis Rd, Goshen (W2757). MassDFG biologists also conducted backpack electrofishing six times from 2014-2019 (Sample IDs 5137, 5666, 6216, 6610, 7612, 8225) in the vicinity of the downstream station. Probes were deployed to measure continuous dissolved oxygen (DO) at both stations between 20 July and 2 October 2017 and the minimum DO was 7.1 mg/L. Continuous temperature measurements over 58 days during the summer index period at both stations up to downstream can be summarized as follows: maximum temperatures 23.7 and 23.8 °C, maximum 7DADMs 21.6 and 23.8 °C (above 20.0 °C 27 and 15 times, respectively), and maximum 24-hr rolling average temperatures 22.5 and 21.8 °C. There was no indication of nutrient enrichment based on the limited data at both stations (maximum saturation 95% and maximum diel DO shift 1.3 mg/L). Maximum specific conductance was 95 and 216 μ s/cm (n=2 at both stations up to downstream, respectively). The fish samples (n=91-356) were comprised entirely of fluvial fish including multiple age classes of Eastern brook trout in all samples. The Aquatic Life Use of Stones Brook (MA32-48) will continue to be assessed as Fully Supporting based on the presence of multiple age classes of Eastern brook trout present in all summer samples between 2014 and 2019, as well as the continuous DO data collected in summer 2017. While temperature measurements exceeded the chronic criterion thresholds for a CWF at both the up and downstream monitoring stations (W2756, W2757), there are many beaver dams along its length, the subwatershed and proximal stream buffer are comprised of largely natural/wetland landcovers (~94%) and limited impervious cover (1.5%), and there are no water withdrawals or discharges, so the exceedances are considered naturally occurring.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5137	MassDFG	Fish	Stones	DS of bridge on Loomis Rd, Goshen	42.45562	-72.83983
		Community	Brook			
5666	MassDFG	Fish	Stones	Rt 9 & Loomis Rd xing, Goshen	42.45568	-72.84055
		Community	Brook			
6216	MassDFG	Fish	Stones	RT 9 and Loom 3 Rd (DS), Goshen	42.45553	-72.84009
		Community	Brook			
6610	MassDFG	Fish	Stones	DS of Loomis Rd Bridge at Rt 9, Goshen	42.45554	-72.84000
		Community	Brook			
7612	MassDFG	Fish	Stones	Downstream of bridge on Loomis Rd. + Rt. 9	42.45570	-72.84012
		Community	Brook	, Goshen		
8225	MassDFG	Fish	Stones	DS of bridge on Loomis Rd @ RT9, Goshen	42.45563	-72.84007
		Community	Brook			
W2756	MassDEP	Water	Stones	[Dyer Road, Ashfield]	42.499024	-72.820199
		Quality	Brook			
W2757	MassDEP	Water	Stones	[adjacent to the pull-off on Route 9/112,	42.455480	-72.840477
		Quality	Brook	approximately 150 feet downstream/west of		
				Loomis Road, Goshen]		

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, 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
5137	07/31/14	BP	ТР	7	137	9	66	173	5	0	12%	100%	Yes	Yes	AS, BND, CRC, CS, EBT, LND, WS,
5666	07/29/15	BP	ТР	6	91	10	62	162	5	0	12%	100%	Yes	Yes	AS, BND, CRC, EBT, LND, WS,
6216	07/27/16	BP	ТР	5	285	35	68	195	31	0	12%	100%	No	Yes	BND, CRC, EBT, LND, WS,
6610	08/02/17	BP	ТР	6	274	10	62	171	7	0	4%	100%	No	Yes	BND, CRC, CS, EBT, LND, WS,
7612	09/24/18	BP	ТР	7	127	6	131	182	2	0	6%	100%	No	Yes	BND, BT, CRC, CS, EBT, LND, WS,
8225	08/22/19	BP	ТР	6	356	26	63	176	20	0	7%	100%	No	Yes	BND, CRC, CS, EBT, LND, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2756	07/20/17	10/02/17	72	48	42	7.1	7.5	7.8	1.3	0	0	0	0	0	0	0	0
W2757	07/20/17	10/02/17	75	69	46	7.6	7.8	8.3	1.3	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2756	08/29/17	10/03/17	2	8.8	8.8	0	0	0
W2757	08/29/17	10/03/17	2	9.9	10.3	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2756	07/20/17	09/15/17	58	55	22.3	23.7	21.6	20.1	27	0	0	0	0	0
W2757	07/20/17	09/15/17	58	55	21.7	23.8	20.9	19.1	15	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2756	07/19/17	09/15/17	59	2764	22.5	0	0	0
W2757	07/19/17	09/15/17	59	2763	21.8	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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
W2756	08/29/17	10/03/17	2	1	14.8	14.0	0	0	0	0
W2757	08/29/17	10/03/17	2	1	13.3	11.6	0	0	0	0

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

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2756	2017					1.3	0.6	87.4			
W2757	2017					1.3	0.8	95.3			

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (µs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2756	08/29/17	10/03/17	2	95	95	0	0	0	0	0	0
W2757	08/29/17	10/03/17	2	207	216	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						
Fish toxics sampling has not been conducted in Stones Brook (MA32-48), so the Fish Consumption Use is Not Assessed.						

Aesthetic

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
No data are available, so the Aesthetics Use of Stones Brook (MA32-48) is Not Assessed.					

Primary Contact Recreation

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						
No bacteria data are available, so the Primary Contact Recreational Use of Stones Brook (MA32-48) is Not Assessed.						

Secondary Contact Recreation

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						
No bacteria data are available, so the Secondary Contact Recreational Use of Stones Brook (MA32-48) is Not Assessed.						

No bacteria data are available, so the Secondary Contact Recreational Use of Stones Brook (MA32-48) is Not Assessed.

Swift River (MA32-12)

Location:	Headwaters, west of Plainfield Road, Hawley to mouth at confluence with Westfield River at village of Swift River, Cummington.
AU Type:	RIVER
AU Size:	11.5 MILES
Classification/Qualifier:	B: CWF

Swift River - MA32-12

Watershed Area: 29.97 square miles



Percent Wetland

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

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff collected very limited water quality data in the Swift River (MA32-12), a designated Cold Water Fishery (CWF), at the Shaw Rd bridge in Goshen (W1467) during summer 2017 (n=2 in situ measurements each of dissolved oxygen (DO), temperature, and specific conductance). The minimum DO was 9.8 mg/L, maximum DO saturation was 100.8%, the maximum temperature during the summer index period was 16.0 °C, and the maximum specific conductance was 112 µs/cm. MassDFG biologists conducted five backpack electrofishing surveys a short way downstream along Rt 9 (down farm road), 1/2mi E of Swift River Rd, Cummington in August or September, 2014 through 2017 and 2019 (Sample IDs 5180, 5704, 6231, 6612, 8314). The large samples (n= 140-306) were dominated (≥99%) by fluvial fish including slimy sculpins and multiple age classes of Eastern brook trout in all samples. The Aquatic Life Use of the Swift River (MA32-12) will continue to be assessed as Fully Supporting based primarily on the presence of slimy sculpins and multiple age classes of Eastern brook trout which are indicative of excellent water quality conditions. The prior Alert for temperature, which was based on short-term deployed probe data (MassDEP Undated 7), is being removed based on data collected in the Stone Brook tributary in summer 2017 (exceedances of CWF standards/chronic criterion thresholds due to natural conditions) which is consistent with the Swift River subwatershed area.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5180	MassDFG	Fish	Swift River	Along Rt 9 (down farm road), 1/2mi E of	42.45261	-72.85741
		Community		Swift River Rd, Cummington		
5704	MassDFG	Fish	Swift River	Off Rt. 9, 0.4mi E of Swift River Rd,	42.45187	-72.85694
		Community		Cummington		
6231	MassDFG	Fish	Swift River	Down side rd off rt 9, Goshen	42.45245	-72.85751
		Community				
6612	MassDFG	Fish	Swift River	Divt Rd off Rt 9, Cummington	42.45353	-72.85765
		Community				
8314	MassDFG	Fish	Swift River	Down farm rd through the fields,	42.45312	-72.85775
		Community		Cummington		
W1467	MassDEP	Water	Swift River	[Shaw Road bridge, Goshen]	42.455729	-72.850032
		Quality				

Biological Monitoring Information

Fish Community Data and DELTS

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

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

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

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5180	09/22/14	BP	ТР	9	235	13	80	244	5	46	27%	100%	No	Yes	AS, BND, CRC, CS, EBT, LND, P, SC, WS,
5704	08/19/15	BP	ТР	6	223	22	65	205	15	44	30%	100%	No	Yes	BND, CRC, EBT, LND, SC, WS,

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
6231	08/16/16	BP	ТР	7	214	17	64	249	5	33	23%	100%	No	Yes	BND, CRC, CS, EBT, LND, SC, WS,
6612	08/02/17	BP	ТР	6	140	7	137	256	1	11	13%	100%	Yes	Yes	BND, CRC, EBT, LND, SC, WS,
8314	09/18/19	BP	ТР	8	306	18	65	227	8	41	21%	99%	No	Yes	BND, CRC, CS, EBT, LC, LND, SC, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W1467	08/30/17	10/03/17	2	9.8	10.3	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W1467	08/30/17	10/03/17	2	1	16.0	14.1	0	0	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W1467	2017							100.8			

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W1467	08/30/17	10/03/17	2	106	112	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						
Fish toxics sampling has not been conducted in the Swift River (MA32-12), so the Fish Consumption Use i	s Not Assessed.					

Aesthetic

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
No recent data are available, so the Aesthetics Use of the Swift River (MA32-12) is Not Assessed.					

Primary Contact Recreation

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						
No recent bacteria data are available, so the Primary Contact Recreational Use of the Swift River (MA32-12) is Not						
Assessed.						

Secondary Contact Recreation

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						
No recent bacteria data are available, so the Secondary Contact Recreational Use of the Swift River (MA32-12) is Not						
Assessed.						

Sykes Brook (MA32-85)

Location:	Headwaters, west of Goss Hill Road and the Chester/Huntington border, Chester to mouth at confluence with the Westfield River, Huntington.
AU Type:	RIVER
AU Size:	3.1 MILES
Classification/Qualifier:	B: CWF

No usable data were available for Sykes Brook (MA32-85) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Tannery Brook (MA32-86)

Location:	Headwaters, perennial portion southwest of North Blandford Road, Blandford to mouth at confluence with Bedlam Brook, Blandford.
AU Type:	RIVER
AU Size:	0.8 MILES
Classification/Qualifier:	A: PWS, ORW, CWF (Tributary)

No usable data were available for Tannery Brook (MA32-86) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

2.9%

4.7%

10.6%

Tower Brook (MA32-47)

Location:	Headwaters, north of Dodwells Road, Cummington to mouth at confluence with Westfield
	River, Chesterfield.
AU Type:	RIVER
AU Size:	4.1 MILES
Classification/Qualifier:	B: CWF

TOWER BROOK - MA32-47

Watershed Area: 3.84 square miles



Percent Wetland

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDFG biologists conducted six backpack electrofishing surveys in Tower Brook, a designated Cold Water Fishery, in August 2014 through 2017, July 2018, and August 2019 at various distances downstream of the first Cummington Rd crossing in Chesterfield, but within roughly 1500 ft of each other (Sample IDs 7625, 5152, 5702, 6263, 8238, 6619). The samples (n= 97-204) were comprised entirely of fluvial fish including slimy sculpin and multiple age classes of Eastern brook trout. Roughly 600 ft upstream of Tower Brook's confluence with the Westfield River at the Mount Road crossing in Chesterfield (W2755), MassDEP staff conducted water quality surveys during summer 2017. A probe was deployed to measure dissolved oxygen (DO) for 75 days from July to early October and the minimum DO was 8.4 mg/L. Continuous temperature measurements were recorded over 57 days in the summer index period with a maximum of 19.8 °C. Based on the limited data there were no indications of nutrient enrichment issues (the maximum diel DO shift was 1.1 mg/L and the maximum DO saturation was 95%). Specific conductance was measured twice, with a maximum of 99 µs/cm. The Aquatic Life Use of Tower Brook (MA32-47) will continue to be assessed as Fully Supporting based on the presence of slimy sculpin and multiple age classes of Eastern brook trout (indicative of excellent habitat and water quality conditions) in summers 2014 through 2019, as well as on the water quality data collected during summer 2017.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5152	MassDFG	Fish	Tower Brook	Turnout on Fairgrounds Rd, 1/4mi N of	42.41268	-72.88115
		Community	(1)	Mount Rd, Chesterfield		
5702	MassDFG	Fish	Tower Brook	Along Cummington Rd, Chesterfield	42.41258	-72.88102
		Community	(1)			
6263	MassDFG	Fish	Tower Brook	Trun-off on fairgrounds rd, Worthington	42.41276	-72.87981
		Community	(1)			
6619	MassDFG	Fish	Tower Brook	Turnoff, Chesterfield	42.41219	-72.87875
		Community	(1)			
7625	MassDFG	Fish	Tower Brook	Downstream of 1st crossing on Cummington	42.41383	-72.88329
		Community		Rd. , Chesterfield		
8238	MassDFG	Fish	Tower Brook	Turnout on Chesterfield Rd., Chesterfield	42.41246	-72.87977
		Community				
W2755	MassDEP	Water	Tower Brook	[Mount Road, Chesterfield]	42.410749	-72.876703
		Quality				

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, CS = Common Shiner, 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
5152	08/07/14	BP	TP	4	175	75	44	184	62	57	75%	100%	No	Yes	BND, CS, EBT, SC,
5702	08/19/15	BP	TP	3	128	74	50	189	64	33	84%	100%	No	Yes	BND, EBT, SC,
6263	08/08/16	BP	TP	4	204	104	45	197	98	40	71%	100%	No	Yes	AS, BND, EBT, SC,
6619	08/09/17	BP	TP	3	204	91	49	203	76	38	63%	100%	No	Yes	BND, EBT, SC,
7625	07/17/18	BP	TP	3	97	52	44	212	35	17	71%	100%	No	Yes	BND, EBT, SC,

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
8238	08/19/19	BP	TP	3	204	96	54	194	75	57	75%	100%	No	Yes	BND, EBT, SC,

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2755	07/20/17	10/03/17	75	63	46	8.4	8.7	9.1	1.1	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
\\\/2755	08/30/17	10/04/17	2	10	10.4	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	3 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	Count CWTier2 Daily Mean >24.1	Count WW 7DADM	Count WW Daily Mean >28.3
W2755	07/20/17	09/15/17	57	48	18.9	19.8	18.0	17.1	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W2755	07/19/17	09/15/17	58	2755	19.1	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2755	08/30/17	10/04/17	2	1	12.9	11.0	0	0	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer se	easonal t	otal	phosphor	us data	colle	cted May-Se	ot]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2755	2017					1.1	0.7	95.1			

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (µs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2755	08/30/17	10/04/17	2	97	99	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment						
Not Assessed	NO					
2022 Use Attainment Summary						
Fish toxics sampling has not been conducted in Tower Brook (MA32-47), so the Fish Consumption Use is Not Assessed.						

Aesthetic

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						
No data are available for Tower Brook (MA32-47), so the Aesthetics Use is Not Assessed.						
Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Tower Brook (MA32-47), so the Primary Contact Recreational Use is No	t Assessed.

No bacteria data are available for Tower Brook (MA32-47), so the Primary Contact Recreational Use is Not Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

No bacteria data are available for Tower Brook (MA32-47), so the Secondary Contact Recreational Use is Not Assessed.

Walker Brook (MA32-20)

Location:	Headwaters, outlet Center Pond (north of YMCA Road), Becket to mouth at confluence with West Branch Westfield River, Chester.
AU Type:	RIVER
AU Size:	7.1 MILES
Classification/Qualifier:	B: CWF

Walker Brook - MA32-20

Watershed Area: 18.73 square miles



2018/20 AU	2022 AU			Impairment Change
Category	Category	Impairment	ATTAINS Action ID	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	

MassDFG biologists conducted backpack electrofishing in Walker Brook, a designated Cold Water Fishery, in two general locations: upstream of the bridge on Blandford Rd, Chester/Becket in August or September 2014 through 2017 and 2019 (Sample IDs 5179, 5714, 6238, 6546, 8312) and upstream of the Rt 20 crossing, adjacent to Hampden St, Chester in August 2016 (Sample ID 6080). The samples (n= 253-2093) were dominated (≥93%) by fluvial fish including slimy sculpin and multiple age classes of Eastern brook trout. Near the downstream fish sampling location (~300 ft upstream of Rt 20, Chester), MassDEP staff conducted limited water quality monitoring (W2749) during summer 2017. A probe was deployed to measure dissolved oxygen (DO) for 78 days from late July through early October and the minimum DO was 8.4 mg/L. Continuous temperature measurements over 53 days in the summer index period can be summarized as follows: maximum temperature 21.1 °C, maximum 7DADM 19.7 °C, and maximum 24-hour rolling average 20.1 °C (good for a designated Cold Water Fishery). The single pH measurement was 7.8 S.U. The limited data had no indication of nutrient enrichment (maximum diel DO shift 1.1 mg/L, maximum DO saturation 101.6%). The specific conductance maximum was 226 µs/cm (n=2).

The Aquatic Life Use of Walker Brook (MA32-20) will continue to be assessed as Fully Supporting based primarily on the presence of slimy sculpin and multiple age classes of Eastern brook trout (species indicative of excellent habitat and water quality conditions) during summers 2014 through 2019, as well as on the water quality data collected during summer 2017.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5179	MassDFG	Fish	Walker	US of bridge on Blandford Rd,	42.27059	-73.00089
		Community	Brook (2)	Chester/Blandford		
5714	MassDFG	Fish	Walker	US of bridge on Blandford Rd,	42.27047	-73.00089
		Community	Brook (2)	Chester/Becket		
6080	MassDFG	Fish	Walker	US of Rt 20 xing, adjacent to Hampden St,	42.27777	-72.98228
		Community	Brook (2)	Chester		
6238	MassDFG	Fish	Walker	Town line/US of bridge on blanford rd,	42.27060	-73.00091
		Community	Brook (2)	Chester		
6546	MassDFG	Fish	Walker	US of bridge on Blanford Rd, Chester	42.27048	-73.00085
		Community	Brook (2)			
8312	MassDFG	Fish	Walker	US of Bridge (Blanford Rd), Cheshire	42.27071	-73.00088
		Community	Broook			
W2749	MassDEP	Water	Walker	[approximately 300 feet upstream from	42.277704	-72.981323
		Quality	Brook	Route 20 (Huntington Road), Chester]		

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, GS = Golden Shiner, LC = Lake Chub, LND = Longnose Dace, P = Pumpkinseed, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5179	09/17/14	BP	ТР	7	275	3	139	177	1	19	21%	100%	No	Yes	AS, BND, CRC, EBT, LND, SC, WS,
5714	08/31/15	BP	ТР	7	447	14	58	212	11	36	14%	100%	No	Yes	AS, BND, BT, CRC, EBT, LND, SC,
6080	08/17/16	BP	ТР	9	2093	27	46	215	19	176	16%	93%	No	Yes	BND, CRC, CS, EBT, GS, LC, LND, SC, WS,
6238	09/08/16	BP	ТР	7	567	10	67	180	6	37	10%	100%	Yes	Yes	BND, BT, CRC, EBT, LND, SC, WS,
6546	08/08/17	BP	ТР	7	253	15	74	197	9	26	18%	99%	No	Yes	BND, BT, CRC, EBT, P, SC, WS,
8312	09/19/19	BP	ТР	6	481	15	51	182	12	33	10%	100%	No	Yes	BND, CRC, EBT, LND, SC, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2749	07/25/17	10/10/17	78	72	49	8.4	8.8	9.1	1.1	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2749	07/25/17	09/15/17	53	50	19.4	21.1	19.7	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 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2749	07/24/17	09/15/17	53	2513	20.1	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2749	08/31/17	10/11/17	2	1	15.2	14.7	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2749	08/31/17	10/11/17	1	7.8	7.8	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer Se											
						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рΗ	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2749	2017					1.1	0.7	101.6	7.8		

[Summer seasonal total phosphorus data collected May-Sept]

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2749	08/31/17	10/11/17	2	201	226	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert			
Not Assessed	NO			
2022 Use Attainment Summary				
Fish toxics sampling has not been conducted in Walker Brook (MA32-20), so the Fish Consumption Use is Not Assessed.				

Aesthetic

2022 Use Attainment	Alert		
Not Assessed	NO		
2022 Use Attainment Summary			
No recent data are available for Walker Brook (MA32-20), so the Aesthetics Use is Not Assessed.			

Primary Contact Recreation

2022 Use Attainment	Alert			
Not Assessed	NO			
2022 Use Attainment Summary				
No recent bacteria data are available for Walker Brook (MA32-20), so the Primary Contact Recreational Use is Not				
Assessed.				

Secondary Contact Recreation

2022 Use Attainment	Alert			
Not Assessed	NO			
2022 Use Attainment Summary				
No recent bacteria data are available for Walker Brook (MA32-20), so the Secondary Contact Recreational Use is Not				
Assessed.				

Proximal Stream Buffer

100m

Stream Buffer

Wards Stream (MA32-15)

Location:	Headwaters, south of Cold Street, Worthington to mouth at confluence with Watts Stream (forming headwaters Little River), Ringville (locality in Worthington).
AU Type:	RIVER
AU Size:	5.1 MILES
Classification/Qualifier:	В

Wards Stream - MA32-15

Watershed Area: 4.23 square miles



Percent Wetland

Land Use Area (square miles)	4.23	3.58	0.93	0.78
Agriculture	15%	15.3%	5.7%	5.3%
Developed	8.9%	7.8%	5.3%	4.9%
Natural	67.4%	67.4%	67.5%	65.8%
Wetland	8.7%	9.5%	21.5%	24.1%
Impervious Cover	2.81%			

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

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

MassDFG biologists conducted backpack electrofishing in Wards Stream in August 2018 upstream of Radiker Rd., Worthington (Sample ID 7558) and downstream of Indian Oven Rd. crossing, Worthington (Sample ID 7554). Both samples were dominated (≥88%) by fluvial fish. The upstream sample (n=189) included multiple age classes of Eastern brook trout (so Wards Stream has a Tier 1 Cold Water Existing Use), while the downstream sample (n=161) included only one small Eastern brook trout (<140 mm). The comments for both samples mentioned bank erosion and sediment problems (MassDFG 2020). MassDEP staff conducted very limited (n=2) discrete water quality surveys approximately 250 feet upstream from Route 112 (Huntington Road), Worthington (W2747) near the downstream end of Wards Stream during summer 2017. The minimum dissolved oxygen (DO) was 9.7 mg/L, maximum temperature was 15.8 °C, maximum DO saturation was 98%, and the maximum specific conductance was 182 µs/cm.

