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

Responses to Public Comments

Prepared by:

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

May 2023

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

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.

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Notice of Availability
This report is available via the Massachusetts Department of Environmental Protection's (MassDEP) website: https://www.mass.gov/lists/integrated-lists-of-waters-related-reports.

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Introduction

This report presents responses to the comments received on the *Massachusetts Integrated List of Waters for the Clean Water Act 2022 Reporting Cycle – Draft for Public Comment* (Draft 2022 Integrated Report) that was prepared by the Massachusetts Department of Environmental Protection (MassDEP) in fulfillment of reporting requirements of sections 305(b) (Summary of Water Quality Report) and 303(d) (List of Impaired Waters) of the Clean Water Act (CWA).

The Integrated Report (IR) format provides the current status of all previously assessed waters in a single multi-part list. Each waterbody or segment thereof is placed in one of the following five categories:

1) Unimpaired and not threatened for all designated uses;
2) Unimpaired for some uses and not assessed for others;
3) Insufficient information to make assessments for any uses;
4) Impaired or threatened for one or more uses, but not requiring the calculation of a Total Maximum Daily Load (TMDL); or
5) Impaired or threatened for one or more uses and requiring a TMDL.

Thus, the waters in Category 5 comprise the 303(d) List and, as such, are reviewed and approved by the U. S. Environmental Protection Agency (EPA). The remaining four categories are submitted in fulfillment of the requirements under § 305(b).

The Draft 2022 IR was placed on the MassDEP web site (Draft 2022 ILW) on 11/16/22. Notice of its availability for public review and comment was provided by electronic mail to approximately 150 watershed associations and other interested parties. The notice also appeared in Vol. 95, Issues 22 and 24 of the Massachusetts Environmental Monitor (11/23 and 12/23 publication dates). The initial public comment period end date of December 23 was extended to January 6, 2023.

A total of 14 comment transmittals were received by the end of the extended public review period (or soon thereafter; one comment letter was received on 1/13). Several commenters included with their letters data reports, graphical data displays and/or photographs in support of their comments. In addition, a formal comment letter was received from EPA on April 14, and informal EPA comments on the draft Responses to Comments document were received on May 12. All of the formal comment letters are included in this Responses to Comments document in their entirety, except for lengthy attachments or appendices to the transmittals which are not reproduced here. Comments are briefly summarized prior to each MassDEP response.

This response document consists of two parts. Part I presents the responses to general or recurring comments that convey broad programmatic areas of concern or specific topics of interest. Part II provides the comments of the individual parties, each followed by MassDEP's responses. Where appropriate, explanations are provided on whether or not adjustments have been made to the final 2022 IR based on each comment received.

A final version of the 2022 IR and supporting documents, consistent with the comments and responses presented in this document, was submitted to EPA on May 24, 2023 for final approval of the 303(d) List (i.e., Category 5).

Part I - Responses to General or Recurring Comments

COMMENT: Prior to issuing the draft IR for public comment, MassDEP should provide more explicit feedback and rationale to external groups on why submitted data were not utilized for assessment and listing decisions, as part of improving communication with external partners.

MassDEP Response: For the 2022 IR involving updated assessments in 21 watersheds for all designated uses, MassDEP utilized external data from over 20 different sources (including volunteer organizations, sister agencies, and non-government groups). These data partnerships are critical to DEP's mission to protect, monitor, and restore waters of the Commonwealth. Regardless of data origin, all existing and readily available data used by MassDEP must be of a known and documented quality that support its use for Clean Water Act reporting purposes. For many years, MassDEP has worked with partners on development and maintenance of their quality assurance documentation (e.g., QAPPs and SOPs) for data collection. For data submittal to MassDEP, we ask that data are submitted using MassDEP's template for Electronic Data Deliverables (EDD) or using available tools for transmittal to EPA's Water Quality Exchange (WQX). MassDEP's external data submittal guidance can be found here: external-data-submittals-to-the-WPP. Adherence to this guidance enables greater efficiencies for MassDEP when processing data from a wide variety of groups. Data submitted in other formats are often more difficult to process and utilize.

Data submitted to MassDEP after the submittal deadline for the 2022 IR (January 15, 2021) were not reviewed or used (by default) but may be considered in a future IR cycle update. For data submitted prior to the deadline, MassDEP completes data quality/usability reviews for all submitted data that are considered applicable to designated use assessments, which are based on procedures outlined in the Consolidated Assessment and Listing Methodology Guidance Manual (CALM) (2022 CALM). If not specifically described in the CALM, certain types of data may or may not be considered. If submitted data are appropriate based on CALM guidance, then data considered usable based on the quality review are available for use in the current reporting cycle. Occasionally, due to timing and workload capacity, some data for a watershed may be held for use in a future IR reporting cycle (e.g., OARs physico-chemical data from 2018 –2020 were not included in the 2022 Concord Watershed update since the Aquatic Life Use for that watershed was just updated using their data up through 2017 in the 2018/2020 IR reporting cycle just approved by EPA in November 2021, while their bacteria data up through 2020 were utilized to update recreational use attainment decisions as part of the Concord 2022 IR update). Any data can be considered insufficient based on the quality review for one or more reasons, including lack of a Quality Assurance Project Plan (QAPP) planning document, poor quality control results, metadata indicating field- or lab-related anomalies, insufficient information to complete the review, and others. The reasons for poor scores on usability for assessments can be based on systematic or datum-specific issues or both. Specific reasons for non-use of external data are documented internally by MassDEP quality review staff, but we acknowledge that more effective feedback following data reviews is still needed to provide the groups generating the data opportunities to improve data quality deficiencies where possible for future data submittals. During the data review process MassDEP quality review staff will often contact external data providers regarding certain data quality deficiencies that potentially could be corrected in time for that dataset to be integrated into the current assessments. In addition, external data providers have begun receiving feedback forms to help inform them of the results of the quality review at the parameter level. Also, while performing assessments, case-by-case decisions are sometimes made regarding external data usability for data that passed the QC review. Causes for this may include insufficient sample quantity or lack of corresponding CALM guidance. In these cases, the IR decision documents are not necessarily the ideal vehicle for feedback on data not used and tend to focus more on the data that were used for decisions.

MassDEP continues to provide technical assistance to outside citizen monitoring groups i.e., review and approval of Quality Assurance Project Plans (QAPPs) for monitoring, coordination of data submittals, and funding for data collection through the Water Quality Monitoring Grant program. MassDEP staff, including our External Monitoring & Data Coordinator, also continue to work on more effective feedback mechanisms and outreach to groups related to data collection, submittal and review for data quality and usability. In general, MassDEP will also seek to improve communication with external data partners prior to the release of future draft IRs.

COMMENT: MassDEP's IR and Surface Water Quality Standards (SWQS) should be consistent with the Division of Fisheries and Wildlife's (DFW) Coldwater Fishery Resource (CFR) list where applicable.

MassDEP Response: As part of MassDEP's recent promulgation of the 2021 amendments to the SWQS, EPA approved the addition of 153 Cold Water stream designations (314 CMR 4.06) and the perennial portions of these streams were added as Assessment Units (AU) in the watersheds/coastal drainage areas updated in the 2022 IR cycle. All remaining perennial portions of designated Cold Waters in the twelve remaining watershed/coastal drainage areas not updated in 2022 will be included in a future IR update. MassDEP will continue to coordinate with MassWildlife on Coldwater Fish Resources (CFR)(321 CMR 5.00) listings and future SWQS classifications of these streams. It is important to emphasize that for MassDEP's assessments of cold waters, both the Cold Water classifications in the SWQS and the MassWildlife CFR list are used to evaluate the designated use. CFRs that are not designated as Cold Waters in the SWQS are still protected as "existing uses" (uses attained in a waterbody on or after November 28, 1975). For waters designated as a Cold Water or for those waters on the CFR list, an impairment decision is made if cold water fish are absent or, in some cases, where their numbers are dramatically reduced when compared to historic data.

COMMENT: MassDEP should include definitions of impairment causes used in the IR to help clarify what is meant by each and what MassDEP intends when each is used (for example, "Trash" vs. "Debris").

MassDEP Response: While EPA's ATTAINS database provides a standardized list of impairment causes, they do not provide explicit definitions for the impairments. MassDEP assessment staff select the most appropriate cause of impairment based on the data available when making a designated use impairment decision. To improve transparency, MassDEP will explore inclusion of a definitions list for impairment causes in a future Massachusetts CALM Guidance Manual update.

With respect to the use of "trash" versus "debris", "trash" is considered a "pollutant", as defined by 40 CFR §122.2, and results in a category 5 impairment. Trash and debris were previously listed together as a single cause of impairment in EPA's ADB database but are now separate impairments in the ATTAINS database. For specific detail related to Trash and Debris impairments, please see MassDEP's response to OARS.

For more detail related to flow-related impairment causes, please see MassDEP's response to the Ipswich River Watershed Association.

COMMENT: MassDEP should provide more rationale for utilizing data that are over five years old.

MassDEP Response: As noted in the 2022 CALM (and in previous responses), MassDEP strives to use the most recent data available for assessments and integrated reporting purposes but in some cases data greater than five years old are used. Given MassDEP's current monitoring schedule involving rotating basins, it is difficult to set and maintain a firm data age threshold. However, as MassDEP continues to improve with respect to its use of quality-controlled external data and IR timeliness, we are striving to minimize the use of older data in future cycles. When older data are used, MassDEP analysts consider data representativeness on a case-by-case basis. Depending on the location, data can be considered representative of current conditions unless significant changes in land uses, infrastructure, and/or practices have occurred in the contributing watershed. If major changes that could affect water quality conditions in a receiving water occurred after water quality data were collected, then data collected prior to the changes may not be considered representative of current conditions and if so, would not be used for use attainment decisions.

COMMENT: MassDEP should provide more information on the methodologies used to impair waters due to fish passage barriers.

MassDEP Response: For a future iteration of the CALM, MassDEP plans to provide additional clarification on how fish passage and dam removal data and related information are used to inform decisions related to

fish passage impairments. This information includes available data from the DMF on fish passage barriers and from the DCR-Division of Ecological Restoration on dam removals. We acknowledge the existence of other agency and local data sources related to dams and fish passage, and we intend to better utilize all available dam removal and fish passage information for future aquatic life assessments. Specifically, MassDEP will note in the 2022 IR report that the diadromous fish habitat methodology described in the 2022 CALM applied to near shore coastal waterbodies, and refinement of methods for larger mainstem freshwater rivers and their tributaries (i.e., Connecticut and Merrimack rivers) will be part of a future CALM update, in coordination with DMF biologists and other state and federal environmental agency staff.

Part II - Responses to Individual Commenters

United States Environmental Protection Agency (EPA):

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

April 14th, 2023

To:

Richard Chase
Massachusetts Department of Environmental Protection
Bureau of Water Resources - Watershed Planning Program
Re: Massachusetts' Draft 2022 Integrated List of Waters

Mr. Richard Chase,

This letter provides comments from the U.S. Environmental Protection Agency (EPA) Region 1 Water Division on the draft 2022 Integrated List of Waters (ILoW) served to the public on November 16th, 2022.

Improvement of transparency in decision-making

We thank the Massachusetts Department of Environmental Protection (MassDEP) for its continued response to the request from EPA and the public to provide supporting data and documentation to allow for a more transparent decision-making process. The addition of the watershed area maps indicating monitoring stations, permitted discharges, and public recreation areas was appreciated. Graphical representation of datasets within the Appendices were very useful. The ILoW watershed-based Assessment and Listing Decision Summaries (Appendices 6-26 of the report) contain the information required for EPA to review MassDEP's 303(d) (or "impaired waters") list provided in pages 122-216 of the ILoW report. It was however noticed that some clarifying changes are required to the Appendices for the presentation of proposed secondary contact recreation delistings where the same indicator is retained for primary contact recreation. All delistings for each watershed Assessment Unit (AU) should be presented in the impairment change summary table, regardless of whether that same pollutant impairment is associated with another Use.

> *For example, if an AU is listed as impaired for both Primary and Secondary Contact Recreational Uses due to elevated enterococcus levels, and more recent data indicates the AU is meeting Secondary Contact Recreational Uses, but still not meeting Primary Use criteria, the delisting for enterococcus should be presented in the delistings summary table, even though the AU is still listed for enterococcus under the Primary Contact Use.*

Updates to the Consolidated Assessment and Listing Methodology

The Consolidated Assessment and Listing Methodology (CALM) – a document developed by the state to describe the data evaluation procedures used to assess water quality conditions, the process used to identify causes and sources of impairments, and the reporting of this information to EPA and the public in the form of an ILOW – was significantly revised this cycle in response to 2021 Water Quality Standards (WQS) updates. Evaluation procedures for bacteria, toxic pollutants, and benthic macroinvertebrate were also changed. While states are not required to submit their CALMs to the EPA for review and approval, providing an opportunity for the agency and the public to provide input and comment on proposed changes to assessment procedures would expedite future reviews of ILOW submissions.

Non-supportive criteria attainment frequency thresholds for bacteria

Tables 6 and 7 of the CALM represent the Use Attainment Impairment Decision Schema based on bacteria sampling frequency scenarios for Primary and Secondary Recreational Use assessments, respectively. These new Use attainment schematics represent a much less stringent application of bacteria criteria than in previous cycles. While we understand trying to control for a limited dataset that might erroneously represent the average condition of the site, this new methodology overcorrects for the potential of listing an unimpaired segment. At worst, with a single year of limited frequency data available, this methodology requires at least 80% of the calculated geomean (GM) intervals to exceed the WQS, or for there to be more than two exceedances of the Statistical Threshold Value (STV) *and* the seasonal geomean exceeding the WQS for the AU to end up on the 303(d) list. Or, at best, with multiple years of high frequency data, at least 10% of geomean intervals must exceed criteria or 10% of samples must exceed STV criteria. Appendix J of the CALM suggests threshold percentages were chosen that preserved at least the same or greater number of impairments overall compared to previous guidance, however this is not an appropriate determinate for the selection of magnitude, duration, or frequency considerations in the application of water quality criteria. EPA guidance (2012 Recreational Water Quality Criteria (epa.gov)) suggests that the Primary Contact Recreation designated use would be protected if one of the following criteria sets consisting of a GM and an STV were adopted:

Table 4. Recommended 2012 RWQC.

Criteria Elements	Estimated Illness Rate (NGI): 36 per 1,000 primary contact recreators			Estimated Illness Rate (NGI): 32 per 1,000 primary contact recreators	
	Magnitude			Magnitude	
Indicator	GM (cfu/100 mL)[a]	STV (cfu/100 mL)[a]	OR	GM (cfu/100 mL)[a]	STV (cfu/100 mL)[a]
Enterococci – marine and fresh	35	130		30	110
OR					
E. coli – fresh	126	410		100	320
Duration and Frequency: The waterbody GM should not be greater than the selected GM magnitude in any 30-day interval. There should not be greater than a ten percent excursion frequency of the selected STV magnitude in the same 30-day interval.					

[a] EPA recommends using EPA Method 1600 (U.S. EPA, 2002a) to measure culturable enterococci, or another equivalent method that measures culturable enterococci and using EPA Method 1603 (U.S. EPA, 2002b) to measure culturable *E. coli*, or any other equivalent method that measures culturable *E. coli.*

The criteria that correspond to an illness rate of 36 NGI per 1,000 primary contact recreators correlate to water quality levels associated with the previously recommended 1986 criteria and is the illness rate selected by Massachusetts in their most recent WQS updates. Please note the duration and frequency recommendations provided by EPA. The conditions required in the 2022 CALM to reach an impairment determination for bacteria datasets is not supported by the EPA recommended guidance for protection of primary recreation. EPA acknowledges that a 30-day or 90-day interval may be used depending on the circumstances (i.e., presence of bathing beaches, CSOs, WWTP discharges). It is recommended that MassDEP withdraw from consideration all delisting decisions based on this assessment schematic.

> *There are five Primary Contact Use bacteria delistings proposed in the draft 2022 ILOW. Three of these (MA61-07, MA82125, and MA95-51) are based on MADPH Beach Program data, not the above schema, and may remain as proposed delistings on the final list. The proposed delisting for MA33-03 is based on external partner data indicated to meet both geomean and STV criteria - it is requested that the full dataset from CRC be provided but may remain as a candidate for delisting in the final submission. The data supporting the proposed delisting for MA95-36 includes exceedances of both the geomean and STV criteria and should be withdrawn from consideration for delisting. EPA guidance and MA SWQS suggest there should be no exceedances of geomean intervals and that fewer than 10% of samples should exceed the STV.*

MassDEP should work with EPA and members of the public to develop protective, defensible bacteria data assessment procedures which take into account the size of the dataset under consideration. Future lists should evaluate all available bacteria data according to a new, protective of the criteria, procedure. In the absence of new data, data considered in this cycle should be re-assessed.

Conflict between Secondary Contact Recreational Use WQS and CALM assessment methodology

Secondary Contact Recreation Water Quality Criteria in effect for Clean Water Act purposes in MA:

> Fecal Coliform Bacteria: Shall not exceed a geometric mean of 1,000 organisms per 100 mL, nor shall 10% of the samples exceed 2,000 per 100 mL.

E. coli and enterococcus have replaced fecal coliform as the preferred indicators for the protection of Primary and Secondary Contact Recreational Uses. MassDEP should work with EPA to update their Secondary Contact Use criteria to be consistent with EPA recommendations. MassDEP did begin to monitor for these indicators at EPA's recommendation, so the most recent available data does not include the fecal coliform indicator. This data may be used to assess whether the Secondary Contact Use is supported, however, the thresholds proposed in the CALM and used for assessment are not protective of the Secondary Contact Recreation Use.

2022 MassDEP CALM Secondary Contact Recreation assessment thresholds:

E. coli bacteria	*Enterococci* bacteria
GM: ≤630 colonies/100 mL applies to all inland freshwaters STV: ≤1,260 colonies/100 mL applies to all inland freshwaters	GM: ≤175 colonies/100 mL applies to all coastal/marine waters STV: ≤350 colonies/100 mL applies to all coastal/marine waters

EPA developed a memo dated September 25, 2020, evaluating water quality standards for secondary contact recreation submitted to the agency for consideration by the state of Massachusetts. This memo additionally provided suggested secondary contact criteria for *E. coli* and enterococcus bacteria using EPA's methodology, which was under development at the time. The standards submitted for review by MA are the same as those referenced above as part of the assessment methodology for Secondary Contact Use assessments in the 2022 CALM.

Comparison of the magnitude of secondary contact RWQC submitted by Massachusetts versus the magnitude derived using the methodological approach EPA published in 2022:

	MA submission	**EPA method**
Freshwater (e. coli CFU)		
GM	630	344
STV	1,260	1,118
Marine waters (enterococcus CFU)		
GM	175	96
STV	350	355

MassDEP should work with EPA and members of the public to develop protective, defensible bacteria data assessment procedures. Future lists should evaluate all available bacteria data according to a new,

protective of the criteria, procedure or according to the above EPA memo recommendations. In the absence of new data, data considered in this cycle should be re-assessed.

Additional comments on proposed delistings

Watershed	Waterbody	AU_ID	Impairment	Explanation	EPA comment
Taunton	Rumford River	MA62-63	Fish Bioassessments	Applicable WQS attained; reason for recovery unspecified	delisting is based on 2013 data - is there anything more recent from MassWildlife to better assess current condition?
Buzzards Bay	Outer New Bedford Harbor	MA95-63	Metals	Applicable WQS attained; reason for recovery unspecified	reason for recovery seems to be WWTP upgrades/New Bedford Harbor Cleanup (restoration activities)
Buzzards Bay	Outer New Bedford Harbor	MA95-63	Other Organics	Applicable WQS attained; reason for recovery unspecified	reason for recovery seems to be WWTP upgrades/New Bedford Harbor Cleanup (restoration activities)
Quinebaug	Sibley Pond	MA41047	Aquatic Plants (Macrophytes)	Applicable WQS attained; original basis for listing was incorrect	Delisting document says: "data and/or information lacking to determine WQ status; original basis for listing incorrect". However, there appears to be old field data as well as years of satellite data under consideration in this delisting. Was the original basis for listing incorrect? Or was a different assessment threshold used (i.e., new method)? The delisting reason seems to be re-evaluation of original field sheets and new years of satellite imagery: "Since there was less than 25% plant coverage during the survey that triggered the initial listing, as well as in most satellite images since then (including all images after 2010), the Aquatic Plants impairment is being delisted". Delisting cause should be Applicable WQS attained; according to new assessment procedure or Applicable WQS attained; according to new data

Quinebaug	Sibley Pond	MA41048	Aquatic Plants (Macrophytes)	Applicable WQS attained; original basis for listing was incorrect	Delisting document says: "data and/or information lacking to determine WQ status; original basis for listing incorrect". However, there appears to be old field data as well as years of satellite data under consideration in this delisting. Was the original basis for listing incorrect? Or was a different assessment threshold used (i.e., new method)? The delisting reason seems to be re-evaluation of original field sheets and new years of satellite imagery: "Since there was less than 25% plant coverage during the survey that triggered the initial listing, as well as in most satellite images since then (including all images after 2010), the Aquatic Plants impairment is being delisted". Delisting cause should be Applicable WQS attained; according to new assessment procedure or Applicable WQS attained; according to new data

Chloride impairments

In the 2018/2020 assessment cycle MassDEP added a new appendix for a "chloride estimator", using a linear regression model to estimate chloride concentrations from Specific Conductance (SC) measurements. Five chloride impairments were added in the draft 2022 ILOW. Please be aware of additional USGS data sources available to assess further waters for chloride impairments:
Discrete and high-frequency chloride (Cl) and specific conductance (SC) data sets and Cl-SC regression equations used for analysis of 93 USGS water quality monitoring stations in the eastern United States | U.S. Geological Survey

Real-time water quality (usgs.gov)

Eelgrass assessments

Twelve new eelgrass impairments were added this cycle, with no delistings. The method employed by MassDEP continues to be assessment of aerial imagery. EPA agrees that the mapping data is the best metric currently available to assess trends in eelgrass, though better site-specific metrics may be

developed to assess individual eelgrass bed health. The current assessment compares 2015-2017 data to 1994-1996 data. While 2015-2017 data is not the most recent, it may well be the most recent data that has made it through the QA/QC process. However, it is worth investigating if the 2018-2020 data is available for this analysis. We understand the reluctance to use the 1951 photography and there is no consistent dataset for eelgrass post the passage of the CWA in 1972, so the 1994-1996 mapping effort is the most readily available baseline, however, this dataset represents a diminished resource. This time period represents only data convenience not a true baseline for the resource. An AU is assessed as impaired if there is a substantial decline (>10%) of eelgrass bed habitat. To put this in context, a 500-acre bed could lose up to 49 acres of eelgrass and still be listed as attaining uses. Conversely, a 20-acre meadow could lose less than 2 acres and still trigger a non-attainment determination. However, a loss of that size could be attributed to storm damage, natural variation, poor photography, or human error in photo interpretation. Context related to eelgrass bed loss should be examined in the determination of impairment status (e.g., significant storm events, bed size, macroalgae presence, nutrient levels).

Requesting assignment of AU IDs for additional offshore Assessment Units

Per EPA's 2002 Integrated Water Quality Monitoring and Assessment Report Guidance, all waters referenced within state and territory standards documents should be assessed and reported on. These types of water may include, but are not limited to, lakes, rivers, estuaries, coastal shorelines, wetlands, oceans, and ground water. Massachusetts Bay is classified in the MA SWQS, Table 19 as a class SA water, however but there is no associated segment boundary description. EPA would like to request the assignment of an AU ID(s) to Massachusetts Bay, so that the MWRA data can be used in MA Assessments and 303(d) reporting. Included is a map of the current ambient monitoring sampling locations including the continuous sampling buoys.

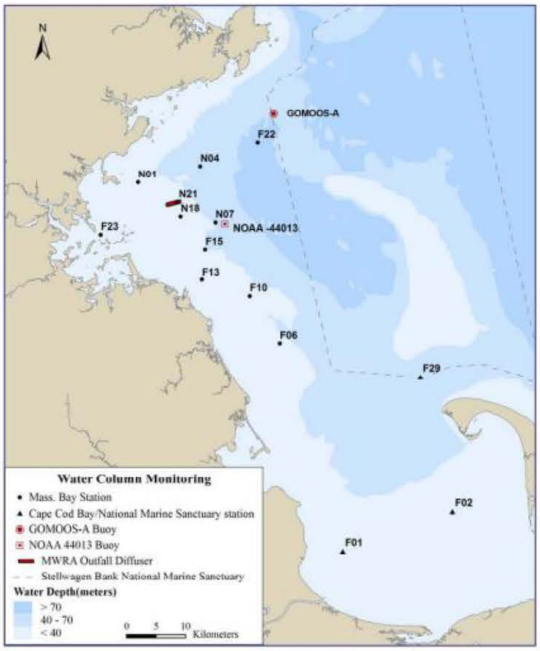

Figure 3-3 Map of MWRA outfall ambient water column monitoring stations

EPA would also like to request the assignment of an AU ID(s) to Cape Cod Bay. While Cape Cod Bay is not included in Table 4 of the MA SWQS, it is included in the MA Coastal Zone and is therefore subject to state WQS as a marine water. MA SWQS define marine waters as "the Atlantic Ocean and all contiguous saline bays, inlets and harbors within the jurisdiction of the Commonwealth including areas where fresh and salt waters mix and tidal effects are evident or any partially enclosed coastal body of water where the tide meets the current of a stream or river." Massachusetts Department of Marine Fisheries, in collaboration with researchers from the Woods Hole Oceanographic Institution, the Center for Coastal Studies, and the Rhode Island Department of Environmental Management, has been monitoring dissolved oxygen levels in Cape Cod Bay (see Monitoring and Understanding Low Dissolved Oxygen in Cape Cod Bay | Mass.gov). Please coordinate with your colleagues at MA DMF to collect available data related to DO impairments in Cape Cod Bay.

Thank you for the opportunity to review and comment on the draft 2022 Integrated List of Waters. We look forward to continuing to work together on the protection of Massachusetts' waters. Please feel free to contact Ivy Mlsna of my staff at (617) 918-1311 if you have any questions.

Sincerely,

LeClair, Jacqueline

Digitally signed by LeClair, Jacqueline
Date: 2023.04.13 16:49:35 -04'00'

Jacqueline Leclair, Section Chief
Water Quality and Wetlands Protection Section

COMMENT: Regarding transparency of decision-making, some clarifying changes are needed to the Appendices for the presentation of proposed secondary contact recreation delistings where the same indicator is retained for primary contact recreation.

MassDEP response: MassDEP's methodology for determining and documenting delistings follows the rules EPA has set forth in the ATTAINS database for IR reporting and which is the official system of record. In this approach, a delisting is defined when a cause of impairment is removed entirely from an Assessment Unit (AU) on the 303(d) list (category 5) to another category (4a: TMDL is established; 4c: impairment was determined to not be a pollutant; or 2: the impairment no longer exists). Therefore, although each designated use is assessed separately, a delisting only occurs at the overall AU level. While MassDEP acknowledges EPA's concern for tracking cause removals from individual uses, these changes do not constitute delistings and therefore are not provided in the delisting tables in the Appendices. Per EPA's request for differentiation between primary vs. secondary contact delistings, MassDEP has added additional information related to designated uses for cause removals listed in Appendix 4. Although it has not been MassDEP's standard practice to provide delisting documentation at the designated use level, we will continue to provide impairment removal documentation at the designated use level in a similar fashion for future IRs.

COMMENT: EPA and the public should be provided an opportunity to provide input and comment on proposed changes to assessment procedures.

MassDEP response: Comments and suggestions from EPA and the public related to current assessment methodologies contained in the CALM guidance manual can be provided at any time. Any comments received are considered for future versions of the CALM. Due to current MassDEP workflows and timing constraints for the development, submittal, and approval of the biennial IR, it is not currently feasible to solicit, receive, evaluate and reconcile comments on proposed changes to the CALM within a given cycle.

COMMENT: MassDEP should withdraw from consideration delisting decisions based on the assessment schematic in Tables 6 and 7 of the 2022 CALM. Also, MassDEP should work with EPA and members of the public to develop protective, defensible bacteria data assessment procedures which account for the size of the dataset under consideration.

MassDEP response: For the five AUs with bacteria delistings proposed for the primary contact use, MassDEP has withdrawn the proposed *E. coli* bacteria delisting for MA95-36 and retained the four others, as requested by EPA in their comment letter. MassDEP will coordinate with EPA to refine the Primary and Secondary Contact Recreational Use attainment guidance to address EPA concerns and to ensure that protective and defensible procedures are used for the 2024 IR reporting cycle.

COMMENT: MassDEP should work with EPA to update their Secondary Contact Recreational Use criteria and assessment methodology to be consistent with EPA recommendations as contained in a 9/25/20 EPA memo submitted to MassDEP in 2022 for consideration.

MassDEP response: MassDEP acknowledges EPA's clarification on the applicable SWQS for secondary contact recreation and their advice on an alternate methodology for secondary contact use assessment. For the upcoming 2024 IR reporting cycle, MassDEP intends to use EPA's suggested secondary contact assessment thresholds for *E. coli* and enterococcus bacteria for secondary contact recreational use attainment decisions.

COMMENT: EPA requested delisting explanations be changed for several specific AUs.

MassDEP response: MassDEP imposed EPA's recommended changes for delisting explanations (removal rationales) for the specific AUs as requested (MA95-63 for both the metals and other organics impairments, as well as MA41047 and MA41048).

COMMENT: There are additional USGS data sources available to assess waters for chloride impairments.

MassDEP response: MassDEP is aware of the paired chloride and specific conductance data available from USGS and has been recently working to update WPP's regression equation by including these USGS data in the derivation. The revised regression tool incorporating more recent WPP data and applicable USGS data will be used for assessments starting with the 2024 IR reporting cycle. Additionally, the USGS data can be utilized for evaluating chloride toxicity at the AU level.

COMMENT: For eelgrass assessments, better site-specific metrics may be possible to assess individual eelgrass bed health using the mapping data. Also, the dataset used as "baseline" represents a diminished resource and not a true baseline. Context related to eelgrass bed loss should be examined in the determination of impairment status (e.g., significant storm events, bed size, macroalgae presence, nutrient levels).

MassDEP response: MassDEP appreciates EPA's concern regarding the timeline and quality of the baseline data used for tracking trends in eelgrass extent. Use of the 1995 dataset as the baseline for quantitative comparisons and use attainment decisions was determined to be the most appropriate and reliable reference point given the initiation at that time of a consistent set of standard protocols for data collection, documentation, and analysis. We are coordinating with MassDEP Wetlands Program staff who are managing the eelgrass monitoring effort, which is undergoing some changes in data collection methodology. As part of this coordination, we will continue to explore potential changes to the use attainment methodology based on the eelgrass bed habitat mapping information (and related data as appropriate) for future IR reporting cycles.

COMMENT: EPA would like to request the assignment of an AU ID(s) to Massachusetts Bay, so that the MWRA data can be used in MA Assessments and 303(d) reporting. EPA would also like to request the assignment of an AU ID(s) to Cape Cod Bay. Also, please coordinate with your colleagues at MA DMF to collect available data related to DO impairments in Cape Cod Bay.

MassDEP response: MassDEP will consider adding marine water AUs within the jurisdiction of the Commonwealth for all or portions of Massachusetts and Cape Cod bays in future IR reporting cycles. Review of readily available data pertinent to these AUs for potential use in assessments and listings will follow standard WPP evaluation protocols for data usability.

Massachusetts Rivers Alliance:

MASSACHUSETTS
Rivers Alliance
2343 Massachusetts Ave, Cambridge, MA 02140
617-714-4272 • www.massriversalliance.org

January 4, 2023

Richard Chase, Section Chief
Massachusetts Department of Environmental Protection
Bureau of Water Resources
Watershed Planning Program
8 New Bond Street
Worcester, MA 01606

Re: Comments on the Draft Massachusetts 2022 Integrated List of Waters

Dear Mr. Chase,

The Massachusetts Rivers Alliance respectfully submits the following comments on the Draft Massachusetts 2022 Integrated List of Waters (Integrated Report). The Massachusetts Rivers Alliance is a statewide non-profit organization with 85 member groups dedicated to protecting and restoring the rivers and streams across the Commonwealth. Many of our member organizations will be submitting individual comments regarding specific watersheds of interest. This letter contains more general comments, from a statewide perspective.

Improvements
We are pleased to see MassDEP address many of the concerns raised in the comments for the 2018/2020 Draft Integrated Report in the 2022 Draft Integrated Report. Specifically, we commend MassDEP's effort to:

1) Use more up-to-date data (refining the timeframe of usable data from 2006 to 2011);
2) Reference which datasets and sources were used to inform particular listing decisions;
3) Include various time-series graphs depicting significant data trends; and
4) Apply the freshwater E. coli and fecal coliform TMDL.

Appendices and Refined Data
We commend MassDEP's inclusion of appendices with supporting data for individual watersheds' listing and delisting decisions. This helps reviewers narrow in on specific waterbodies and watersheds of interest. We encourage MassDEP to continue following this format in all future Massachusetts Integrated Reports.

We recognize that MassDEP has increased its inclusion of external data in listing decisions. Yet MassDEP neglects to provide comprehensive rationale to partners on why their data is excluded, and

widespread inclusion of partner data is still lacking in the 2022 Report. Monitoring groups across the state submit quality-controlled water quality data to MassDEP annually, which is often more thorough and up to date than internal state agency data, but is left out of the Report without explanation. MassDEP should increase its transparency in decision making, and communication with external partners, regarding which datasets are to be used, prior to issuing the Draft Integrated Report.

Coldwater Fisheries

MassDEP has previously proposed adding coldwater fishery resource designations to the Surface Water Quality Standards of the 2022 Integrated Report; however this was not included in the Draft Report. Many Massachusetts waterways play a critical role in the reproduction and survival of coldwater fish species, a resource vital to the state's economy and ecosystems. We encourage MassDEP to add this designation to the Report, as it would highlight threats to these important resources.

Definitions of Impairments

MassDEP should list definitions for all identified impairments at the beginning of the Report. In the current Draft, definitions are difficult to find, causing confusion when reviewing the report's content. For example, the distinction between "trash" and "debris" impairments is unclear. This simple change will make the Integrated Report more accessible for all users.

Conclusion

We are pleased to find that the 2022 Draft Integrated Report addresses several of the shortcomings we identified in our comments during the previous reporting cycle. We encourage MassDEP to continue improving the Integrated List of Waters Report by addressing the outstanding shortcomings outlined herein before the Final 2022 Report is released. We especially encourage MassDEP to use more external data in listing decisions and improve transparency in decision-making around data use and impairment definitions.

Thank you for the agency's continued work to improve water quality in Massachusetts' rivers and streams. We are happy to further discuss these comments, or answer any questions.

Sincerely,

Sarah Bower
Technical Specialist
Massachusetts Rivers Alliance
sarahbower@massriversalliance.org

Cc: Richard Carey, Director, Watershed Planning Program

MassDEP response: We appreciate MRA's recognition of improvements made by MassDEP in the 2022 IR. For MRA's comments related to transparency and use of external data, impairment definitions, and coldwater fisheries, see MassDEP responses in Part 1.

City of New Bedford:

Department of Public Infrastructure

Jamie Ponte
Commissioner

Water
Wastewater
Highways
Engineering
Cemeteries
Park Maintenance
Forestry

CITY OF NEW BEDFORD
Jonathan F. Mitchell, Mayor

January 6, 2023

Richard F. Chase
MassDEP
Bureau of Water Resources
Watershed Planning Program
8 New Bond Street
Worcester, MA 01606
richard.f.chase@mass.gov

Subject: City of New Bedford
2022 Integrated List of Waters Comments

Dear Mr. Chase:

The City of New Bedford (City) Department of Public Infrastructure (DPI) is writing to comment on the draft MassDEP's decision in the 2022 Integrated List of Waters to list two assessment units:

- Buzzards Bay (MA65-62), newly listed for Estuarine Bioassessments
- Clarks Cove (MA95-38), newly listed for Dissolved Oxygen, Estuarine Bioassessments, and Nitrogen

Buzzards Bay (MA65-62)

In 2022, the Massachusetts Department of Environmental Protection (MassDEP) added an impairment for Estuarine Bioassessments within the 8.07 square mile Buzzards Bay Assessment Unit based on the loss of eelgrass between 1995 and 2017. Eelgrass is located along the edges of this Assessment Unit (AU), principally along the Dartmouth shoreline south of Apponagansett Bay, with additional eelgrass located at the southern end of Sconticut Neck in Fairhaven. The 1995 eelgrass habitat within the Buzzards Bay AU represents a very small portion of the AU (about 2 percent) and is not representative of the full AU, which predominately represents the deep, open water habitat of Outer New Bedford Harbor.

The City recommends that the AU be subdivided to provide a more representative basis for assessing water quality in this area.

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Eelgrass habitat represents a very small fraction of the Buzzards Bay Assessment Unit and is not representative of the overall Assessment Unit

MassDEP cites a 33 percent loss in eelgrass in the Buzzards Bay AU between 1995 and 2017, with 0.17 mi^2 in 1995 declining to 0.12 mi^2 in 2017. The decline in eelgrass has principally occurred along the Dartmouth shore south of Apponagansett Bay, with additional losses occurring adjacent to Sconticut Neck in Fairhaven. **Table 1** presents the eelgrass surface area from MassDEP's surveys in 1995, 2001, 2013, and 2017. The reduction in eelgrass coverage – from 2.1% of the AU area in 1995 to 1.4% in 2017-- represents both a very small reduction in area (0.05 mi^2) and a very small percentage of the overall surface area in this AU.

Table 1: Eelgrass Abundance as a Percentage of Assessment Unit

Year	All (mi^2)	West Only in Dartmouth (mi^2)	East Only in Fairhaven (mi^2)	Eelgrass Percentage of AU Areas
1995	0.17	0.11	0.07	2.1%
2001	0.15	0.09	0.06	1.9%
2013	0.13	0.07	0.06	1.6%
2017	0.12	0.07	0.05	1.4%

Compared to most other AUs in Buzzards Bay, the MA65-62 has much more open water than shoreline, denoting its being the largest open water AU in Buzzards Bay. The City reviewed bathymetry data of Buzzards Bay[1] to characterize the water depths across the entire AU and within the area supporting eelgrass as recorded in the 1995 MassDEP survey.

Figure 1 is a bathymetric map with the 1995 eelgrass extent highlighted. The mean depth of the AU is 8.1 meters, with a maximum depth of 13.7 meters. Within the area supporting eelgrass in 1995, the mean depth is 2.5 meters with a maximum depth of 5.7 m; 90 percent of the area with eelgrass in 1995 was shallower than 3.7 meters. The area less than 2.5 meters depth represents about 2 percent of the total surface area of the MA65-62 AU.

Costa[2] estimated that pre-colonial eelgrass depth in Buzzards Bay is about 5.8 m (essentially the same as the maximum depth of the area that supported eelgrass in 1995). The area of the MA65-62 AU above 5.8 meters depth is about 93% of the total surface area. Depth is not the only factor for eelgrass habitat, as it grows in muddy or sandy subtidal environments. The open water of the MA65-62 AU includes several ledges where shallow rock habitat occurs.

Nearly all AU MA65-62 is deep, open water and is therefore unsuitable to support eelgrass growth. The City believes that MassDEP's evaluation of the water quality should reflect conditions representative of the entire AU, not just the small area that is suitable for eelgrass growth. This is supported by MassDEP's AU definition, as described in the 2022 Consolidated Assessment and Listing Methodology (CALM; MassDEP 2022):

[1] Andrews, B.D., Baldwin, W.E., Sampson, D.W., and Schwab, W.C., 2018, Continuous bathymetry and elevation models of the Massachusetts coastal zone and continental shelf (ver. 3.0, December 2019): U.S. Geological Survey data release, https://doi.org/10.5066/F72806T7.
[2] Costa, J. Historical Changes in Eelgrass Abundance and State of the Bay Scores. Last updated July 18, 2022. https://buzzardsbay.org/living-resources/eelgrass/eelgrass-historical/

> Furthermore, because each AU is generally assumed to be fairly homogeneous in water quality, AUs are established to account for changes in water quality conditions that may be expected (i.e., at the confluence of a major tributary, at a dam, or at the site of a NPDES discharge).
>
> MassDEP, 2022

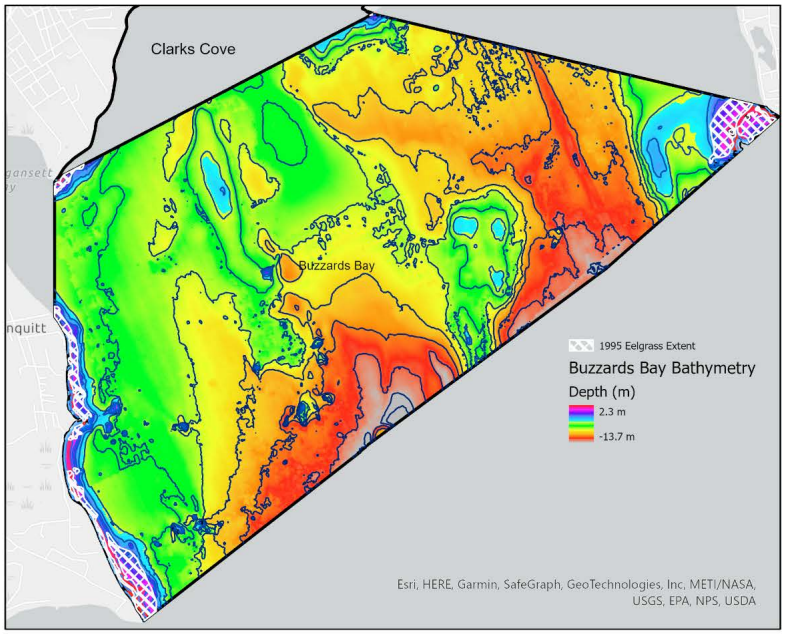
The small decrease in eelgrass is not necessarily representative of water quality conditions in this AU as a whole, and should not be used alone to impair this waterbody.

As an alternative, the City believes that it is necessary to sub-divide this AU to better differentiate between the shallow areas supportive of eelgrass and the larger open water segment. There is precedent for this recommendation:

- In comments on the 2016 Integrated Report, the Buzzards Bay National Estuaries Program suggested that impairing large AUs based on nearshore bacteria monitoring is not representative of water quality across the entire embayment.

The City agrees with this concept, and believes that the very small area of impairment identified by MassDEP in the Buzzards Bay AU is likely not representative of water quality across the entire segment.

Figure 1: Buzzards Bay Assessment Unit and 1995 Eelgrass Extent



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Additional Monitoring Recommended by MassDEP

In Appendix 7 of the Draft 2022 Integrated Report, MassDEP recommends that additional monitoring be conducted "to evaluate nutrient enrichment stress including primary producer biological screening (chlorophyll *a* as well as continuous dissolved oxygen (DO) measurements at one or two buoy sites if possible) as well as total nitrogen (TN) sampling (at least three times per season at mid-ebb tide)." The City has conducted comprehensive hydrodynamics and water quality monitoring of the New Bedford Harbor complex as part of its 1990s facilities planning work and follow up work in the 2000s. Based on these studies, the City found that water quality in the Buzzards Bay AU is influenced by water quality conditions in the near-shore areas (Inner Harbor, Clarks Cove, and Apponagansett Bay) and that inter-annual variability in meteorology and hydrology can have a large impact on water quality. A limited monitoring program is likely not sufficient to fully understand water quality conditions within this AU.

The City recommends that if MassDEP moves forward with monitoring in the New Bedford Harbor complex that MassDEP plan a comprehensive monitoring program sufficient to capture the complex hydrodynamics and water quality dynamics known to exist in this area. To assist MassDEP with future monitoring programs, the City offers to share previous monitoring program design and data with MassDEP staff and would like to offer to both (a) review MassDEP's sampling and analysis plan for this to help include the City's experience in this area in the sampling plan and (b) contribute data about the City's outfall(s) discharges during the monitoring program duration to assist with capturing and evaluating current water quality conditions in this AU.