The Aquatic Life Use of Wards Stream (MA32-15) will continue to be assessed as Fully Supporting based primarily on the presence of multiple age classes of Eastern brook trout, a species usually indicative of excellent habitat and water quality conditions. The prior Alert for slightly elevated temperature will be carried forward since the available temperature data were so limited. An Alert will be added for Sedimentation/Siltation, although it is unclear whether the issues noted by DFG staff might be due to natural processes.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
7554	MassDFG	Fish	Wards	Downstream of Indian Oven Rd. crossing ,	42.37890	-72.91121
		Community	Stream	Worthington		
7558	MassDFG	Fish	Wards	Upstream of Radiker Rd., Worthington	42.39002	-72.91673
		Community	Stream			
W2747	MassDEP	Water	Wards	[approximately 250 feet upstream from	42.370857	-72.910870
		Quality	Stream	Route 112 (Huntington Road), Worthington]		

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: B = Bluegill, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, GS = Golden Shiner, P = Pumpkinseed, 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
7558	08/03/18	BP	ТР	8	189	64	54	183	47	0	34%	88%	Yes*	Yes	B, BND, CRC, CS, EBT, GS, P, WS,

* Field Notes: Nice riffle-pool small stream but some pretty substantial sediment issues and bank erosion. Some good undercuts and woody habitat though! Lots of EBT despite sediment problems.

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

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

[Species List: B = Bluegill, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LND = Longnose Dace, 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
7554	08/01/18	BP	ТР	н	8	161	1%	6	99%	1%	1	1%	Yes*	Yes	B, BND, CRC, CS, EBT, LND, P, WS,

* Field Notes: Nice riffle-pool habitat, good depth and plenty of rocky and woody cover with undercut banks but no trout? Big problem with sediment might be to blame?

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2747	08/30/17	10/04/17	2	9.7	10	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2747	08/30/17	10/04/17	2	1	15.8	12.7	0	0	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2747	2017							98.3			

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (µs/cm)	SpCond Max (µs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2747	08/30/17	10/04/17	2	172	182	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

Fish toxics sampling has not been conducted in Wards Stream (MA32-15), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for Wards Stream (MA32-15), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert						
Not Assessed	NO						
2022 Use Attainment Summary							
No recent bacteria data are available for Wards Stream (MA32-15), so the Primary Contact Recreational Use is Not							
Assessed.							

Secondary Contact Recreation

2022 Use Attainment	Alert						
Not Assessed	NO						
2022 Use Attainment Summary							
No recent bacteria data are available for Wards Stream (MA32-15), so the Secondary Contact Recreational Use is Not							
Assessed.							

Watts Stream (MA32-14)

Location:	Headwaters, north of Buffington Hill Road, Worthington to mouth at confluence with Wards Stream (forming headwaters Little River), Ringville (locality in Worthington).
AU Type:	RIVER
AU Size:	5.2 MILES
Classification/Qualifier:	В

Watts Stream - MA32-14

Watershed Area: 4.37 square miles



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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Insufficient Information	NO
2022 Use Attainment Summary	
MassDEP staff conducted very limited (n=2) discrete water quality surveys in Watts Stream approximately upstream of Prentice Road, Worthington (Station W2746) during summer 2017. The minimum dissolved was 9.9 mg/L, maximum temperature was 13.4 °C, maximum DO saturation was 94.9%, and the maximum conductance was 146 µs/cm.	y 150 feet oxygen (DO) n specific
Too limited data are available to assess the Aquatic Life Use of Watts Stream (MA32-14) so it is assessed a Insufficient Information.	as having

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2746	MassDEP	Water	Watts Stream	[approximately 150 feet upstream of Prentice	42.369766	-72.914250
		Quality		Road, Worthington]		

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2746	08/30/17	10/04/17	2	9.9	10.3	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Summer Index is June 1 – Sept 15; CW= Coldwater, WW= Warmwater]										
					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2746	08/30/17	10/04/17	2	1	13.4	11.5	0	0	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2746	2017							94.9			

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2746	08/30/17	10/04/17	2	135	146	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO

2022 Use Attainment Summary

Fish toxics sampling has not been conducted in Watts Stream (MA32-14), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert				
Not Assessed	NO				
2022 Use Attainment Summary					
No recent data are available for Watts Stream (MA32-14), so the Aesthetics Use is Not Assessed.					

Primary Contact Recreation

2022 Use Attainment	Alert						
Not Assessed	NO						
2022 Use Attainment Summary							
No recent bacteria data are available for Watts Stream (MA32-14), so the Primary Contact Recreational Use is Not							
Assessed.							

Secondary Contact Recreation

2022 Use Attainment	Alert						
Not Assessed	NO						
2022 Use Attainment Summary							
No recent bacteria data are available for Watts Stream (MA32-14), so the Secondary Contact Recreational Use is Not							
Assessed.							

Webster Brook (MA32-68)

Location:	Headwaters northwest of Hasting Road, Goshen to mouth at confluence with Page Brook, Chesterfield (excluding approximately 0.6 mile through segment Hammond Pond MA32040 and approximately 0.7 mile through segment Scout Pond MA32063).
AU Type:	RIVER
AU Size:	4 MILES
Classification/Qualifier:	В

Webster Brook - MA32-68

Watershed Area: 5.95 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	<mark>5.95</mark>	4.07	1.37	1.01
Agriculture	2.3%	2.1%	0.6%	0.6%
Developed	7%	6.4%	4.6%	4.8%
Natural	83.2%	84.6%	78.2%	77.8%
Wetland	7.6%	6.9%	16.7%	16.8%
Impervious Cover	2.79%			

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

Recommendations

2022 Recommendations
ALU: Consideration should be given to removing dams along this Webster Brook AU (MA32-68), which might allow the
expansion of cold-water fish habitat.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

MassDEP staff conducted fish (Sample ID 5034), benthic (Station B0808), and water guality (Station W2271) surveys of Webster Brook during summer 2012 approximately 625 feet downstream of Main Road (Route 143) in Chesterfield (and downstream of Scout Pond, not part of this Webster Brook AU) as part of the Probabilistic Wadeable Streams (MAP2) Monitoring Project. Backpack electrofishing in September (Sample ID 5034) resulted in a sample dominated (94%) by fluvial species but no cold-water species were collected. This brook is mapped by MassDFG as a Coldwater Fisheries Resource (CFR) since multiple age classes of Eastern brook trout were collected upstream of the Scout Pond impoundment in August 2010 (Sample ID 3487) (MassDFG 2020), but there are no records of cold-water species collected in Webster Brook downstream of Scout Pond where the recent MassDEP sampling took place. The benthic sample (Station B0808) collected in July had an IBI score of 38, indicating that conditions were moderately degraded for a high gradient stream in the Western Highlands region, however, since these data were collected in the year following Hurricane Irene, a benthic impairment is not being added. Water quality (Station W2271) sampling data are summarized as follows: two short-term probe deployments recorded dissolved oxygen (DO) for a total of eight days and the minimum DO was 7.0 mg/L, continuous temperature measurements over 107 days in the summer index period had maximum temperature 27.6 °C, maximum 7DADM 24.7 °C (above 20.0 °C cold-water threshold 69 times), and maximum 24-hr rolling average 25.7 °C (also above cold water threshold of 23.5 °C); all of these measurements met Warm Water Fishery standards/thresholds. pH ranged from 7.0-7.1 S.U. (n=4), there was no indication of nutrient enrichment (total phosphorus seasonal average 0.015 mg/L with n=5, maximum diel DO shift 0.6 mg/L, maximum DO saturation 99.6%, no observations of excessive filamentous algae during five site visits), there were no exceedances among three clean metals or aluminum samples (because dissolved Al data were compared to the total recoverable Al criteria, exceedances cannot be ruled out, however), maximum Total Ammonia Nitrogen (TAN) was low (0.030 mg/L, n=5), maximum chloride was low (13 mg/L, n=5), and the maximum specific conductance was 90 μ s/cm (n=4).

The Aquatic Life Use of Webster Brook (MA32-64), a Class B water not currently designated as a Cold Water Fishery, is assessed as Fully Supporting based on the fish sample collected by MassDEP biologists that was dominated by fluvial taxa as well as the generally good water quality conditions documented during the summer of 2012. It is noted here that DFG biologists map Webster Brook, including the reach downstream of Scout Pond, as a CFR without prior sampling confirming the reach downstream of Scout Pond supported a Cold Water Existing Use. Data were therefore compared to warm water guidance for use attainment decisions as described in the 2022 CALM (MassDEP 2022). Alerts are being added for Temperature and the Lack of a Coldwater Assemblage.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5034	MassDEP	Fish	Webster	625ft DS of Rt 143, between Bisbee Rd &	42.38209	-72.81255
		Community	Brook	Curtis Rd (~625ft US of Page Brk confluence)		
B0808	MassDEP	Benthic	Webster	[approximately 190 meters downstream of	42.382089	-72.812551
			Brook/	Main Road (Route 143), Chesterfield, MA		
				(approximately 190 meters upstream from		
				the confluence with Page Brook)]		
W2271	MassDEP	Water	Webster	[approximately 625 feet downstream of	42.382089	-72.812551
		Quality	Brook	Main Road (Route 143), Chesterfield		
				(approximately 625 feet upstream from the		
				confluence with Page Brook)]		

Monitoring Stations

Biological Monitoring Information

Benthic Macroinvertebrate Data

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

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

Station	Collection	Collection	Index Type	Organism	Index	Index Biological
Code	Date	Method		Count	Score	Condition Class
B0808	07/19/12	RBP kicknet	Western_Highlands_100ct	99	38	MD

Fish Community Data and DELTS

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

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

[Species List: BB = Brown Bullhead, BND = Blacknose Dace, CP = Chain Pickerel, CRC = Creek Chub, CS = Common Shiner, LND = Longnose Dace, P = Pumpkinseed, WS = White Sucker, YB = Yellow Bullhead]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	/MT MG Ind %	Notables	CFR	Species List
5034	09/10/12	ВР	ТР	н	9	87	0%	5	94%	0%	2	3%	No	Yes	BB, BND, CP, CRC, CS, LND, P. WS, YB.

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Short-term Continuous Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [Note: Most deploys 3-5 days in length; Day Count= total # of days over all deploys; XDADMin= 3-5 Day Average of the Daily Minima, XDADA= 3-5 Day Average of the Daily Average, CW= Coldwater, WW= Warmwater]

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2271	2012	2	8	7	7.2	7.4	0.6	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2271	06/01/12	09/15/12	107	107	25.4	27.6	24.7	23.2	69	4	19	2	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2271	2012	2	8	23.4	25.0	23.5	22.0	2	0	1	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2271	06/01/12	09/15/12	107	5136	25.7	184	122	0
W2271	06/14/12	08/21/12	68	383	23.8	19	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2271	05/16/12	09/20/12	5	2	21.5	18.8	2	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	nH Count	pH Min (SU)	pH Max (SU)	pH Count	pH Count
W2271	05/16/12	09/20/12	4	7	7.1	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2271	2012	5	0.01	0.023	0.015	0.6	0.4	99.6	7.1	5	0

[Summer seasonal total phosphorus data collected May-Sept]

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CMC	Cd CMC	Cr III CMC	Cu CMC	Pb CMC	Ni CMC	Ag CMC	Zn CMC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2271	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CCC	Cd CCC	Cr III CCC	Cu CCC	Pb CCC	Ni CCC	Se CCC	Zn CCC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2271	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Dissolved	Al Min	Al Max	Al Avg	Al CMC	Al CCC	Al CMC	Al CCC
Code	Year	Al Count	(mg/L)	(mg/L)	(mg/L)	TU Max	TU Max	TU >1	TU >1
W2271	2012	3	0.010	0.018	0.014	0.1	0.1	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [TAN= NH3 + NH4+]

Station	Data	TAN	TAN Min	TAN Max	TAN Avg	Count TAN	Count TAN
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	>Chronic	>Acute
W2271	2012	5	0.020	0.030	0.022	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
W2271	2012	5	10	13	12	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2271	05/16/12	09/20/12	4	78	90	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Webster Brook (MA32-68), so the Fish Consumption Use i	s Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff conducted water quality surveys of Webster Brook during summer 2012 approximately 62	5 feet
downstream of Main Road (Route 143) in Chesterfield (Station W2271/MAP2-209). There were generally	no noted
objectionable conditions (odors, deposits, growths, or turbidity) recorded by field crews (n=6).	
The Aesthetics Use of Webster Brook (MA32-68) is assessed as Fully Supporting based on the lack of aest	hetically
objectionable conditions during summer 2012.	

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2271	MassDEP	Water	Webster	[approximately 625 feet downstream of Main Road	42.382089	-72.812551
		Quality	Brook	(Route 143), Chesterfield (approximately 625 feet		
				upstream from the confluence with Page Brook)]		

Aesthetic Observations

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

			Field	
Station		Data	Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W2271	Webster Brook	2012	6	MassDEP aesthetics observations for station W2271/MAP2-209 on
				Webster Brook can be summarized as follows: there were generally no
				noted objectionable conditions (odors, deposits, growths, or turbidity)
				recorded by DEP field sampling crews during summer 2012.

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

Station			Field Sheet Count w/ Film & Filamentous Algae	Dense/ Very Dense
Code	Data Year	Field Sheet Count	Observations	Film/ Filamentous Algae
W2271	2012	6	5	0

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2271	Webster Brook	2012	Color	Brownish	1	6
W2271	Webster Brook	2012	Color	Light Yellow/Tan	5	6
W2271	Webster Brook	2012	Objectionable Deposits	No	6	6
W2271	Webster Brook	2012	Odor	Musty (Basement)	2	6
W2271	Webster Brook	2012	Odor	None	3	6
W2271	Webster Brook	2012	Odor	Rotting Vegetables	1	6
W2271	Webster Brook	2012	Scum	No	4	6
W2271	Webster Brook	2012	Scum	Yes	2	6
W2271	Webster Brook	2012	Turbidity	Moderately Turbid	1	6
W2271	Webster Brook	2012	Turbidity	None	3	6
W2271	Webster Brook	2012	Turbidity	Slightly Turbid	2	6

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

Primary Contact Recreation

2022 Use Attainment	Alert		
Fully Supporting	NO		
2022 Use Attainment Summary			
MassDEP staff conducted water quality surveys of Webster Brook during summer 2012 approximately 62	5 feet		
downstream of Main Road (Route 143) in Chesterfield (Station W2271/MAP2-209). There were generally no noted			
objectionable conditions (odors, deposits, growths, or turbidity) recorded by field crews (n=6). <i>E. coli</i> bacteria samples			
were collected on each of these site visits: analysis of this low frequency data indicated that none of the i	ntervals had		
GMs >126 cfu/100mL and only one sample exceeded the 410 cfu/100mL STV. The seasonal GM was 39 cf	u/100mL.		
The Primary Contact Recreational Use of Webster Brook (MA32-68) is assessed as Fully Supporting based	on the low E.		
coli concentration data and lack of aesthetically objectionable conditions during summer 2012.			

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2271	MassDEP	Water	Webster	[approximately 625 feet downstream of Main Road	42.382089	-72.812551
		Quality	Brook	(Route 143), Chesterfield (approximately 625 feet		
				upstream from the confluence with Page Brook)]		

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
					Sample	Sample	Sample	Geometric
Station Code	Organization	Indicator	Start Date	End Date	Count	Result	Result	Mean
W2271	MassDEP	E. coli	05/16/12	09/20/12	6	5	1730	39

W2271 E. coli (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	39
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	17

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



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted water quality surveys of Webster Brook during summer 2012 approximately 625 feet downstream of Main Road (Route 143) in Chesterfield (Station W2271/MAP2-209). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by field crews (n=6). *E. coli* bacteria samples were collected on each of these site visits: analysis of this low frequency data indicated that none of the intervals had GMs >630 cfu/100mL and only one sample exceeded the 1260 cfu/100mL STV. The overall GM was quite low at 39 cfu/100mL.

The Secondary Contact Recreational Use of Webster Brook (MA32-68) is assessed as Fully Supporting based on the low *E. coli* concentration data and lack of aesthetically objectionable conditions during summer 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2271	MassDEP	Water	Webster	[approximately 625 feet downstream of Main Road	42.382089	-72.812551
		Quality	Brook	(Route 143), Chesterfield (approximately 625 feet		
				upstream from the confluence with Page Brook)]		

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
						Sample	Sample	Geometric
						Result	Result	Mean
						(CFU/100ml	(CFU/100ml	(CFU/100ml
					Sample	or	or	or
Station Code	Organization	Indicator	Start Date	End Date	Count	MPN/100ml)	MPN/100ml)	MPN/100ml)
W2271	MassDEP	E. coli	05/16/12	09/20/12	6	5	1730	39

W2271 E. coli (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	39
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	1
%n>STV	17

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



West Branch Westfield River (MA32-01)

Location:	Headwaters, confluence of Depot Brook and Yokum Brook, Becket to mouth at confluence with Westfield River, Huntington (HQW qualifier applies to portion of river upstream of Chester Center).
AU Type:	RIVER
AU Size:	17.2 MILES
Classification/Qualifier:	B: CWF, HQW* (*HQW applies to portion upstream of Chester Center)

West Branch Westfield River - MA32-01

Percent Natural

Percent Wetland





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

Recommendations

2022 Recommendations
ALU: Conduct extensive water quality monitoring in this Westfield River AU (MA32-01) to determine whether the river
should be impaired for temperature- the small Huntington Water Dept Zone II should be bracketed and habitat/landuse
should be noted at all monitoring locations. Benthic surveys should also be conducted with good spatial representation
along this AU, especially in the downstream half, to better evaluate the Aquatic Life Use status and need for Benthic
Macroinvertebrates impairment.

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

Percent A griculture

Percent Developed

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

Eighty-seven fish community samples were collected from 2005-2017 in the Westfield River (MA32-04, MA32-05) and its major tributaries (Middle Branch Westfield River MA32-65, MA32-03; West Branch Westfield River MA32-01). The overall percent similarity (PS) with the Westfield Target Fish Community model was 75.39% (which would be slightly higher if Atlantic salmon, a stocked species, was removed from the analysis, as was done by DFG in their 2009 study). Of the four most common species in the TFC (blacknose dace, longnose dace, common shiner, slimy sculpin), excluding Atlantic salmon, all four of these fluvial species were in the same ranked order in the study samples. While the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it should be noted that the PS for just the 15 samples (Sample IDs 1249, 1808, 1821, 2050, 2165, 2993, 3176, 4089, 4090, 4684, 5025, 5178, 6239, 6278, 6552) collected in this West Branch Westfield River AU (MA32-01) was 67.97% similarity. Of note, slimy sculpins were collected in this CWF AU, although at a lower proportion than in the TFC model. MassDEP staff conducted benthic and/or water quality surveys at four locations up to downstream as follows (three upstream sites sampled in 2012 & the most downstream site sampled in 2017): ~7600 ft downstream of Town Hill Rd/Bancroft Rd, Middlefield/Becket (B0791/W2254); ~160 ft downstream from the Middlefield Rd bridge, Chester (W2415); north of Russell St, ~2500 ft upstream of Worthington Rd (Rt 112), Huntington (B0175/W2247); ~100 ft upstream from the Huntington WWTP discharge, Huntington (W2744). The July benthic samples had IBI scores of 64 at B0791 (most upstream site) and 49 at B0175 (3rd site), indicating satisfactory and moderately degraded conditions, respectively, for Western Highlands high gradient locations. Minimum dissolved oxygen (DO) was 6.7 mg/L during three short-term probe deployments at W2247 in summer 2012. Further downstream at W2744 minimum DO during 76-day deployment was 7.4 mg/L. Data from temperature probes deployed between 51 and 107 days in the summer index period (depending on the site) can be summarized as follows (up to downstream respectively at W2254 and W2247 June to mid-September 2012, and at W2744 end of July to mid-September 2017): maximum temperatures 26.1, 29.9, and 23.3 °C, maximum 7DADMs 24.6, 27.9, and 24.8 °C (exceeding 20.0 °C 77, 85, and 35 times), maximum 24-hour rolling averages all >23.5 °C at 23.9, 26.2, and 24.0 °C. Other data were generally indicative of good conditions: pH range 8.2 to 8.5 SU (n=3) at W2247, little indication of nutrient enrichment at W2247 (total phosphorus seasonal average 0.006 mg/L with n=5, maximum diel DO shift 2.3 mg/L, maximum DO saturation 113%, and only one observation of excessive filamentous algae from four site visits), no exceedances among three clean metals samples at W2247 or three aluminum samples at W2254 or W2247 (dissolved AI data were compared to the total recoverable AI criteria, so exceedances cannot be ruled out), maximum Total Ammonia Nitrogen (TAN) and chloride at W2247 0.020 and 18 mg/L, respectively (n= 5 each). The Aquatic Life Use of this West Branch Westfield River AU (MA32-01), a designated CWF, is assessed as Fully Supporting based on ~68% similarity to the TFC model, presence of slimy sculpin, and most water quality data indicative of good conditions. An Alert is being identified for temperature, but subwatershed development is low (95% natural/wetland landcover in subwatershed and 90% in proximal stream buffer; 1.7% impervious cover) and the southeasterly orientation of the river leaves it susceptible to solar radiation. Additional monitoring for temperature and benthic macroinvertebrate surveys will be recommended.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5025	MassDEP	Fish	West Branch	N of Russell St, 0.5mi US of Worthington Rd	42.23748	-72.88540
		Community	Westfield	(Rt 112)		
			River			
5178	MassDFG	Fish	West Branch	US of bridge on Middlefield Rd, Chester	42.30088	-72.98459
		Community	Westfield			
			River			
6239	MassDFG	Fish	West Branch	Birdge on middle on middlefield rd, Chester	42.30083	-72.98464
		Community	Westfield			
			River			
6278	MassDFG	Fish	West Branch	old Rt 20 US of bridge, Chester	42.25644	-72.93193
		Community	Westfield			
			River			

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
6552	MassDFG	Fish	West Branch	Bridge on Middlefield Rd, Chester	42.30088	-72.98455
		Community	Westfield			
			River			
8313	MassDFG	Fish	W. B.	US of bridge on middlefield Rd, Chester	42.30096	-72.98470
		Community	Westfiled			
			River			
B0175	MassDEP	Benthic	West Branch	[approximately 920 meters	42.237185	-72.887118
			Westfield	upstream/northwest from Route 112,		
			River/	Huntington, MA (approximately 25 meters		
				downstream/east from footbridge)]		
B0791	MassDEP	Benthic	West Branch	[approximately 2315 meters downstream of	42.305982	-73.011471
			Westfield	Town Hill Road/Bancroft Road,		
			River/	Middlefield/Becket, MA]		
W2247	MassDEP	Water	West Branch	[north of Russell Street, approximately 2500	42.237477	-72.885396
		Quality	Westfield	feet upstream of Worthington Road (Route		
			River	112), Huntington]		
W2254	MassDEP	Water	West Branch	[approximately 7600 feet downstream of	42.305982	-73.011471
		Quality	Westfield	Town Hill Road/Bancroft Road,		
			River	Middlefield/Becket]		
W2415	MassDEP	Water	West Branch	[approximately 160 feet downstream from	42.300076	-72.984393
		Quality	Westfield	the Middlefield Road bridge, Chester]		
			River			
W2744	MassDEP	Water	West Branch	[approximately 100 feet upstream from the	42.230959	-72.873900
		Quality	Westfield	Huntington WWTP discharge, Huntington]		
			River			

Biological Monitoring Information

Benthic Macroinvertebrate Data

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

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

Station	Collection	Collection		Organism	Index	Index Biological
Code	Date	Method	Index Type	Count	Score	Condition Class
B0175	07/17/12	RBP kicknet	Western_Highlands_100ct	96	49	MD
B0791	07/17/12	RBP kicknet	Western_Highlands_100ct	105	64	S

Fish Community Data and DELTS

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

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

[Species List: AE = American Eel, AS = Atlantic Salmon, BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, LC = Lake Chub, LND = Longnose Dace, P = Pumpkinseed, SC = Slimy Sculpin, TD = Tesselated Darter, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5025	08/28/12	BP	ТР	8	189	0	0	0	0	3	12%	100%	Yes	Yes	AS, BND, CRC, CS, LND, SC, TD, WS,
5178	09/17/14	BP	ТР	8	254	0	NA	NA	0	6	28%	100%	No	Yes	AS, BND, CRC, CS, LND, P, SC, WS,
6239	09/08/16	BP	ТР	8	684	0	NA	NA	0	8	11%	90%	Yes	Yes	AS, BND, CRC, CS, LC, LND, SC, WS,
6278	09/15/16	BP	ТР	10	751	0	NA	NA	0	2	3%	97%	Yes	Yes	AE, BND, BT, CRC, CS, LC, LND, SC, TD, WS,
6552	08/10/17	BP	ТР	7	754	0	NA	NA	0	7	12%	88%	Yes	Yes	BND, CRC, CS, LC, LND, SC, WS,
8313	09/19/19	BP	ТР	8	760	1	176	176	0	10	8%	93%	No	Yes	BND, CRC, CS, EBT, LC, LND, SC, WS,

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

Eighty-seven fish community samples were collected from 2005-2017 in the Westfield River (MA32-04, MA32-05) and its major tributaries (Middle Branch Westfield River MA32-65, MA32-03; West Branch Westfield River MA32-01). The overall percent similarity with the Westfield Target Fish Community was 75.39% (which would be slightly higher if Atlantic salmon, a stocked species, was removed from the analysis, as was done by DFG in their 2009 study). Of the 4 most common species in the TFC (blacknose dace, longnose dace, common shiner, slimy sculpin), excluding Atlantic salmon, all 4 of these fluvial specialist/dependent species were among the top 4 in the study samples, and in the same ranked order. While the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it should be noted that the percent similarity for just the fifteen samples (Sample IDs 1249, 1808, 1821, 2050, 2165, 2993, 3176, 4089, 4090, 4684, 5025, 5178, 6239, 6278, 6552) collected in the West Branch Westfield River (MA32-01) was 67.97% similarity. Of note, slimy sculpins were collected in this CWF AU, although at a lower proportion than in the TFC model. The comparison of overall fish community data with the Westfield TFC model should be considered a positive indicator in the final assessment of the Aquatic Life Use of this West Branch Westfield River AU (MA32-01).