Clarks Cove (MA95-38)

The City reviewed the new impairments in the Clarks Cove AU. Based on this review, the City has several concerns and comments about MassDEP's findings related to DO and TN in the Clarks Cove AU.

Dissolved Oxygen Criteria Update

The dissolved oxygen impairment is relative to the current 6 mg/L instantaneous SA dissolved oxygen criteria, which does not reflect the current EPA guidance for saltwater DO criteria. EPA has developed a site-specific, risk-based DO criteria (Ambient Aquatic Life Water Quality Criteria for Dissolved Oxygen (Saltwater): Cape Cod to Cape Hatteras[3]). These updated water quality criteria are site-specific to marine waters and represent the risk of low DO to sensitive aquatic life in this region based on both frequency and duration of low oxygen events. Other Atlantic Coast states have already adopted versions of these criteria, including Rhode Island and Connecticut.

MassDEP began a review of its coastal and marine DO criteria, with the last public stakeholder meeting held in 2019. The City encourages MassDEP to continue this effort to update the DO criteria, and believes that the DO data compiled for AU MA95-38 should be analyzed in the context of the revised Commonwealth marine DO criteria once it is finalized by MassDEP.

[3] EPA (2000). Ambient Aquatic Life Water Quality Criteria for Dissolved Oxygen (Saltwater): Cape Cod to Cape Hatteras. https://www.epa.gov/sites/default/files/2018-10/documents/ambient-al-wqc-dissolved-oxygen-cape-code.pdf

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Total Nitrogen Data do not Meet the CALM Criteria for Impairment
The 2022 CALM uses the Massachusetts Estuaries Program (MEP) Critical Indicators Report to screen TN data for evidence of nutrient enrichment:

> For estuarine waters, a summer seasonal average (n>3 samples) of the total nitrogen concentration data collected during an ebb tide will be screened against the MEP critical indicator threshold of >0.5 mg/l for waters where eelgrass habitat has not been documented and >0.4 mg/l for waters where eelgrass habitat has been confidently documented at some point in time. According to the MEP critical indicators report, when total nitrogen concentrations are < 0.5 mg/l the overall health of the system is generally good to excellent except in areas of eelgrass loss that may begin to occur at somewhat lower concentrations (~0.4 mg/l) (Howes, Samimy and Dudley 2003). Higher concentrations (>0.5 mg/l) are typically associated with systems experiencing degraded overall health.
>
> MassDEP, 2022

The physico-chemical screening guidelines for TN in the CALM indicate that the Aquatic Life Use is:

- Supported if the "summer seasonal average mid-ebb (outgoing) tide TN concentration generally ≤ 0.4 mg/L"
- Impaired if "summer seasonal (May through September) average mid-ebb tide TN concentration generally > 0.5 mg/L."

The CALM does not specifically define "generally" in this context.

The City reviewed the seasonal average TN data presented in Appendix 7 of the Draft Integrated Report. The seasonal average TN concentration for each of the monitored sites is shown by year in **Figure 2** and by site in **Figure 3**. This analysis indicates the following:

- With the exception of 2017, the Clarks Cove (all station) seasonal average TN concentrations area always below 0.5 mg/L, and is below 0.4 mg/L in 2018 and 2019 (**Figure 2**).
- The 2015 through 2019 seasonal average TN by site (**Figure 3**) indicates that the TN across this period is below 0.4 mg/L, with the exception of CC_1N/X in the northeast portion of Clarks Cove; this location has a single TN measurement collected during this period (8/3/2017) and therefore is not representative of a seasonal average.
- The CC_1N/X monitoring location is adjacent to a New Bedford CSO outfall and Dartmouth stormwater outfalls, and the elevated TN concentrations are likely the result of these discharges. This location is not representative of the overall basin concentrations.

The data used by MassDEP to determine that Clarks Cove is impaired for TN do not meet the physico-chemical screening guidelines for a TN impairment. Therefore, the City requests that MassDEP remove the TN impairment from the final 303(d) list for Clarks Cove.

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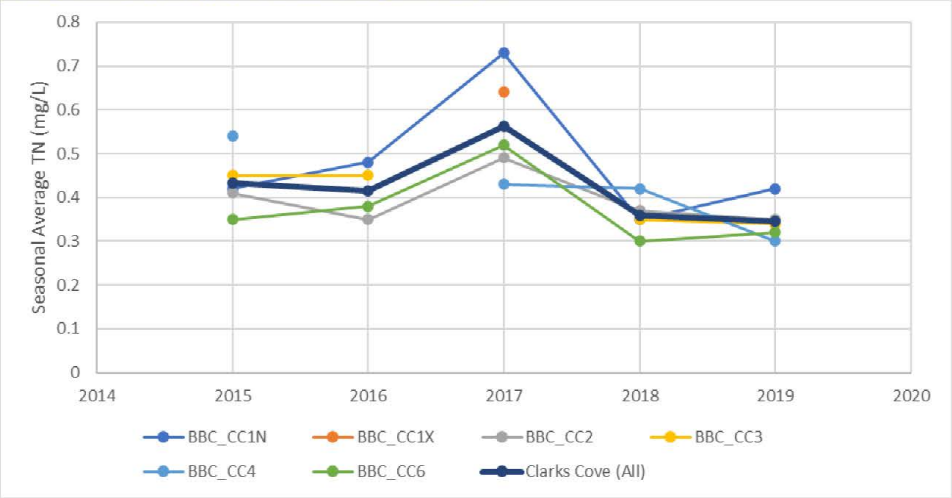
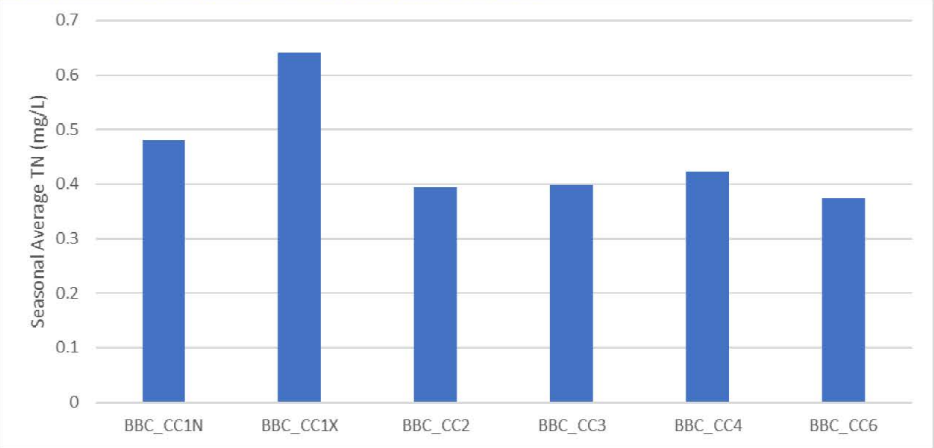
In addition, the City would like to note that the 2017 TN concentrations appear to be an outlier relative to recent data collected by the Buzzards Bay Coalition. The summary of statistics available on the Buzzards Bay Coalition website indicate that nitrogen concentrations at the Clarks Cove monitoring locations since 2019 are generally low, continuing the trend of the relatively low concentrations observed in 2018 and 2019 used by MassDEP for this assessment.

Figure 2: Seasonal Average TN Concentrations by Site and Year



Note: Data shown in Figure 2 was reproduced from Appendix 7 of the Draft 2022 Integrated Report.

Figure 3: Seasonal Average Concentration by Site, 2015 through 2019



Note: Data shown in Figure 2 was reproduced from Appendix 7 of the Draft 2022 Integrated Report.

Summary

The City of New Bedford is committed to continue to improve water quality in its receiving waters. Since 1990, the City has constructed a new secondary wastewater treatment plant and has implemented over $430 million (in 2022 dollars) in water quality improvements which includes $400 million in previous investment and approximately $30 million in investment since 2017 in improvements to its wastewater and stormwater systems. This infrastructure investment and commitment to environmental stewardship has resulted in a more than 90-percent reduction in combined sewer overflows and the opening of over 12,000 acres of once closed shellfishing beds.

We appreciate this opportunity to comment on MassDEP's Draft 2022 Integrated Report. Should you have any questions or wish to discuss our comments further, please feel free to contact me at (508) 979-1550.

Sincerely,

Jamie Ponte
Commissioner

Cc: Shawn T. Syde, City Engineer
Justin Chicca, Deputy Commissioner
Mayor Jon Mitchell
Erik Jaikes
Richard Davis, Beveridge and Diamond
Zachary Eichenwald, CDM Smith

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MassDEP response: We welcome future data submittals from the City. Please see MassDEP external data submittal guidance here: external-data-submittals-to-the-WPP.

COMMENT: Buzzards Bay (MA65-62) [sic] (with a newly listed Estuarine Bioassessments impairment based on eelgrass loss 1995 to 2017) should be subdivided to provide a more representative basis for assessing water quality in this area.

MassDEP response: There are three Assessment Unit (AU) types used by MassDEP in IR reporting: Rivers, Lakes, and Estuaries and there is no distinction made between near shore and deeper water habitat in any of these AU types. As was explained in a prior (2016) cycle response to public comment it is MassDEP's goal to limit changes to existing AUs as much as possible, with the goal of having relatively fixed boundaries which will allow for more efficient management and reporting through EPA's ATTAINS assessment database. Periodic or ad-hoc re-segmentation of AUs to account for individual beaches, shellfish beds, eelgrass meadows, etc. would be impractical and unmanageable when presenting the condition of all of Massachusetts' surface waters on a state-wide or major watershed scale, particularly when multiple designated uses are considered. While MassDEP analysts recognize this AU is very large and is comprised primarily by deep water habitat, the estimated loss of approximately 32 acres of eelgrass since 1995 in MA95-62 is significant. Despite the very small percentage of eelgrass bed habitat in this Buzzards Bay AU, the more landward AUs draining into it (i.e., Apponagansett Bay (MA95-39), Clarks Cove (MA95-38), and Outer New Bedford Harbor (MA95-63)) are also assessed as impaired as a result of eelgrass bed habitat loss (estuarine bioassessment impairment) and/or other nutrient stressors including dissolved oxygen and total nitrogen. As part of the IR reporting process, MassDEP analysts typically document data gaps and highlight monitoring data types that would help with future use attainment decisions. MassDEP welcomes the City's offer to share their previous monitoring program design and data and would appreciate the opportunity to coordinate future monitoring efforts with the City and any other engaged stakeholders to acquire data that supports future use attainment decisions in this Buzzards Bay AU.

COMMENT: The City has several concerns and comments about MassDEP's findings related to DO and TN in the Clarks Cove AU.

MassDEP response: MassDEP plans to continue planning efforts to update the SWQS saltwater DO criteria but until such time that an update is promulgated and approved by EPA, the current criteria and evaluations of DO data compiled for AU MA95-38 must follow the current SWQS and 2022 assessment and listing guidance (2022 CALM)). With respect to the concern that the Total Nitrogen data evaluations do not meet the CALM criteria for impairment, we consider the addition of the Total Nitrogen impairment to be appropriate (seasonal average total nitrogen concentrations at the five sites sampled in Clarks Cove ranged between 0.35-0.52mg/L, with average concentrations >0.4mg/L five of 11 times) and supported by indications of nutrient-related stress in this AU (~58% loss of eelgrass bed habitat in Clarks Cove between 1995 and 2017). MassDEP will continue to evaluate nutrient related data available for Clarks Cove in future IR cycle updates undertaken for the Buzzards Bay Coastal Drainage Area and hopes to see improved conditions. MassDEP certainly recognizes the City's efforts to improve water quality conditions in its receiving waters through improvements in its wastewater and stormwater systems. Infrastructure investment and commitment to environmental stewardship are essential to achieving water quality conditions that support designated use goals.

Hoosic River Watershed Association:

Hoosic River Watershed Association

Richard F. Chase
MassDEP-Bureau of Water Resources
Watershed Planning Program
8 New Bond Street
Worcester, MA 01606

December 14, 2022

RE: Draft Massachusetts Integrated List of Waters for the Clean Water Act 2022

Dear Mr. Chase:

The Hoosic River Watershed Association (HooRWA) is a citizens' group that has been an advocate for the river and its watershed for over 36 years. We are dedicated to the conservation, habitat restoration and enjoyment of the Hoosic River and its watershed, through education, research and advocacy. We envision a watershed that is ecologically sound and adds to the quality of life for its residents. New York, Vermont and Massachusetts agencies have accepted our monitoring results.

Thank you for the opportunity to review the subject document, which includes a thorough sampling and analytical test data relative to the Hoosic River watershed in the Commonwealth. It is most useful in giving us and the community a sense of the health of the Hoosic and its watershed.

However, we also noticed the reporting was missing a significant amount of test and sampling data we have collected and/or generated over the last decade, and previously transmitted to State agencies. The lack of more current (<10 years old) data that was created by HooRWA, Williams College, and occasionally the Housatonic Valley Association concerns us. We are disappointed that our valuable work, under appropriate sampling protocols, does not appear. Therefore, we request that your office reach out to us to help establish a better way for us to transmit our data.

Both HooRWA and the State can do better by the Hoosic if we join forces.

Sincerely,

Andrew Kawczak

Andrew Kawczak, President, Hoosic River Watershed, Association
906 Main Street
P.O. Box 667
Williamstown, MA 01267

Tel. 413-458-2742 - office
Tel. 413-664-9545
Email: akawczak@yahoo.com

COMMENT: Test and sampling data collected over the last decade by HooRWA, Williams College, and the Housatonic Valley Association previously submitted to state agencies appears missing so requesting MassDEP reach out to establish a better way to transmit data.

MassDEP response: The Hudson River Watershed (including the Hoosic, Bashbish, and Kinderhook river basins) was updated in the 2022 IR reporting cycle, however the Housatonic River Watershed was not. MassDEP notes the HVA bacteria data from 2017 to 2020 for sites in the Hoosic River Watershed were used. HVA's recent data in the Housatonic River Watershed, however, were not used because the Housatonic was not included in the 2022 update. Unfortunately, the HVA 2021-2022 bacteria data and 2022 physico-chemical and continuous probe data for the Hoosic were not submitted in time for the 2022 IR cycle reporting. MassDEP recommends HVA, Williams College, and/or HooRWA continue to submit data to the WPP by the data submittal deadline (external-data-submittals-to-the-WPP) and request assistance from WPP's External Monitoring and Data Coordinator (Dr. Bob Smith) as needed with any questions.

Ipswich River Watershed Association:

IPSWICH RIVER
WATERSHED ASSOCIATION
The Voice of the River

P.O. Box 576
Ipswich, MA 01938

January 6, 2023

Richard F. Chase
MassDEP-Bureau of Water Resources
Watershed Planning Program
8 New Bond Street
Worcester, MA 01606

Re: Comments on 2022 Integrated List of Waters

Dear Mr. Chase,

The Ipswich River Watershed Association has the following comments on the *Proposed Massachusetts Year 2022 Integrated List of Waters*. These comments focus on impairments for dewatering and flow regime modifications as well as lack of coldwater fish assemblage.

We note that *Dewatering* is listed as an impairment (non-pollutant) for the Ipswich River (MA92-06, MA 92-15), Lubbers Brook (MA92-05) and Maple Meadow Brook (MA92-04). First, what is the distinction between *Dewatering* and *Flow Regime Modification* listed for an unnamed tributary (MA92-12)? And what is the rationale for using *dewatering* and/or *Flow Regime Modification* vs. *Low Flow Alterations* used in the 2016 Integrated List and prior? We also note that *Baseflow Depletion from Groundwater Withdrawals* is cited as a source of for dewatering and dissolved oxygen impairments for the Ipswich River (MA92-06), Lubbers Brook and Maple Meadow Brook. We feel that Martins Brook (MA92-08) should also be listed as impaired for dewatering with baseflow depletion from groundwater withdrawals cited as a source for this as well as dissolved oxygen. Martins Brook experiences severe flow depletion during times of low water, reducing the stream to isolated pools and dry streambed. Groundwater withdrawals are present in the Martins Brook sub-basin.

We also note that Gravelly Brook (MA92-18) listed *Lack of Coldwater Assemblage* as a newly identified impairment based on fish community surveys in 2015 and 2017. What are the implications of this listing for the coldwater fishery status of Gravelly Brook? Will additional fish surveys be performed in response?

We were pleased to see the addition of new data and assessments for impairments at many segments including Fish Brook, Gravelly Brook, Howlett Brook the Ipswich River and others. We appreciate the inclusion of new alerts for temperature at Gravelly Brook and chloride for the

P.O. Box 576 * 143 County Road * Ipswich, MA 01938 * 978-412-8200 * fax: 978-412-9100

Ipswich River (92-06), Lubbers Brook, Maple Meadow Brook and Martins Brook. Recommendation based alerts and knowing where data gaps exist are very helpful to inform future monitoring.

Thank you for considering our comments. Please contact us if you have questions.

Sincerely,

Ryan O'Donnell
Programs Coordinator
Ipswich River Watershed Association

P.O. Box 576 * 143 County Road * Ipswich, MA 01938 * 978-412-8200 * fax: 978-412-9100

COMMENT: Explain the distinction between Dewatering and Flow Regime Modification listed for Unnamed Tributary MA92-12. We note that Dewatering is listed as an impairment (non-pollutant) for the Ipswich River (MA92-06, MA 92-15), Lubbers Brook (MA92-05) and Maple Meadow Brook (MA92-04). First, what is the distinction between Dewatering and Flow Regime Modification listed for an unnamed tributary (MA92-12)?

MassDEP response: A Dewatering impairment is used when water is anthropogenically removed from a surface waterbody/waterway that results in extended periods of no or low flows (e.g., low flow alterations due to diversions, subsurface drainage, etc.), while a Flow Regime Modification impairment is used when the natural flow pattern in a waterbody is anthropogenically altered (e.g., decrease in flood pulses due to hydrostructures, flow modification resulting from dams, etc.). Since the low flow conditions observed in Unnamed Tributary MA92-12 by MassDFG staff during July 2018 were likely due to lack of adequate release from Middleton Pond, rather than direct water diversions from the stream or groundwater withdrawals (there are no wellhead protection areas in the subwatershed), the impairment is Flow Regime Modification and the source of the impairment is Dam or Impoundment.

COMMENT: Describe the rationale for Dewatering, Flow Regime Modification vs Low Flow Alterations impairments. And what is the rationale for using dewatering and/or Flow Regime Modification vs. Low Flow Alterations used in the 2016 IR and prior?

MassDEP response: Low flow alterations was used as an impairment cause through the 2016 IR reporting cycle. Beginning in the 2018/2020 IR cycle with MassDEP's implementation of the EPA ATTAINS (Assessment and Total Maximum Daily Load Tracking and Implementation System) Database reporting system all Low flow alterations impairments were converted to the new impairment, Dewatering. The distinction between Dewatering and Flow Regime Modification is described above, in the response to the question regarding Unnamed Tributary MA92-12.

COMMENT: Martins Brook (MA92-08) should be impaired for dewatering with baseflow depletion from groundwater withdrawals cited as a source for this as well as dissolved oxygen. We also note that Baseflow Depletion from Groundwater Withdrawals is cited as a source of for dewatering and dissolved oxygen impairments for the Ipswich River (MA92-06), Lubbers Brook and Maple Meadow Brook. We feel that Martins Brook (MA92-08) should also be listed as impaired for dewatering with baseflow depletion from groundwater withdrawals cited as a source for this as well as dissolved oxygen. Martins Brook experiences severe flow depletion during times of low water, reducing the stream to isolated pools and dry streambed. Groundwater withdrawals are present in the Martins Brook sub-basin.

MassDEP response: MassDEP understands and appreciates IRWA's concern regarding low/no flow conditions in Martins Brook (MA92-08). MassDEP coordinated with IRWA staff to obtain streamflow data from the RIFLS gage on Martins Brook at Park Street in North Reading. Although several low flow periods occurred between 2015 and 2020, the only significant one of these to occur during a non-drought period was in September 2015. MassDEP WPP staff consulted with regional DEP staff and reviewed pumping records for the municipal wells located adjacent to the stream. Overall, pumping rates from these wells have decreased since 2015, or in some cases wells have been taken entirely off-line. Given the recent reduction in groundwater withdrawals near Martins Brook, MassDEP does not consider a Dewatering impairment to be appropriate at this time. However, the RIFLS streamflow data corroborate the prior Alert for Martins Brook (MA92-08) for Low flow alterations (which is now known as Dewatering), so the Alert will remain in place. MassDEP welcomes further communications from IRWA regarding streamflow data and any low/no flow events occurring in Martins Brook particularly during non-drought periods.

COMMENT: What are the implications of the Lack of Coldwater Assemblage impairment for Gravelly Brook (MA92-18) and will additional fish surveys be performed in response? This is a newly added impairment based on fish surveys in 2015 and 2017.

MassDEP response: MassDEP recommends long-term temperature monitoring be conducted to evaluate the magnitude, duration and frequency of thermal stress. Opportunities for IRWA and the community of Ipswich to protect the riparian corridor and instream habitat in Gravelly Brook should be explored to minimize high summertime temperatures (e.g., increased shading, stormwater BMPs such as infiltration, etc.). Periodic fish population sampling is also being recommended.

Charles River Watershed Association:

Charles River
Watershed Association

January 6, 2023

Via email

Richard F. Chase
MassDEP - Bureau of Water Resources
Watershed Planning Program
8 New Bond Street, Worcester, MA 01606
richard.f.chase@mass.gov

Re: Draft Massachusetts 2022 Integrated List of Waters

Dear Mr. Chase,

Charles River Watershed Association (CRWA) submits the following comments on the Draft Massachusetts 2022 Integrated List of Waters. CRWA's mission is to protect, preserve, and enhance the Charles River and its watershed through science, advocacy, and the law. CRWA develops science-based strategies to increase resilience, protect public health, and promote environmental equity as we confront a changing climate. The Integrated List (IL) provides a critical assessment of the overall health of the Charles River watershed and forms the basis for future pollution reduction efforts.