Fish Community Samples in the West Branch Westfield River MA32-01. [To view locations of additional samples included in the Westfield TFC analysis that were located in other AUs, go to the sections for MA32-65, MA32-03, MA32-04, MA32-05]:



Westfield TFC Model:

Table A16. Species percent composition for reference rivers used to develop the Westfield 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).

							NB				
	Third Branch	Tenmile	Ashuelot	Ammonoosuc	Piscataquog	Cold	Sugar	North			Expected
Species	White River	River	River	River	River	River	River	River	Total	Rank	Proportion
Blacknose dace	25.0	14.9	19.8	24.1	22.5	53.8	6.9	38.4	205.4	1	32.4
Longnose dace	19.9	9.3	12.7	38.5	15.2	16.9	44.6	29.1	186.2	2	16.2
Common shiner	2.6	13.8	22.3	1.4	15.8	6.5	20.8	1.1	84.3	3	10.8
Atlantic salmon	0.0	0.0	2.2	24.1	3.4	6.5	0.0	15.1	51.3		
Slimy sculpin	33.1	0.0	0.0	6.0	0.0	2.7	0.0	8.9	50.6	5	6.5
Fallfish	0.0	18.7	26.8	0.0	2.8	0.0	1.0	0.3	49.5	6	5.4
White sucker	0.3	15.8	7.9	0.5	2.8	6.2	10.9	1.9	46.1	7	4.6
Smallmouth bass	0.0	12.2	1.3	0.0	12.0	0.4	0.0	0.0	25.9		
Longnose sucker	5.6	0.0	0.0	4.8	2.8	0.6	4.0	2.9	20.8	9	3.6
Tessellated darter	0.1	7.3	3.8	0.2	0.0	0.6	0.0	0.3	12.3	10	3.2
Creek chub	1.4	0.6	0.2	0.0	0.0	2.8	5.0	0.8	10.8	11	2.9
Brown trout	3.3	0.1	0.3	0.0	0.4	0.0	5.0	0.3	9.4		
Rainbow trout	7.5	0.1	0.0	0.0	0.2	0.2	0.0	0.2	8.1		
Brook trout	1.2	0.1	0.0	0.6	0.0	2.4	0.0	0.6	4.9	14	2.3
Cutlips minnow	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	4.6		
Yellow bullhead	0.0	0.0	1.0	0.0	3.0	0.0	0.0	0.0	4.0		
Redbreast sunfish	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	2.7	17	1.9
Pumpkinseed	0.0	0.6	0.3	0.0	1.4	0.1	0.0	0.0	2.4	18	1.8
American eel	0.0	0.0	0.2	0.0	1.4	0.0	0.0	0.0	1.6	19	1.7
Largemouth bass	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	1.4		
Bluegill	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.3		
Spottail shiner	0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.8	22	1.5
Golden shiner	0.0	0.3	0.0	0.0	0.5	0.0	0.0	0.0	0.8	22	1.5
Brown bullhead	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.2	0.6	23	1.4
Bluntnose minnow	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4		
Rock bass	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.4		
Chain pickerel	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.3	26	1.2
Yellow perch	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	26	1.2

Fish Community Analysis:

Combined analysis of samples from all 5 AUs (MA32-65, MA32-03, MA32-01, MA32-04, MA32-05)

		Values						
		# of	% of	Applicable	TFC	% Sim to		
Watershed 🚽 🚽	🚺 Common Name 🛛 🛃	Fish	catch	TFC	Difference	TFC	Rov Labels 🛛 🕂	
Westfield	American Brook Lamprey	,	0.00%	-	-		🗏 Westfield	
Westfield	American Eel	148	0.43%	1.7	1.3		1224	4681
Westfield	Atlantic Salmon	2150	6.23%	-	6.2		1245	4682
Westfield	Banded Killifish	1	0.00%	-	0.0		1248	4683
Westfield	Banded Sunfish		0.00%	-	-		1249	4684
Westfield	Black Crappie		0.00%	-	-		1319	5018
Westfield	Blacknose Dace	13706	39.71%	32.4	7.3		1808	5025
Westfield	Bluegill	15	0.04%	-	0.0		1815	5025
Westfield	Bluntnose Minnow	1	0.00%	-	0.0		1816	5020
Westfield	Bridle Shiner		0.00%	-	-		1821	5105
Westfield	Brook Trout	399	1.16%	2.3	1.1		1828	5164
Westfield	Brown Bullhead		0.00%	1.4	1.4		1829	5165
Westfield	Brown Trout	18	0.05%	-	0.1		2044	5103
Westfield	Central Mudminnow		0.00%	-	-		2045	5178
Westfield	Chain Pickerel		0.00%	1.2	1.2		2047	5429
Westfield	Channel Catfish		0.00%	-	-		2048	5686
Westfield	Common Carp		0.00%	-	-		2050	5687
Westfield	Common Shiner	3825	11.08%	10.8	0.3		2062	5719
Westfield	Creek Chub	431	1.25%	2.9	1.7		2165	5721
Westfield	Creek Chubsucker		0.00%	-	-		2346	6028
Westfield	Cutlips Minnow		0.00%	-	-		2425	6020
Westfield	Fallfish	137	0.40%	5.4	5.0		2477	6068
Westfield	Fathead Minnow		0.00%	-	-		2480	6069
Westfield	Golden Shiner	12	0.03%	1.5	1.5		2481	6218
Westfield	Green Sunfish		0.00%	-	-		2482	6229
Westfield	Lake Chub	433	1.25%	-	1.3		2483	6239
Westfield	Largemouth Bass	7	0.02%	-	0.0		2569	6266
Westfield	Longnose Dace	6229	18.05%	16.2	1.8		2976	6267
Westfield	Longnose Sucker		0.00%	3.6	3.6		2977	6268
Westfield	Northern Pike		0.00%	-	-		2989	6277
Westfield	Pumpkinseed	24	0.07%	1.8	1.7		2990	6278
Westfield	Rainbow Trout	22	0.06%	-	0.1		2991	6385
Westfield	Redbreast Sunfish		0.00%	1.9	1.9		2993	6462
Westfield	Redfin Pickerel		0.00%	-	-		3176	6552
Westfield	Rock Bass	46	0.13%	-	0.1		3210	6629
Westfield	Sea Lamprey		0.00%	-	-		3211	6674
Westfield	Slimy Sculpin	3803	11.02%	6.5	4.5		3228	6694
Westfield	Smallmouth Bass	513	1.49%	-	1.5		3229	6695
Westfield	Spottail Shiner	1	0.00%	1.5	1.5		3230	6696
Westfield	Swamp Darter		0.00%	-	-		3618	7072
Westfield	Tadpole Madtom		0.00%	-	-		3619	
Westfield	Tesselated Darter	205	0.59%	-	0.6		3626	
Westfield	White Catfish		0.00%	-	-		4088	
Westfield	White Perch		0.00%	-	-		4089	
Westfield	White Sucker	2376	6.88%	4.6	2.3		4090	
Westfield	Yellow Bullhead	15	0.04%	-	0.0		4093	
Westfield	Yellow Perch	2	0.01%	1.2	1.2		4094	
Westfield	(blank)		0.00%	-	-	75.39	4096	
Grand Total		34519	*****	-	100.0		4097	

Analysis of the West Branch Westfield River (MA32-01) samples alone

		Values						
		# of	% of	Applicable	TFC	% Sim to	Row Labels 🕂	
Watershed	🖃 🛨 Common Name 🛛 🛃	Fish	catch	TFC	Difference	TFC	🗏 🛛 🖶 🖶	
🗏 🖶 Westfield	American Brook Lamprey)	0.00%	-	-		1224	4681
Westfield	American Eel	3	0.04%	1.7	1.7		1245	4682
Westfield	Atlantic Salmon	763	10.15%	-	10.1		1248	4683
Westfield	Banded Killifish		0.00%	-	-		1249	4684
Westfield	Banded Sunfish		0.00%	-	-		1319	5018
Westfield	Black Crappie		0.00%		-		1808	5025
Westfield	Blacknose Dace	3093	41.13%	32.4	8.7		1815	5026
Westfield	Bluegill		0.00%	-	-		1816	5040
Westfield	Bluntnose Minnow		0.00%	-	-		1821	5105
Westfield	Bridle Shiner		0.00%	-	-		1828	5164
Westfield	Brook Irout	2	0.03%	2.3	2.3		1829	5177
Westfield	Brown Bullhead	_	0.00%	1.4	1.4		2044	5178
Westheld	Brown Irout	(0.09%	-	0.1		2045	5429
Westheld	Central Mudminnow		0.00%				2047	5686
Westheld	Chain Pickerel		0.00%	1.2	1.2		2048	5687
Westfield	Channel Lattish		0.00%	-	-		2050	5719
Westheld	Common Carp	1005	10.00%	10.0	- 74		2062	5721
Westfield	Conmon Shiner	1305	10, 15%	10.0	(.4		2165	6028
Westfield	Creek Chub	13	0.37%	2.5	1.5		2346	6029
Westrield	Creek Chubsucker		0.00%	-	-		2420	6068
Westfield	E alleala		0.00%	-	-		2477	6063
Westfield	Fallsond Mission		0.00%	5.4	0.4		2400	6210
Westfield	Caldas Shiper	10	0.00%	15	14		2401	6239
Westfield	Groop Supfish	10	0.13/.				2402	6266
Westfield	Lake Chub	245	3.26%		33		2403	6267
Westfield	Largemouth Bass	240	0.00%	_			2303	6268
Westfield		1376	18 30%	16.2	21		2977	6277
Westfield	Longnose Sucker	1010	0.00%	3.6	36		2989	6278
Westfield	Northern Pike		0.00%				2990	6385
Westfield	Pumpkinseed	2	0.03%	18	18		2991	6462
Westfield	Bainbow Trout	8	0.11%		01		2993	6552
Westfield	Bedbreast Supfish		0.00%	19	19		3176	6629
Westfield	Bedfin Pickerel		0.00%	-	-		3210	6674
Westfield	Rock Bass		0.00%	-	-		3211	6695
Westfield	Sea Lamprey		0.00%	-	-		3228	6696
Westfield	Slimy Sculpin	91	1.21/	6.5	5.3		3229	7072
Westfield	Smallmouth Bass	4	0.05%	-	0.1		3230	
Westfield	Spottail Shiner	1	0.01%	1.5	1.5		3618	
Westfield	Swamp Darter		0.00%	-	-		3619	
Westfield	Tadpole Madtom		0.00%	-	-		3626	
Westfield	Tesselated Darter	36	0.48%	-	0.5		4088	
Westfield	White Catfish		0.00%	-	-		4089	
Westfield	White Perch		0.00%	-	-		4090	
Westfield	White Sucker	441	5.86%	4.6	1.3		4093	
Westfield	Yellow Bullhead		0.00%	-	-		4094	
Westfield	Yellow Perch		0.00%	1.2	1.2		4096	
Westfield	(blank)		0.00%	-	-	67.97	4097	
Grand Total		7520	100.00%	-	100.0			•

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2744	07/27/17	10/10/17	76	70	47	7.4	7.8	8.5	2.2	0	0	0	0	0	0	0	0

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

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

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2247	2012	3	12	6.7	7.3	8.2	2.3	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2247	05/16/12	09/24/12	3	8.7	9.5	0	0	0
W2744	08/31/17	10/11/17	2	9.5	9.7	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2247	06/20/12	09/15/12	88	85	25.9	29.9	27.9	24.8	85	20	67	13	3	0
W2254	06/01/12	09/15/12	107	107	23.9	26.1	24.6	22.5	77	1	18	0	0	0
W2744	07/27/17	09/15/17	51	48	23.3	26.5	24.8	22.0	35	0	18	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Dense/V.

Dense

Film/Fila.

Algae

1

0

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
W2247	2012	3	12	23.1	26.9	25.9	22.4	3	0	2	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2247	06/19/12	09/15/12	88	4195	26.2	1049	580	0
W2247	06/14/12	08/21/12	68	578	23.6	1	0	0
W2254	06/01/12	09/15/12	107	5136	23.9	63	0	0
W2744	07/26/17	09/15/17	52	2428	24.0	30	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2247	05/16/12	09/24/12	6	4	26.6	19.0	2	2	0	0
W2254	05/16/12	10/24/12	2	0	13.3	11.8	0	0	0	0
W2744	08/31/17	10/11/17	2	1	19.6	18.6	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2247	05/16/12	09/24/12	3	8.2	8.5	1	0
W2744	08/31/17	10/11/17	1	8	8	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept] Delta Delta DO DO DO Sat pН Count Seasonal Seasonal Seasonal Seasonal Station Data TP TP Min **TP Max** TP Avg Max Avg Max Max Algal Code Year Count (%) (SU) Obsv. (mg/L) (mg/L) (mg/L) (mg/L) (mg/L) W2247 2012 5 0.005 0.010 0.006 2.3 1.7 112.8 8.5 4 W2254 2012 1 0.01 0.010 0.010 ------1 ----

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
W2415	2012	1	0.005	0.005	0.005					1	0
W2744	2017					2.2	1.5	106.1	8.0		

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CMC	Cd CMC	Cr III CMC	Cu CMC	Pb CMC	Ni CMC	Ag CMC	Zn CMC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2247	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CCC	Cd CCC	Cr III CCC	Cu CCC	Pb CCC	Ni CCC	Se CCC	Zn CCC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2247	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Dissolved Al Count	Al Min (mg/L)	Al Max (mg/L)	Al Avg (mg/L)	Al CMC TU Max	Al CCC TU Max	AI CMC TU >1	Al CCC TU >1
W2247	2012	3	0.010	0.011	0.010	0.0	0.1	0	0
W2254	2012	3	0.010	0.016	0.012	0.1	0.1	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[TAN= NH3 + NH4+]

Station	Data	TAN	TAN Min	TAN Max	TAN Avg	Count TAN	Count TAN
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	>Chronic	>Acute
W2247	2012	5	0.020	0.020	0.020	0	0
W2254	2012	1	0.020	0.020	0.020	0	0
W2415	2012	1	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860

W2254	2012	1	6	6	6	0	0
W2415	2012	1	14	14	14	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2247	05/16/12	09/24/12	3	98	129	0	0	0	0	0	0
W2744	08/31/17	10/11/17	2	152	166	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert					
Not Assessed	NO					
2022 Use Attainment Summary						

No recent fish toxics sampling has been conducted in this West Branch Westfield River AU (MA32-01), and since no site-specific advisory has been issued, the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert						
Fully Supporting	NO						
2022 Use Attainment Summary							
MassDEP staff conducted water quality surveys at three stations (two of these with very limited data) on	this West						
Branch Westfield River AU (MA32-01) during the summer of 2012. These stations are described from upstream to							
downstream as follows: approximately 7600 feet downstream of Town Hill Road/Bancroft Road in Middlefield/Becket							
(W2254, n=1), approximately 160 feet downstream from the Middlefield Road bridge in Chester (W2415, n=1), and north							
of Russell Street, approximately 2500 feet upstream of Worthington Road (Route 112) in Huntington (W2247, n=7).							
There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by field							
sampling crews.							
The Aasthatics Lies for this West Branch Westfield Diver ALL (NAA22,01) will continue to be assessed as Eu	lly Supporting						

The Aesthetics Use for this West Branch Westfield River AU (MA32-01) will continue to be assessed as Fully Supporting based on the lack of objectionable conditions observed in the river during the summer of 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2247	MassDEP	Water	West Branch	[north of Russell Street, approximately 2500 feet	42.237477	-72.885396
		Quality	Westfield	upstream of Worthington Road (Route 112),		
			River	Huntington]		
W2254	MassDEP	Water	West Branch	[approximately 7600 feet downstream of Town Hill	42.305982	-73.011471
		Quality	Westfield	Road/Bancroft Road, Middlefield/Becket]		
			River			
W2415	MassDEP	Water	West Branch	[approximately 160 feet downstream from the	42.300076	-72.984393
		Quality	Westfield	Middlefield Road bridge, Chester]		
			River			

Aesthetic Observations

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

Station		Data	Field Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W2247	West Branch Westfield River	2012	7	MassDEP aesthetics observations for station W2247/MAP2-168 on West Branch Westfield 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.
W2254	West Branch Westfield River	2012	1	MassDEP aesthetics observations for station W2254 on West Branch Westfield 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. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=1).
W2415	West Branch Westfield River	2012	1	MassDEP aesthetics observations for station W2415 on West Branch Westfield 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. However, there is insufficient information to assess the Aesthetics Use since data were limited (n=1).

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

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2247	2012	7	4	1
W2254	2012	1	1	0
W2415	2012	1	1	0

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

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2247	West Branch Westfield River	2012	Color	Light Yellow/Tan	2	7
W2247	West Branch Westfield River	2012	Color	None	5	7
W2247	West Branch Westfield River	2012	Objectionable Deposits	No	6	7
W2247	West Branch Westfield River	2012	Objectionable Deposits	Yes	1	7
W2247	West Branch Westfield River	2012	Odor	None	5	7
W2247	West Branch Westfield River	2012	Odor	Other	2	7
W2247	West Branch Westfield River	2012	Scum	No	6	7
Station		Data			Result	Total Field
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Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2247	West Branch	2012	Scum	Yes	1	7
	Westfield River					
W2247	West Branch	2012	Turbidity	Moderately Turbid	1	7
	Westfield River					
W2247	West Branch	2012	Turbidity	None	5	7
	Westfield River					
W2247	West Branch	2012	Turbidity	Slightly Turbid	1	7
	Westfield River					
W2254	West Branch	2012	Color	Light Yellow/Tan	1	1
	Westfield River					
W2254	West Branch	2012	Objectionable Deposits	No	1	1
	Westfield River					
W2254	West Branch	2012	Odor	None	1	1
	Westfield River					
W2254	West Branch	2012	Scum	No	1	1
	Westfield River					
W2254	West Branch	2012	Turbidity	None	1	1
	Westfield River					
W2415	West Branch	2012	Color	None	1	1
	Westfield River					
W2415	West Branch	2012	Objectionable Deposits	No	1	1
	Westfield River					
W2415	West Branch	2012	Odor	None	1	1
	Westfield River					
W2415	West Branch	2012	Scum	No	1	1
	Westfield River					
W2415	West Branch	2012	Turbidity	None	1	1
	Westfield River					

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	
MassDEP staff conducted water quality surveys at two stations (one of these with very limited data) on the	nis West Branch
Westfield River AU (MA32-01) during the summer of 2012. These stations are described from upstream to	o downstream
as follows: approximately 7600 feet downstream of Town Hill Road/Bancroft Road in Middlefield/Becket	(W2254), and
north of Russell Street, approximately 2500 feet upstream of Worthington Road (Route 112) in Huntingto	n (W2247). <i>E.</i>
coli bacteria samples were collected at both stations, but the data from the upstream station were too lin	nited to analyze
(n=1). Analysis of the limited frequency single year dataset from W2247 (n=6) indicated that 50% of the in	ntervals had
GMs exceeding 126 CFU/100mL and one sample exceeded the 410 CFU/100mL STV. The seasonal GM wa	s 86
CFU/100mL. There were generally no noted objectionable conditions (odors, deposits, growths, or turbid	ity) recorded by
field sampling crews at either station (n=1 for W2254; n=7 for W2247).	
The Primary Contact Recreational Use for this West Branch Westfield River AU (MA32-01) will continue to	be assessed as

Fully Supporting based primarily on the *E. coli* bacteria data from summer 2012, as well as the lack of objectionable conditions observed in the river.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2247	MassDEP	Water	West Branch	[north of Russell Street, approximately 2500 feet	42.237477	-72.885396
		Quality	Westfield	upstream of Worthington Road (Route 112),		
			River	Huntington]		
W2254	MassDEP	Water	West Branch	[approximately 7600 feet downstream of Town Hill	42.305982	-73.011471
		Quality	Westfield	Road/Bancroft Road, Middlefield/Becket]		
			River			

Bacteria Data

Bacteria Data Collected by MassDEP and External Data Providers 2011-2020 (30-day Interval Analysis) (MassDEP Undated 8) (MassDEP Undated 6)

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

						Minimum	Maximum	Seasonal
					Sample	Sample	Sample	Geometric
Station Code	Organization	Indicator	Start Date	End Date	Count	Result	Result	Mean
W2247	MassDEP	E. coli	05/16/12	09/20/12	6	16	1200	86
W2254	MassDEP	E. coli	05/16/12	05/16/12	1	23	23	23

W2247 E. coli (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	86
#GMI	4
#GMI Ex	2
%GMI Ex	50
n>STV	1
%n>STV	17

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



W2254 E. coli (30-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	1
SeasGM	23
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

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



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted water quality surveys at two stations (one of these with very limited data) on this West Branch Westfield River AU (MA32-01) during the summer of 2012. These stations are described from upstream to downstream as follows: approximately 7600 feet downstream of Town Hill Road/Bancroft Road in Middlefield/Becket (W2254), and north of Russell Street, approximately 2500 feet upstream of Worthington Road (Route 112) in Huntington (W2247). *E. coli* bacteria samples were collected at both stations, but the data from the upstream station were too limited to analyze (n=1). Analysis of the limited frequency single year dataset from W2247 (n=6) indicated that none of the intervals had GMs exceeding 630 CFU/100mL and no samples exceeded the 1260 CFU/100mL STV. The overall GM was 86 CFU/100mL. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by field sampling crews at either station (n=1 for W2254; n=7 for W2247).