Reviewing and commenting on MassDEP's Integrated List of Waters is core to our mission, as it is at the intersection of our monitoring and advocacy efforts to improve water quality. Though the Charles River watershed was not the primary focus of updates for this 2022 IL, we offer comments on broader trends and reiterate points made in our 2018/2020 IL comments.

Surface Water Quality Standards and Consolidated Assessment Listing Methodology (CALM)

CRWA thanks MassDEP for its responses to our comments on the 2018/2020 IL regarding the state's surface water quality standards. We look forward to seeing the development and implementation of criteria for Per- and Polyfluoroalkyl Substances (PFAS) and cyanobacteria biovolume and algal toxins, as well as the full integration of the additional 150 cold water streams.

The Consolidated Assessment Listing Methodology (CALM) is an important document that describes how the surface water quality standards are used to assess uses for the IL. While the public are able to comment on both updates to the surface water quality standards and the IL, they are currently not able to comment on updates to the CALM. Since this is such a critical document, *we request that a public comment period be available for each update to the CALM.*

The updates made between the 2018 CALM and the 2022 CALM were especially important because they incorporated changes made to the surface water quality standards in 2021. Watershed groups like CRWA regularly analyze water quality data and communicate impairments with our members and the public. We have expertise on best data analysis practices, a deep understanding of the health of our water bodies, and expertise in communicating these issues to the public. Groups like ours have meaningful input on the methodologies used to calculate impairments that would be beneficial to incorporate into any future CALM update.

In addition, assessment decisions in the recent ILs have been made based only on a change in methodology, based on CALM updates. This was the case for the Stop River assessment unit (MA72-10) in the 2018/2020 IL, in which the temperature impairment was delisted, based solely on an update of the CALM. If impairments are going to be reevaluated solely on this basis, the public should be able to comment on the updated methodologies.

Age of Data Used in Impairment Decisions

As was the case with the 2018/2020 IL, much of the data that was used in the updated parts of the 2022 IL dates as far back as 2006. For the IL to report accurate assessments, more recent data are needed. Going forward, *we strongly recommend that data used to make assessment decisions be collected within seven years of the date of the IL*, to align with MassDEP's monitoring plan. This is especially important as the effects of climate change continue to shape the quality of Massachusetts' water bodies - the use of older data does not accurately reflect these quickly changing conditions.

We appreciate that delistings proposed for the 2018/2020 IL were deferred until more recent data was collected. In the Charles, this included the assessment units of Stop River (MA72-09) for dissolved oxygen and total phosphorus, Mine Brook (MA72-14) for temperature, and Trout Brook (MA72-19) for nutrient/eutrophication biological indicators. We urge that a similar approach be applied to assessment units on the 2022 IL where delistings are only proposed because no recent data has been collected.

CRWA recognizes and appreciates that the Watershed Planning Program has invested significant resources in collecting data and better utilizing external data in the past few years. This includes the piloting and expansion of the Water Quality Monitoring Grants, and the hiring of the External Monitoring and Data Coordinator. CRWA will continue to advocate for increased funding for MassDEP and the Watershed Planning Program so that these critical programs can continue. We look forward to seeing the benefit of these investments, with more recent data being used to make assessment decisions in future IL cycles.

Fish Passage Barrier Impairment

In this 2022 IL Draft several assessment units have the added impairment of a fish passage barrier. CRWA is happy to see this addition, and is glad that the Charles River (MA72-07) was also listed as impaired for fish passage, after our feedback on the 2018/2020 IL. *We request that MassDEP provide more information about how this impairment is assessed systematically within each watershed*, so that groups like CRWA can contribute data or on-the-ground knowledge.

Dewatering Impairment

CRWA is glad to see the identification and inclusion of more assessment units identified as dewatered in this 2022 IL Draft. However, only four assessment units in the Charles River watershed have been listed for the dewatering impairment, despite recent on-the-ground evidence of extreme dewatering. As frequent droughts become more common in Massachusetts with climate change, low-flow conditions will continue to affect both water quality and aquatic life.

As a result of the recent droughts in the Charles River watershed in 2016, 2020, and 2022, CRWA is developing a low-flow monitoring program, and we would like our data to be incorporated into subsequent ILs. *We ask that MassDEP provide more information, and references in the CALM, about how this impairment is assessed* so that we can develop a more robust monitoring program around low water.

In particular, we encourage MassDEP to use its review of Water Management Act permits to inform the dewatering impairment for Massachusetts waterways. The vast majority of Charles subbasins identified in the Sustainable Water Management Initiative (SWMI) mapper are classified as Biological Category 5 and a Groundwater Withdrawal Category 5, indicating that the subbasins are highly stressed both hydrologically and biologically. *We believe that this information should be reviewed and incorporated as the next list of impaired waters is prepared.* We look forward to working with MassDEP to fully use its authorities to restore flow impaired waters.

Inclusion of Additional Water Bodies

CRWA is pleased to see the inclusion of several additional assessment units that had not been included in previous ILs. This includes 24 streams, ponds, and reservoirs within the Charles River watershed. Though each of these are listed as Category 2 or 3 and impairments have not yet been assessed, we still appreciate the water bodies being identified as locations where additional data is needed. *We encourage MassDEP to prioritize these sites for sampling.* Listing these water bodies also helps CRWA identify and prioritize where and what to sample, and report to MassDEP to refine impairments for the next IL cycle.

In addition, *we ask that the following urban water bodies in the Charles River watershed be included in the 2022 IL as Category 3*:

- Bussey Brook, Boston (Jamaica Plain)
- Ponds in the Arnold Arboretum, Boston (Jamaica Plain)
- Goldsmith Brook, Boston (Jamaica Plain)
- Canterbury Brook, Boston (Mattapan)
- Wigwam Pond, Dedham

Thank you for reviewing our comments on the draft Massachusetts 2022 Integrated List of Waters. If you have any questions regarding these comments, please feel free to contact us. We look forward to continuing to work with MassDEP to protect and restore water quality in the Charles River watershed and throughout the state.

Sincerely,

Lisa L. Kumpf
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Cc: Ivy Mlsna, EPA Region 1
Todd Richards, Massachusetts Department of Fish and Game

COMMENT: We request that a public comment period be available for each update to the CALM and if impairments are going to be reevaluated solely on the basis of updated methodologies, the public should be able to comment on the updated methodologies.

MassDEP response: Unlike both the Massachusetts Surface Water Quality Standards (SWQS) regulations and the IRs that include public comment, a specified public comment period is not required for the CALM guidance. MassDEP staff appreciate the expertise of other local, state, and federal water quality scientists, including within organizations such as CRWA, as we attempt to continually improve assessment and listing methodologies. Suggestions/recommendations related to the current CALM guidance are always welcome and can be provided at any time, including during the IR public comment period, for future consideration. Where a change in assessment methodology from one cycle to the next has taken place, data are reevaluated using the updated methods. In these cases for delistings, the selected rationale (based on "good cause") available in EPA's ATTAINS database may be "Applicable WQS attained, according to new assessment method" or in very limited scenarios "Data and/or information lacking to determine WQ status, original basis for listing was incorrect".

EPA's 2004 Guidance for Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act states that "[t]here are some situations where a previously listed segment may be delisted without relying on data and information collected after the date of the previous list. For example, if the State evaluates the pre-existing data and information using a methodology that EPA has determined to be technically reasonable, and the results of that evaluation provide a "good cause" basis for not including the segment on the next list, the segment would no longer need to be included in Category 5. However, the delisting should only occur if it is determined by EPA that the new methodology is technically sound, consistent with the State's WQSs, and is deemed statistically reasonable."

COMMENT: We ask that MassDEP provide more information, and references in the CALM, about how a low flow impairment is assessed so that we can develop a more robust monitoring program around low water, we encourage MassDEP to use its review of Water Management Act permits to inform the dewatering impairment for Massachusetts waterways, and encourage MassDEP to fully use its authorities to restore flow impaired waters.

MassDEP response: The current assessment methods used to evaluate flow/habitat rely primarily on recorded observations of instream habitat attributes recorded by MassDEP biologists, diadromous fish passage information provided by DMF biologists, and estimates of streamflow conditions using USGS streamflow data at gaged and ungaged sites in relation to estimated 7Q10 flows. The CALM guidance does not currently specify any other data sources to evaluate flow related stress. Clarification on how low flow impairments are determined can be provided in a future iteration of the CALM.

MassDEP continues to explore improved assessment methodologies and monitoring strategies, including methods to evaluate low flows impacting aquatic life (e.g., use of trail cameras to evaluate flow/habitat stress). On an as-needed and case-by-case basis, MassDEP analysts review water withdrawal information (e.g., WMA permittees) if/when there is concern related to flow depletion impacts. A Dewatering impairment is used when water is anthropogenically removed from a surface waterbody/waterway that results in extended periods of no or low flows (e.g., low flow alterations due to diversions, subsurface drainage, etc.). MassDEP appreciates CRWA staff concern related to the recent increase in drought frequency. While SWMI model predictions of biological categories (BC) and groundwater withdrawal categories (GWC) are used in WMA permitting decisions, they are not useable as surrogates for the site-specific data and information required for assessing and listing waters in accordance with the requirements of the CWA. MassDEP will continue to list in Category 4c those waters for which site-specific flow data, field observations, habitat assessments or other information indicate impairment of the aquatic life use due to low-flow conditions.

COMMENT: MassDEP should provide more information on the methodologies used to impair waters due to fish passage barriers.

MassDEP response: See Part 1.

COMMENT: We ask that the following urban waterbodies in the Charles River watershed be included in the 2022 IL as Category 3: Bussey Brook, Boston (Jamaica Plain), Ponds in the Arnold Arboretum, Boston (Jamaica Plain), Goldsmith Brook, Boston (Jamaica Plain) Canterbury Brook, Boston (Mattapan) Wigwam Pond, Dedham.

MassDEP response: For the next Charles River Watershed IR update, the perennial portion of Bussey Brook in Boston and Wigwam Pond in Dedham can both be added as Assessment Units (AU) providing there are usable data to evaluate one or more designated uses. The other streams requested --- Canterbury, Goldsmith, and an Unnamed brook in George Wright Golf Course --- are either intermittent or do not appear in the hydrography coverage, so it is unlikely that these can be added as AUs. The Ponds in Arnold Arboretum all appear as deep marsh wetlands so these will not be added as lake AUs.

Jones River Watershed Association:

781-585-2322 ▪ 55 LANDING ROAD, KINGSTON, MASSACHUSETTS 02364 ▪ WWW.JONESRIVER.ORG

6 January 2023

Richard F. Chase
MassDEP-Bureau of Water Resources,
Watershed Planning Program
8 New Bond Street, Worcester, MA 01606

Re: South Coastal/ Jones River Watershed Comments on November 2022 Draft
Massachusetts Integrated List of Waters for the CWA Reporting Cycle

Dear Mr. Chase,

JRWA (Jones River Watershed Association) was formed in 1985 as EPA was encouraging local and regional citizens to take more interest caring for the environment. Education about watersheds and the collective flow of surface and groundwaters began so that everyone could understand the ways our rivers became fouled and aflame. This was to help instill in all the tools so useful in protecting the nature of our environments that feed and nourish us. We took up this cause and have been educating ourselves and our fellow residents since that time. At the same time, we were involved in challenging aerial application of pesticides, developing the Water Management Act, and trying our best to protect and redeem Silver Lake. These efforts continue today as we undam the river, work with the town to improve stormwater qualities, advocate for the sewer (and expansion) to remove waste from the tidal reach and reconnect a badly broken ecosystem.

General comments

My first plea in the reporting system is for DEP and EPA too, at the very least, present the information on rivers and ponds according to the watersheds they inhabit. Although after all this time I know enough to search the South Coastal Basin, it is tedious at best to find all our waterbodies in the mix with all of them from Weymouth to the Canal. This is more difficult when we run into "Unnamed Tributaries" and names that are similar and not precise to local parlance. We have names for all the natural waterways--and they are not necessarily the ones DEP uses. I have only lived here since 1975--but I learned from others that before the furnaces were built on "Furnace Brook", that brook was called Trout Brook--which existed before all the dams and alterations. It was Trout Brook because it was cold and supported native brook trout as it does today, despite all the aggravation of manufacturing and development. It is Trout/Furnace Brook on our maps from Route 80 not far from Indian Pond at least to Sylvia's Pond, and then it is Furnace Brook from Soules to Jones River upstream of Elm Street.

Secondly, if DEP were to set up a page to receive reports that are developed, or actions that are taken on waterbodies, you would probably have more data, or at least information worth sharing. A broader partnership could be developed, potentially giving DEP additional resources and more information for the routine updates. Of all the reports we have initiated over the years I saw only one that was used, and I believe there are others that would provide useful information to those who come after us. So, yes, I am asking MA DEP to coordinate a statewide repository for information that you would review and upload if

deemed worthy--or perhaps UMASS or other institution would be most appropriate. This would apply not only to watershed groups, but to towns, consultants, agencies, and the array of students interested in this work. For example: when there is a spill of hazardous materials to one of the waterbodies/Great Ponds it would be included on the updates, as happened in Kingston (Indian Pond) over the past year.

We note that DEP is working on the draft TMDL to address bacteria in the South Coastal basin and many other watersheds, and Nitrogen in the Kingston/Duxbury/Plymouth Bay complex. There are 3 AUs in the South Coastal. It is unclear what resources are included. It appears that there are eight rivers that require action in this basin. It would help to have more clarity and to be able to obtain the Action ID info listed in the Cat 5 listings, if this is the basis of work, so we can have some understanding of the schedule for the public meeting, and be better prepared.

Specific comments on Jones River watershed listed resources listed below

SouthCoastal Jones River Watershed

Waterbody	Category	additional info/Comment	Information/need for action
Tussock Brook	94-68 Cat 2	the tide-gate fell off around 2017	DOT should remove the cement bottom of the culvert and falling in metal insert -
Tussock Brook	94-67 Cat 3	Woodbridge culvert is collapsed, referenced "pond" is the dammed Tussock Brook at Kingston/ Duxbury line. Removal option is being discussed	Discussions underway with JRWA, condo association and Duxbury to restore Tussock Brook by addressing artificial impoundment. Excellent wildlife habitat and marsh
Halls Brook/ aka Stony Brook	94-57 Cat 3	Tidal, below C. Drew dam--fish barrier--estuary	important for smelt, river herring, American eels
Halls Brook/ aka Stony Brook	94-58 Cat 4c	Locals only know this as Stony Brook. DEP and USGS call it Halls Brook. It has been Stony Brook in Kingston for centuries.	Stony Brook flows out of Blackwater Pond. Halls Brook flows into Blackwater Pond. Yes, fish barriers at C. Drew dam and Maple St culvert
Indian Pond	94072 Cat 3	Rare Species habitat, Plymouth Gentian, and others. 2021/2 release of diesel fuel and clean up not noted DEP waste site clean-up engaged	Sampling results for rare pond habitat important to locals. Reflects Plymouth/Carver Aquifer. Recreational swimming and fishing. Used for cranberry irrigation
Furnace Brook	94-52 Cat 4c	"From outlet of Soules Pond" fish barrier. Furnace Brook (also known at Trout Brook) has been classified a CFR by DFG for its native trout population, spawning freshwater lamprey and others.	Active management at the DMF fish ladder and volunteer counts note that when fish come, they make it to Soules Pond and beyond to Sylvia Place pond.
Lower Chandler Pond	94091 Cat 4c	This is the headwater of Pine Brook starts at Upper Chandler Pond (94165) and flows to Lower Chandler and into Kingston as a significant tributary to Jones River	Manipulations of Upper and Lower Chandler Pond sluice and outlet, and withdrawals from Duxbury's Lakeshore well can impact the flow and quality of Pine Brook
Reeds Millpond	94126 Cat 4c	Reeds Mill Pond is caused by damming Pine Brook. The impoundment is artificial. People fish there from the road.	The millpond serviced a sawmill that has been out of operation for at least 3 decades.
Pembroke Street South Pond	94117 Cat 4c	This must be the impoundment on the former Kelleher property now owned by Kingston for conservation purposes. It is part of the Cranberry Watershed Preserve. (CWP) This is another dam on Pine Brook.	The earthen dam should be removed. The bogs are no longer in operation. This impoundment is also on Pine Brook a vital tributary to Jones River. CWP is nearly 300 acres and is along the Bay Circuit Trail.

Waterbody	Category	additional Info/Comment	Info/Need for Action
Russell Pond	94133 Cat 4c	Russell Pond is a High Hazard earthen impoundment of Winter Meadow Brook another tributary to Soules Pond	The "Fish Passage Barrier" referenced is a hand dug outlet to Sylvia's Pond, under ownership of Wildlands Trust with a plan to address the barrier with upcoming project waiting for funding
Smelt Pond	94184 Cat 4c	We are interested in what data DEP has on water quality as we have been concerned about the condition of Smelt Pond for several decades. Plants are invasive. Boating practices and fishing are not well monitored. Upgrades to homes are in progress. The bog has ceased operations.	Smelt Pond is a Great Pond and a deep one. It has been stocked by DFG over the years. We would like to open it to fish passage, but there are at least seven impediments to address between the tidal reach and the pond with heavy infrastructure including RR tracks, sewer plant, DOT roads, industrial park and former dump.
Unnamed Tributary	94-53 Cat 4c	This may be the remnant of Winter Meadow Brook which was dammed in the 1700's to form Russell Pond. It leaks through the dam passes in a culvert under Sylvia Place Road to a wetland and impoundment formed by Elm Street which carries the stream to Soules Pond.	Need a DEP sketch or map to be sure what tributary DEP is referring to. MassMapper mislabels the location of Furnace Brook upstream of Soules Pond
Unnamed Tributary	94-59 Cat 4c	"Locally known as Laundry Brook" for the former laundry that dumped into it. It is known locally as **Second Brook**.	First Brook and Third Brook are not mentioned or assessed. Both are important, but similarly have fish passage barriers.
Unnamed Tributary	94-45 Cat 3	The description of this steam is difficult since there is another close by	They seem to drain to Kingston Bay based on the map lines DEP provided, not Duxbury Bay as outlined
Category 5	**TMDL required**		
Crossman Pond	94032	nutrient eutrophication Crossman Pond is used for agricultural/cranberry bog purposes.	Crossman Pond was a tributary to Fountainhead Brook and spawning ground in the distant past. It appears to still drain to Fountainhead although the downstream cranberry grower relocated it. We are discussing a conservation purchase with that owner which would allow for significant restoration efforts.
Jones River	94-12	The first 1600 feet of Jones River from Silver Lake is impaired due to Brockton's 38- inch dam which it built in 1905 to overfill the lake so it could use flood water for water supply. This is the cause of impairment. There is no justification other than the blinders of politics to keep this dam.	DMF and JRWA are working on fish passage into Silver Lake. We will need DEP to help restore flow to Jones River, stop the filthy diversions from Monponsett and Furnace Ponds, and limit the withdrawals to a level expressed in the several studies we have initiated by GZA, Princeton Hydro, Horsley Witten. Link to Horsley Witten provided below
	94-13	Between Elm St and Wapping Road the river is NOT impounded as the dam was removed in 2019. Yes there was turbidity but it was temporary, as the system acclimated	DEP clearly is confused by GE imagery which shows a flowing river in a FORMER impounded area. With more time and interest we can provide more photos https://jonesriver.smugmug.com/August-2022/i-FqfS798

Waterbody	Category 5	additional Info/Comment	Info/Need for Action
Jones River	94-14	Tidal portion of the Jones was also improved with the Elm St dam removal, but we agree it is too early to delist for fecal. Comment on 2011 Aesthetic observations downstream may have been impacted by Wapping Road dam removal which was initiated in August 2011 (the week of Hurricane Irene!)	Kingston with CZM and JRWA has been working to implement stormwater improvements draining to the river in this reach. The Elm St project is in final design. It is our hope it will address the cesspool at the KWD building as well. Kingston upgraded stormwater draining to river on Landing Road in 2017, and to Brook Street more recently.
Silver Lake	94143	Our understanding is that Silver Lake encompasses about 640 acres. In 2013 the Central Plymouth Co Water District Commission was re-established and has undertaken studies of Silver Lake including nutrients, DO, and invasive plants. When available, reports should be posted to this link: https://www.centralplymouthcountywater.org/water-quality-monitoring-at-silver-lake.html The DO impairment is (no doubt here) coming from the excessive phosphorus being diverted to the lake from Monponsett Pond. (MoPo)	Information was provided by TRC (formerly ESS) this summer on DO and Phosphorus which are provided at the end of this comment. Following up with the Commission would be useful if DEP wishes to be in the loop for receiving information. JRWA and DMF performed sediment analysis on Forge Pond and discovered some contamination near Brockton's dam. We will provide that on request and during permitting for the fish ladder install. It is a crying shame that DEP has allowed diversions for so long while even performing a TMDL on MoPo for cyanobacteria blooms, which are now in Silver Lake.

Silver Lake is getting progressively worse with on-going chronic management by the City of Brockton for water supply. Increasing anoxia, establishment of invasive species, cyanobacteria delivered through the diversion of Monponsett Pond to "supplement" supply has led to the Category 5, TMDL requirement in the most recent CWA Integrated Waters listing. Brockton's management kills the freshwater mussels through dewatering of the shallows, almost every year. Symptoms of drought is an annual experience for the creatures that live in Silver Lake, only because Brockton sucks too much. Why? Because they have no restriction to guide them when it might be appropriate to water the sidewalks outside city hall, sell water to Abington, in violation of their Registration, pump more water to increase revenues for their budget. What Brockton is doing in this management scheme is an evolving tragedy in our ecosystem, despite our best efforts, and DEP is complicit in that evolution.