The Secondary Contact Recreational Use for this West Branch Westfield River AU (MA32-01) will continue to be assessed as Fully Supporting based primarily on the *E. coli* bacteria data from summer 2012, as well as the lack of objectionable conditions observed in the river.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2247	MassDEP	Water	West Branch	[north of Russell Street, approximately 2500 feet	42.237477	-72.885396
		Quality	Westfield	upstream of Worthington Road (Route 112),		
			River	Huntington]		
W2254	MassDEP	Water	West Branch	[approximately 7600 feet downstream of Town Hill	42.305982	-73.011471
		Quality	Westfield	Road/Bancroft Road, Middlefield/Becket]		
			River			

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
						Sample	Sample	Geometric
						Result	Result	Mean
						(CFU/100ml	(CFU/100ml	(CFU/100ml
					Sample	or	or	or
Station Code	Organization	Indicator	Start Date	End Date	Count	MPN/100ml)	MPN/100ml)	MPN/100ml)
W2247	MassDEP	E. coli	05/16/12	09/20/12	6	16	1200	86
W2254	MassDEP	E. coli	05/16/12	05/16/12	1	23	23	23

W2247 E. coli (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	86
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

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



W2254 E. coli (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	1
SeasGM	23
#GMI	0
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

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



0.87

2.2%

6.8%

87.3%

3.6%

West Falls Branch (MA32-13)

Location:	Headwaters (perennial portion), at confluence with Bronson Brook, northeast at the intersection of Dingle Road and Route 143, Worthington to mouth at confluence with Westfield River near the village of West Chesterfield, Chesterfield. (formerly identified by the Massachusetts Stream Classification Program as West Branch)
AU Type:	RIVER
AU Size: Classification/Qualifier:	2.9 MILES B: CWF

West Falls Branch - MA32-13



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

2018/20 Removed		
Impairment	Removal Reason	Removal Comment
Temperature	Removal Reason Applicable WQS attained; based on new data	Removal Comment Temperature was first listed as an impairment for West Falls Branch (MA32-13), a designated Cold Water Fishery (CWF), in the 2016 IR reporting cycle based on violations of the CWF temperature criteria thresholds with long-term temperature data collected near the mouth of West Falls Branch (one site W0271) during summer 2006. Most recent sampling data includes better spatial coverage with stations/sampling years from up to downstream as follows: adjacent to Rt 143 pullout and ~0.4 mi west of Thayer Hill Rd intersection, Worthington (W2745 in 2017), adjacent to Rt 143 pullout and ~0.8 mi west of the Ireland St intersection, Chesterfield (W2952 in 2017), ~225 ft upstream of Rt 143, Chesterfield (W0271 in 2017), which was the same site sampled in 2006). None of the three sites surveyed in summer 2017 had any 7DADMs >20.0 °C (the 3rd most downstream station (W2246) had a maximum 7DADM of 21.3 °C during summer 2012 and exceeded 20.0 °C 16 times). The maximum 24-hr rolling average temperature among all stations/years, 2012 through 2017, was 21.1 °C so there were no acute threshold exceedances. Since the most recent (summer 2017) data collected at three sites along West Falls Branch (MA32-13), including the original location where temperature problems were first identified, meet water quality standards/thresholds described in the CALM use attainment guidance for a CWF, the Temperature impairment is being removed. It is also noted that the land use percentage thresholds described in the 2022 CALM guidance for natural conditions are also being met (subwatershed 88% natural/wetland, proximal stream buffer 90.9% natural/wetland, and impervious cover 1.7%) and there are no dams, water withdrawals, or discharges in this subwatershed or
		along the stream.

Supporting Information for Removed Impairments

Temperature

Data used for the original listing was summer 2006 continuous temperature data (probe deployment 7/21/2006 to 10/2/2006) (MassDEP Undated 7):

Temp	Temperature Long-term Deploy (Data Source: 8)															
											Days					
										Inde	CWF	Days	Days	Maxim		
										x	Tier 1	Tier 2	WWF	um	Maxim	
										Peri	Chro	Chro	Chro	Daily	um	Violat
								Maxim	Maxim	od	nic	nic	nic	Mean	Daily	es
Segm		Waters	Cla	Qualif	OWM	Unique		um7-	um7-	Day	Violat	Violat	Violat	(Acute	Maxim	Criter
ent ID	Waterbody	hed	55	ier	ID	ID	Date	DADM	DADA	5	ed	ed	ed)	um	ia
MA32-	WEST	Westfiel			32-		07/21/									5
13	BRANCH	d	в	CWF	0430	W0271	06	22.0	20.7	71	13	0	0	22.1	23.4	CW1/

Tempe	Temperature 24hr Rolling Average (Data Source: 8)														
Segmen	Segmen Watershe Clas Qualifie OWMI Unique Result Max 24hr														
t ID	Waterbody d s r D ID Start Stop Count Rolling														
MA32-	WEST				32-		7/21/2006 2:45:00	10/2/2006 10:45:00							
13	BRANCH	Westfield	В	CWF	0430	W0271	PM	AM	6897	22.2					

Recent deployed probe data summaries at four sampling locations (summer 2012 one site and summer 2017 three sites including original site W0271 Ireland Street bridge, Chesterfield that was site sampled in 2006):

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W0271	07/20/17	09/15/17	58	55	19.4	20.8	18.6	17.5	0	0	0	0	0	0
W2246	06/01/12	09/15/12	107	107	21.1	22.5	21.3	19.9	16	0	0	0	0	0
W2745	07/20/17	09/15/17	58	55	17.9	20.2	18.0	16.6	0	0	0	0	0	0
W2952	07/20/17	09/15/17	58	55	19.0	20.6	18.6	17.3	0	0	0	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2246	2012	3	12	18.9	20.5	19.7	17.9	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W0271	07/19/17	09/15/17	58	2756	19.5	0	0	0
W2246	06/01/12	09/15/12	107	5136	21.1	0	0	0
W2246	06/14/12	08/21/12	68	576	19.5	0	0	0
W2745	07/19/17	09/15/17	58	2758	18.3	0	0	0
W2952	07/19/17	09/15/17	58	2757	19.2	0	0	0

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

Multiple fish surveys were conducted by MassDEP and MassDFG biologists in West Falls Branch, a designated Cold Water Fishery (CWF), during July, August, or September most summers from 2012 through 2019. MassDEP water quality (WQ) surveys were conducted in summers 2012 and 2017. Stations from up to downstream are as follows: MassDFG fish sample off Rt 143 and Capen St, Worthington (Sample 6617 August 2017); MassDEP WQ site adjacent to Rt 143 pullout and ~0.4 mi west of Thayer Hill Rd intersection, Worthington (W2745 in 2017); a cluster of MassDFG fish samples across from Thayer Hill Rd (Samples 5150, 5665, 6616, 8239 in August 2014/July 2015/August 2017/August 2019, respectively); MassDEP WQ site adjacent to Rt 143 pullout and ~0.8 mi west of the Ireland St intersection, Chesterfield (W2952 in 2017); MassDEP fish/benthic/WQ surveys (5047/B0784/W2246) ~225 ft upstream of Rt 143, Chesterfield (2012); MassDFG fish sample downstream of Main Rd (Rt 143) crossing, Chesterfield (Sample 7574 in August 2018); MassDEP WQ site at Ireland Street bridge, Chesterfield (W0271 in 2017). Backpack electrofishing samples (n= 28-236) were comprised entirely of fluvial fish, two of which contained slimy sculpin, and all included multiple age classes of Eastern brook trout. The benthic sample (B0784), which was collected in the middle of the AU, had an IBI score of 55, indicating satisfactory conditions for a high gradient stream in the Western Highlands region. Dissolved oxygen (DO) was measured as discrete, short-term continuous (n= 12 days), and long-term continuous (n=76 days) datasets with a minimum DO concentration of 8.5 mg/L. Deployed probes were used to record continuous temperature measurements during the summer index period (n= 58-107 days) at all four WQ stations. None of the three sites surveyed in summer 2017 had any 7DADMs >20.0 °C, but the 3rd most downstream station ~225 ft upstream of the Rt 143 crossing, Chesterfield (W2246) had 16 elevated 7DADMs (maximum 7DADM 21.3 °C) during summer 2012. The maximum 24-hr rolling average temperature, among all stations, was 21.1 °C. pH was only measured at W2246 and ranged from 7.4-7.9 S.U. (n=3). The little enrichment-related data that was available did not indicate problems with nutrient enrichment (low total phosphorus seasonal average concentration at W2246 was 0.005 mg/L with n=5; no observations of excessive filamentous algae during six site visits, the maximum diel DO shifts at the two downstream stations were both 1.2 mg/L, and the maximum DO saturation from three of the stations was 106%). There were no exceedances among three clean metals and aluminum samples (because dissolved AI data were compared to the total recoverable AI criteria, exceedances cannot be ruled out, however), or five Total Ammonia Nitrogen samples (maximum 0.020 mg/L) from station W2246. Chloride, also collected at W2246, was very low (maximum 8 mg/L, n=5), and specific conductance measurements from three of the stations were similarly low (maximum 104 μ s/cm). The Aquatic Life Use of West Falls Branch (MA32-13) is assessed as Fully Supporting based on the biological benthic and fish) and water quality survey data collected between the summers of 2012 and 2019. The Temperature impairment

being removed (see additional details in removal comment justification).

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5047	MassDEP	Fish	West Branch	225ft US of Main Rd (Rt 143) xing. [DEP	42.40624	-72.88766
		Community	Brook	water body name is West Falls Branch]		
5150	MassDFG	Fish	West Branch	Off Rt 143 access from Thayer Hill Rd,	42.41373	-72.90308
		Community	Brook	Worthington. [DEP water body name is		
				West Falls Branch]		
5665	MassDFG	Fish	West Branch	Rt 143 above falls, across from Thayer Hill	42.41376	-72.90377
		Community	Brook	Rd, Worthington. [DEP water body name is		
				West Falls Branch]		
6616	MassDFG	Fish	West Branch	Off 143, Worthington. [DEP water body	42.41381	-72.90358
		Community	Brook	name is West Falls Branch]		
6617	MassDFG	Fish	West Falls	143 and Capin Rd, Worthington	42.41780	-72.91456
		Community	Branch			
7574	MassDFG	Fish	West Branch	Downstream of Main Rd. crossing,	42.40488	-72.88691
		Community	Brook	Chesterfield. [DEP water body name is West		
				Falls Branch]		
8239	MassDFG	Fish	West Branch	Turnout on 143 above falls , Worthington.	42.41362	-72.90364
		Community	brook	[DEP water body name is West Falls Branch]		
B0784	MassDEP	Benthic	West	[approximately 70 meters upstream of Main	42.406243	-72.887665
			Branch/	Road (Route 143), Chesterfield, MA]		
W0271	MassDEP	Water	West Branch	[(a.k.a. West Falls Branch) Ireland Street	42.400926	-72.876264
		Quality		bridge, Chesterfield]		
W2246	MassDEP	Water	West Branch	[(a.k.a. West Falls Branch) approximately	42.406243	-72.887665
		Quality		225 feet upstream of Main Road (Route		
				143), Chesterfield]		
W2745	MassDEP	Water	West Branch	[(a.k.a. West Falls Branch) adjacent to pull-	42.415943	-72.909979
		Quality		off on Route 143, approximately 0.4 miles		
				west of the Thayer Hill Road intersection,		
				Worthington]		
W2952	MassDEP	Water	West Branch	[(a.k.a. West Falls Branch) adjacent to pull-	42.407952	-72.888687
		Quality		off on Route 143, approximately 0.8 miles		
				west of the Ireland Street intersection,		
				Chesterfield]		

Biological Monitoring Information

Benthic Macroinvertebrate Data

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

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

Station	Collection	Collection		Organism	Index	Index Biological
Code	Date	Method	Index Type	Count	Score	Condition Class
B0784	07/19/12	RBP kicknet	Western_Highlands_100ct	95	55	S

Fish Community Data and DELTS

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

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

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

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5047	09/25/12	BP	ТР	5	147	22	57	214	18	96	83%	100%	No	Yes	AS, BND, EBT, LND, SC,
5150	08/07/14	BP	TP	3	154	64	58	178	48	0	48%	100%	No	Yes	AS, BND, EBT,
5665	07/29/15	BP	TP	2	103	75	44	175	65	0	73%	100%	No	Yes	BND, EBT,
6616	08/09/17	BP	TP	2	63	30	67	215	19	0	48%	100%	Yes	Yes	BND, EBT,
6617	08/09/17	BP	TP	2	105	71	42	166	62	0	68%	100%	No	Yes	BND, EBT,
7574	08/07/18	BP	TP	4	28	13	64	175	8	8	79%	100%	Yes	Yes	BND, BT, EBT, SC,
8239	08/19/19	BP	TP	3	236	85	56	228	64	0	36%	100%	No	Yes	BND, CRC, EBT,

Physico-chemical Water Quality Information

DO, pH, Temperature

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

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W0271	07/20/17	10/03/17	76	70	47	8.6	8.9	9.3	1.2	0	0	0	0	0	0	0	0

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

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

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2246	2012	3	12	8.5	8.7	9.2	1.2	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

Station			DO	DO Min	DO	Count	Count WW	Count WW
Station			00	DO IVIIII	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W0271	08/30/17	10/04/17	2	11.3	11.3	0	0	0
W2246	05/16/12	09/20/12	3	9.2	9.9	0	0	0
W2745	08/30/17	10/04/17	2	11.1	11.4	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W0271	07/20/17	09/15/17	58	55	19.4	20.8	18.6	17.5	0	0	0	0	0	0
W2246	06/01/12	09/15/12	107	107	21.1	22.5	21.3	19.9	16	0	0	0	0	0
W2745	07/20/17	09/15/17	58	55	17.9	20.2	18.0	16.6	0	0	0	0	0	0
W2952	07/20/17	09/15/17	58	55	19.0	20.6	18.6	17.3	0	0	0	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2246	2012	3	12	18.9	20.5	19.7	17.9	0	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Count Days Deployed	24hr Rolling Count	Max 24hr Avg Rolling Temp (°C)	Count CWTier1 24hr Avg Rolling >23.5 °C	Count CWTier2 24hr Avg Rolling >24.1 °C	Count WW 24hr Avg Rolling >28.3°C
W0271	07/19/17	09/15/17	58	2756	19.5	0	0	0
W2246	06/01/12	09/15/12	107	5136	21.1	0	0	0
W2246	06/14/12	08/21/12	68	576	19.5	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
W2745	07/19/17	09/15/17	58	2758	18.3	0	0	0
W2952	07/19/17	09/15/17	58	2757	19.2	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W0271	08/30/17	10/04/17	2	1	11.0	10.3	0	0	0	0
W2246	05/16/12	09/20/12	4	2	18.8	13.8	0	0	0	0
W2745	08/30/17	10/04/17	2	1	9.9	9.8	0	0	0	0
W2952	08/28/17	10/02/17	2	1	14.0	12.5	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2246	05/16/12	09/20/12	3	7.4	7.9	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

Station	Data	Seasonal TP	Seasonal TP Min	Seasonal TP Max	Seasonal TP Avg	Delta DO Max	Delta DO Avg	DO Sat Max	рН Мах	Count Algal	Dense/V. Dense Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W0271	2017					1.2	0.8	103.0			
W2246	2012	5	0.005	0.005	0.005	1.2	0.9	106.4	7.9	6	0
W2745	2017							104.9			

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CMC	Cd CMC	Cr III CMC	Cu CMC	Pb CMC	Ni CMC	Ag CMC	Zn CMC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2246	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Metals	As CCC	Cd CCC	Cr III CCC	Cu CCC	Pb CCC	Ni CCC	Se CCC	Zn CCC
Code	Year	Count	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1	TU >1
W2246	2012	3	0	0	0	0	0	0	0	0

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station	Data	Dissolved	Al Min	Al Max	Al Avg	AI CMC	AI CCC	AI CMC	AI CCC
Code	Year	Al Count	(mg/L)	(mg/L)	(mg/L)	TU Max	TU Max	TU >1	TU >1
W2246	2012	3	0.010	0.011	0.010	0.0	0.1	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [TAN= NH3 + NH4+]

Station	Data	TAN	TAN Min	TAN Max	TAN Avg	Count TAN	Count TAN
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	>Chronic	>Acute
W2246	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
W2246	2012	5	5	8	7	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W0271	08/30/17	10/04/17	2	99	104	0	0	0	0	0	0
W2246	05/16/12	09/20/12	3	70	84	0	0	0	0	0	0
W2745	08/30/17	10/04/17	2	96	104	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert						
Not Assessed	NO						
2022 Use Attainment Summary							
Fish toxics sampling has not been conducted in West Falls Branch (MA32-13), so the Fish Consumption Use is Not							
Assessed.							

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP staff conducted field surveys (n=6) of West Falls Branch (MA32-13) ~225 feet upstream of Main Road (Route 143) in Chesterfield (W2246/MAP2-167) during summer 2012. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded.

The Aesthetics Use of West Falls Branch (MA32-13) is assessed as Fully Supporting based on the lack of aesthetically objectionable conditions during summer 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2246	MassDEP	Water	West Branch	[(a.k.a. West Falls Branch) approximately 225 feet	42.406243	-72.887665
		Quality		upstream of Main Road (Route 143), Chesterfield]		

Aesthetic Observations

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

			Field	
Station		Data	Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W2246	West Branch	2012	6	MassDEP aesthetics observations for station W2246/MAP2-167 on West
				Branch can be summarized as follows: there were generally no noted
				objectionable conditions (odors, deposits, growths, or turbidity) recorded
				by DEP field sampling crews during summer 2012.

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

			Field Sheet Count w/ Film &	
Station			Filamentous Algae	Dense/ Very Dense
Code	Data Year	Field Sheet Count	Observations	Film/ Filamentous Algae
W2246	2012	6	6	0

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

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2246	West Branch	2012	Color	None	6	6
W2246	West Branch	2012	Objectionable Deposits	No	6	6
W2246	West Branch	2012	Odor	None	6	6
W2246	West Branch	2012	Scum	No	6	6
W2246	West Branch	2012	Turbidity	None	6	6

Primary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted field surveys (n=6) of West Falls Branch (MA32-13) ~225 feet upstream of Main Road (Route 143) in Chesterfield (W2246/MAP2-167) during summer 2012. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded. *E. coli* bacteria samples were collected during all the site visits. Analysis of this low frequency data indicated that none of the intervals had GMs exceeding 126 cfu/100mL and none of the samples exceeded the 410 cfu/100mL STV. The seasonal GM was 43 cfu/100mL.

The Primary Contact Recreational Use of West Falls Branch (MA32-13) is assessed as Fully Supporting based on the low *E. coli* concentration data and lack of aesthetically objectionable conditions during summer 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2246	MassDEP	Water	West Branch	[(a.k.a. West Falls Branch) approximately 225 feet	42.406243	-72.887665
		Quality		upstream of Main Road (Route 143), Chesterfield]		

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
					Sample	Sample	Sample	Geometric
Station Code	Organization	Indicator	Start Date	End Date	Count	Result	Result	Mean
W2246	MassDEP	E. coli	05/16/12	09/20/12	6	23	102	43

W2246 E. coli (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	43
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

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



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted field surveys (n=6) of West Falls Branch (MA32-13) ~225 feet upstream of Main Road (Route 143) in Chesterfield (W2246/MAP2-167) during summer 2012. There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded. *E. coli* bacteria samples were collected during all the site visits. Analysis of this low frequency data indicated that none of the intervals had GMs exceeding 630 cfu/100mL and none of the samples exceeded the 1260 cfu/100mL STV. The overall GM was very low at 43 cfu/100mL.

The Secondary Contact Recreational Use of West Falls Branch (MA32-13) is assessed as Fully Supporting based on the low *E. coli* concentration data and lack of aesthetically objectionable conditions during summer 2012.

Monitoring Stations

Station	Organization	Turno	Mator Pody	Station Decoriation	Latituda	Longitudo
Coue	Organization	туре	water bouy	Station Description	Latitude	Longitude
W2246	MassDEP	Water	West Branch	[(a.k.a. West Falls Branch) approximately 225 feet	42.406243	-72.887665
		Quality		upstream of Main Road (Route 143), Chesterfield]		

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
						Sample	Sample	Geometric
						Result	Result	Mean
						(CFU/100ml	(CFU/100ml	(CFU/100ml
					Sample	or	or	or
Station Code	Organization	Indicator	Start Date	End Date	Count	MPN/100ml)	MPN/100ml)	MPN/100ml)
W2246	MassDEP	E. coli	05/16/12	09/20/12	6	23	102	43

W2246 E. coli (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	43
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

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



Westfield Brook (MA32-51)

Location:	Headwaters, outlet wetland north of Hill Cemetery Road, Windsor to mouth at confluence with Westfield River, Cummington.
AU Type:	RIVER
AU Size:	8.6 MILES
Classification/Qualifier:	B: CWF

WESTFIELD BROOK - MA32-51

Watershed Area: 12.32 square miles



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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff deployed probes to measure dissolved oxygen (DO) and/or temperature (T) at three stations along Westfield Brook, a designated Cold Water Fishery, during summer 2017. The stations are described from up to downstream as follows: Potash Rd/Nobodys Rd, Windsor (W2761 both DO and T), ~100 ft upstream of High Street Hill Rd, Windsor (W2762 just T), Rt 9 crossing nearest mouth at confluence with Westfield River, Cummington (W2763 both DO and T). The minimum DO from mid-July through early October was 6.0 mg/L and there was no indication of enrichment in the DO data (maximum diel DO shift 3.0 mg/L, maximum DO saturation 98%). Continuous temperature measurements were recorded at all three stations over 61 days during the summer index period. From up to downstream these data can be summarized as follows: maximum temperatures 24.4, 21.9, and 23.9 °C, maximum 7DADMs 21.6, 20.5, and 22.3 °C with 7DADMs >20.0 °C 2, 1, and 12 times respectively, and the maximum 24-hour rolling averages were 19.4, 19.8 and 21.0 °C. Two specific conductance measurements each, from the upstream and downstream station, had a maximum of 214 µs/cm. MassDFG biologists conducted six backpack electrofishing surveys between 2014-2018 in the downstream portion of the brook as follows: along River Rd ½ mile south of Rt 9, Cummington (Sample IDs #5163 in Sept 2014, #5685 in August 2015), along River Rd / old Rt 9, Windsor (Sample IDs #6217 in July 2016, #6551 in August 2017, #7564 in August 2018), and US of Rt 9 xing in construction area on River L, at base of old collapsed retaining wall, Cummington (Sample ID #5731 in November 2015). All samples (n= 62-409) were dominated (≥92%) by fluvial fish including slimy sculpin, with multiple age classes of Eastern brook trout captured in four of the samples as well.

The Aquatic Life Use of Westfield Brook (MA32-51) is assessed as Fully Supporting based on the presence of slimy sculpin and multiple age classes of Eastern brook trout (two species indicative of excellent habitat and water quality) in the brook between 2014 and 2018, and the DO and temperature data collected during summer 2017 that were indicative of generally good conditions.

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5163	MassDFG	Fish	Westfield	River Rd off Rt 9, 1/2mi S of Rt 9,	42.48260	-72.97770
		Community	Brook	Cummington		
5685	MassDFG	Fish	Westfield	Along River rd, 1/2mi S of Rt 9, Cummington	42.48258	-72.97772
		Community	Brook			
5731	MassDFG	Fish	Westfield	US of Rt 9 xing in construction area on River	42.49047	-72.97601
		Community	Brook	L, at base of old collapsed retaining wall.,		
				Cummington		
6217	MassDFG	Fish	Westfield	Old Rt 9, Windsor	42.48423	-72.97848
		Community	Brook			
6551	MassDFG	Fish	Westfield	Along old Rt 9, Windsor	42.48433	-72.97808
		Community	Brook			
7564	MassDFG	Fish	Westfield	River Road (old Rt. 9), Windsor/Cummington	42.48406	-72.97847
		Community	Brook			
W2761	MassDEP	Water	Westfield	[Potash Road (Nobodys Road), Windsor]	42.495000	-73.049728
		Quality	Brook			
W2762	MassDEP	Water	Westfield	[approximately 100 feet upstream from High	42.489682	-73.000933
		Quality	Brook	Street Hill Road, Windsor]		
W2763	MassDEP	Water	Westfield	[Route 9 crossing nearest mouth at	42.490795	-72.975399
		Quality	Brook	confluence with Westfield River,		
				Cummington]		

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AS = Atlantic Salmon, BND = Blacknose Dace, BT = Brown Trout, CRC = Creek Chub, CS = Common Shiner, EBT = Brook Trout, F = Fallfish, LC = Lake Chub, LND = Longnose Dace, P = Pumpkinseed, SC = Slimy Sculpin, WS = White Sucker]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5163	09/08/14	BP	ТР	9	71	4	98	170	2	22	52%	92%	Yes	Yes	AS, BND, CRC, CS, EBT, LC, LND, SC, WS,
5685	08/10/15	BP	ТР	7	131	9	73	186	6	36	36%	98%	No	Yes	BND, CS, EBT, LC, LND, SC, WS,
5731	11/12/15	BP	ТР	7	62	1	98	98	1	7	13%	100%	Yes	Yes	BND, CRC, CS, EBT, F, LND, SC,
6217	07/27/16	BP	ТР	9	409	3	101	135	3	34	13%	96%	Yes	Yes	BND, BT, CRC, CS, EBT, LC, LND, SC, WS,
6551	08/31/17	BP	ТР	7	228	1	218	218	0	58	28%	98%	No	Yes	BND, CS, EBT, LC, LND, SC, WS,
7564	08/06/18	BP	ТР	8	143	0	NA	NA	0	23	20%	95%	Yes	Yes	BND, CRC, CS, LC, LND, P, SC, WS,

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W2761	07/18/17	10/02/17	73	48	42	6	6.9	8.1	3	0	0	0	0	0	0	0	0
W2763	07/18/17	10/02/17	77	71	48	7.9	8.1	8.8	1.8	0	0	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

Station			DO	DO Min	DO Avg	Count	Count WW	Count WW
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2761	08/29/17	10/03/17	2	9.9	10.2	0	0	0
W2763	08/29/17	10/03/17	2	10.3	10.7	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2761	07/18/17	09/15/17	60	57	19.3	24.4	21.6	18.0	2	0	0	0	0	0
W2762	07/18/17	09/15/17	60	57	19.7	21.9	20.5	18.7	1	0	0	0	0	0
W2763	07/18/17	09/15/17	60	57	20.8	23.9	22.3	19.7	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 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2761	07/17/17	09/15/17	61	2858	19.4	0	0	0
W2762	07/17/17	09/15/17	61	2858	19.8	0	0	0
W2763	07/17/17	09/15/17	60	2856	21.0	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2761	08/29/17	10/03/17	2	1	11.0	10.6	0	0	0	0
W2762	08/28/17	10/02/17	2	1	12.5	11.0	0	0	0	0
W2763	08/29/17	10/03/17	2	1	12.8	11.1	0	0	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

		Seasonal	Seasonal	Seasonal	Seasonal	Delta DO	Delta DO	DO Sat	рН	Count	Dense/V. Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2761	2017					3.0	1.4	94.5			
W2763	2017					1.8	1.1	98.0			

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (µs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2761	08/29/17	10/03/17	2	185	287	0	0	0	0	0	0
W2763	08/29/17	10/03/17	2	214	214	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics sampling has not been conducted in Westfield Brook (MA32-51), so the Fish Consumption Use	is Not
Assessed.	

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No data are available for Westfield Brook (MA32-51), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert		
Not Assessed	NO		
2022 Use Attainment Summary			
No heateric data are evaluable for Weatfield Preak (NAA22 E1), so the Drivery Contest Desceptional Use is	Net Assessed		

No bacteria data are available for Westfield Brook (MA32-51), so the Primary Contact Recreational Use is Not Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No bacteria data are available for Westfield Brook (MA32-51), so the Secondary Contact Recreational Use	e is Not
Assessed.	

Westfield Reservoir (MA32074)

Location:	Montgomery.
AU Type:	FRESHWATER LAKE
AU Size:	40 ACRES
Classification/Qualifier:	В

No usable data were available for Westfield Reservoir (MA32074) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Westfield River (MA32-04)

Location:	Headwaters, confluence of Drowned Land Brook and Center Brook, Savoy to confluence with Middle Branch Westfield River, Huntington.
AU Type:	RIVER
AU Size:	33.1 MILES
Classification/Qualifier:	B: CWF, HQW

Westfield River - MA32-04

Watershed Area: 168.96 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	168.96	6.33	36.97	1.02
Agriculture	5.1%	2.7%	2.8%	1%
Developed	4%	6.9%	4.5%	9.9%
Natural	85.9%	88.4%	81.4%	83.7%
Wetland	5%	2%	11.3%	5.5%
Impervious	1.67%			

Cover

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

Impairment	Source (Confirmed Y/N)	Fish, other Aquatic Life and Wildlife	Fish Consumption	Aesthetic	Primary Contact Recreation	Secondary Contact Recreation
Enterococcus	Source Unknown (N)				Х	
Escherichia Coli (E. Coli)	Source Unknown (N)				Х	
Temperature	Loss of Riparian Habitat (N)	Х				
Temperature	Source Unknown (N)	Х				

Recommendations

2022 Recommendations

ALU: Since most sites sampled along this Westfield River AU (MA32-04), a designated Cold Water Fishery (CWF), during summer of 2017 exceeded use attainment impairment thresholds but these elevated temperatures are considered to be a result of natural conditions (at least in the portion of the AU not affected or related to the ACOE Knightville Flood Control Dam Project, additional long-term temperature sampling is being recommended to provide additional information for a future Temperature impairment delisting (or to split this AU into two new AUs one upstream from any influence of the flood control project and one downstream).

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Not Supporting	NO
2022 Use Attainment Summary	

MassDFG and MassDEP biologists conducted backpack electrofishing throughout this Westfield River AU (MA32-04), a designated Cold Water Fishery (CWF), 15 times during the summers of 2012-2019. Some of these samples were among the 87 fish community samples, collected from 2005-2017, in the Westfield River (MA32-04, MA32-05) and its major tributaries (Middle Branch Westfield River MA32-65, MA32-03; West Branch Westfield River MA32-01), that were compared to the Westfield Target Fish Community model. The overall percent similarity (PS) with the model was 75.39% (which would be slightly higher if Atlantic salmon, a stocked species, was removed from the analysis, as was done by DFG in their 2009 study). Of the four most common species in the TFC (blacknose dace, longnose dace, common shiner, slimy sculpin), excluding Atlantic salmon, all four of these fluvial specialist/dependent species were among the top four in the study samples, and in the same ranked order. While the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it should be noted that the PS for just the 36 samples collected in this AU (MA32-04) was 71.76%. Slimy sculpin and multiple age classes of Eastern brook trout were collected at all sites in July/Aug/Sept 2012-2019. MassDEP staff conducted monitoring at eight stations (two sites in summer 2012 and seven sites in summer 2017) from up to downstream as follows: headwaters (W2769), ~3675 ft downstream of River Rd crossing nearest Griffin Hill Rd, Savoy (B0806/W2269 in 2012), W. Main St. bridge, Cummington (W0216), ~2325 ft downstream of Rt 9 crossing nearest Mougin Rd, Cummington (B0810/W2273 only in 2012), roadside park Rt 9/112 upstream of Swift River confluence, Cummington (W0218), Chesterfield Gorge upstream of confluence with Whiteside Brook, Chesterfield (W0219), ~775 ft upstream of confluence of Florida Brook in Knightville State WMA, Huntington (W2770), Gardner State Park ~660 ft downstream of bathing beach, Rt 112, Huntington (W0220). The July 2012 benthic samples (B0806/B0810), compared to the Western Highlands ecoregion IBI, had scores of 63 (satisfactory) and 45 (moderately degraded), respectively, but since these data were collected in the year following Hurricane Irene, a benthic impairment is not being added. Probes were deployed (three short-term at both summer 2012 sites and four long-term in summer 2014) to measure dissolved oxygen (DO)- minimum was 7.1 mg/L. Continuous temperature (T) data collected during the summer index period were elevated at all but the headwater station (W2769): 7DADMs exceeded 20.0°C 20-93 times and three sites had 24-hr rolling average Ts >23.5°C. In summer 2012 pH ranged from 7.4-7.9SU (n=6), there was no indication of nutrient enrichment (total phosphorus seasonal avg 0.006-0.009mg/L (n= 5/site), max diel DO shift 2.3mg/L, max DO saturation 111%, no observations of excessive filamentous algae), no exceedances among three clean metals or aluminum samples (dissolved AI data were compared to total recoverable AI criteria so exceedances cannot be ruled out), max total ammonia nitrogen and chloride were 0.020 and 20mg/L, respectively. The max specific conductance from summers 2012 and 2017 was 139 µs/cm (n=14).

The Aquatic Life Use of this Westfield River AU (MA32-04) will continue to be assessed as Not Supporting with the Temperature impairment being carried forward at this time. It is noted, however, that many of the exceedances are naturally occurring (land use thresholds in the natural condition filter were met so additional long-term temperature data collection is being recommended). The presence of slimy sculpin and multiple age classes of Eastern brook trout are indications of excellent habitat and water quality conditions, and with the exception of temperature, all other water quality data were as well.

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5018	MassDEP	Fish	Westfield	0.7mi DS of River Rd xing nearest Griffin Hill	42.55161	-73.01461
		Community	River	Rd		
5040	MassDEP	Fish	Westfield	0.4mi DS of Marine Corps League Highway	42.45247	-72.87827
		Community	River	(Rt 9), xing nearest Mougin Rd @ southern		
				end of Lilac Rd		
5164	MassDFG	Fish	Westfield	River Road powerline xing, Windsor	42.50320	-72.98770
		Community	River			
5165	MassDFG	Fish	Westfield	State forest boundary, Along River Rd,	42.51769	-72.99842
		Community	River	1/2mi S of Lower Rd, Windsor		
5686	MassDFG	Fish	Westfield	Powerlines (lower site) along River Rd,	42.50308	-72.98754
		Community	River	Windsor		
5687	MassDFG	Fish	Westfield	State forest/ River Rd, Windsor	42.51687	-72.99798
		Community	River			
5719	MassDFG	Fish	Westfield	Behind cemetary on Rt 9, @ end of Walker	42.48943	-72.95841
		Community	River	Rd Extn., Cummington		
6029	MassDFG	Fish	Westfield	US of Jamb Br Confluence~50m, Windsor	42.51395	-72.99017
		Community	River			
6218	MassDFG	Fish	Westfield	River Rd @ Windsor Jambs S.P., Windsor	42.51657	-72.99790
		Community	River			
6266	MassDFG	Fish	Westfield	River Rd Power Lines, Windsor	42.50307	-72.98755
		Community	River			
6277	MassDFG	Fish	Westfield	Rt 9 cemetery., Cummington	42.48931	-72.95847
		Community	River			
6462	MassDFG	Fish	Westfield	Windsor Jumbs State Park, Windsor	42.51711	-72.99817
		Community	River			
6674	MassDFG	Fish	Westfield	Under powerlines, Windsor	42.50286	-72.98790
		Community	River			
8262	MassDFG	Fish	EB Westfield	at 1mi DS of Windsor S.P. bridge, Windsor.	42.51696	-72.99820
		Community	River	[DEP water body name is Westfield River]		
8268	MassDFG	Fish	EB Westfield	Power Line crossing, Windsor. [DEP water	42.50298	-72.98724
		Community	River	body name is Westfield River]		
B0806	MassDEP	Benthic	Westfield	[approximately 1120 meters downstream of	42.551606	-73.014609
			River/	the River Road crossing nearest Griffin Hill		
				Road, Savoy, MA]		
B0810	MassDEP	Benthic	Westfield	[approximately 710 meters downstream of	42.452473	-72.878272
			River/	the Marine Corps League Highway (Route 9)		
				crossing nearest Mougin Road,		
				Cummington, MA]		
W0216	MassDEP	Water	Westfield	[West Main Street bridge, Cummington]	42.492771	-72.973523
		Quality	River			
W0218	MassDEP	Water	Westfield	[Route 9/112, at roadside park upstream of	42.441149	-72.860661
		Quality	River	Swift River confluence, Cummington]		
W0219	MassDEP	Water	Westfield	[base of Chesterfield Gorge, just upstream	42.390193	-72.880328
		Quality	River	of confluence with Whiteside Brook,		
				Chesterfield		
W0220	MassDEP	Water	Westfield	[Gardner State Park, approximately 660 feet	42.270843	-72.866660
		Quality	River	downstream of bathing beach, Route 112,		
				Huntington		

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2269	MassDEP	Water	Westfield	[approximately 3675 feet downstream of	42.551606	-73.014609
		Quality	River	the River Road crossing nearest Griffin Hill		
				Road, Savoy]		
W2273	MassDEP	Water	Westfield	[approximately 2325 feet downstream of	42.452473	-72.878272
		Quality	River	the Marine Corps League Highway (Route 9)		
				crossing nearest Mougin Road,		
				Cummington]		
W2769	MassDEP	Water	Westfield	[approximately 290 feet upstream of Main	42.569290	-73.031453
		Quality	River	Road (Route 8A), Savoy (approximately 70		
				feet upstream of fire department driveway		
				west off Center Road)]		
W2770	MassDEP	Water	Westfield	[approximately 775 feet upstream of	42.316000	-72.851156
		Quality	River	confluence of Florida Brook, in the		
				Knightville State Wildlife Management Area,		
				Huntington]		

Biological Monitoring Information

Benthic Macroinvertebrate Data

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

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

Station	Collection	Collection	_	Organism	Index	Index Biological
Code	Date	Method	Index Type	Count	Score	Condition Class
B0806	07/24/12	RBP kicknet	Western_Highlands_100ct	94	63	S
B0810	07/19/12	RBP kicknet	Western_Highlands_100ct	102	45	MD

Fish Community Data and DELTS

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

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

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

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5018	08/21/12	BP	ТР	6	143	22	58	220	19	45	52%	100%	No	Yes	AS, BND, EBT, LND, SC, WS,
5164	09/08/14	BP	ТР	6	162	2	79	158	1	44	36%	100%	Yes	Yes	AS, BND, EBT, LND, SC, WS,
5165	09/08/14	BP	ТР	7	207	2	85	124	2	82	44%	99%	No	Yes	AS, BND, EBT, LC, LND, SC, WS,
5686	08/10/15	BP	ТР	8	504	18	51	145	17	135	31%	100%	No	Yes	AS, BND, CS, EBT, LC, LND, SC, WS,

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5687	08/10/15	BP	ТР	7	260	18	49	234	13	115	53%	98%	Yes	Yes	BND, CS, EBT, LC, LND, SC, WS,
5719	09/04/15	BP	ТР	6	557	0	NA	NA	0	49	15%	94%	No	Yes	BND, CS, LC, LND, SC, WS,
6029	07/15/16	BP	ТР	7	515	9	41	164	8	228	46%	100%	Yes	Yes	BND, CRC, CS, EBT, LC, LND, SC,
6218	07/28/16	BP	ТР	6	452	36	40	145	33	143	42%	98%	Yes	Yes	BND, CS, EBT, LC, LND, SC,
6266	09/12/16	BP	ТР	9	782	4	60	162	3	126	18%	98%	No	Yes	AS, BND, CRC, CS, EBT, LC, LND, SC, WS,
6277	09/12/16	BP	ТР	8	763	0	NA	NA	0	53	8%	99%	Yes	Yes	BND, CRC, CS, LC, LND, P, SC, WS,
6462	08/31/17	BP	ТР	8	245	11	79	176	7	97	46%	99%	No	Yes	BND, CS, EBT, LC, LND, RT, SC, WS,
6674	08/31/17	BP	ТР	10	366	4	76	211	1	96	29%	98%	No	Yes	BND, CRC, CS, EBT, LC, LND, P, RT, SC, WS,
8262	09/03/19	BP	ТР	7	323	19	59	200	11	69	30%	97%	No	Yes	BND, CS, EBT, LC, LND, SC, WS,
8268	09/03/19	BP	ТР	7	495	0	NA	NA	0	72	17%	98%	No	Yes	BND, CRC, CS, LC, LND, SC, WS,

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

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net; Trout= any combination of brook trout, brown trout, rainbow trout, tiger trout; Other Tier2 Species= any size and any combination of American brook lamprey, Atlantic salmon, lake chub, lake trout, longnose sucker, slimy sculpin]

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

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	Trout ≤140mm Ind	Ind LLS<200mm	Other Tier2 Ind	% pul plo	Fluvial Ind %	Notables	CFR	Species List
5040	09/25/12	BP	TP	7	137	0	0	10	7%	100%	Yes	Yes	AS, BND, CRC, CS, LND, SC, WS,

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

Eighty-seven fish community samples were collected from 2005-2017 in the Westfield River (MA32-04, MA32-05) and its major tributaries (Middle Branch Westfield River MA32-65, MA32-03; West Branch Westfield River MA32-01). The overall percent similarity with the Westfield Target Fish Community was 75.39% (which would be slightly higher if Atlantic salmon, a stocked species, was removed from the analysis, as was done by DFG in their 2009 study). Of the 4 most common species in the TFC (blacknose dace, longnose dace, common shiner, slimy sculpin), excluding Atlantic salmon, all 4 of these fluvial specialist/dependent species were among the top 4 in the study samples, and in the same ranked order. While the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it should be noted that the percent similarity for just the thirty-six fish community samples (Sample IDs 1248, 1828, 1829, 2044, 2045, 2062, 2480,

2482, 2483, 2569, 2989, 2990, 2991, 3228, 3229, 3230, 3618, 3619, 3626, 4093, 4094, 4681, 4682, 5018, 5040, 5164, 5165, 5686, 5687, 5719, 6029, 6218, 6266, 6277, 6462, 6674) collected in the Westfield River (MA32-04) was 71.76%. Of note, multiple age classes of Eastern brook trout were also collected in this CWF. This, in combination with the comparison of the overall fish community data with the Westfield TFC model should be considered a positive indicator in the final assessment of the Aquatic Life Use of this Westfield River AU (MA32-04).

Fish Community Samples in the Westfield River (MA32-04), with screen captures depicting sample clusters from upstream to downstream in the river [To view locations of additional samples included in the Westfield TFC analysis that were located in other AUs, go to the sections for MA32-65, MA32-03, MA32-01, MA32-05]:



(12 samples near upstream end of MA32-04)

(18 samples)











Westfield TFC Model:
Table A16. Species percent composition for reference rivers used to develop the Westfield 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).