JRWA maintains our website at jonesriver.org and several studies are posted there here is the 2017 HorsleyWitten https://jonesriver.org/media/silver-lake-jones-river-flow-study/

For a view of Summer 2022 walking though the former Elm St dam impoundment and a better understanding of the river and flow see this at our youtube channel
https://www.youtube.com/watch?v=pa1tCcVQgoA
You can also search jonesriverecology on youtube for videos of Silver Lake as well as our Smugmug link from our Webpage
https://jonesriver.smugmug.com/Featured-Images/i-9Nn8Q6h

Outlet to Jones River--zero flow downstream

Attachment: Silver Lake Study October 2022 TRC for OCPC preliminary Anoxic, Phosphorus

Pine duBois, Executive Director
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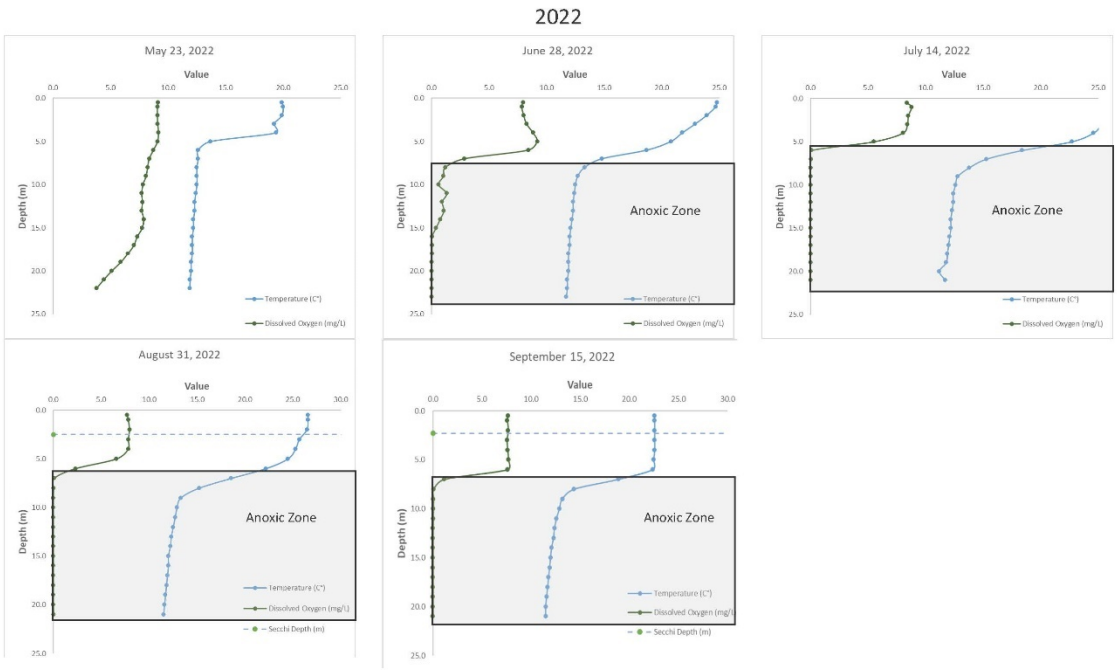
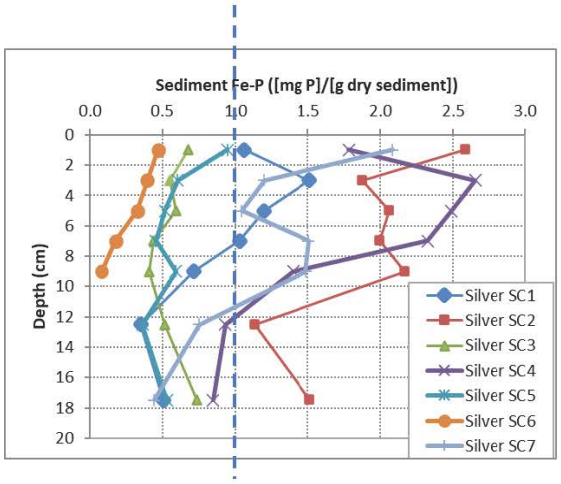


Sediment Coring and Phosphorus Fractionation Preliminary Results

- Phosphorus levels look to be high in deepwater sediments of Silver Lake - > 2,000 mg/kg (2 mg/g)
- Primary fraction is iron-bound, particularly in top few cm of sediment - > 1,000 mg/kg (1 mg/g) in surficial sediments of 4 cores
- This fraction readily releases under anoxic conditions – up to ~19 mg P/m^2/day



COMMENT: Request to present the information on rivers and ponds according to the watersheds they inhabit and local names do not always align with the ones MassDEP staff use.

MassDEP response: We recognize the South Coastal Drainage Area is comprised of smaller basins and the alphabetical ordering of Assessment Units (AU) is not always easy to navigate. However, the watershed decision documents (Appendices to the IR) are all organized in the same manner so no change in AU order will be made at this time. Common or local names, however, have been incorporated into AU descriptions where appropriate and as requested, since local names of waterbodies should help to improve usability.

COMMENT: Request for statewide repository of watershed documents, information be developed.

MassDEP response: While MassDEP does not have dedicated resources to maintain a statewide library of watershed reports and information, we suggest that important reports and watershed specific information can be submitted to WPP's external data portal. This includes reports specific to Silver Lake, as mentioned in JRWA's comment letter, as well as other studies that the JRWA wants MassDEP to be aware of.

COMMENT: Request for additional information related to any South Coastal Drainage Area TMDLs be made available affording sufficient time for public to be prepared.

MassDEP response: Public participation is an essential part of the TMDL development process. In advance, MassDEP will announce dates for public meetings in the MEPA Environmental Monitor, provide press releases, and email stakeholders and town officials within the affected watershed area. After the public meeting, a 30-day public comment period on the draft TMDL is typically provided to give ample time/opportunity for public input.

COMMENT:: Additional info was tabulated for Jones River Watershed AUs ranging from notes and observations to comments about uses and users.

MassDEP response: MassDEP appreciates the information provided by JRWA. Based on this input, local names have been added to AU descriptions where appropriate, notes have been made to acquire information where habitat restoration projects may be implemented in the future, and information will be passed on to other agency staff (e.g., DMF biologists, DOT staff) as needed. MassDEP also appreciates the local historical perspective provided concerning Silver Lake and the City of Brockton, and we acknowledge the frustration and efforts of the JRWA members to restore and protect water quality in the Jones River Watershed. We recommend that any water quality monitoring project proposed for Silver Lake and/or the Jones River Watershed receive all appropriate and prior DEP reviews/approvals (e.g., QAPP) to maximize the potential for generating assessment-level data (Level 3) for 305(b) and 303(d) decision-making. Details of these requirements can be found online: external-data-submittals-to-the-watershed-planning-program.

As required by the Administrative Consent Order (ACO) between the City of Brockton and MassDEP, a Resource Management Plan (RMP) has been developed which recommends implementation of the TMDL, increased water quality monitoring, continued alum treatments for West and East Monponsett Ponds, and operational adjustments to water transfer rates. A Watershed Based Plan (WBP) for West Monponsett Pond was completed in May 2020 (WBP-Monponsett). Nonpoint pollution reduction activities in the watershed continue to be implemented via CZM CPR grants (CZM Grant Viewer), 319/604(b) grants, and/or the US EPA SNEP program. Example MassDEP grants have included:

- 91-09/604 Old Colony Planning Council - Old Colony Planning Council provided assistance to communities within the Silver Lake watershed and other areas to conduct contingency planning and resolution of short-term to mid-term problems for the Brockton/Whitman Water Supply.
- 94-09/319 The Pilgrim Resource Conservation & Development (RC&D) Area Council, Inc. - The Pilgrim RC&D Area Council, Inc. implemented new management measures to address the proper design, siting, and installation of new on-site septic systems (OSSS) in the Billington Sea area, including providing training for town boards of health and selected OSSS professionals, and conducting a public participation program to foster project support.

- 03-04/604 Kingston - Town of Kingston collected and analyzed water quality and flow data of its coastal waters (Duxbury Harbor, Jones River, Kingston Bay, Plymouth Harbor, Ellisville Harbor, Eel River, and Town Brook) to support the Massachusetts Estuaries Program.
- 05-07/319 Kingston - North and South Rivers Watershed Association retrofitted the Kingston Intermediate School with various previously designed LID techniques to improve the water quality of the Jones River Watershed and reestablish the site's natural hydrology.
- 17-01/604 Kingston - Town of Kingston continued to assess and address bacterial water quality impairments to the lower Jones River and Duxbury Bay. This phase sampled and assessed water quality, developed conceptual BMP designs for all sampled outfalls, performed subsurface investigations, developed preliminary BMP designs, and estimated costs for three priority sites.
- 17-05/319 Halifax - The Town of Halifax sequestered phosphorus in the lake sediment of the Monponsett Ponds and reduced the concentration of cyanobacteria through aluminum sulfate treatment.

In coordination with MassDEP, EPA approved the TP TMDL for the Monponsett Ponds system in July, 2022. Implementation of this TMDL will improve the water quality in Monponsett Ponds and downstream waters by limiting phosphorus loading. An alum treatment was conducted at both East and West Monponsett Pond in 2022. Both basins were treated with 8 g/m2 of aluminum using a buffered application of liquid aluminum sulfate and sodium aluminate. The initial series of alum treatments in 2013-2019 applied a total of 50 g/m2 of aluminum to West Monponsett Pond to address internal loading of phosphorus from the sediments. The ACO also requires development of a Comprehensive Water Management Plan (CWMP) for Brockton's water system. The CWMP is currently in development and is intended to improve water quality and aquatic habitat through improved management of water withdrawals, enhanced water conservation and drought management, and comprehensive long-term water supply management strategies.

Berkshire Environmental Action Team:

BERKSHIRE ENVIRONMENTAL ACTION TEAM
20 Chapel St. Pittsfield, MA 01201 • thebeatnews.org
(413) 230-7321 • team@thebeatnews.org

Protecting the environment for wildlife in support of the natural world that sustains us all.

December 7th, 2022

Richard F. Chase
MassDEP-Bureau of Water Resources,
Watershed Planning Program
8 New Bond Street, Worcester, MA 01606
richard.f.chase@mass.gov

Re: Draft 2022 Integrated List of Waters

Dear Richard F. Chase,

Please accept the following comments from the Berkshire Environmental Action Team (BEAT). BEAT's mission is to protect the environment for wildlife in support of the natural world that sustains us all.

We formally request that MassDEP remove Fecal Coliform as an impairment, or at least remove it as a requirement for testing in stormwater for MS4 communities. According to the EPA[1] Fecal Coliform is meant to be sampled from wastewater treatment plants: "The most appropriate location for biosolid sample collection is the point prior to leaving the wastewater treatment plant". Nowhere in the EPA's guidelines for this test does it mention an application for surface waters or stormwater testing. Therefore, it does not make sense to list it as an impairment in waterways and require it as a part of stormwater outfall monitoring for an MS4 permit.

Thank you for your time and consideration of our comments.

Sincerely,

Jane Winn
Executive Director

[1] https://www.epa.gov/sites/default/files/2015-08/documents/method_1681_2006.pdf

COMMENT: MassDEP should remove Fecal Coliform as an impairment, or at least remove it as a requirement for testing in stormwater for MS4 communities.

MassDEP response: Per the 2022 CALM, MassDEP uses *E. coli* (freshwater) and Enterococcus (salt water) bacteria data to evaluate primary and secondary contact risk due to pathogens. Fecal coliform has been and continues to be the indicator for salt waters designated for shellfishing. Prior to the adoption of *E. coli* and Enterococcus as indicators in non-shellfishing waters, fecal coliform was used as the pathogen indicator, resulting in (historical) fecal coliform impairments. A fecal coliform impairment cannot be removed from waterbodies until appropriate pathogen indicator data (*E. Coli*, Enterococci) have been collected, analyzed and used to make a use attainment decision. The process for removing an impairment is described in the CALM guidance (see details of the impairment removal documentation process in the 2022 CALM, Section VI (2022 CALM) and is generally consistent with EPA guidance for delisting impairments. Comments related to NPDES (including MS4) permits should be made directly to agency program staff and as part of the NPDES public comment period. This comment will be forwarded to NPDES (MS4) permitting staff at MassDEP for awareness purposes.

Organization for the Assabet, Sudbury and Concord Rivers (OARS):

FOR THE ASSABET SUDBURY & CONCORD RIVERS

23 Bradford Street · Concord, MA 01742
978 · 369 · 3956
office@oars3rivers.org

www.oars3rivers.org

December 12, 2022

Richard F. Chase
MassDEP-Bureau of Water Resources
Watershed Planning Program
8 New Bond Street
Worcester, MA 01606

Re: Comments on Draft 2022 Massachusetts Integrated List of Waters

Dear Mr. Chase,

OARS appreciates the opportunity to comment on the draft Massachusetts Integrated List of Waters for the Clean Water Act 2022 Reporting Cycle. OARS is the watershed organization for the Concord basin, comprising the Sudbury, Assabet and Concord Rivers in a 400-square mile area west of Boston. A non-profit organization founded in 1986, OARS works primarily through science-based advocacy and education to develop a scientific understanding of the causes of river degradation and works with communities to seek effective solutions. Its mission is "to protect, improve and preserve the Assabet, Sudbury, and Concord Rivers, their tributaries and watersheds, for public recreation, water supply, and wildlife habitat." We have a long-term quality-controlled water quality monitoring program and annually provide our data to federal and state agencies through the WQX data reporting system.

External Data: We applaud DEP's effort to utilize external data and hope that this will continue. We did notice, however, that OARS' data appears to have been ignored in the write-ups in many instances.

- For AUs MA82A-08 and MA82A-10 (Concord River and River Meadow Brook), there was no mention of OARS's 2018-2020 chloride data or OARS' many years of conductivity data. These data would have provided more convincing and more recent support for the chloride impairments.
- In many cases, MassDEP states "no useable data available", even though OARS did submit nutrient and in-situ data in 2019 and 2020 for the relevant sections. Examples: Assabet MA82B-07 includes sites ABT-062 and ABT-026; Assabet MA82B-06 includes site ABT-077; Hop Brook MA82A-06 includes site HBS-016; Hop Brook MA82A-05 includes sites HBS-031, HBS-040, HBS-057, and HBS-065; Hop Brook MA82A-17 includes site HBS-085; Danforth Brook MA82B-19 includes site DAN-013.

We also note that the write-ups for all AUs still give much more weight to the internal data than the external data even though the external data is often more comprehensive and more recent. Since we work so hard to provide thorough, quality-controlled data, it seems that the value of our data should be given more recognition in this document.

Bacteria in Assabet: This point was raised last round, but no changes were made. AU MA82B-06 should be listed as impaired for Bacteria. Segments both upstream and downstream of AU MA82B-06 are listed as impaired, and OARS has collected data in 2019 and 2020 at the USGS Gage in Maynard (OARS site ABT-077 at the top of this AU) that document a consistent bacteria impairment. The ABT-077 data were evaluated in 2022 for AU MA82B-

05, which is upstream, but this site is actually more relevant for the downstream section because the pollution measured here definitely flows downstream.

Chloride in Upper Assabet: The Assabet River AUs, especially MA82B-02 (below the Westborough Waste Water Treatment Plant) should be listed as impaired for chloride. Between 2018 and 2020, OARS submitted to DEP seven samples for site ABT-301, which is in AU MA82B-02. The average chloride concentration for these samples was 211 mg/L and the maximum concentration was 438 mg/L. Two of the seven samples were above the EPA threshold of 230 mg/L. In addition to this, OARS has been submitting specific conductance data to DEP since 2003. Mass DEP has documented a very strong correlation between specific conductance and chloride concentration, with chloride concentrations of 230 mg/L corresponding to specific conductance of approximately 800 uS/cm. OARS' data for site ABT-301 for the last five years show average specific conductance levels greater than 1000 uS/cm, with maximum levels greater than 2000 uS/cm. This is clear indication that this AU should be listed as impaired for chloride, and the data for downstream sites may also be strong enough for impairment listing. Attached in Appendix A of this letter are graphs showing how specific conductance in AU MA82B-02 has increased over time and how it compares to other sites.

Chloride in Hop Brook: We recommend that the Hop Brook, Northborough AU (MA82B-20) be listed as impaired for chloride. The draft report recommends additional chloride and specific conductance data be collected, but OARS has already submitted these data. Between 2018 and 2020, OARS analyzed seven samples for chloride at site HOP-011. The average chloride concentration was 216 mg/L and the maximum concentration was 294 mg/L. In addition, OARS has been submitting specific conductance data to DEP for this site since 2003. The average specific conductance for the last five years was 834 uS/cm with a maximum of 1220 uS/cm. This should be sufficient to warrant a chloride impairment.

Dissolved Oxygen in Lower Sudbury: The Sudbury River below the Hop Brook confluence (MA82A-04) should probably be listed as impaired for Dissolved Oxygen. This AU is qualified as Class B Aquatic Life, but our data show that it is not meeting the Aquatic Life criteria. OARS has been submitting data for four sites in this AU since 2009: SUD-005, SUD-064, SUD-086, SUD-096. For the last four years, summer dissolved oxygen concentrations at these sites have almost always been below 5 mg/L and sometimes were below 3 mg/L. Attached in Appendix B of this letter are graphs showing how dissolved oxygen in this AU seems to be getting worse in recent years.

Cold Water Streams: In the response to comments last round, MassDEP stated that MassDEP was proposing to add 153 cold water streams to the Surface Water Quality Standards (SWQS). These streams still don't show up as cold water fisheries in this report (examples: Cranberry Brook MA82A-36 and Trout Brook MA82A-35), while Jackstraw Brook MA82A-32, for example, does show up as a CWF. What is the status of this proposal to add CWF streams to the SWQS?

Debris/Trash: We asked this question last round, but it was not answered clearly. Please clarify the difference between Debris impairments and Trash impairments (both listed for MA82A-09, MA82A-10, MA82A-13, MA82A-22).

Secondary Contact Recreation: It seems unnecessary to duplicate *E.coli* statistics calculations for secondary contact recreation after calculating statistics for primary contact recreation. The data and graphs are all the same. MassDEP could save pages and effort and make the report easier to read if those were calculated in a single step.

Data Submission Timing: Is there any possibility of adjusting the data submission deadline (for inclusion in each IR report) to the end of January? In recent years it has been early January. It would be much easier to meet this deadline if it was at the end of January. Our last sampling round is in November, with data available from the lab in

December, so it is very hard to prepare and submit the data by early January. Also, the long holiday period at the end of December makes early January very hard to achieve.

We appreciate the amount of work that went into developing these updates to the List and thank you for considering these comments. Please contact us if you have any questions.

Sincerely,

Benjamen Wetherill
Staff Scientist

CC: Massachusetts Rivers Alliance
EPA, D. Arsenault

Appendix A – Specific Conductance in the Upper and Lower Assabet

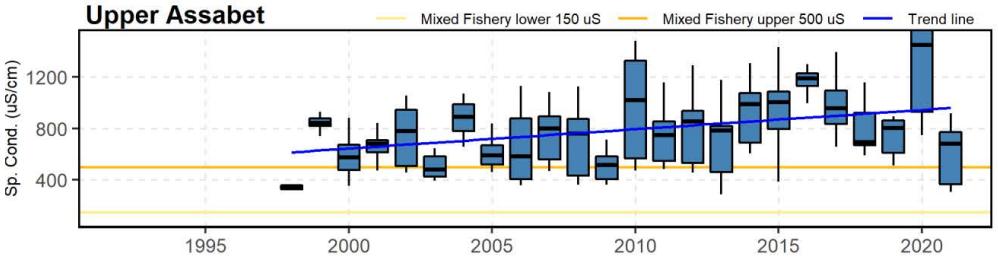


Figure 1: Summer (Jun/Jul/Aug) specific conductance for Upper Assabet sites. The boxplots include three monthly sampling points at three sites: ABT-301 (MA82B-02), ABT-237 (MA82B-04), ABT-144 (MA82B-05).

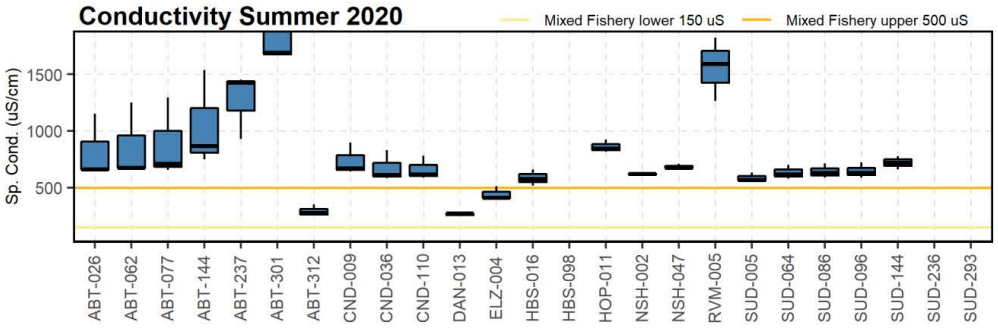


Figure 2: Summer 2020 (Jun/Jul/Aug) specific conductance by site for all OARS sites. The Assabet sites are on the left in progressing order from lower Assabet to upper Assabet. A clear impairment is evident in the upper Assabet. The boxplots include three monthly sampling points.

Appendix B – Dissolved Oxygen in the Lower Sudbury

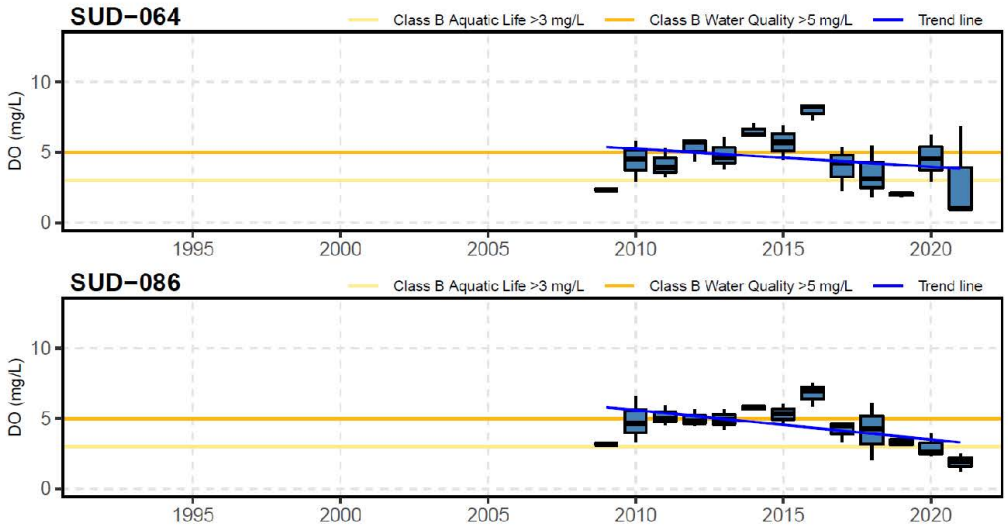


Figure 3: Summer (Jun/Jul/Aug) dissolved oxygen at sites SUD-064 and SUD-086. Both are in AU MA82A-04. The boxplots include three monthly sampling points.