							NB				
	Third Branch	Tenmile	Ashuelot	Ammonoosuc	Piscataquog	Cold	Sugar	North			Expected
Species	White River	River	River	River	River	River	River	River	Total	Rank	Proportion
Blacknose dace	25.0	14.9	19.8	24.1	22.5	53.8	6.9	38.4	205.4	1	32.4
Longnose dace	19.9	9.3	12.7	38.5	15.2	16.9	44.6	29.1	186.2	2	16.2
Common shiner	2.6	13.8	22.3	1.4	15.8	6.5	20.8	1.1	84.3	3	10.8
Atlantic salmon	0.0	0.0	2.2	24.1	3.4	6.5	0.0	15.1	51.3		
Slimy sculpin	33.1	0.0	0.0	6.0	0.0	2.7	0.0	8.9	50.6	5	6.5
Fallfish	0.0	18.7	26.8	0.0	2.8	0.0	1.0	0.3	49.5	6	5.4
White sucker	0.3	15.8	7.9	0.5	2.8	6.2	10.9	1.9	46.1	7	4.6
Smallmouth bass	0.0	12.2	1.3	0.0	12.0	0.4	0.0	0.0	25.9		
Longnose sucker	5.6	0.0	0.0	4.8	2.8	0.6	4.0	2.9	20.8	9	3.6
Tessellated darter	0.1	7.3	3.8	0.2	0.0	0.6	0.0	0.3	12.3	10	3.2
Creek chub	1.4	0.6	0.2	0.0	0.0	2.8	5.0	0.8	10.8	11	2.9
Brown trout	3.3	0.1	0.3	0.0	0.4	0.0	5.0	0.3	9.4		
Rainbow trout	7.5	0.1	0.0	0.0	0.2	0.2	0.0	0.2	8.1		
Brook trout	1.2	0.1	0.0	0.6	0.0	2.4	0.0	0.6	4.9	14	2.3
Cutlips minnow	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	4.6		
Yellow bullhead	0.0	0.0	1.0	0.0	3.0	0.0	0.0	0.0	4.0		
Redbreast sunfish	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	2.7	17	1.9
Pumpkinseed	0.0	0.6	0.3	0.0	1.4	0.1	0.0	0.0	2.4	18	1.8
American eel	0.0	0.0	0.2	0.0	1.4	0.0	0.0	0.0	1.6	19	1.7
Largemouth bass	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	1.4		
Bluegill	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.3		
Spottail shiner	0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.8	22	1.5
Golden shiner	0.0	0.3	0.0	0.0	0.5	0.0	0.0	0.0	0.8	22	1.5
Brown bullhead	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.2	0.6	23	1.4
Bluntnose minnow	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4		
Rock bass	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.4		
Chain pickerel	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.3	26	1.2
Yellow perch	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	26	1.2

Fish Community Analysis:

Combined analysis of samples from all 5 AUs (MA32-65, MA32-03, MA32-01, MA32-04, MA32-05)

		Values						
	_	# of	% of	Applicable	TFC	% Sim to		
Watershed	📲 Common Name 🛛 📑	Fish	catch	TFC	Difference	TFC	Rov Labels 🛛 🕂	
Westfield	American Brook Lamprey	1	0.00%	-	-		🗏 Westfield	
Westfield	American Eel	148	0.43%	1.7	1.3		1224	4681
Westfield	Atlantic Salmon	2150	6.23%	-	6.2		1245	4682
Westfield	Banded Killifish	1	0.00%	-	0.0		1248	4683
Westfield	Banded Sunfish		0.00%	-	-		1249	4684
Westfield	Black Crappie		0.00%	-	-		1319	5018
Westfield	Blacknose Dace	13706	39.71%	32.4	7.3		1808	5025
Westfield	Bluegill	15	0.04%	-	0.0		1815	5026
Westfield	Bluntnose Minnow	1	0.00%	-	0.0		1816	5040
Westfield	Bridle Shiner		0.00%	-	-		1821	5105
Westfield	Brook Trout	399	1.16%	2.3	1.1		1828	5164
Westfield	Brown Bullhead		0.00%	1.4	1.4		1829	5165
Westfield	Brown Trout	18	0.05%	-	0.1		2044	5177
Westfield	Central Mudminnow		0.00%	-	-		2045	5178
Westfield	Chain Pickerel		0.00%	1.2	1.2		2047	5429
Westfield	Channel Catfish		0.00%	-	-		2048	5686
Westfield	Common Carp		0.00%	-	-		2050	5687
Westfield	Common Shiner	3825	11.08%	10.8	0.3		2062	5719
Westfield	Creek Chub	431	1.25%	2.9	1.7		2165	5721
Westfield	Creek Chubsucker		0.00%	-	-		2346	6028
Westfield	Cutlips Minnow		0.00%	-	-		2425	6029
Westfield	Fallfish	137	0.40%	5.4	5.0		2477	6068
Westfield	Fathead Minnow		0.00%	-	-		2480	6069
Westfield	Golden Shiner	12	0.03%	1.5	1.5		2481	6218
Westfield	Green Sunfish		0.00%	-	-		2482	6229
Westfield	Lake Chub	433	1.25%	-	1.3		2483	6239
Westfield	Largemouth Bass	7	0.02%	-	0.0		2569	6266
Westfield	Longnose Dace	6229	18.05%	16.2	1.8		2976	6267
Westfield	Longnose Sucker		0.00%	3.6	3.6		2977	6268
Westfield	Northern Pike		0.00%	-	-		2989	6277
Westfield	Pumpkinseed	24	0.07%	1.8	1.7		2990	6278
Westfield	Rainbow Trout	22	0.06%	-	0.1		2991	6385
Westfield	Redbreast Sunfish		0.00%	1.9	1.9		2993	6462
Westfield	Redfin Pickerel		0.00%	-	-		3176	6552
Westfield	Rock Bass	46	0.13%	-	0.1		3210	6629
Westfield	Sea Lamprey		0.00%	-	-		3211	6674
Westfield	Slimy Sculpin	3803	11.02%	6.5	4.5		3228	6694
Westfield	Smallmouth Bass	513	1.49%	-	1.5		3229	6695
Westfield	Spottail Shiner	1	0.00%	1.5	1.5		3230	6696
Westfield	Swamp Darter		0.00%	-	-		3618	7072
Westfield	Tadpole Madtom		0.00%	-	-		3619	
Westfield	Tesselated Darter	205	0.59%	-	0.6		3626	
Westfield	White Catfish		0.00%	-	-		4088	
Westfield	White Perch		0.00%	-	-		4089	
Westfield	White Sucker	2376	6.88%	4.6	2.3		4090	
Westfield	Yellow Bullhead	15	0.04%	-	0.0		4093	
Westfield	Yellow Perch	2	0.01%	1.2	1.2		4094	
Westfield	(blank)		0.00%	-	-	75.39	4096	
Grand Total		34519	*****	-	100.0		4097	

Analysis of the Westfield River (MA32-04) samples alone

		Values					Roy Labels 🕶	
		# of	% of	Applicable	TFC	% Sim to	🗏 🛛 🗠 🖶	
Watershed	🕂 Common Name 🛛 🕂	Fish	catch	TFC	Difference	TFC	1224	4681
🗏 Westfield	American Brook Lamprey	,	0.00%	-	-		1245	4682
Westfield	American Eel		0.00%	1.7	1.7		1248	4683
Westfield	Atlantic Salmon	835	6.09%	-	6.1		1249	4684
Westfield	Banded Killifish		0.00%	-	-		1319	5018
Westfield	Banded Sunfish		0.00%	-	-		1808	5025
Westfield	Black Crappie		0.00%	-	-		1815	5026
Westfield	Blacknose Dace	5593	40.82%	32.4	8.4		1816	5040
Westfield	Bluegill	6	0.04%	-	0.0		1821	5105
Westfield	Bluntnose Minnow	1	0.01%	-	0.0		1828	5164
Westfield	Bridle Shiner		0.00%	-	-		1829	5165
Westfield	Brook Trout	181	1.32%	2.3	1.0		2044	5177
Westfield	Brown Bullhead		0.00%	1.4	1.4		2045	5178
Westfield	Brown Trout	4	0.03%	-	0.0		2047	5429
Westfield	Central Mudminnow		0.00%	-	-		2048	5686
Westfield	Chain Pickerel		0.00%	1.2	1.2		2050	5687
Westfield	Channel Catfish		0.00%	-	-		2062	5719
Westfield	Common Carp		0.00%	-	-		2165	5721
Westfield	Common Shiner	1009	7.36%	10.8	3.4		2346	6028
Westfield	Creek Chub	214	1.56%	2.9	1.3		2425	6029
Westfield	Creek Chubsucker		0.00%	-	-		2477	6068
Westfield	Cutlips Minnow		0.00%	-	-		2480	6069
Westfield	Fallfish	19	0.14%	5.4	5.3		2481	6218
Westfield	Fathead Minnow		0.00%	-	-		2482	6229
Westfield	Golden Shiner	2	0.01%	1.5	1.5		2483	6239
Westfield	Green Sunfish		0.00%	-	-		2569	6266
Westfield	Lake Chub	188	1.37%	-	1.4		2976	6267
Westfield	Largemouth Bass		0.00%	-	-		2977	6268
Westfield	Longnose Dace	2565	18.72%	16.2	2.5		2989	6277
Westfield	Longnose Sucker		0.00%	3.6	3.6		2990	6278
Westfield	Northern Pike		0.00%	-	-		2991	6385
Westfield	Pumpkinseed	15	0.11%	1.8	1.7		2993	6462
Westfield	Rainbow Trout	9	0.07%	-	0.1		3176	6552
Westfield	Redbreast Sunfish		0.00%	1.9	1.9		3210	6629
Westfield	Redfin Pickerel		0.00%	-	-		3211	6674
Westfield	Rock Bass		0.00%	-	-		3228	6694
Westfield	Sea Lamprey		0.00%	-	-		3229	6695
Westfield	Slimy Sculpin	2388	17.43%	6.5	10.9		3230	6696
Westfield	Smallmouth Bass	9	0.07%	-	0.1		3618	7072
Westfield	Spottail Shiner		0.00%	1.5	1.5		3619	
Westfield	Swamp Darter		0.00%	-	-		3626	
Westfield	Tadpole Madtom		0.00%	-	-		4088	
Westfield	Tesselated Darter	4	0.03%	-	0.0		4089	
Westfield	White Catfish		0.00%	-	-		4090	
Westfield	White Perch		0.00%	-	-		4093	
Westfield	White Sucker	658	4.80%	4.6	0.2		4094	
Westfield	Yellow Bullhead		0.00%	-	-		4096	
Westfield	Yellow Perch		0.00%	1.2	1.2		4097	
Westfield	(blank)		0.00%	-	-	71.76		
Grand Total		13700	100.00%	-	100.0			

Physico-chemical Water Quality Information

DO, pH, Temperature

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

Station Code	Start Date	End Date	Day Count	7day Count	30day Count	DO Min (mg/L)	Min 7DADMin (mg/L)	Min 7DADA (mg/L)	Delta DO Max (mg/L)	Count CW 7DADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages 7DADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages 7DADMin <5.0	Count WW Other Life Stages 1Day Min <4.0	Count CW 30DADA <8.0	Count WW Other Life Stages 30DADA <6.0
W0218	07/28/17	10/03/17	68	62	39	7.6	8	8.6	2.1	0	0	0	0	0	0	0	0

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
W0220	07/28/17	10/10/17	75	69	46	7.3	7.7	8.4	1.9	0	0	0	0	0	0	0	0
W2769	07/28/17	10/02/17	61	49	32	7.8	8.1	8.5	1.2	0	0	0	0	0	0	0	0
W2770	07/28/17	10/03/17	68	62	39	7.1	7.6	8.5	2.9	0	0	0	0	0	0	0	0

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

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

Station Code	Data Year	Deploys Count	Day Count	DO Min (mg/L)	Min XDADMin (mg/L)	Min XDADA (mg/L)	Delta DO Max (mg/L)	Count CW XDADMin <6.0	Count CW 1Day Min <5.0	Count WW Early Life Stages XDADA <6.5	Count WW Early Life Stages 1Day Min <5.0	Count WW Other Life Stages XDADMin <5.0	Count WW Other Life Stages 1Day Min <4.0
W2269	2012	3	11	7.7	8	8.4	1	0	0	0	0	0	0
W2273	2012	3	12	7.1	7.3	8.3	2.3	0	0	0	0	0	0

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W0218	08/30/17	10/04/17	2	10.2	10.7	0	0	0
W0220	08/31/17	10/11/17	2	9.6	9.8	0	0	0
W2269	05/17/12	09/20/12	3	8.8	9	0	0	0
W2273	05/23/12	09/20/12	3	8.7	9.5	0	0	0
W2769	08/29/17	10/03/17	2	10.2	10.5	0	0	0
W2770	08/30/17	10/04/17	2	9.6	10.2	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W0216	07/28/17	09/15/17	50	47	19.9	23.7	22.3	19.0	20	0	0	0	0	0
W0218	07/28/17	09/15/17	50	47	22.0	26.6	24.9	20.9	29	0	0	0	0	0

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	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W0219	07/28/17	09/15/17	50	47	22.0	24.1	23.1	21.0	26	0	0	0	0	0
W0220	07/28/17	09/15/17	50	47	23.5	27.1	25.3	22.7	34	0	24	0	0	0
W2269	06/01/12	09/15/12	107	107	21.3	22.9	21.9	20.3	40	0	0	0	0	0
W2273	06/01/12	09/15/12	107	107	25.6	30.6	28.4	24.5	93	11	54	9	4	0
W2769	07/28/17	09/15/17	50	47	19.3	20.7	19.7	18.0	0	0	0	0	0	0
W2770	07/28/17	09/15/17	50	47	23.4	28.2	26.0	22.5	35	0	21	0	0	0

MassDEP Short-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Deploys Count	Day Count	Max Daily Mean (°C)	Max Temp (°C)	Max XDADM (°C)	Max XDADA (°C)	Count CWTier1 XDADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 XDADA >21	Count CWTier2 Daily Mean >24.1	Count WW XDADM >27.7	Count WW Daily Mean >28.3
W2269	2012	3	11	20.3	22.0	20.0	18.9	0	0	0	0	0	0
W2273	2012	3	12	23.3	27.6	26.2	21.7	3	0	1	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W0216	07/27/17	09/15/17	51	2378	20.5	0	0	0
W0218	07/27/17	09/15/17	50	2376	22.7	0	0	0
W0219	07/27/17	09/15/17	50	2375	22.4	0	0	0
W0220	07/27/17	09/15/17	50	2371	24.4	82	19	0
W2269	06/01/12	09/15/12	107	5136	21.4	0	0	0
W2269	06/21/12	08/27/12	67	531	20.7	0	0	0
W2273	06/01/12	09/15/12	107	5136	26.3	614	372	0
W2273	06/14/12	08/21/12	68	576	23.7	2	0	0
W2769	07/27/17	09/15/17	51	2380	19.5	0	0	0
W2770	07/27/17	09/15/17	50	2370	24.2	63	8	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W0216	08/28/17	10/02/17	2	1	13.6	12.2	0	0	0	0
W0218	08/30/17	10/04/17	2	1	14.1	11.8	0	0	0	0
W0219	08/28/17	10/02/17	1	1	16.2	16.2	0	0	0	0
W0220	08/31/17	10/11/17	2	1	19.2	18.0	0	0	0	0
W2269	05/17/12	09/20/12	5	3	19.9	15.8	0	0	0	0
W2273	05/23/12	09/20/12	5	3	21.6	16.9	1	0	0	0
W2769	08/29/17	10/03/17	2	1	11.7	10.6	0	0	0	0
W2770	08/30/17	10/04/17	2	1	22.1	18.8	1	1	0	0

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

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station				pH Min	pH Max	pH Count	pH Count
Code	Start Date	End Date	pH Count	(SU)	(SU)	<6.5 & >8.3	<6.0 & >8.8
W0220	08/31/17	10/11/17	1	7.8	7.8	0	0
W2269	05/17/12	09/20/12	3	7.4	7.9	0	0
W2273	05/23/12	09/20/12	3	7.4	7.8	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

		Seasonal	Seasonal	Seasonal	Seasonal	Delta DO	Delta DO	DO Sat	рН	Count	Dense/V. Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W0218	2017					2.1	1.4	99.4			
W0220	2017					1.9	1.3	105.6	7.8		
W2269	2012	5	0.005	0.017	0.009	1.0	0.7	98.6	7.9	6	0
W2273	2012	5	0.005	0.008	0.006	2.3	1.7	110.9	7.8	6	1
W2769	2017					1.2	0.8	94.7			
W2770	2017					2.9	1.7	110.9			

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

MassDEP Clean Metals Water Column Data (2011-2018), Acute Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Metals Count	As CMC TU >1	Cd CMC TU >1	Cr III CMC TU >1	Cu CMC TU >1	Pb CMC TU >1	Ni CMC TU >1	Ag CMC TU >1	Zn CMC TU >1
W2269	2012	3	0	0	0	0	0	0	0	0
W2273	2012	3	0	0	0	0	0	0	0	0

MassDEP Clean Metals Water Column Data (2011-2018), Chronic Criteria Violations. (MassDEP Undated 8) (MassDEP Undated 6)

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
W2269	2012	3	0	0	0	0	0	0	0	0
W2273	2012	3	0	0	0	0	0	0	0	0

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

MassDEP Dissolved Aluminum Water Column Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Data Year	Dissolved Al Count	Al Min (mg/L)	Al Max (mg/L)	Al Avg (mg/L)	Al CMC TU Max	Al CCC TU Max	Al CMC TU >1	Al CCC TU >1
W2269	2012	3	0.011	0.026	0.016	0.1	0.2	0	0
W2273	2012	3	0.010	0.013	0.011	0.0	0.1	0	0

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Ur	ndated 6)
[TAN= NH3 + NH4+]	

Station Code	Data Year	TAN Count	TAN Min (mg/L)	TAN Max (mg/L)	TAN Avg (mg/L)	Count TAN >Chronic	Count TAN >Acute
W2269	2012	5	0.020	0.020	0.020	0	0
W2273	2012	5	0.020	0.020	0.020	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860
W2269	2012	5	7	17	13	0	0
W2273	2012	5	8	20	13	0	0

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (μs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W0218	08/30/17	10/04/17	2	118	139	0	0	0	0	0	0
W0220	08/31/17	10/11/17	2	98	114	0	0	0	0	0	0
W2269	05/17/12	09/20/12	3	100	135	0	0	0	0	0	0
W2273	05/23/12	09/20/12	3	101	139	0	0	0	0	0	0
W2769	08/29/17	10/03/17	2	64	77	0	0	0	0	0	0
W2770	08/30/17	10/04/17	2	103	114	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO

2022 Use Attainment Summary

No recent fish toxics sampling has been conducted in this Westfield River AU (MA32-04) and since there is no site-specific advisory, the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Fully Supporting	NO
2022 Use Attainment Summary	

MassDEP staff conducted field surveys in this Westfield River AU (MA32-04) at two stations during summer 2012. These stations are described as follows: approximately 3675 feet downstream of the River Road crossing nearest Griffin Hill Road, Savoy (W2269) and approximately 2325 feet downstream of the Marine Corps League Highway (Route 9) crossing nearest Mougin Road, Cummington (W2273). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews at either of the stations (n=6 each).

The Aesthetics Use of this Westfield River AU (MA32-04) will continue to be assessed as Fully Supporting based on the lack of objectionable conditions noted by MassDEP staff at the two sites sampled in the summer of 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2269	MassDEP	Water	Westfield	[approximately 3675 feet downstream of the River	42.551606	-73.014609
		Quality	River	Road crossing nearest Griffin Hill Road, Savoy]		
W2273	MassDEP	Water	Westfield	[approximately 2325 feet downstream of the Marine	42.452473	-72.878272
		Quality	River	Corps League Highway (Route 9) crossing nearest		
				Mougin Road, Cummington]		

Aesthetic Observations

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

			Field	
Station		Data	Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W2269	Westfield River	2012	6	MassDEP aesthetics observations for station W2269/MAP2-206 on
				Westfield 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.
W2273	Westfield River	2012	6	MassDEP aesthetics observations for station W2273/MAP2-211 on
				Westfield River can be summarized as follows: there were generally no
				noted objectionable conditions (odors, deposits, growths, or turbidity)
				recorded by DEP field sampling crews during summer 2012.

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

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W2269	2012	6	6	0
W2273	2012	6	6	1

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W2269	Westfield River	2012	Color	Light Yellow/Tan	1	6
W2269	Westfield River	2012	Color	None	5	6
W2269	Westfield River	2012	Objectionable Deposits	No	5	6
W2269	Westfield River	2012	Objectionable Deposits	Unobservable	1	6
W2269	Westfield River	2012	Odor	None	6	6
W2269	Westfield River	2012	Scum	No	6	6
W2269	Westfield River	2012	Turbidity	None	6	6
W2273	Westfield River	2012	Color	None	6	6
W2273	Westfield River	2012	Objectionable Deposits	No	6	6
W2273	Westfield River	2012	Odor	None	6	6
W2273	Westfield River	2012	Scum	No	6	6
W2273	Westfield River	2012	Turbidity	None	6	6

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

Primary Contact Recreation

2022 Use Attainment	Alert
Not Supporting	NO
2022 Lise Attainment Summary	110
	2012 7
MassDEP staff conducted field surveys in this Westfield River AU (MA32-04) at two stations during summ	er 2012. These
stations are described as follows: approximately 3675 feet downstream of the River Road crossing neares	t Griffin Hill
Road, Savoy (W2269) and approximately 2325 feet downstream of the Marine Corps League Highway (Rc	oute 9) crossing
nearest Mougin Road, Cummington (W2273). There were generally no noted objectionable conditions (or	dors, deposits,
growths, or turbidity) recorded by DEP field sampling crews at either of the stations (n=6 each). E. coli ba	cteria samples
were also collected during the field surveys. Data analysis indicated that none of the intervals exceeded e	either the GM
criterion (126 cfu/100mL) or STV criterion (410 cfu/100mL) at the upstream station (W2269), however, a	nalysis of the
low frequency data from the downstream station (W2273) indicated that 83% of intervals had GMs >126	cfu/100mL and
one sample also exceeded the 410 cfu/100mL STV (the seasonal GM was 149 cfu/100mL).	
The Primary Contact Recreational Use of this Westfield River AU (MA32-04) will continue to be assessed a	as Not

Supporting. The Enterococcus impairment is being carried forward and an Escherichia Coli (E. Coli) impairment is being added because of concentrations that exceeded use attainment impairment thresholds for a single year limited frequency dataset at the downstream sampling location.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2269	MassDEP	Water	Westfield	[approximately 3675 feet downstream of the River	42.551606	-73.014609
		Quality	River	Road crossing nearest Griffin Hill Road, Savoy]		
W2273	MassDEP	Water	Westfield	[approximately 2325 feet downstream of the Marine	42.452473	-72.878272
		Quality	River	Corps League Highway (Route 9) crossing nearest		
				Mougin Road, Cummington]		

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
					Sample	Sample	Sample	Geometric
Station Code	Organization	Indicator	Start Date	End Date	Count	Result	Result	Mean
W2269	MassDEP	E. coli	05/17/12	09/20/12	6	8	172	36
W2273	MassDEP	E. coli	05/17/12	09/20/12	6	25	649	149

W2269 E. coli (90-day Interval), Primary Contact Recreational Use Season



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



W2273 E. coli (90-day Interval), Primary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	149
#GMI	6
#GMI Ex	5
%GMI Ex	83
n>STV	1
%n>STV	17

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



Secondary Contact Recreation

2022 Use Attainment	Alert
Fully Supporting	NO

2022 Use Attainment Summary

MassDEP staff conducted field surveys in this Westfield River AU (MA32-04) at two stations during summer 2012. These stations are described as follows: approximately 3675 feet downstream of the River Road crossing nearest Griffin Hill Road, Savoy (W2269) and approximately 2325 feet downstream of the Marine Corps League Highway (Route 9) crossing nearest Mougin Road, Cummington (W2273). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews at either of the stations (n=6 each). *E. coli* bacteria samples were also collected during the field surveys. Data analysis indicated none of the intervals had GMs >630 cfu/100ml, none of the samples exceeded the 1260 cfu/100ml STV, and the overall GMs were low at 36 and 149 cfu/100mL, respectively. The Secondary Contact Recreational Use of this Westfield River AU (MA32-04) will continue to be assessed as Fully Supporting based on the low *E. coli* concentrations and the lack of objectionable conditions in the river during the summer of 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2269	MassDEP	Water	Westfield	[approximately 3675 feet downstream of the River	42.551606	-73.014609
		Quality	River	Road crossing nearest Griffin Hill Road, Savoy]		
W2273	MassDEP	Water	Westfield	[approximately 2325 feet downstream of the Marine	42.452473	-72.878272
		Quality	River	Corps League Highway (Route 9) crossing nearest		
				Mougin Road, Cummington]		

Bacteria Data

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

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

						Minimum	Maximum	Seasonal
						Sample	Sample	Geometric
						Result	Result	Mean
						(CFU/100ml	(CFU/100ml	(CFU/100ml
					Sample	or	or	or
Station Code	Organization	Indicator	Start Date	End Date	Count	MPN/100ml)	MPN/100ml)	MPN/100ml)
W2269	MassDEP	E. coli	05/17/12	09/20/12	6	8	172	36
W2273	MassDEP	E. coli	05/17/12	09/20/12	6	25	649	149

W2269 E. coli (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	36
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

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

 %GMI Ex = percent GMI Exeedances; n>STV = #samples>Statistical Threshold Value (STV); %n>STV = percent samples>STV



W2273 E. coli (90-day Interval), Secondary Contact Recreational Use Season

Var	Res
Samples	6
SeasGM	149
#GMI	6
#GMI Ex	0
%GMI Ex	0
n>STV	0
%n>STV	0

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



Westfield River (MA32-05)

Location:	Confluence with Middle Branch Westfield River, Huntington to Route 20 bridge, Westfield.
AU Type:	RIVER
AU Size:	17.7 MILES
Classification/Qualifier:	B: WWF

Westfield River - MA32-05

Watershed Area: 452.35 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	Stream Buffer	Stream Buffer
Land Use Area (square miles)	452.35	7	103.67	1.83
Agriculture	3.5%	9.3%	2.6%	10.4%
Developed	5%	47.9%	5.5%	20.8%
Natural	87%	37.1%	82.7%	53.6%
Wetland	4.5%	5.7%	9.3%	15.2%
Impervious	2.16%			

Cover

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

This Westfield River AU (MA32-05) is a Warm Water Fishery (WWF). Eighty-seven fish community samples were collected from 2005-2017 in the Westfield River (MA32-04, MA32-05) and its major tributaries (Middle Branch Westfield River MA32-65, MA32-03; West Branch Westfield River MA32-01). The overall percent similarity with the Westfield Target Fish Community model was 75.39% (which would be slightly higher if Atlantic salmon, a stocked species, was removed from the analysis, as was done by DFG in their 2009 study). Of the four most common species in the TFC (blacknose dace, longnose dace, common shiner, slimy sculpin), excluding Atlantic salmon, all four of these fluvial specialist/dependent species were among the top four in the study samples, and in the same ranked order. While the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it should be noted that the percent similarity for just the eight fish community samples (Sample IDs 2425, 4088, 5429, 6267, 6268, 6694, 6695, 6696) collected in this Westfield River AU (upstream of the two Woronoco Mills dams in the upstream half of MA32-05) was 63.43%. MassDEP staff conducted limited water quality sampling during summer 2012 at four stations in this AU, described from upstream to downstream as follows: east of Rt 20 and ~530 ft downstream from Rt 90 crossing, just over the Russell border, Westfield (W2288), north of Shepard St and the Whitney Playground, Westfield (W1463), upstream of the Westfield Water Pollution Control Plant outfall and ~1200 ft upstream of the Little River confluence, Westfield (W2289), and north of Ascutney Avenue, Westfield (W1464). A probe was deployed to record continuous temperature measurements at the most downstream station (W1464) for 41 days during the summer index period. The maximum temperature recorded was 24.2°C well below the WWF standard 28.3° and 7DADM ≤27.7°C (chronic) or 24hour rolling average ≤28.3°C (acute) 2022 CALM guidance thresholds for a WWF. The maximum 24-hour rolling average temperature was 23.3 °C. Total phosphorus samples were collected five times at each of the three upstream stations and 29 times at the most downstream station (W1464); the seasonal averages were 0.012 mg/L at the three upstream stations and 0.023 mg/L at the most downstream station (W1464). The maximum total ammonia nitrogen was low (0.030 mg/L, n= 5/station). Chloride concentrations were also low (maximum 29 mg/L, n= 5/station). The Aquatic Life Use of this Westfield River AU (MA32-05) is assessed as Fully Supporting based primarily on the comparison of fish community data with the Westfield TFC model, as well as on the limited water quality data. The prior Alert for temperature (based on data collected from Route 20, at roadside park downstream from confluence with West Branch Westfield River, Huntington (W0221) in the upstream portion of the river during summer of 2006 is being removed since long term data collected from the two AUs forming this Westfield River AU (MA32-05) both met WWF criteria/thresholds during summers 2012 and 2017 (maximum temperatures were ≤27.1°C). The Alert for instream toxicity to P. promelas (upstream of the Texon Dam in Russell) is being carried forward (MassDEP Undated 7).

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5429	MassDFG	Fish	Westfield	Adj to Route 20 across from old country	42.17977	-72.84241
		Community	River	club, Russell		
6267	MassDFG	Fish	Westfield	Paved rest area RT 20 (hilltown health	42.22549	-72.86994
		Community	River	clinic), Huntington		
6268	MassDFG	Fish	Westfield	RT 20 turnoff "Wipowill golf course", Russell	42.18025	-72.84329
		Community	River			
6694	MassDFG	Fish	Westfield	Rt 20 rest area, Huntington	42.22638	-72.87138
		Community	River			
6695	MassDFG	Fish	Westfield	Site # 2., Russell	42.20690	-72.85437
		Community	River			
6696	MassDFG	Fish	Westfield	Jacobs ladder pullout on Rt 20, Russell	42.18152	-72.84465
		Community	River			
W1463	MassDEP	Water	Westfield	[north of Shepard Street and the Whitney	42.130837	-72.754349
		Quality	River	Playground, Westfield]		
W1464	MassDEP	Water	Westfield	[north of Ascutney Avenue, Westfield]	42.116525	-72.724356
		Quality	River			
W2288	MassDEP	Water	Westfield	[east of Route 20, approximately 530 feet	42.155108	-72.813413
		Quality	River	downstream from Route 90 crossing, just		
				over the Russell border, Westfield]		

Monitoring Stations

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W2289	MassDEP	Water	Westfield	[upstream of the Westfield Water Pollution	42.120102	-72.733477
		Quality	River	Control Plant outfall, approximately 580		
				feet downstream from Union Avenue		
				(Route 202), and approximately 1200 feet		
				upstream of the Little River confluence,		
				Westfield]		

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AE = American Eel, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, F = Fallfish, LND = Longnose Dace, P = Pumpkinseed, RT = Rainbow Trout, SC = Slimy Sculpin, SMB = Smallmouth Bass, TD = Tesselated Darter, WS = White Sucker, YB = Yellow Bullhead]

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
6695	09/26/17	BP	ТР	13	185	0	NA	NA	0	2	2%	41%	No	No	AE, BND, CRC, CS, F, LND, P, RT, SC, SMB, TD, WS, YB

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

[Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net; Trout= any combination of brook trout, brown trout, rainbow trout, tiger trout; Other Tier2 Species= any size and any combination of American brook lamprey, Atlantic salmon, lake chub, lake trout, longnose sucker, slimy sculpin]

[Species List: AE = American Eel, AS = Atlantic Salmon, CS = Common Shiner, F = Fallfish, LND = Longnose Dace, P = Pumpkinseed, RB = Rock Bass, SMB = Smallmouth Bass, TD = Tesselated Darter, YP = Yellow Perch]

Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	Trout ≤140mm Ind	LLS<200mm Ind	Other Tier2 Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5429	08/05/14	BG	ТР	10	105	0	0	2	2%	30%	No	No	AE, AS, CS, F, LND, P, RB, SMB, TD, YP,

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

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

[Species List: AE = American Eel, B = Bluegill, BND = Blacknose Dace, CRC = Creek Chub, CS = Common Shiner, F = Fallfish, LND = Longnose Dace, P = Pumpkinseed, RB = Rock Bass, SMB = Smallmouth Bass, TD = Tesselated Darter, WS = White Sucker, YB = Yellow Bullhead]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
6267	09/15/16	BP	ТР		7	749	0%	6	100%	0%	1	0%	Yes	No	BND, CRC, CS, LND,
6268	09/15/16	BP	ТР		9	388	0%	5	35%	0%	2	53%	Yes	No	AE, CS, F, LND, RB, SMB, TD, WS, YB,
6694	09/26/17	BP	ТР		7	1079	0%	7	100%	0%	0	0%	No	No	BND, CRC, CS, F, LND, TD, WS,
6696	09/26/17	BP	ТР		9	181	0%	3	14%	0%	3	56%	No	No	AE, B, F, LND, P, RB, SMB, TD, YB,

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

Eighty-seven fish community samples were collected from 2005-2017 in the Westfield River (MA32-04, MA32-05) and its major tributaries (Middle Branch Westfield River MA32-65, MA32-03; West Branch Westfield River MA32-01). The overall percent similarity with the Westfield Target Fish Community model was 75.39% (which would be slightly higher if Atlantic salmon, a stocked species, was removed from the analysis, as was done by DFG in their 2009 study). Of the 4 most common species in the TFC (blacknose dace, longnose dace, common shiner, slimy sculpin), excluding Atlantic salmon, all 4 of these fluvial specialist/dependent species were among the top 4 in the study samples, and in the same ranked order. While the TFC comparison was not specifically designed to evaluate individual reaches of a large mainstem river, it should be noted that the percent similarity for just the eight fish community samples (Sample IDs 2425, 4088, 5429, 6267, 6268, 6694, 6695, 6696) collected in this Westfield River AU (upstream of the two Woronoco Mills dams in the upstream half of MA32-05) was 63.43%. Based on the comparison of fish community data from the mainstem Westfield River and major tributaries with the Westfield TFC model, the Aquatic Life Use of this Westfield River AU (MA32-05) should be assessed as Fully Supporting.

Fish Community Samples in the Westfield River MA32-05. [To view locations of additional samples included in the Westfield TFC analysis that were located in other AUs, go to the sections for MA32-65, MA32-03, MA32-01, MA32-04]:



Westfield TFC Model:

Table A16. Species percent composition for reference rivers used to develop the Westfield 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).

							NB				
	Third Branch	Tenmile	Ashuelot	Ammonoosuc	Piscataquog	Cold	Sugar	North			Expected
Species	White River	River	River	River	River	River	River	River	Total	Rank	Proportion
Blacknose dace	25.0	14.9	19.8	24.1	22.5	53.8	6.9	38.4	205.4	1	32.4
Longnose dace	19.9	9.3	12.7	38.5	15.2	16.9	44.6	29.1	186.2	2	16.2
Common shiner	2.6	13.8	22.3	1.4	15.8	6.5	20.8	1.1	84.3	3	10.8
Atlantic salmon	0.0	0.0	2.2	24.1	3.4	6.5	0.0	15.1	51.3		
Slimy sculpin	33.1	0.0	0.0	6.0	0.0	2.7	0.0	8.9	50.6	5	6.5
Fallfish	0.0	18.7	26.8	0.0	2.8	0.0	1.0	0.3	49.5	6	5.4
White sucker	0.3	15.8	7.9	0.5	2.8	6.2	10.9	1.9	46.1	7	4.6
Smallmouth bass	0.0	12.2	1.3	0.0	12.0	0.4	0.0	0.0	25.9		
Longnose sucker	5.6	0.0	0.0	4.8	2.8	0.6	4.0	2.9	20.8	9	3.6
Tessellated darter	0.1	7.3	3.8	0.2	0.0	0.6	0.0	0.3	12.3	10	3.2
Creek chub	1.4	0.6	0.2	0.0	0.0	2.8	5.0	0.8	10.8	11	2.9
Brown trout	3.3	0.1	0.3	0.0	0.4	0.0	5.0	0.3	9.4		
Rainbow trout	7.5	0.1	0.0	0.0	0.2	0.2	0.0	0.2	8.1		
Brook trout	1.2	0.1	0.0	0.6	0.0	2.4	0.0	0.6	4.9	14	2.3
Cutlips minnow	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	4.6		
Yellow bullhead	0.0	0.0	1.0	0.0	3.0	0.0	0.0	0.0	4.0		
Redbreast sunfish	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	2.7	17	1.9
Pumpkinseed	0.0	0.6	0.3	0.0	1.4	0.1	0.0	0.0	2.4	18	1.8
American eel	0.0	0.0	0.2	0.0	1.4	0.0	0.0	0.0	1.6	19	1.7
Largemouth bass	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	1.4		
Bluegill	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.3		
Spottail shiner	0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.8	22	1.5
Golden shiner	0.0	0.3	0.0	0.0	0.5	0.0	0.0	0.0	0.8	22	1.5
Brown bullhead	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.2	0.6	23	1.4
Bluntnose minnow	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4		
Rock bass	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.4		
Chain pickerel	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.3	26	1.2
Yellow perch	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	26	1.2

Fish Community Analysis:

Combined analysis of samples from all 5 AUs (MA32-65, MA32-03, MA32-01, MA32-04, MA32-05)

		Values						
	_	# of	% of	Applicable	TFC	% Sim to		
Watershed	📲 Common Name 🛛 📑	Fish	catch	TFC	Difference	TFC	Rov Labels 🛛 🕂	
Westfield	American Brook Lamprey	1	0.00%	-	-		🗏 Westfield	
Westfield	American Eel	148	0.43%	1.7	1.3		1224	4681
Westfield	Atlantic Salmon	2150	6.23%	-	6.2		1245	4682
Westfield	Banded Killifish	1	0.00%	-	0.0		1248	4683
Westfield	Banded Sunfish		0.00%	-	-		1249	4684
Westfield	Black Crappie		0.00%	-	-		1319	5018
Westfield	Blacknose Dace	13706	39.71%	32.4	7.3		1808	5025
Westfield	Bluegill	15	0.04%	-	0.0		1815	5026
Westfield	Bluntnose Minnow	1	0.00%	-	0.0		1816	5040
Westfield	Bridle Shiner		0.00%	-	-		1821	5105
Westfield	Brook Trout	399	1.16%	2.3	1.1		1828	5164
Westfield	Brown Bullhead		0.00%	1.4	1.4		1829	5165
Westfield	Brown Trout	18	0.05%	-	0.1		2044	5177
Westfield	Central Mudminnow		0.00%	-	-		2045	5178
Westfield	Chain Pickerel		0.00%	1.2	1.2		2047	5429
Westfield	Channel Catfish		0.00%	-	-		2048	5686
Westfield	Common Carp		0.00%	-	-		2050	5687
Westfield	Common Shiner	3825	11.08%	10.8	0.3		2062	5719
Westfield	Creek Chub	431	1.25%	2.9	1.7		2165	5721
Westfield	Creek Chubsucker		0.00%	-	-		2346	6028
Westfield	Cutlips Minnow		0.00%	-	-		2425	6029
Westfield	Fallfish	137	0.40%	5.4	5.0		2477	6068
Westfield	Fathead Minnow		0.00%	-	-		2480	6069
Westfield	Golden Shiner	12	0.03%	1.5	1.5		2481	6218
Westfield	Green Sunfish		0.00%	-	-		2482	6229
Westfield	Lake Chub	433	1.25%	-	1.3		2483	6239
Westfield	Largemouth Bass	7	0.02%	-	0.0		2569	6266
Westfield	Longnose Dace	6229	18.05%	16.2	1.8		2976	6267
Westfield	Longnose Sucker		0.00%	3.6	3.6		2977	6268
Westfield	Northern Pike		0.00%	-	-		2989	6277
Westfield	Pumpkinseed	24	0.07%	1.8	1.7		2990	6278
Westfield	Rainbow Trout	22	0.06%	-	0.1		2991	6385
Westfield	Redbreast Sunfish		0.00%	1.9	1.9		2993	6462
Westfield	Redfin Pickerel		0.00%	-	-		3176	6552
Westfield	Rock Bass	46	0.13%	-	0.1		3210	6629
Westfield	Sea Lamprey		0.00%	-	-		3211	6674
Westfield	Slimy Soulpin	3803	11.02%	6.5	4.5		3228	6694
Westfield	Smallmouth Bass	513	1.49%	-	1.5		3229	6695
Westfield	Spottail Shiner	1	0.00%	1.5	1.5		3230	6696
Westfield	Swamp Darter		0.00%	-	-		3618	7072
Westfield	Tadpole Madtom		0.00%	-	-		3619	
Westfield	Tesselated Darter	205	0.59%	-	0.6		3626	
Westfield	White Catfish		0.00%	-	-		4088	
Westfield	White Perch		0.00%	-	-		4089	
Westfield	White Sucker	2376	6.88%	4.6	2.3		4090	
Westfield	Yellow Bullhead	15	0.04%	-	0.0		4093	
Westfield	Yellow Perch	2	0.01%	1.2	1.2		4094	
Westfield	(blank)		0.00%	-	-	75.39	4096	
Grand Total		34519	*****	-	100.0		4097	

Analysis of the Westfield River (MA32-05) samples alone

		Values						1
		# of	% of	Applicable	TFC	% Sim to	Rov Labels 🕂	
Watershed	🕶 Common Name 🛛 📲	Fish	catch	TFC	Difference	TFC	🗏 Westfield	
🗏 Westfield	American Brook Lamprey	1	0.00%	-	-		1224	4681
Westfield	American Eel	140	4.59%	1.7	2.9		1245	4682
Westfield	Atlantic Salmon	3	0.10%	-	0.1		1248	4683
Westfield	Banded Killifish		0.00%	-	-		1249	4684
Westfield	Banded Sunfish		0.00%	-	-		1319	5025
Westfield	Black Crappie		0.00%	-	-		1808	5026
Westfield	Blacknose Dace	792	25.94%	32.4	6.5		1815	5040
Westfield	Bluegill	5	0.16%	-	0.2		1816	5105
Westfield	Bluntnose Minnow		0.00%	-	-		1821	5164
Westfield	Bridle Shiner		0.00%	-	-		1828	5165
Westfield	Brook Trout		0.00%	2.3	2.3		1829	5177
Westfield	Brown Bullhead		0.00%	1.4	1.4		2044	5178
Westfield	Brown Trout		0.00%	-	-		2045	5423
Westfield	Central Mudminnow		0.00%	-	-		2047	5687
Westfield	Chain Pickerel		0.00%	1.2	1.2		2048	5719
Westfield	Channel Catfish		0.00%	-	-		2050	5721
Westfield	Common Carp		0.00%	-	-		2062	6028
Westfield	Common Shiner	605	19.82%	10.8	9.0		2165	6029
Westfield	Creek Chub	33	1.08%	2.9	1.8		2346	6068
Westfield	Creek Chubsucker		0.00%	-	-		2425	6069
Westfield	Cutlips Minnow		0.00%	-	-		2477	6218
Westfield	Fallfish	117	3.83%	5.4	1.6		2480	6229
Westfield	Fathead Minnow		0.00%	-	-		2481	6255
Westfield	Golden Shiner		0.00%	1.5	1.5		2482	6267
Westfield	Green Sunfish		0.00%	-	-		2483	6268
Westfield	Lake Chub		0.00%	-	-		2569	6277
Westfield	Largemouth Bass		0.00%	-	-		2976	6278
Westfield	Longnose Dace	681	22.31%	16.2	6.1		2977	6385
Westfield	Longnose Sucker		0.00%	3.6	3.6		2989	6462
Westfield	Northern Pike		0.00%	-	-		2990	6552
Westfield	Pumpkinseed	4	0.13%	1.8	1.7		2991	6674
Westfield	Rainbow Trout	1	0.03%	-	0.0		2993	6694
Westfield	Redbreast Sunfish		0.00%	1.9	1.9		3176	6695
Westfield	Redfin Pickerel		0.00%	-	-		3210	6696
Westfield	Rock Bass	46	1.51%	-	1.5		3211	7072
Westfield	Sea Lamprey		0.00%	-	-		3228	
Westfield	Slimy Sculpin	2	0.07%	6.5	6.4		3229	
Westfield	Smallmouth Bass	392	12.84%	-	12.8		3230	
Westfield	Spottail Shiner		0.00%	1.5	1.5		3618	
Westfield	Swamp Darter		0.00%	-	-		3619	
Westfield	Tadpole Madtom		0.00%	-	-		3626	
Westfield	Tesselated Darter	154	5.04%	-	5.0		4088	
Westfield	White Catfish		0.00%	-	-		4089	
Westfield	White Perch		0.00%	-	-		4090	
Westfield	White Sucker	63	2.06%	4.6	2.5		4093	
Westfield	Yellow Bullhead	13	0.43%	-	0.4		4094	
Westfield	Yellow Perch	2	0.07%	1.2	1.1		4096	
Westfield	(blank)		0.00%	-	-	63.43	4097	
Grand Total		3053	100.00%	-	100.0			

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W1464	07/27/12	09/15/12	41	32	23.3	24.2	23.7	22.5	25	0	14	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Max 24hr	Count	Count	Count WW
			Count	24hr	Avg	CWTier1 24hr	CWTier2 24hr	24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W1464	07/26/12	09/15/12	51	2774	23.3	0	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[Summer seasonal total phosphorus data collected May-Sept]

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W1463	2012	5	0.007	0.027	0.012					5	0
W1464	2012	29	0.01	0.058	0.023					5	0
W2288	2012	5	0.007	0.025	0.012	-		-		5	0
W2289	2012	5	0.007	0.026	0.012					5	0

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

MassDEP Total Ammonia Nitrogen (TAN) Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6) [TAN= NH3 + NH4+]

Station	Data	TAN	TAN Min	TAN Max	TAN Avg	Count TAN	Count TAN
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	>Chronic	>Acute
W1463	2012	5	0.020	0.030	0.022	0	0
W1464	2012	5	0.020	0.030	0.022	0	0
W2288	2012	5	0.020	0.020	0.020	0	0
W2289	2012	5	0.020	0.030	0.022	0	0

MassDEP Chloride Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Count	Count
Station	Data	Chloride	Chloride	Chloride	Chloride	Chloride	Chloride
Code	Year	Count	Min (mg/L)	Max (mg/L)	Avg (mg/L)	>230	>860

W1463	2012	5	9	18	14	0	0
W1464	2012	5	11	29	19	0	0
W2288	2012	5	8	19	13	0	0
W2289	2012	5	9	21	14	0	0

Fish Consumption

2022 Use Attainment	Alert						
Not Assessed	NO						
2022 Use Attainment Summary							
No fish toxics sampling has been conducted in this Westfield River AU (MA32-05), so the Fish Consumption Use is Not							
Assessed.							

Aesthetic

2022 Use Attainment	Alert					
Fully Supporting	NO					
2022 Use Attainment Summary						

MassDEP staff conducted water quality field surveys at four stations on this Westfield River AU (MA32-05) during the summer of 2012. These stations are described from upstream to downstream as follows: east of Route 20, approximately 530 feet downstream from Route 90 crossing, just over the Russell border in Westfield (W2288); north of Shepard Street and the Whitney Playground in Westfield (W1463); upstream of the Westfield Water Pollution Control Plant outfall and approximately 1200 feet upstream of the Little River confluence in Westfield (W2289); north of Ascutney Avenue in Westfield (W1464) (n=5 each). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews at any of the stations.

The Aesthetics Use of this Westfield River AU (MA32-05) is assessed as Fully Supporting based on the general lack of any objectionable conditions noted by MassDEP staff at four sites surveyed during the summer 2012.

Monitoring Stations

Station						
Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
W1463	MassDEP	Water	Westfield	[north of Shepard Street and the Whitney	42.130837	-72.754349
		Quality	River	Playground, Westfield]		
W1464	MassDEP	Water	Westfield	[north of Ascutney Avenue, Westfield]	42.116525	-72.724356
		Quality	River			
W2288	MassDEP	Water	Westfield	[east of Route 20, approximately 530 feet	42.155108	-72.813413
		Quality	River	downstream from Route 90 crossing, just over the		
				Russell border, Westfield]		
W2289	MassDEP	Water	Westfield	[upstream of the Westfield Water Pollution Control	42.120102	-72.733477
		Quality	River	Plant outfall, approximately 580 feet downstream		
				from Union Avenue (Route 202), and approximately		
				1200 feet upstream of the Little River confluence,		
				Westfield]		

Aesthetic Observations

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

		_ .	Field	
Station		Data	Sheet	
Code	Waterbody	Year	Count	Aesthetics Summary Statement
W1463	Westfield River	2012	5	MassDEP aesthetics observations for station W1463 on Westfield 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.
W1464	Westfield River	2012	5	MassDEP aesthetics observations for station W1464 on Westfield 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.
W2288	Westfield River	2012	5	MassDEP aesthetics observations for station W2288 on Westfield 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.
W2289	Westfield River	2012	5	MassDEP aesthetics observations for station W2289 on Westfield River can
				be summarized as follows: there were generally no noted objectionable
				conditions (odors, deposits, growths, or turbidity) recorded by DEP field
				sampling crews during summer 2012.