MassDEP response: See MassDEP responses to General Comments above for OARS comments related to cold water streams, trash, and the use of external data.

Since OARS' data had recently been used to update the Aquatic Life Use in the 2018/2020 IR cycle, MassDEP analysts prioritized use of OARS' bacteria data for the 2022 update and did not utilize OARS' other data that typically informs Aquatic Life Use attainment decisions. MassDEP analysts revised overall statements OARS mentioned as having been sampled and also reviewed specific Assessment Unit (AU) comments and concerns. Responses to AU specific comments can be found below.

COMMENT: MassDEP did not mention OARS' chloride or specific conductance data for AUs MA82A-08 and MA82A-10 (Concord River and River Meadow Brook)

MassDEP response: MassDEP acknowledges that OARS staff/volunteers collected chloride and conductivity/specific conductance data from 2018-2020 in Concord River AU MA82A-08 (stations OARS-CND-045, -CND-017, -CND-012, -CND-009). However, MassDEP notes that OARS' chloride/specific conductance data did not exceed impairment thresholds for discrete data as described in Table 4 and Appendix F of MassDEP's 2022 CALM document (only one chloride concentration exceeded 230 mg/L and only one specific conductance measurement exceeded 904 µs/cm). MassDEP appreciates OARS' leadership in collecting scientific data tracking chloride levels in the watershed and hopes these monitoring efforts continue.

MassDEP acknowledges that OARS' 2020 specific conductance data (three consecutive monthly samples, June-August, ranging from 1262-1823 µs/cm) collected at Thorndike St/Rt 3A, Lowell (OARS-RVM-005) further corroborate the addition of a chloride impairment for the Aquatic Life Use of River Meadow Brook (MA82A-10).

COMMENT: MassDEP should list AU MA82B-06 as impaired for bacteria.

MassDEP Response: MassDEP shares OARS' concern regarding bacteria concentrations in the Assabet River AU MA82B-06. Because OARS' high frequency *E. coli* bacteria data were collected at station OARS-ABT-077 (Rt 27/USGS, Maynard) on the border between AUs MA82B-05 and MA82B-06 (during summers 2019 and 2020), these data can be used to extrapolate an impairment of the Primary Contact Recreational Use from the upstream MA82B-05 AU to the short (~1 mile in length) downstream MA82B-06 AU. Also, historical *E. coli* data collected by MassDEP in summer 2006 a short distance downstream into the MA82B-07 AU (Station W1479, at the first Rt 62 bridge crossing below the "Powdermill Dam," Acton) indicated exceedances of both the Primary and Secondary Contact recreational uses (geometric mean 708 cfu/100mL) per the 2022 CALM. MassDEP analysts agree that an *Escherichia Coli (E Coli)* impairment is warranted, so it will be added to the Primary Contact Recreational Use for the Assabet River AU MA82B-06.

COMMENT: Chloride in Upper Assabet AU MA82B-02.

MassDEP Response: Although MassDEP shares OARS' concerns over what appears to be increasing specific conductance measurements in the upper Assabet River mainstem, additional information is needed before an impairment can be made for this AU. When a waterbody is highly influenced by wastewater treatment plant discharges, as the Assabet River is, MassDEP cannot impair such a waterbody based only on specific conductance data. Discrete chloride data of sufficient frequency are also needed to confirm that concentrations warrant an impairment decision (see Table 4 of MassDEP's 2022 CALM). Review of OARS' 2018-2020 chloride data for the upper Assabet River stations (OARS-ABT-301, -ABT-237, -ABT-162) did not indicate exceedances had violated the impairment threshold (or there were no accompanying chloride data for some stations). At this time, retention of the Alert status for possible chloride toxicity in the Assabet River MA82B-02 AU is appropriate. MassDEP hopes that OARS will continue to monitor chloride and specific conductance in this sub-watershed to track trends over time.

COMMENT: MassDEP should list Hop Brook (MA82B-20) as impaired for chloride.

MassDEP response: MassDEP shares OARS' concerns regarding chronic chloride toxicity in Hop Brook (MA82B-20). MassDEP has reviewed OARS' chloride data for this AU. Four of seven chloride samples OARS staff/volunteers collected from 2018-2020 at their OARS-HOP-011 station (Hop Br, Northborough, downstream of Otis St) exceeded the 230 mg/L chloride chronic criterion (exceedances 258-294 mg/L). Of note, impervious cover (including highways, roads, and residential and commercial areas) comprises a large percentage (20%) of the sub-watershed. Per guidance in the 2022 CALM document, if >50% of discrete, limited frequency toxicant samples collected in a three-year period exceed the toxicant's chronic criterion, an impairment should be identified. MassDEP analysts agree that a chloride impairment is warranted so it will be added to the Aquatic Life Use for this Hop Brook AU (MA82B-20).

COMMENT: MassDEP should list the lower Sudbury River AU MA82A-04 as impaired for Dissolved Oxygen.

MassDEP Response: MassDEP shares OARS' concern regarding low dissolved oxygen (DO) concentrations measured in the lower Sudbury River AU (MA82A-04). MassDEP analysts have reviewed OARS' DO data collected from 2018 through 2020 at the four stations in this AU to address OARS' comment on the draft 2022 IR. From upstream to downstream the four monitoring station locations and number of samples collected are as follows: OARS-SUD-096 (Rt 20, Wayland; n= 5/yr), OARS-SUD-086 (River Rd, Wayland; n= 4-5/yr), OARS-SUD-064 (Sherman Br Rd, Wayland; n= 4-5/yr), and OARS-SUD-005 (Rt 62 Boat House, Concord; n= 7/yr). Since this AU is qualified as an Aquatic Life segment (AQL) in the Massachusetts SWQS, the data evaluation included whether any DO measurements were <3.0 mg/L (the minimum SWQS Class C DO criteria that applies to AQL segments). OARS' data documented DO measurements <3.0 mg/L at all four sites at least once during the three years sampled (range 0 to 3 times per year at each site) while concentrations were often less than 4.0 mg/L (2 to 4 times per year in most sample-years for the three upstream stations with slightly higher overall concentrations documented at the most downstream sampling site). The Class C criteria for DO that apply to "Aquatic Life" qualified segments were not met, and the low DO conditions could not be attributed to natural conditions alone. Additionally, when compared to OARS' 2009-2017 DO dataset for these stations (summarized in the 2018/2020 IR) in which there typically was not more than one measurement per year lower than 4.0 mg/L, the 2018-2020 data indicate impairment. Therefore, an impairment for Dissolved Oxygen is being added to the Aquatic Life Use of this Sudbury River AU (MA82A-04).

COMMENT: In the response to comments last round, MassDEP stated that MassDEP was proposing to add 153 cold water streams to the Surface Water Quality Standards (SWQS). These streams still don't show up as cold water fisheries in this report (examples: Cranberry Brook MA82A-36 and Trout Brook MA82A-35), while Jackstraw Brook MA82A-32, for example, does show up as a CWF. What is the status of this proposal to add CWF streams to the SWQS?

MassDEP Response: See response to general comments.

COMMENT: Please clarify the difference between Debris impairments and Trash impairments (both listed for MA82A-09, MA82A-10, MA82A-13, MA82A-22).

MassDEP Response: MassDEP does not consider there to be any difference between a Debris or Trash impairment. However, during the 2018/2020 IR cycle, EPA required MassDEP to "remap" all Trash impairments as a pollutant (see Category 5 waters with impairment changes in https://www.mass.gov/doc/epa-review-of-massachusetts-2018-2020-section-303d-list/download), rather than allow these impairments to continue to be categorized as pollution impairments (Debris is still currently categorized as a pollution impairment). Pollutant impairments require TMDL or alternative restoration plans be developed whereas a pollution impairment does not require a TMDL. The Trash and Debris impairments were originally one pollution category impairment (Debris/Floatables/Trash) in EPA's older Assessment Database (ADB) but was split into separate Debris and Trash impairments with the transition to EPA's Assessment and Total Maximum Daily Load Tracking and Implementation System Database (ATTAINS). So AUs with the former Debris/Floatables/Trash impairments are listed with both Trash and Debris impairments at this time (e.g., MA82A-09, MA82A-10, MA82A-13, and MA82A-22). EPA notes that the term

"trash" is not specifically included in the definition of "pollutant" under the CWA, however the CWA definition includes "garbage," "solid waste," and "industrial, municipal, and agricultural waste," thereby encompassing trash. EPA contends that all of the tools established by the CWA to reduce the amount of trash in U.S. waterways have not been widely applied (trash pollution in water bodies is challenging to control as it is made of up many substances including diverse materials such as plastic [and microplastics], food waste, used tires, and construction debris and comes from a variety of sources including illegal dumping and stormwater runoff making it both a point- and nonpoint-source pollutant). EPA can require NPDES permits for municipal separate storm sewer systems (MS4s) to contain language to limit the amount of trash being discharged or released from stormwater outfalls into neighboring water bodies. To manage trash pollution from nonpoint sources, states and communities can use a variety of approaches, including prohibitions and fines for littering, and nonregulatory initiatives, including trash capture, source reduction, and cleanup events. The EPA Office of Water Trash Free Waters Program supports state and local efforts to reduce trash and plastic pollution from U.S. waterways by disseminating information and providing technical and financial assistance.

COMMENT: It seems unnecessary to duplicate *E.coli* statistics calculations for secondary contact recreation after calculating statistics for primary contact recreation. The data and graphs are all the same. MassDEP could save pages and effort and make the report easier to read if those were calculated in a single step.

MassDEP Response: There are differences between the calculation of *E. coli* data statistics for primary and secondary contact recreation, including the use of different intervals (30-day vs. 90-day), different data collection timeframes (the Primary Contact Recreational Season is April 1 through October 31 and the Secondary Contact Recreation Season is Year-Round), and different thresholds for the two uses (please see the 2022 CALM for details). Therefore, the data analyses and graphics do have differences and are presented for each use as is needed.

COMMENT: Is there any possibility of adjusting the data submission deadline (for inclusion in each IR report) to the end of January? In recent years it has been early January. It would be much easier to meet this deadline if it was at the end of January. Our last sampling round is in November, with data available from the lab in December, so it is very hard to prepare and submit the data by early January. Also, the long holiday period at the end of December makes early January very hard to achieve.

MassDEP Response: MassDEP staff understand the request for additional time before the external data submission deadline (typically set for early to mid-January of an odd year) but must balance the workload associated IR preparation for the following even year April submittal. Sufficient time is needed after the data submittal date to accomplish data review, data processing and analysis, documenting use attainment decisions, etc. For each IR reporting cycle, a significant effort is made by WPP assessment staff with a goal of timely, comprehensive, and effective reporting to EPA and the public on the quality of water resources in the Commonwealth. It is our experience that the workload continues to increase with each reporting cycle, the amount of data and information exchange continues to rise, and the need for transparent and effective reporting requires continuous effort for improvement. Nevertheless, we will consider extending the data submission deadline to the late January timeframe for future IR reporting cycles.

Buzzards Bay Coalition:

January 6, 2023

Richard F. Chase
MassDEP-Bureau of Water Resources
Watershed Planning Program
8 New Bond Street
Worcester, MA 01606

Re: Draft Massachusetts Integrated List of Waters for the Clean Water Act 2022 Reporting Cycle

Dear Mr. Chase,

Please accept the following as the Buzzards Bay Coalition's ("Coalition's") comments on the Department of Environmental Protection's ("MassDEP's") Draft Massachusetts Year 2022 Integrated List of Waters. The Coalition is a non-profit membership organization dedicated to the restoration, protection, and sustainable use and enjoyment of Buzzards Bay and its watershed. We represent over 10,500 individuals, families, organizations and businesses in southeastern Massachusetts who are committed to maintaining the health and ecological vitality of the Bay.

Pursuant to §303(d) of the Clean Water Act, each state shall identify waters within its boundaries for which the effluent limitations are not stringent enough to maintain water quality standards applicable to such waters. 33 USC §1313(d)(1)(A). Furthermore, federal regulations dictate that in promulgating the 303(d) list, the state shall assemble and evaluate all existing and readily available water quality-related data and information. Such information includes, but is not limited to, waters where water quality problems have been reported by local, state, or federal agencies; members of the public; or academic institutions. These organizations and groups should be actively solicited for research they may be conducting or reporting. 40 CFR 130.7(b)(5)(iii). As a membership organization conducting on-going water quality monitoring in Buzzards Bay, it is pursuant to this legal framework that the Coalition submits these comments.

In the 2022 Reporting Cycle, the Coalition appreciates the consideration of updated data from the MassDEP Eelgrass Mapping Project and Coalition's water quality monitoring program. The Assessment and Listing Decision Summary includes recommendations to continue monitoring of various parameters to be able to continue to evaluate the status of water bodies. The Coalition will continue to provide data from our program for use by MassDEP in its regular updates of the Integrated List of Waters.

www.savebuzzardsbay.org
114 Front Street, New Bedford, Massachusetts 02740 | Tel: 508-999-6363 Fax: 508-984-7913

I. Summary of the Coalition's Comments on the proposed Massachusetts Year 2022 Integrated List of Waters

The Coalition supports the addition of the "Dissolved Oxygen" impairment to eight water bodies in the Buzzards Bay Watershed ("Inner" Sippican Harbor, Apponagansett Bay, East Branch Westport River, Mattapoisett River, Nasketucket River, Parker Mills Pond, Paskamanset River, Slocums River). The Coalition fully supports MassDEP adding impairments related to nitrogen pollution impacts to 19 water bodies in the Buzzards Bay Watershed (Agawam River, Allens Pond, Aucoot Cove, Buzzards Bay, Clarks Cove, East River, Hammett Cove, Hiller Cove, Mattapoisett Harbor, Nasketucket Bay, Pocasset Harbor, Pocasset River, Salters Pond, Sippican Harbor, The Let, Wareham River, West Falmouth Harbor, Weweantic River, and Wings Cove). The Coalition does not support the removal of the "Nutrients" impairment from two segments of the Acushnet River. The Coalition asserts that since Back River and Eel Pond, Bourne are included in the *Phinneys Harbor Embayment System Total Maximum Daily Loads for Total Nitrogen 95-TMDL-2 CN#247.0*, Back River and Eel Pond, Bourne should have the impairment Total Nitrogen added to their designations on the Category 4a (TMDL is Completed) list.

II. Addition of "Dissolved Oxygen" impairment

The Coalition supports the addition of the "Dissolved Oxygen" impairment to the following waterbodies:

a. "Inner" Sippican Harbor, Marion
b. Apponagansett Bay, Dartmouth
c. East Branch Westport River, Westport
d. Mattapoisett River, Mattapoisett
e. Nasketucket River, Fairhaven
f. Parker Mills Pond, Wareham
g. Paskamanset River, Dartmouth
h. Slocums River, Dartmouth

MassDEP appropriately considered data from the Coalition's water quality monitoring program to identify the above water bodies as impaired for "Dissolved Oxygen." The data indicate regular incidences of low dissolved oxygen concentrations that do not meet surface water quality standards. MassDEP is correct in adding the "Dissolved Oxygen" impairment to the above water bodies. The Coalition appreciates the level of transparency provided by the inclusion of Appendix 7 that explains what data MassDEP used for developing the draft Year 2022 Integrated List of Waters.

III. Addition of impairments associated with nitrogen pollution

The Coalition fully supports MassDEP adding the following impairments to the following water bodies:

a. Agawam River, Wareham – Nutrient/Eutrophication Biological Indicators

b. Allens Pond, Dartmouth – Dissolved Oxygen, Total Nitrogen, Nutrient/Eutrophication Biological Indicators
c. Aucoot Cove, Marion – Estuarine Bioassessments
d. Buzzards Bay, Dartmouth/New Bedford/Fairhaven – Estuarine Bioassessments
e. Clarks Cove, Dartmouth/New Bedford – Dissolved Oxygen, Total Nitrogen, Estuarine Bioassessments
f. East River, Wareham – Estuarine Bioassessments
g. Hammett Cove, Marion – Nutrient/Eutrophication Biological Indicators
h. Hiller Cove, Mattapoisett – Estuarine Bioassessments
i. Mattapoisett Harbor, Mattapoisett – Dissolved Oxygen
j. Nasketucket Bay, Fairhaven/Mattapoisett – Estuarine Bioassessments
k. Pocasset Harbor, Bourne – Total Nitrogen, Dissolved Oxygen
l. Pocasset River, Bourne – Dissolved Oxygen
m. Salters Point Pond, Dartmouth – Dissolved Oxygen, Total Nitrogen, Nutrient/Eutrophication Biological Indicators
n. Sippican Harbor, Marion – Estuarine Bioassessments
o. The Let, Westport – Estuarine Bioassessments
p. Wareham River, Wareham – Chlorophyll-a
q. West Falmouth Harbor, Falmouth – Nutrient/Eutrophication Biological Indicators
r. Weweantic River, Marion/Wareham – Nutrient/Eutrophication Biological Indicators, Dissolved Oxygen
s. Wings Cove, Marion – Estuarine Bioassessments, Total Nitrogen

MassDEP suitably assessed Coalition water quality data and MassDEP eelgrass data to determine the need to add impairments associated with nitrogen pollution to the water bodies listed above. The water bodies above are showing the impacts of excess nitrogen concentrations through a variety of indicators including loss of eelgrass habitat, periods of low dissolved oxygen concentrations, high nitrogen concentrations, and/or high chlorophyll concentrations. MassDEP is correct in adding the above impairments that take these impacts of nitrogen pollution into account. The Coalition appreciates the level of transparency provided by the inclusion of Appendix 7 that explains what data MassDEP used for developing the draft Year 2022 Integrated List of Waters.

IV. Removal of the "Nutrients" impairment from the Acushnet River

The Coalition does not support the removal of the "Nutrients" impairment from two segments of the Acushnet River.

The draft Year 2022 Integrated List of Waters proposes to remove the "Nutrients" impairment from the Acushnet River as it flows from the New Bedford Reservoir to the culvert at Main Street, Acushnet (MA95-31, MA95-32). For this decision, MassDEP considered MassDEP summer surveys in 2005, 2016 and 2018. MassDEP also considered Coalition water quality monitoring data. The dissolved oxygen data considered clearly indicate that these segments are impaired for dissolved oxygen and MassDEP is appropriately keeping both segments listed as

impaired for "Dissolved Oxygen." To determine whether the "Nutrients" designation was appropriate, MassDEP considered Total Phosphorus data when looking for high nutrient levels. Traditionally, phosphorus has been the nutrient of emphasis for potential nutrient impairment in freshwaters, while nitrogen has been the focus of potential nutrient impairment in marine waters. However, a long history of anthropogenic nutrient inputs has led to the need to re-examine this paradigm. A global meta analysis of nutrient limitation across various ecosystems indicates that both nitrogen and phosphorus can have strong effects on primary production in freshwaters and that the combination of nitrogen and phosphorus together has an even stronger impact that either nutrient alone[1]. Studies in ponds on Cape Cod similarly showed the importance of considering nitrogen as well as phosphorus in freshwater environments[2,3]. Coalition water quality monitoring data show that the total nitrogen concentrations in this part of the Acushnet River typically average between 0.8 and 1.0 mg/L (Figure 1).

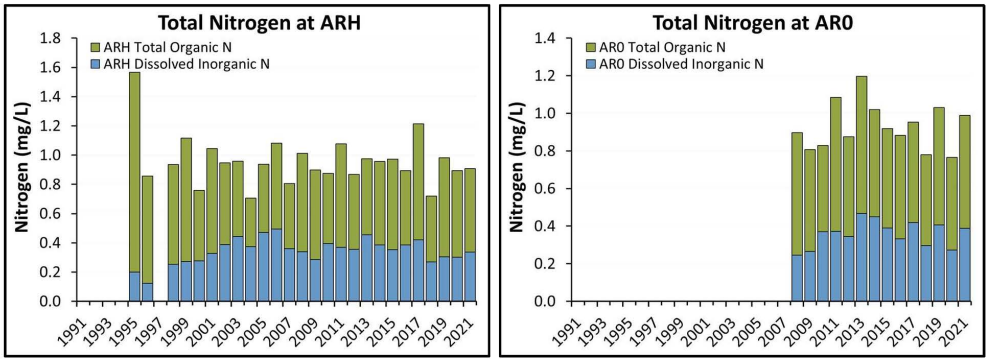


Figure 1. Annual Average Total Nitrogen Concentrations in the Acushnet River.

The more bioavailable inorganic portion of the total nitrogen pool accounts for close to half of the total nitrogen concentrations. The graphs above include additional data gathered since the Coalition's previous data submission to MassDEP. A spreadsheet of this quality-assured data will be submitted with this comment letter. The high levels of nitrogen measured by the Coalition should be taken into account and warrant keeping the "Nutrients" impairment for these sections of the Acushnet River.

A new sampling effort by scientists at the Woodwell Climate Research Center began conducting river sampling at a number of Buzzards Bay rivers including the Acushnet in late 2020. The effort involves sample collection one to two times per month and analysis for a suite of nutrient

[1] Elser, J. J., Bracken, M. E. S., Cleland, E. E., Gruner, D. S., Harpole, W. S., Hillebrand, H., Ngai, J. T., Seabloom, E. W., Shurin, J. B., and Smith, J. E. (2007) Global analysis of nitrogen and phosphorus limitation of primary producers in freshwater, marine and terrestrial ecosystems. *Ecology Letters*. 10: 1135-1142.
[2] Kniffin, M., Neill, C., McHorney, R., and Gregory, G. (2009) Nutrient Limitation of Periphyton and Phytoplankton in Cape Cod Coastal Plain Ponds. *Northeastern Naturalist*. 16(3): 395-408.
[3] Smith, S. M., and Lee, K. D. (2006) Responses of periphyton to artificial nutrient enrichment in freshwater kettle ponds of Cape Cod National Seashore. *Hydrobiologia*. 571: 201-211.

parameters following a MassDEP- and EPA-approved QAPP. The Coalition will work with Woodwell scientists to provide that data to MassDEP once it is available.