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

Station Code	Data Year	Field Sheet Count	Field Sheet Count w/ Film & Filamentous Algae Observations	Dense/ Very Dense Film/ Filamentous Algae
W1463	2012	5	5	0
W1464	2012	5	5	0
W2288	2012	5	5	0
W2289	2012	5	5	0

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

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W1463	Westfield River	2012	Color	Greyish	1	5
W1463	Westfield River	2012	Color	None	4	5
W1463	Westfield River	2012	Objectionable Deposits	No	5	5
W1463	Westfield River	2012	Odor	None	5	5
W1463	Westfield River	2012	Scum	No	5	5
W1463	Westfield River	2012	Turbidity	Moderately Turbid	1	5
W1463	Westfield River	2012	Turbidity	None	4	5
W1464	Westfield River	2012	Color	Greyish	1	5
W1464	Westfield River	2012	Color	None	4	5
W1464	Westfield River	2012	Objectionable Deposits	No	4	5
W1464	Westfield River	2012	Objectionable Deposits	Yes	1	5
W1464	Westfield River	2012	Odor	None	5	5
W1464	Westfield River	2012	Scum	No	4	5
W1464	Westfield River	2012	Scum	NR	1	5
W1464	Westfield River	2012	Turbidity	Moderately Turbid	1	5
W1464	Westfield River	2012	Turbidity	None	3	5

Station		Data			Result	Total Field
Code	Waterbody	Year	Parameter	Result	Count	Sheet Count
W1464	Westfield River	2012	Turbidity	Slightly Turbid	1	5
W2288	Westfield River	2012	Color	Greyish	1	5
W2288	Westfield River	2012	Color	Light Yellow/Tan	1	5
W2288	Westfield River	2012	Color	None	3	5
W2288	Westfield River	2012	Objectionable Deposits	No	5	5
W2288	Westfield River	2012	Odor	None	5	5
W2288	Westfield River	2012	Scum	No	5	5
W2288	Westfield River	2012	Turbidity	Moderately Turbid	1	5
W2288	Westfield River	2012	Turbidity	None	4	5
W2289	Westfield River	2012	Color	Greyish	1	5
W2289	Westfield River	2012	Color	None	4	5
W2289	Westfield River	2012	Objectionable Deposits	No	5	5
W2289	Westfield River	2012	Odor	Musty (Basement)	1	5
W2289	Westfield River	2012	Odor	None	4	5
W2289	Westfield River	2012	Scum	No	4	5
W2289	Westfield River	2012	Scum	Yes	1	5
W2289	Westfield River	2012	Turbidity	None	4	5
W2289	Westfield River	2012	Turbidity	Slightly Turbid	1	5

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	

MassDEP staff conducted limited water quality sampling at four stations on this Westfield River AU (MA32-05) during the summer of 2012. These stations are described from upstream to downstream as follows: east of Route 20, approximately 530 feet downstream from Route 90 crossing, just over the Russell border in Westfield (W2288); north of Shepard Street and the Whitney Playground in Westfield (W1463); upstream of the Westfield Water Pollution Control Plant outfall and approximately 1200 feet upstream of the Little River confluence in Westfield (W2289); north of Ascutney Avenue in Westfield (W1464) (n=5 each). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews at any of the stations.

Since bacteria sampling was not conducted in this Westfield River AU (MA32-05), the Primary Contact Recreational Use is Not Assessed.

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Commence	

2022 Use Attainment Summary MassDEP staff conducted limited water quality sampling at four stations on this Westfield River AU (MA32-05) during the summer of 2012. These stations are described from upstream to downstream as follows: east of Route 20, approximately 530 feet downstream from Route 90 crossing, just over the Russell border in Westfield (W2288); north of Shepard Street and the Whitney Playground in Westfield (W1463); upstream of the Westfield Water Pollution Control Plant outfall and approximately 1200 feet upstream of the Little River confluence in Westfield (W2289); north of Ascutney Avenue in

Westfield (W1464) (n=5 each). There were generally no noted objectionable conditions (odors, deposits, growths, or turbidity) recorded by DEP field sampling crews at any of the stations.

Since bacteria sampling was not conducted in this Westfield River AU (MA32-05), the Secondary Contact Recreational Use is Not Assessed.

Westfield River (MA32-06)

Location:	Route 20 bridge, Westfield to Westfield city boundary with West Springfield and Agawam.
AU Type:	RIVER
AU Size:	1.9 MILES
Classification/Qualifier:	B: WWF

No usable data were available for Westfield River (MA32-06) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Westfield River (MA32-07)

Location:	Westfield/West Springfield/Agawam city line to mouth at confluence with Connecticut
	River, Agawam.
AU Type:	RIVER
AU Size:	8.5 MILES
Classification/Qualifier:	B: WWF

Westfield River - MA32-07

Watershed Area: 516.08 square miles



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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert
Fully Supporting	YES
2022 Use Attainment Summary	

MassDFG biologists conducted boat electrofishing starting at the confluence of this Westfield River AU (MA32-07) with the Connecticut River moving upstream to the Springfield Yacht Club canoe ramp. The five samples (Sample IDs 6706, 7314, 7315, 7316, 7317; n= 41-100 individuals/sample) were all collected on 13 September 2017 and contained fluvial species (comprising 11-24% of the samples) as well as intolerant/moderately tolerant macrohabitat generalists. One slimy sculpin was captured in one sample.

The Aquatic Life Use of this Westfield River AU (MA32-07) will continue to be assessed as Fully Supporting based on the presence of fluvial fish documented in the September 2017 boat electrofishing samples. The prior Alerts identified in the 2016 IR (MassDEP Undated 7), for alterations in normal streamflow conditions observed at USGS gage 01183500 and for slight enrichment indicators, are being carried forward.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
6706	MassDFG	Fish	Westfield	Westfield Put in at Springfield Yacht club ramp starting 4		-72.59213
		Community	River	at mouth w/ CT river, Agawam		
7314	MassDFG	Fish	Westfield	Put in at Springfield yacht club and canoe	42.08494	-72.59542
		Community	River	ramp; started at confluence of CT/Westfield		
				River., Agawam		
7315	MassDFG	Fish	Westfield	Put in at Springfield yacht club and canoe	42.08548	-72.59700
		Community	River	ramp; started at confluence of CT/Westfield		
				River., Agawam		
7316	MassDFG	Fish	Westfield	Put in at Springfield yacht club and canoe	42.08558	-72.59793
		Community	River	ramp; started at confluence of CT/Westfield		
				River., Agawam		
7317	MassDFG	Fish	Westfield	Put in at Springfield yacht club and canoe	42.08338	-72.58861
		Community	River	ramp; started at confluence of CT/Westfield		
				River., Agawam		

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

Fish Community Data (2012-2019) Provided by MassDFG. (MassDFG 2020) (MassDEP Undated 3) [Sample Type: TP= Total Pickup, SP= Selective Pickup, Method: BT=Boat Shocking, BP= Backpack Shocking, BG= Barge Shocking, SE= Seine, SL= Snorkel, NS= Not Stated, MT= Minnow Trap, GN= Gillnet, FY= Fyke Net, Gradient: H = High, L = Low; I/MT MG= Intolerant/Moderately Tolerant Macrohabitat Generalist]

[Species List: AE = American Eel, B = Bluegill, BB = Brown Bullhead, C = Common Carp, CM = Central Mudminnow, CS = Common Shiner, F = Fallfish, GSF = Green Sunfish, K = Banded Killifish, LMB = Largemouth Bass, P = Pumpkinseed, RB = Rock Bass, RBS = Redbreast Sunfish, S = American Shad, SC = Slimy Sculpin, SL = Sea Lamprey, SMB = Smallmouth Bass, SS = Spottail Shiner, TD = Tesselated Darter, WS = White Sucker, YB = Yellow Bullhead]

Sample ID	Sample Date	Method	Sample Type	Gradient	Total Taxa	Total Ind	Cold Ind %	Fluvial Taxa	Fluvial Ind %	Intol Ind %	I/MT MG Taxa	I/MT MG Ind %	Notables	CFR	Species List
6706	09/13/17	ΒT	ТР		9	57	2%	3	14%	2%	2	54%	No	No	AE, B, P, S, SC, SL, SMB, TD, WS,
7314	09/13/17	ΒТ	ТР		9	61	0%	2	21%	0%	2	26%	No	No	AE, B, F, K, RBS, S, SL, SMB, TD,
7315	09/13/17	ΒТ	ТР		17	100	0%	4	20%	0%	6	28%	No	No	AE, B, BB, CM, CS, F, GSF, K, LMB, P, RB, RBS, S, SMB, SS, TD, YB,
7316	09/13/17	ΒТ	ТР		10	95	0%	1	11%	0%	4	57%	No	No	AE, B, C, P, RB, RBS, SL, SMB, TD, YB,
7317	09/13/17	ΒT	ТР		7	41	0%	2	24%	0%	2	27%	No	No	AE, B, RBS, SL, SMB, TD, WS,

Fish Consumption

2022 Use Attainment

Alert

Not Assessed	NO
2022 Lies Attainment Commence	

2022 Use Attainment Summary

Fish toxics sampling has not been conducted in this Westfield River AU (MA32-07), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent data are available for this Westfield Piver ALL (MA22.07) so the Aesthetics Lise is Not Assessed	

No recent data are available for this Westfield River AU (MA32-07), so the Aesthetics Use is Not Assessed.

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
No recent bacteria data are available for this Westfield River AU (MA32-07), so the Primary Contact Recre	eational Use is
Not Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert		
Not Assessed	NO		
2022 Use Attainment Summary			
No recent bacteria data are available for this Westfield River AU (MA32-07), so the Secondary Contact Re	creational Use		
is Not Assessed.			

White Brook (MA32-28)

Location:	Source just north of Route 147, Agawam to mouth at confluence with Westfield River,		
	Agawam.		
AU Type:	RIVER		
AU Size:	0.9 MILES		
Classification/Qualifier:	B: CWF		

No usable data were available for White Brook (MA32-28) 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	2022 AU			Impairment Change
Category	Category	Impairment	ATTAINS Action ID	Summary
5	5	Escherichia Coli (E. Coli)		Unchanged

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

Whitmarsh Brook (MA32-87)

Location:	Headwaters, north of Trouble Street, Cummington to mouth at confluence with Bronson		
	Brook, Worthington.		
AU Type:	RIVER		
AU Size:	1.7 MILES		
Classification/Qualifier:	B: CWF		

No usable data were available for Whitmarsh Brook (MA32-87) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Windsor Pond (MA32076)

Location:	Windsor.
AU Type:	FRESHWATER LAKE
AU Size:	46 ACRES
Classification/Qualifier:	В

No usable data were available for Windsor Pond (MA32076) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, 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		Unchanged
		Spicatum*)		
5	5	Dissolved Oxygen		Unchanged
5	5	Mercury in Fish Tissue	42410	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	Introduction of Non-native Organisms	Х				
Spicatum*)	(Accidental or Intentional) (Y)					
Dissolved Oxygen	Source Unknown (N)	Х				
Mercury in Fish Tissue	Atmospheric Deposition - Toxics (Y)		Х			
Mercury in Fish Tissue	Source Unknown (N)		Х			

Wright Pond (MA32078)

Location:	Holyoke.
AU Type:	FRESHWATER LAKE
AU Size:	28 ACRES
Classification/Qualifier:	A: PWS, ORW

No usable data were available for Wright Pond (MA32078) for the 2022 Integrated Reporting cycle, therefore its category, use attainments, impairments, associated actions, and sources remain unchanged from the previous cycle.

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

Yokum Brook (MA32-19)

Location:	Headwaters, outlet Buckley-Dunton Lake, south of County Road, Becket to mouth at confluence with Depot Brook (forming headwaters of West Branch Westfield River), Becket.
AU Type:	RIVER
AU Size:	4 MILES
Classification/Qualifier:	B: CWF

Yokum Brook - MA32-19

Watershed Area: 8.32 square miles



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer 1.22	
Land Use Area (square miles)	8.32	6.26	1.51		
Agriculture	0.9%	1.1%	0.6%	0.8%	
Developed	3.9%	4.6%	8.9%	9.8%	
Natural	88.3%	87.9%	80.8%	80.1%	
Wetland	7%	6.3%	9.6%	9.4%	
Impervious	1. <mark>98%</mark>				

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			

MassDFG biologists conducted backpack electrofishing in three general locations along Yokum Brook, a designated Cold Water Fishery, from upstream to downstream as follows: adjacent to County Rd/upstream from Rt. 8 crossing, Becket in August 2018 (Sample ID 7548); turn-off on Rt 8 just south of cemetery, Becket in August each year from 2014 through 2019 (Sample IDs 5156, 5688, 6258, 6559, 7563, 8236); and downstream of Main St/Carter Rd/Benton Hill Rd crossings, Becket in July 2018 (Sample ID 7630). All the samples (n= 59-232) were dominated (\geq 76%) by fluvial fish including multiple age classes of Eastern brook trout. MassDEP staff conducted limited water quality monitoring during summer 2017 near the downstream end of the brook, approximately 150 feet downstream from Maple St in Becket (W2748). The minimum dissolved oxygen (DO) was 9.8 mg/L (n=2 discrete measurements). A probe was deployed to record continuous temperature measurements over 61 days in the summer index period with results as follows: the maximum temperature was 20.3 °C. The single pH was measured at 7.8 S.U., the maximum DO saturation was 99.7%, and the maximum specific conductance measurement was 292 µs/cm (n=2).

The Aquatic Life Use of Yokum Brook (MA32-19) is assessed as Fully Supporting based primarily on the presence of multiple age classes of Eastern brook trout (a species indicative of excellent habitat and water quality conditions) in summers 2014 through 2019, as well as on the limited water quality data collected in the summer of 2017.

Station Code	Organization	Туре	Water Body	Station Description	Latitude	Longitude
5156	MassDFG	Fish	Yokum	Off Rt 8 (turnoff & trail to bridge), just S of	42.31916	-73.08926
		Community	Brook	cemetary, Becket		
5688	MassDFG	Fish	Yokum	Along Rt 8, just S of cemetary, Becket	42.31927	-73.08919
		Community	Brook			
6258	MassDFG	Fish	Yokum	Turn-off on Rt 8, Becket	42.31941	-73.08916
		Community	Brook			
6559	MassDFG	Fish	Yokum	Turnoff Rt 8A, Becket	42.31935	-73.08858
		Community	Brook			
7548	MassDFG	Fish	Yokum	Adjacent County Rd./Upstream from Rt. 8	42.31491	-73.09726
		Community	Brook	crossing, Becket		
7563	MassDFG	Fish	Yokum	Turnoff on Rt. 8, Becket	42.31933	-73.08885
		Community	Brook			
7630	MassDFG	Fish	Yokum	Downstream of Main St./Carter Rd./Benton	42.32574	-73.08419
		Community	Brook	Hill Rd. crossings, Becket		
8236	MassDFG	Fish	Yokum	Turn off on Rt. 8, Becket	42.31919	-73.08917
		Community	Brook			
W2748	MassDEP	Water	Yokum	[approximately 150 feet downstream from	42.332476	-73.082891
		Quality	Brook	Maple Street, Becket]		

Monitoring Stations

Biological Monitoring Information

Fish Community Data and DELTS

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

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

[Species List: AS = Atlantic Salmon, B = Bluegill, BB = Brown Bullhead, BND = Blacknose Dace, CRC = Creek Chub, EBT = Brook Trout, GS = Golden Shiner, LND = Longnose Dace, P = Pumpkinseed, YP = Yellow Perch]
Sample ID	Sample Date	Method	Sample Type	Total Taxa	Total Ind	EBT Ind	EBT Min Length (mm)	EBT Max Length (mm)	EBT ≤140mm Ind	SC Ind	Cold Ind %	Fluvial Ind %	Notables	CFR	Species List
5156	08/12/14	BP	ТР	8	59	16	61	170	12	0	63%	90%	No	Yes	AS, BB, BND, CRC, EBT, GS, LND, YP,
5688	08/13/15	BP	ТР	5	122	69	47	181	54	0	57%	97%	No	Yes	BND, CRC, EBT, LND, YP,
6258	08/04/16	BP	TP	4	232	56	64	221	39	0	24%	100%	No	Yes	BND, CRC, EBT, LND,
6559	08/08/17	BP	TP	5	180	36	53	214	19	0	20%	93%	No	Yes	B, BND, EBT, LND, YP,
7548	08/03/18	BP	ТР	7	93	29	49	228	14	0	31%	83%	Yes	Yes	BND, CRC, EBT, GS, LND, P, YP,
7563	08/08/18	BP	ТР	6	67	31	61	235	14	0	46%	81%	Yes	Yes	BB, BND, CRC, EBT, LND, YP,
7630	07/20/18	BP	ТР	7	189	36	51	189	29	0	19%	76%	Yes	Yes	BND, CRC, EBT, GS, LND, P, YP,
8236	08/15/19	BP	ТР	5	149	62	54	297	39	0	42%	93%	No	Yes	BND, CRC, EBT, LND, YP,

Physico-chemical Water Quality Information

DO, pH, Temperature

MassDEP Discrete Dissolved Oxygen Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

[CW= Coldwater, WW= Warmwater]

					DO		Count WW	Count WW
Station			DO	DO Min	Avg	Count	Early Life Stages	Other Life
Code	Start Date	End Date	Count	(mg/L)	(mg/L)	CW <5.0	<5.0	Stages <4.0
W2748	08/31/17	10/11/17	2	9.8	9.9	0	0	0

MassDEP Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

Station Code	Start Date	End Date	Index Count	7day Count	Max Daily Mean (°C)	Max Temp (°C)	Max 7DADM (°C)	Max 7DADA (°C)	Count CWTier1 7DADM >20	Count CWTier1 Daily Mean >23.5	Count CWTier2 7DADA >21	Count CWTier2 Daily Mean >24.1	Count WW 7DADM >27.7	Count WW Daily Mean >28.3
W2748	07/14/17	09/14/17	61	46	20.3	22.7	21.5	19.6	6	0	0	0	0	0

24-hour Rolling Average Calculations for MassDEP Short- and Long-term Continuous Temperature Data (Summer Index 2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

			Count	24hr	Max 24hr Avg	Count CWTier1 24hr	Count CWTier2 24hr	Count WW 24hr Avg
Station	Start		Days	Rolling	Rolling	Avg Rolling	Avg Rolling	Rolling
Code	Date	End Date	Deployed	Count	Temp (°C)	>23.5 °C	>24.1 °C	>28.3°C
W2748	07/13/17	09/15/17	65	3045	20.3	0	0	0

MassDEP Discrete Temperature Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

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

					Temp					
Station	Start		Temp	Index	Max	Temp	Count	Count	Count	Count WW
Code	Date	End Date	Count	Count	(°C)	Avg (°C)	CW >20	CW >22	WW >28.3	>30.3
W2748	08/31/17	10/11/17	2	1	14.3	13.8	0	0	0	0

MassDEP Discrete pH Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	pH Count	pH Min (SU)	pH Max (SU)	pH Count <6.5 & >8.3	pH Count <6.0 & >8.8
W2748	08/31/17	10/11/17	1	7.8	7.8	0	0

Nutrients (Primary Producer Screening, Physico-chemical Screening)

MassDEP Nutrient Enrichment Indicator Data (2011-2018). (MassDEP Undated 8) (MassDEP Undated 6)

						Delta	Delta	DO			Dense/V.
		Seasonal	Seasonal	Seasonal	Seasonal	DO	DO	Sat	рН	Count	Dense
Station	Data	ТР	TP Min	TP Max	TP Avg	Max	Avg	Max	Max	Algal	Film/Fila.
Code	Year	Count	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(%)	(SU)	Obsv.	Algae
W2748	2017							99.7	7.8		

[Summer seasonal total phosphorus data collected May-Sept]

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

MassDEP Discrete Specific Conductance Data (2011-2018) Compared to Estimated Chloride Criteria. (MassDEP Undated 8) (MassDEP Undated 6)

Station Code	Start Date	End Date	SpCond Count	SpCond Min (μs/cm)	SpCond Max (µs/cm)	Count SpCond >904	Count SpCond >994	Count SpCond >3193	Count SpCond >3512	Consecutive sets >904	Consecutive sets >994
W2748	08/31/17	10/11/17	2	175	292	0	0	0	0	0	0

Fish Consumption

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Fish toxics compliance has not been conducted in Valuum Dupoly (NAA22-10), so the Fish Consumption Lies is	Net Assessed

Fish toxics sampling has not been conducted in Yokum Brook (MA32-19), so the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Recent data are not available for Yokum Brook (MA32-19), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Recent bacteria data are not available for Yokum Brook (MA32-19), so the Primary Contact Recreational	Jse is Not
Assessed.	

Secondary Contact Recreation

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
Recent bacteria data are not available for Yokum Brook (MA32-19), so the Secondary Contact Recreation	al Use is Not
Assessed.	

Yokum Pond (MA32079)

Location:	Becket.
AU Type:	FRESHWATER LAKE
AU Size:	98 ACRES
Classification/Qualifier:	В

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

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

Designated Use Attainment Decisions

Fish, other Aquatic Life and Wildlife

2022 Use Attainment	Alert	
Not Supporting	NO	
2022 Use Attainment Summary		
MassDCR Lakes and Ponds staff reported an infestation of the non-native aquatic macrophyte, Eurasian water milfoil		

(Myriophyllum spicatum), in Yokum Pond during surveys in 2003 and 2005.

The Aquatic Life Use of Yokum Pond (MA32079) is assessed as Not Supporting with a new impairment being added for "Eurasian Water Milfoil, Myriophyllum Spicatum".

Biological Monitoring Information

Non-native Aquatic Species Presence

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

Summary Statement

MassDCR Lakes and Ponds staff reported an infestation of the non-native aquatic macrophyte, Eurasian water milfoil (*Myriophyllum spicatum*), in Yokum Pond during surveys in 2003 and 2005.

Fish Consumption

2022 Use Attainment	
Not Assessed	NO

2022 Use Attainment Summary

Fish toxics sampling has not been conducted recently in Yokum Pond (MA32079) and since there is no site-specific advisory, the Fish Consumption Use is Not Assessed.

Aesthetic

2022 Use Attainment	Alert
Not Assessed	NO
2022 Use Attainment Summary	
There are no data available for Yokum Pond (MA32079), so the Aesthetics Use is Not Assessed.	

Primary Contact Recreation

2022 Use Attainment	Alert	
Not Assessed	NO	
2022 Use Attainment Summary		
There are no bacteria data available for Yokum Pond (MA32079), so the Primary Contact Recreational Use is Not		
Assessed.		

Secondary Contact Recreation

2022 Use Attainment	Alert	
Not Assessed	NO	
2022 Use Attainment Summary		
There are no bacteria data available for Yokum Pond (MA32079), so the Secondary Contact Recreational Use is Not		
Assessed.		

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