V. Addition of "Total Nitrogen" impairments to Back River and Eel Pond

The Coalition Asserts that Back River and Eel Pond, Bourne should have Total Nitrogen added to their Category 4a (TMDL is Completed) designation.

Both Back River and Eel Pond, Bourne are included in the *Phinneys Harbor Embayment System Total Maximum Daily Loads for Total Nitrogen 95-TMDL-2 CN#247.0*, which was approved in 2007. The document outlines target total nitrogen loads for both Back River and Eel Pond, Bourne and states that Eel Pond was determined to be impaired by nutrients during the Total Maximum Daily Load process. Back River and Eel Pond, Bourne should have the impairment Total Nitrogen added to their designations on the Category 4a (TMDL is Completed) list.

VI. Background on Buzzards Bay Water Quality Monitoring Data Provided

A. Data Supporting These Comments

The Coalition submits dissolved oxygen data, chlorophyll data, dissolved inorganic, and total nitrogen data in graphic presentation in this narrative and as attached electronic spreadsheets. The Coalition data are also available through the Woods Hole Open Access Server (https://hdl.handle.net/1912/25762). The Coalition data were collected consistent with the 1996, 2001, 2006, 2009, 2014 and 2019 MassDEP and U.S. Environmental Protection Agency (EPA) - approved Quality Assurance Project Plans ("QAPPs"). The Coalition notes that the MassDEP Data Submittal Guidelines are recommended guidelines and are intended to serve as guidance in order to help evaluate the accuracy, precision and representativeness of the data and are not intended to serve as regulations or requirements. Therefore, the Coalition expects that if MassDEP finds additional information necessary, they will present the Coalition with an opportunity to comply. If you have any questions or concerns with this request, please contact us as soon as possible so we may clarify any issues.

B. Introduction to the Coalition's Bay-wide Monitoring Program

The Coalition's water quality monitoring program, Baywatchers, was established in 1992 as a joint effort between the Coalition, the Buzzards Bay National Estuary Program and scientists from the Woods Hole Oceanographic Institution. After 1997, the water quality monitoring program was continued as a joint effort between the Coalition and the School of Marine Science and Technology at UMass-Dartmouth (SMAST). Beginning in 2009, the Coalition partnered with the Marine Biological Laboratory (Ecosystems Center MBL) in Woods Hole, MA to run the water quality monitoring program. The Project Quality Assurance Officer is now Dr. Chris Neill, Fellow of the MBL Ecosystems Center and Senior Scientist at the Woodwell Climate Research Center, who also serves as Principle Science Advisor. Over the past 30+ years, the program has

developed into a premier model for citizen monitoring programs and consistently provides annual bay-wide data.

The monitoring program was initiated to document and evaluate nutrient-related water quality and long-term ecological trends in Buzzards Bay and remains the primary source of long-term data used to assess the health of each of the Bay's 30 major harbors and coves from the Westport Rivers around to Quissett Harbor in Falmouth and the Elizabeth Islands. Until the inception of the program, no comprehensive database existed on nutrient concentrations and the extent of eutrophication in the most sensitive areas of the Bay ecosystem. The program is designed to provide the information needed to make informed, scientifically-based decisions about the restoration and protection of Buzzards Bay.

Trained citizen scientists and staff measure early morning dissolved oxygen levels, temperature, salinity, and water clarity on a set schedule approximately once a week from May to September. These basic parameters provide an immediate snapshot of the health of the Bay and are an excellent first warning system. From these measurements volunteers can determine the percentage of oxygen saturation in the water and conditions in their specific Bay location for marine organisms throughout the summer months.

In addition to weekly oxygen testing, staff and volunteers collect samples for nutrient and chlorophyll analysis. These samples are collected from the inner to the outer portions of each embayment approximately four times between July and August. These samples are collected in the field and brought to the Ecosystems Center MBL Laboratories in Woods Hole, MA for analysis of dissolved and particulate forms of nitrogen, phosphorous, and chlorophyll-a and pheophytin content. The Ecosystems Center MBL routinely participates in quality control samples as part of QC related to on-going National Science Foundation and other federally-funded projects. Coalition staff and Ecosystems Center MBL scientists collaborate on data QA/QC, data synthesis and interpretation relative to written documents, reports, and presentations. All data collection and analysis is conducted in accordance with an EPA- and MassDEP-approved QAPP.

C. <u>Where Baywatchers Data are Being Used and Relied On.</u>

The Coalition is often directly solicited by regulatory agencies for our water quality data. In order to determine the impact a discharge may have on the receiving waters, state and federal regulatory agencies contact the Coalition to review our water quality data to assess a discharge's impact and will establish effluent limitations accordingly. Since the Coalition's data is actively solicited and used by both state and federal regulators, as well as academic institutions it clearly meets the threshold of water quality data to be considered established by the EPA under 40 CFR 130.7(b), and should be considered in promulgating this 303(d) list. Moreover, the Coalition's QAPP has been reviewed and approved multiple times by the EPA and MassDEP; approved in 1996, reviewed and approved in 2001, 2006, 2009, 2014 and reviewed and approved most recently in 2019.

D. Quality Assurance, Quality Control and Data Validation

The Coalition provided a copy of the September 20, 2019 QAPP entitled "Buzzards Bay Coalition Citizen's Water Quality Monitoring Program, 'Baywatchers' 5 Year Quality Assurance Project Plan" with earlier electronic data submission. The Baywatchers Program is committed to providing continuous and scientifically validated data on the nutrient health of the waters of Buzzards Bay. All monitoring data were collected in accordance with our approved QAPP. The Coalition partnered with the Ecosystems Center MBL Laboratories to analyze water quality samples, assist with data interpretation, and provide assistance with training to the citizens on proper sample collection and analysis techniques and equipment to meet the QAPP requirements in order to ensure precise and accurate data results. The Coalition expects that if MassDEP finds additional information necessary, they will present the Coalition with an opportunity to comply.

VII. Summary

It is critical that impaired water bodies are properly identified so that resources are appropriately focused on areas in need of water quality restoration. The Coalition appreciates the multiple new impairments that are correctly identified in the draft 2022 Integrated List of Waters for water bodies in the Buzzards Bay watershed. The Coalition does not support the removal of the "Nutrients" impairment from two segments of the Acushnet River. Finally, the Coalition asserts that since Back River and Eel Pond are included in the Phinneys Harbor Embayment System TMDL, Back River and Eel Pond should have the impairment Total Nitrogen added to their designations on the Category 4a (TMDL is Completed) list.

Thank you for this opportunity to submit these comments.

Sincerely,

Rachel W. Jakuba, PhD
Vice President for Bay Science

Cc: Dr. Christopher Neill, Woodwell Climate Research Center
Alicia Grimaldi, US EPA Region 1
Dr. Joseph E. Costa, Buzzards Bay National Estuary Program
Samuel Haines, MA Office of Coastal Zone Management

Senator Mark Montigny
Senator Susan Moran
Senator Marc Pacheco
Senator Michael Rodrigues

Representative Antonio Cabral
Representative Dylan Fernandes
Representative Susan Williams Gifford
Representative Chris Hendricks
Representative Christopher Markey
Representative Paul Schmid
Representative William Straus
Representative David Vieira

Mayor Jon Mitchell, City of New Bedford
Acushnet Select Board
Bourne Select Board
Dartmouth Select Board
Fairhaven Select Board
Falmouth Select Board
Marion Select Board
Mattapoisett Select Board
Wareham Select Board
Westport Select Board

COMMENT: The Coalition supports the addition of Dissolved Oxygen impairment to eight waterbodies and the addition of impairments associated with nitrogen pollution to 19 waterbodies.

MassDEP Response: MassDEP appreciates the thorough review by BBC staff and the consensus on these use attainment decisions.

COMMENT: The Coalition does not support the removal of the "Nutrients" impairment from two segments of the Acushnet River as it flows from the New Bedford Reservoir to the culvert at Main Street, Acushnet (MA95-31, MA95-32).

MassDEP Response: MassDEP analysts followed guidance described in the 2022 Consolidated Assessment and Listing Methodology (CALM) Guidance Manual to evaluate all of the data available for the Acushnet River AUs (MA95-31, MA95-32), including nutrient-related indicators. The evaluation of the data and the justification for the removal of the Nutrients impairment for these two freshwater AUs is consistent with this methodology. MassDEP appreciates the importance of nitrogen levels in coastal areas, including coastal rivers, where high nitrogen levels can impact downstream marine waters and may in some cases contribute to synergistic responses in freshwater. However, further analysis of total N:P ratios for data at these two stations appear to indicate P-limitation of productivity (N/P>16). The observed low levels of phosphorus in these freshwater AUs support the delisting of the "nutrients" impairment. Importantly, the downstream estuarine AUs (MA95-33, MA95-42 and MA95-63) remain impaired for TN.

COMMENT: The Coalition asserts that since Back River and Eel Pond, Bourne are included in the Phinneys Harbor Embayment System Total Maximum Daily Loads for Total Nitrogen 95-TMDL-2 CN#247.0, Back River and Eel Pond, Bourne should have the impairment Total Nitrogen added to their designations on the Category 4a (TMDL is Completed) list.

MassDEP Response: MassDEP acknowledges that both the Back River (MA95-47) and Eel Pond (MA95-48) AUs are covered as part of the Phinneys Harbor Embayment System Total Maximum Daily Loads for Total Nitrogen report CN#247.0. However, neither AU is currently assessed as having a Total Nitrogen impairment. The Back River is considered to have a protective (pollution prevention) TMDL for Total Nitrogen. The Eel Pond coverage under the TMDL is considered to be restorative (with a restoration target) given its impairment for nutrients at the time of TMDL development.

For Eel Pond, MassDEP would like to see additional physico-chemical and biological response data for this AU prior to considering a TN impairment. The recent data evaluated for Eel Pond were similar to those documented during MEP studies conducted in 2002-2005 and that benthic macroinvertebrate sampling data (Fall 2003) were indicative of a generally healthy infaunal community for the Eel Pond habitat (generally good number of species and individuals, mollusks and crustaceans accounted for 34% of the species and deeper burrowing forms were observed). Therefore, the Aquatic Life Use of Eel Pond (MA95-48) will continue to be assessed as Fully Supporting based on the generally good water quality conditions (consistent with those of a relatively deep drowned kettle pond with a narrow tidal channel connection to lower Back River) as documented by the BBC staff/volunteers in 2015-2019. An Alert is being identified due to some evidence of nutrient enrichment documented by the BBC between 2015-2019 (i.e., elevated chlorophyll *a* and intermittently elevated total nitrogen). Recommendations will be made for additional monitoring including benthic sampling to better evaluate the nature of any possible impairments.

Neponset River Watershed Association:

neponset river
WATERSHED ASSOCIATION

January 6, 2023

Via Electronic Mail to Richard.F.Chase@mass.gov

Richard Chase
MassDEP - Bureau of Water Resources
Watershed Planning Program
8 New Bond Street
Worcester, MA 01606

RE: Draft 2022 Integrated List of Waters

Dear Mr. Chase:

The Neponset River Watershed Association (NepRWA) submits the following comments on the Massachusetts Department of Environmental Protection's (MassDEP) Draft 2022 Integrated List of Waters. NepRWA is a nonprofit conservation organization working to clean up and protect the Neponset River, its tributaries and surrounding watershed lands, and has a long history of successful data submission to MassDEP's Watershed Planning Program.

Overall, NepRWA is pleased with the changes MassDEP has incorporated into this most recent Integrated List that make data sources, timeframe for attainment decisions, and conclusions more transparent. Specifically, the included watershed-specific appendices and their explanations of changed impairment status which include data source, raw data, and graphical displays, for any listing changes. In addition, the Summary of Changes table make it much easier for conservation organizations and other stakeholders to easily identify and review relevant assessment units as well as any change in status.

We also found this draft to have increased readability over previous iterations and commend MassDEP for making this data as accessible as possible to the public. However, we have noted some additional changes or improvements that could be made to improve the health and protection of our waterways.

Please find below specific suggestions for amendments to the 2022 Draft Integrated List of Waters.

2173 Washington Street, Canton, MA 02021
781.575.0354 | staff@neponset.org | www.neponset.org

Cold water fishery identification and fish passage barrier assessments are incomplete.

NepRWA appreciates the continued improvement for assessing fish passage; specifically the inclusion of information on restoration work, including dam removals, that have been completed to improve fish passage. However, data used by the Division of Marine Fisheries for this section does not include the current status of all dams across the state, and we are concerned that this outdated or incomplete data will lead to faulty assessments. Most especially, fish passage is restricted to diadromous fish only, excluding numerous migratory fish populations such as Brook Trout (*Salvelinus fontinalis*) and other salmonids. Restrictions on passage for species with large home ranges such as trout result in population fragmentation and inability to seek refuge in times of drought.

Additionally, we ask that MassDEP include clearer information on cold water fisheries resource status for applicable listings, as provided by the Division of Fisheries and Wildlife (DFW), to improve accuracy of assessments. Numerous Coldwater Fishery Resources (CFR) as determined by DFW are not included as cold water resources. Although we are aware that DEP has different criteria related to the temperature and dissolved oxygen levels of these streams, failure to meet these criteria are largely due to anthropogenic influence, rather than naturally occurring processes. If DEP could provide more clarity on the designation differences between CFRs and "cold water streams," stakeholders like NepRWA would be able to comment more precisely on listing decisions.

Typographical error in Category 3 table

In the Category 3 table, the "Boston Harbor: Neponset" label appears to be missing, following "Boston Harbor: Mystic" (page 66). This appears to be a simple typographical mistake not replicated in the other attainment tables. Current reading would imply the Neponset River watershed segments (starting with Blue Hills Reservoir MA73004) belong to the Mystic River Watershed.

Several impairments within the Neponset River watershed are not listed and should be included the 2022 Integrated List.

Several waterbodies within the Neponset River watershed demonstrate failure to meet water quality standards, yet have not been included in the 2022 Draft Integrated List. We urge DEP to consider more recent data (included below graphically and in table form as an appendix) and include the following:

Bacteria (E. Coli):
NepRWA conducts monthly water sampling for *E. coli* on the 2nd Thursday of each month from May-October in accordance with our DEP approved QAPP. Although our sampling regime is not optimized for comparison against DEP's new standards for compliance (April-October sampling, sampled every 30 days), our data are comparable and the results below suggest several additional segments for inclusion in Category 5 of the Integrated List. Additionally, our bacterial data has an upper quantification limit of 24200 CFU/100mL, resulting in conservative calculations of the geometric mean.

Mill Brook in Westwood (MA73-12)

Currently assessed as meeting primary and secondary contact criteria, data collected by NepRWA measured at Mill Brook at the inlet of Petee Pond suggest it fails to meet the standards for primary contact. Geometric means (GMs) in all 5 years exceed the 90-day rolling geometric average criteria of 126 CFU/100mL (Figure 1). Following the Moderate Frequency/Multiple Years of data available criteria, this site demonstrates more than 20% of GMs above 126 CFU/100mL per year in all 5 years and 20% of cumulative GMs above 126 CFU/100mL. These values hold even considering all possible monthly-calculated rolling average periods (5 periods per year Apr 1-Oct 31), with a total of 14 GMs exceeding the threshold (73% of observed, 56% of possible), and all GMs in 2017, 3 GMs per year in 2016 and 2019, and 2 GMs per year in 2017 and 2020 above the criterion.

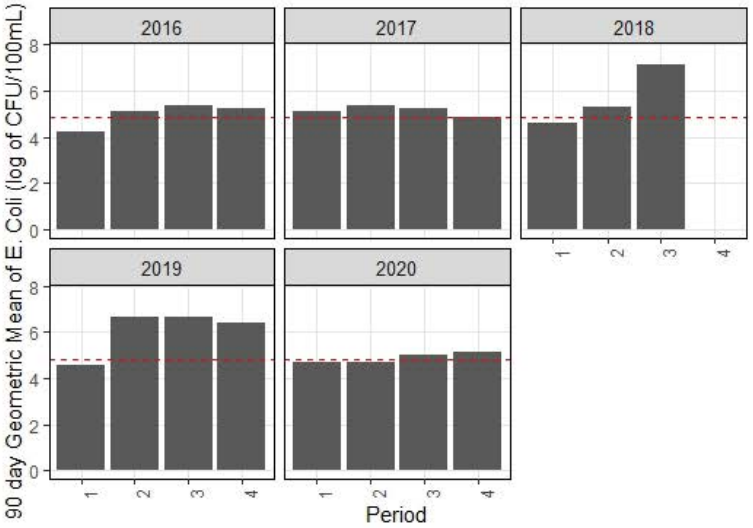


Figure 1: 90 day rolling geometric mean of *E. coli* values sampled between May-October for NepRWA site MLB024 (MA73-12). All calculated geometric means include a minimum of 3 samples and are graphed by period (Period 1: May-July, Period 2: June-August, Period 3: July-September, Period 4: August-October). Some periods are not able to be included due to sample numbers below n=3 from missing data. Due to the variability between our monthly sampling and the 90-day criterion, graphed samples may include either n=3 or n=4. The red dashed line shows the geometric mean criterion of 126 CFU/100mL. Due to high variation in bacterial counts, all values are plotted on a log scale.

Traphole Brook in Sharon/Walpole/Norwood (MA73-17)

Currently assessed as meeting primary and secondary contact criteria, data collected by NepRWA measured at Traphole Brook at Sumner St in Norwood suggest it fails to meet the standards for primary contact. GMs in all 5 years exceed the 90-day rolling geometric average criteria of 126 CFU/100mL (Figure 2). Following the Moderate Frequency/Multiple Years of data available criteria, this site demonstrates more than 20% of GMs above 126 CFU/100mL per year in all 5 years and 20% of cumulative GMs above 126 CFU/100mL. These values hold even considering all possible monthly-calculated rolling average periods (5 periods per year Apr 1-Oct 31), with a

total of 16 GMs exceeding the threshold (80% of observed, 64% of possible), and all GMs in 2016 and 2019, 3 GMs per year in 2018 and 2020, and 2 GMs per year in 2017 above the criterion.

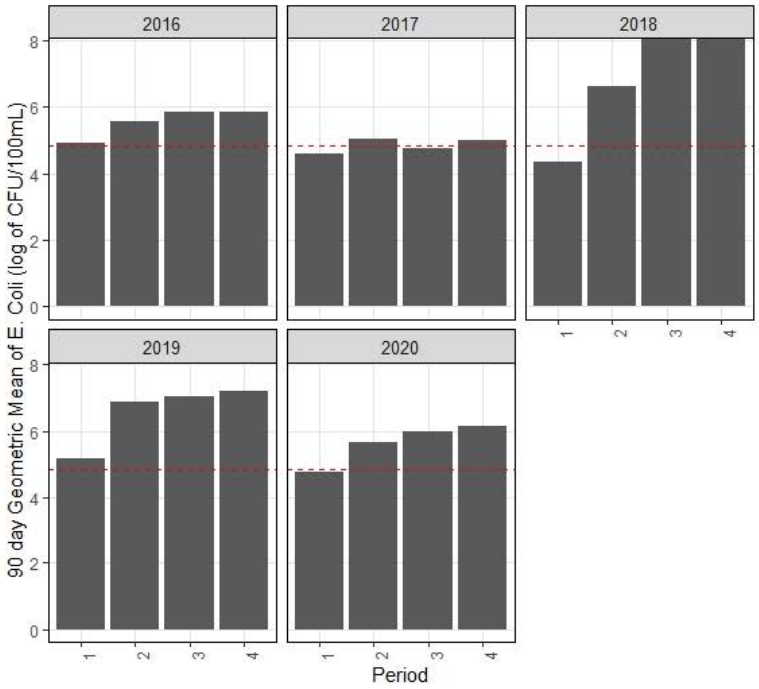


Figure 2: 90 day rolling geometric mean of *E. coli* values sampled between May-October for NepRWA site THB033 (MA73-17). Interpretive description is the same as Figure 1.

Beaver Brook in Sharon (MA73-19)

Currently assessed as impaired for benthic macroinvertebrates and dissolved oxygen, data collected by NepRWA measured at the Maskwonicut St Bridge suggest it fails to meet the standards for primary contact. GMs in all 5 years exceed the 90-day rolling geometric average criteria of 126 CFU/100mL based on a minimum of 3 samples collected monthly and within 90 days of each other (Figure 3). Following the Moderate Frequency/ Multiple Years of data available criteria, this site demonstrates more than 20% of GMs above 126 CFU/100mL per year in all 5 years and 20% of cumulative GMs above 126 CFU/100mL. These values hold even considering all possible monthly-calculated rolling average periods (5 periods per year Apr 1-Oct 31), with a total of 13 GMs exceeding the threshold (65% of observed, 52% of possible), and 3 GMs per year above the criterion in 2016, 2018, 2019, and 2020.

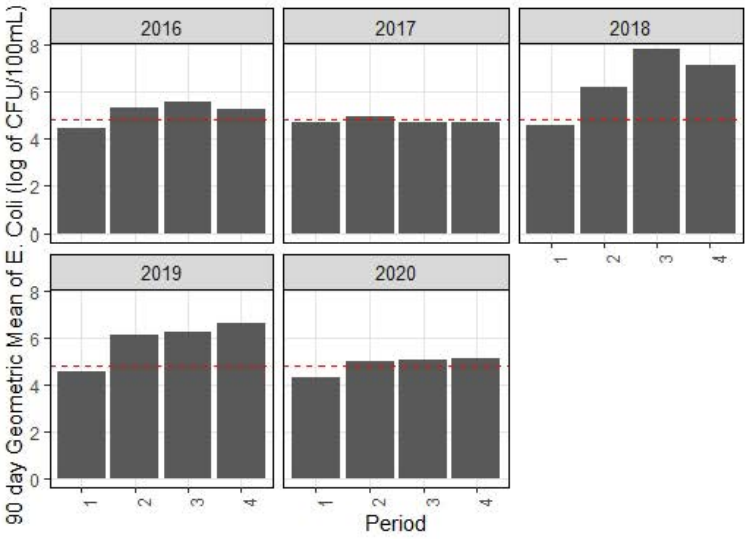


Figure 3: 90 day rolling geometric mean of *E. coli* values sampled between May-October for NepRWA site BEB025 (MA73-19). Interpretive description is the same as Figure 1.

Pequit Brook in Canton (MA73-22)

Currently assessed as impaired for dissolved oxygen, data collected by NepRWA measured at both Rt. 138 (PQB036) and Sherman St (PQB040) in Canton suggest Pequit (sometimes spelled Pequid) Brook fails to meet the standards for primary contact. GMs in all 5 years at both sites exceed the 90-day rolling geometric average criteria of 126 CFU/100mL based on a minimum of 3 samples collected monthly and within 90 days of each other. Following the Moderate Frequency/ Multiple Years of data available criteria, both sites demonstrate more than 20% of GMs above 126 CFU/100mL per year in all 5 years and 20% of cumulative GMs above 126 CFU/100mL. These values hold even considering all possible monthly-calculated rolling average periods (5 periods per year Apr 1-Oct 31). The fact that these high bacterial levels were found at more than one sampling location highlights the fact that it is a segment-wide concern worth including in the 2022 IR

NepRWA site PQB036 (Figure 4) has a total of 8 GMs exceeding the threshold, although data collection at this site has suffered due to incomplete data collection (72% of observed, 32% of possible), and 3 GMs per year above the criterion in 2018 and 2019, with 1 observed GM above the criterion in 2017 and 2020.

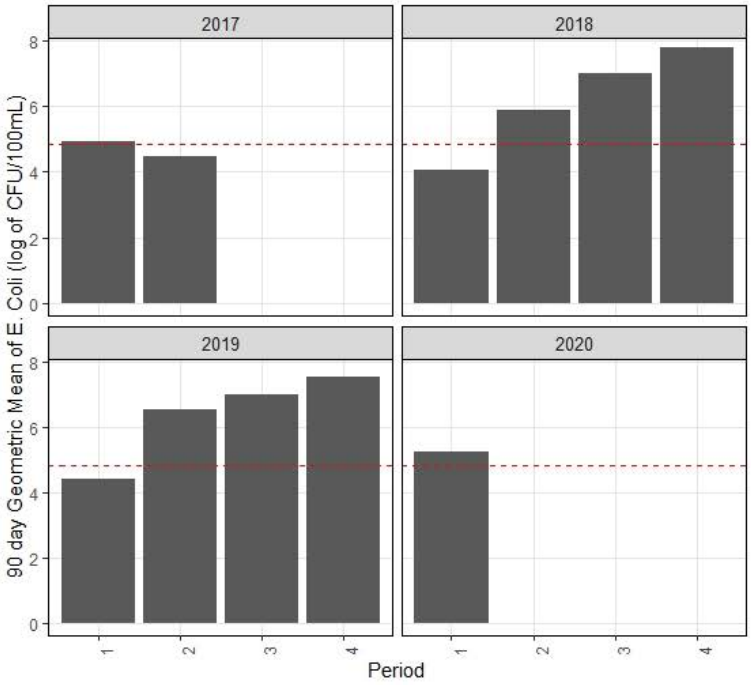


Figure 4: 90 day rolling geometric mean of *E. coli* values sampled between May-October for NepRWA site PQB036 (MA73-22). Interpretive description is the same as Figure 1.

NepRWA site PQB048 (Figure 5) has a total of 15 GMs exceeding the threshold (72% of observed, 60% of possible), and all 4 GMs per year above the criterion in 2017, 3 GMs above the criterion in 2016, 2019, and 2020, and 1 observed GM above the criterion in 2018 (although this sampling year suffered from missing data).

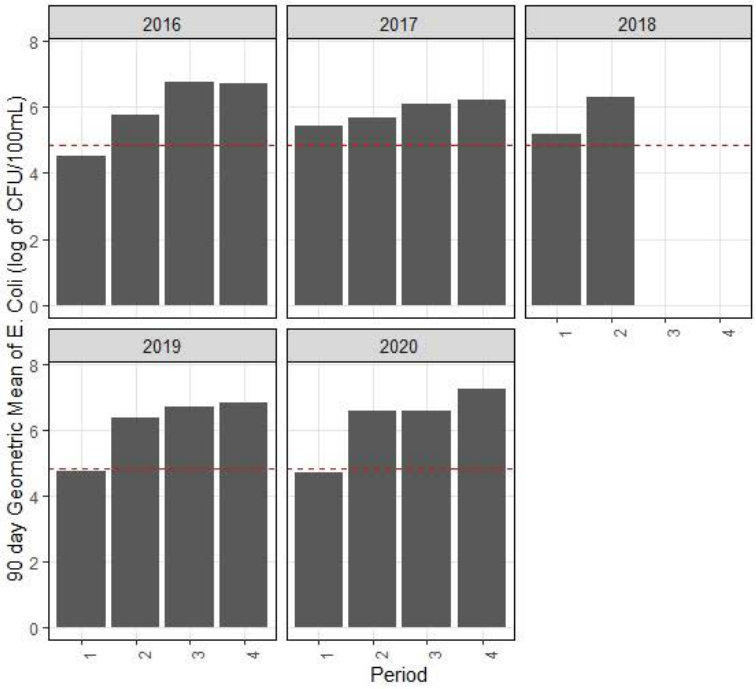


Figure 5: 90 day rolling geometric mean of *E. coli* values sampled between May-October for NepRWA site PQB040 (MA73-22). Interpretive description is the same as Figure 1.

Waterbody pH:

School Meadow Brook in Walpole (MA73-06) has experienced low pH repeatedly over the last 5 years (Figure 6). Although improvement has been seen since 2016, every year has experienced at least 1 sampling event below the criteria. Additionally, although we are aware that attainment data is limited to data collected prior to 2021, NepRWA anticipates submitting the most recent 2 years of data, which also show that the pH issue has not been adequately resolved at School Meadow Brook (Figure 7).

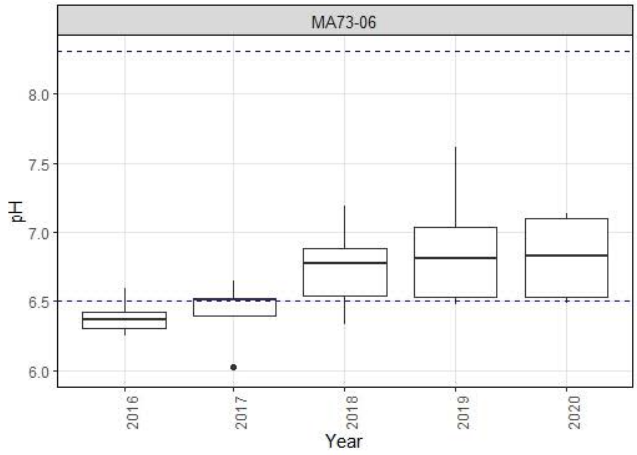


Figure 6: pH for the 5 years between 2016-2020 at School Meadow Brook (MA73-08) at the outlet of Ganawatte Farm Pond (Pine St). Blue dashed lines represent the SWQS criteria of 6.5-8.3 SU.

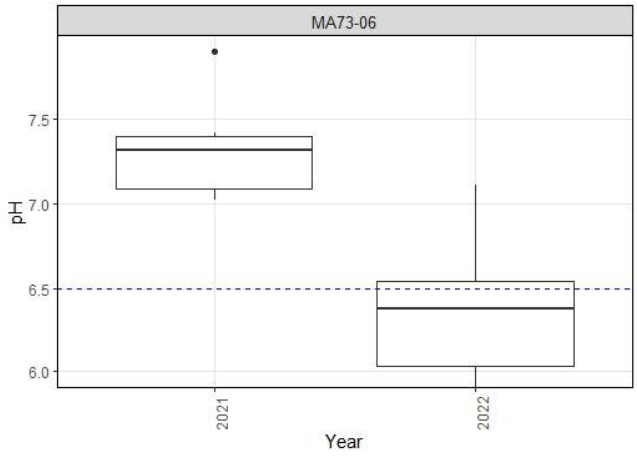


Figure 7: pH for the most recent 2 years, 2021-2022 at School Meadow Brook (MA73-08) at the outlet of Ganawatte Farm Pond (Pine St). Blue dashed lines represent the SWQS criteria of 6.5-8.3 SU.

Total Phosphorus:

Several waterbodies indicate an impairment for Total Phosphorus (TP), but NepRWA does not currently sample for biological impact data at these locations. Since 2016, four sites not currently listed for nutrient impairment have had seasonal TP averages greater than 0.1mg/L: MA73-08, MA73-22, MA73-27, MA73-29. We do not have Chlorophyll A or macrophyte data at these sites to comment on if the Phosphorus is leading to a biological response, however, we would recommend that these sites be evaluated by DEP to determine is Phosphorus should be listed as an impairment. Please see appendix for summary data.

Temperature:

A number of cold-water fish supporting streams within the Neponset watershed have been recognized by DFW as CFRs, however they remain unrecognized by DEP as cold water streams. DEP through its Surface Water Quality Standards has reiterated that all CFRs will have their existing use maintained through protection of cold water fish population and their habitat (*314 CMR 4.06(1)(d)7*). However, it is unclear how DEP determines whether elevated temperatures (above 20 °C) or low dissolved oxygen (below 6 mg/L) are evidence that a stream does not fit the physical/chemical criteria for cold water streams or are evidence that a cold water stream has been impaired. We urge DEP to revisit their decision to not list identified CFRs as cold water streams (or a new category). This is critically important as CFRs within the Neponset watershed face elevated temperatures in the face of urbanization and climate change.

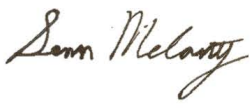
Conclusions

NepRWA appreciates MassDEP making its draft Integrated List available for preliminary comment and the improvements over the past versions. MassDEP has made the document more readable for the average user, clarified the time-period for attainment determinations, and demonstrated data sources including external data. The inclusion of watershed specific appendices with graphical displays of data improves the public utility of this information. Additionally, the Summary of Changes table make it much easier for stakeholders to review MassDEP's conclusions and provide meaningful feedback.

There is more that MassDEP could do to continue to improve, however. Clarifications on criteria like "fish passage" and "cold water streams" would assist organizations like NepRWA in contributing to fill in data related gaps. Additionally, it would be very helpful for DEP to provide timely feedback to science-based watershed associations like ours with active Quality Assurance Project Plans (QAPPs) so that we can make necessary changes to ensure our data collection meets MassDEP's "Level 3" standards to be used for regulatory assessment. We understand that MassDEP has been working with far fewer resources than is necessary to collect and validate water quality data on a regular basis, so use of external data is critical for making an accurate assessment of water quality. Finally, NepRWA urges MassDEP to add several waterbodies within the Neponset River watershed to the 2022 Integrated Report, as supported by current data.

Thank you for the opportunity to comment on the Draft Integrated List. Should you have any questions, or require additional information, please don't hesitate to contact me.

Sincerely,



Sean McCanty, Ph.D.
River Restoration Director
Neponset River Watershed Association
781-575-0354x304
mccanty@neponset.org

MassDEP response: See MassDEP responses to General Comments (Part I) for NepRWA comments related to cold water streams and improved feedback to watershed partners.

COMMENT: Typographical error in Category 3 table.

MassDEP response: Thank you for noting the need for a clerical fix to the Category 3 Table in the IR (page 66 of the draft). A "Boston Harbor: Neponset" heading has been added between the MA71 Assessment Unit (AU) and MA73 AU rows.

COMMENT: Several impairments within the Neponset River watershed are not listed and should be included the 2022 IR.

MassDEP response: MassDEP appreciates NepRWA's comments and will review and utilize all available assessment level data/information to update the Neponset River Watershed and Coastal Drainage Area in a future IR reporting cycle. Particular attention will be taken to review *E. coli* bacteria in MA73-12, MA73-17, MA73-19, MA73-22, pH in MA73-06, and total phosphorus along with any other nutrient response indicator data in MA73-08, MA73-22, MA73-27, and MA73-29. MassDEP has noted the request for follow-up sampling of biological and nutrient response indicators for these latter four AUs. MassDEP will utilize NepRWA's physico-chemical (2019 forward) and bacteria (2011 forward) data that have passed usability reviews for the next Neponset River Watershed update in a future IR reporting cycle (tentatively 2024).

Lake Archer Association:

December 27, 2022

Via email

Richard F. Chase
MassDEP, Bureau of Water Resources, Watershed Planning program
8 New Bond St
Worcester, MA 01606
Richard.f.chase@mass.gov

Re: Draft Massachusetts 2022 Integrated List of Waters
Dear Mr. Chase,

We, the board members of the Lake Archer Association Corporation ("LAAC"), a nonprofit 501(c)(3) entity, submit the following comments for the Draft Massachusetts 2022 Integrated List of Waters.

Background

Lake Archer, a 77-acre freshwater great pond located in Wrentham, Massachusetts, makes up a portion of the southeast head of the Charles River Watershed. The hydrologic inflow is limited to groundwater, stormwater, and direct precipitation.

To help protect and preserve this body of water, the LAAC was formed in 2018. The first step towards this goal was to begin eradicating invasive Brazilian waterweed. Diver assisted suction harvesting ("D.A.S.H.") has been used to combat this weed every summer since 2019. However, the focus of the association shifted to include water quality impairment when Lake Archer experienced its first documented algal bloom in the fall of 2020. This first bloom was soon followed by a HAB/HCB, which was reported to have a cell count of 540,000 cells/mL-more than 7.7 times higher than the State's threshold for a water advisory. Dr. Ken Wagner, who authored *The Practical Guide to Lake Management in Massachusetts* for the DEP, reported this cell count when hired by the association. Unfortunately, these algal blooms have continued through 2021 into the fall of 2022, some of these with extremely elevated levels of toxicity. As a further complication to these issues, variable milfoil has recently been discovered.

With the goal of educating the residents and their impact on this great pond in mind, LAAC has coordinated campaigns to educate others about invasive weeds, sources of nutrient loading, and how to spot algal blooms. In 2021, the EPA, with Hilary Snook at the helm, brought a mobile

cyanobacteria lab to Lake Archer to train residents of Lake Archer and other towns to become citizen scientists. This tutorial included the proper collection of grab samples as well as those utilizing an integrated tube. LAAC's website includes the documented procedures and a training video on grab samples at this address: https://lakearcher.wordpress.com/citizen-scientists/. Additional training by the EPA included the use of a Secchi disk, the use of a microscope, and the process of uploading images of samples via Amscope to iNaturalist/ Cyanoscope. How to use a fluorometer was also included in this workshop. After this, the EPA lent the association equipment so that residents could apply the newly learned skills. The EPA also provided a contact with whom the LAAC could purchase a fluorometer and were kind enough to calibrate it on the association's behalf.

In 2021, the LAAC worked with Wendy Gendron of Aquatic Restoration Consulting (ARC), who was recommended and trained by Dr. Wagner, to create an approved QAPP for water quality testing. This work is summarized in an attached draft report ("2021 Water Quality Report") shown in Appendix D. That QAPP was used in 2021 to collect data over the summer of 2021 and will be submitted to MassDEP for consideration in the 2024 Integrated List of Waters. Furthermore, the association is pursuing a 604(b) grant as well as a WQMG for future water quality testing. Members of the board and other residents of the lake continue to work with numerous agencies to better understand and address issues of the water quality at Lake Archer.

In response to our and others' comments on the *2018/2020 Integrated List of Water*s, MassDEP directed readers to the CALM document. LAAC appreciates the thoroughness of this document that answers so many questions about water uses, impairment decisions, and data requirements. This guide has been instrumental in influencing the LAAC on what data to collect and submit to MassDEP. We also took note of MassDEP's response to the LAAC's comments that made the request for other available and recent corroborative information, such as the 2020 algal bloom report and photo-documentation of episodic events. This data has been included in the appendix of this letter. The 2020 HAB report that was requested in response to our last round of public comments on the *2018/2020 List of Integrated Waters* is attached in Appendix I along with notes and pictures in Appendix J. A 2021 HAB phycologist report, which the association received in July of 2021, has also been attached.

Direct Connection to Lake Pearl

The hydrologic outflow of Lake Archer into Lake Pearl exists through a small creek located under Creek Street. It has been concluded by numerous government agencies that the two

water bodies are hydrologically and ecologically connected through this outflow. The water quality at Lake Archer is directly connected to the water quality at Lake Pearl. This is significant because Lake Pearl, which has a public beach and a public boat ramp, has close proximity to the town's drinking water supply wells.

Connection to Drinking Water

As mentioned in the *Wrentham Green Infrastructure Master Plan of 2022* ("GI Plan"), shown in Appendix A, "Three of Wrentham's five existing groundwater wells, which produce up to 72% of the town's drinking water, are located near the town's major lakes and rely on these surface water bodies for recharge." That same report notes the following: "The major lakes in Town, Lake Pearl, Lake Archer, and Mirror Lake, face challenges with water quality from stormwater runoff. Bacteria and nutrient pollution in stormwater have led to excessive algal growth and public health concerns in recent years, including closures of the public beach area located on Lake Pearl." The report adds that "the surface water connection to groundwater highlights the need to maintain or improve water quality in the major lakes."

Cyanobacteria Blooms

Lake Archer, as well as Lake Pearl and Mirror Lake, has experienced repeated toxic algal blooms since the first bloom was reported in November 2020 (Appendix I details a phycologist's report and photos of this bloom can be found in Appendix G and Appendix J). The frequency, severity, duration, and toxicity of the blooms have been rapidly increasing.

In 2021 there were at least 6 blooms, of which at least 5 had toxin levels above the Massachusetts Department of Public Health ("MA DPH") and EPA's water advisory threshold of 8 ppb for microcystins (a hepatotoxin). One bloom had microcystins measuring as high as 230 ppb. A resident reported an ill cormorant observed near the bloom that was later found dead. Two of the aforementioned blooms were also positive for anatoxin-a, a neurotoxin, for which no level is considered safe.

Ironically, the one aforementioned bloom that was not found to be toxic (but still qualified as a bloom based on the visible appearance of scum) was the one for which the Town of Wrentham's website posted (July 1, 2021) that the bloom "should be considered harmful until proven otherwise. Please be advised that contact with this type of bloom can be harmful to people and pets." The Board of Health's listing of Lake Archer was then picked up by the *Sun Chronicle*, which published an article titled "Officials warn about possible toxic algae at Lake Archer in

Wrentham[1]." Numerous other algal blooms formed that year. Many of these tested positive for high levels of toxins. at the RIDH lab. However, these were not reported to the Board of Health because the LAAC had its own means of testing without the possibility of inviting more negative press.

The presence of blooms did not disappear in 2022. At least 9 blooms appeared on Lake Archer in 2022, and at least 5 of them had lab-certified toxicity levels for microcystins above the threshold of 8ppb. Of interest and importance is that many of these blooms were observed after rain events.

The levels of toxins present in blooms on Lake Archer have alarmed not only the residents, but many of the experts with whom we have spoken. When the board member who is the principal contact with the RIDH lab did not respond to an emailed lab report within an hour, she got a call on her cell phone from the lead laboratory scientist informing her that the levels of toxins were so elevated that residents should be informed to get out of the water immediately.

One of our blooms in 2022 had microcystins, a known hepatotoxin, that measured at 712 times the MA DPH threshold for issuing a no-contact water advisory level. The principal laboratory scientist at the RIDH lab told us his team almost had to measure the toxin in ppm instead of ppb, which they said would have been a first for the lab. The bloom also had levels of anatoxin, which is a neurotoxin, at 25 ppb (no level of anatoxin is considered safe). Sadly, a 5-month-old puppy who had contact with lake water during this bloom had to go to Tufts Emergency Vet because of paralysis and convulsions it suffered due to ingesting something poisonous. An email from the dog owner to the LAAC along with a copy of the vet report is included in Appendix F.

As the LAAC has learned more and more about blooms and has developed cyanobacteria testing protocols based on information from cyanobacteria experts at the EPA, DPH (both MA and RI), and USGS, among other organizations. Our algae test procedure is included in Appendix B. Besides visual cues like scum, the Algae Awareness Committee and our citizen scientists use rapid test strips and/or laboratory testing at the RIDH to determine the toxicity of the bloom. We have a system for residents to report blooms to our board. Residents have been further empowered to take an active role in this process by participating in the rapid test strip portion of the protocol as outlined in instructions from the test strip company. We specifically chose Abraxis test strips after the Program Director of the URI Watershed Watch program

[1] Source: https://www.thesunchronicle.com/news/local_news/officials-warn-about-possible-toxic-algae-at-lake-archer-in-wrentham/article_184a80eb-02f5-5b21-9cbf-edab92754a6f.html

shared with us a study[2] published in Lake and Reservoir Management testing the high reliability of these strips ("Rapid-assessment test strips: effectiveness for cyanotoxin monitoring in a northern temperate lake").

We ask residents and citizen scientists to share all results with the board, as well as photos of any strips that test positive for toxicity. If a resident or trained citizen scientist reports toxic results from test strips (more cost-effective than laboratory testing), then we involve the RIDH lab (specifically "HAB01 TOXIN LCMS DEM" on this form[3]) for reliable, repeatable, and lab-certified results.

Samples being tested for toxicity are protected from sunlight and fully frozen before being transported to the lab in a cooler. Plastic sample containers are used (glass bursts in the freezer) and clearly labeled with the date, time, and location of the collection -all of which correspond to a lab slip that is turned in alongside the sample to ensure that the chain of custody is transparent. No preservative is used. We indicate on the form that the sample was previously frozen (4+ hours) so that the lab is able to count that as one of its three freezing and thawing rounds, meant to lyse the cells open in advance of toxicity testing. It has been confirmed to us by the lab that by beginning the freezing/thawing cycle prior to transport at the lab, we are able to cut down on the time it takes for the lab to report results. This is especially important when over 100 homes around the lake depend on this information for day-to-day recreation decisions about water safety. Lab findings are reported by one scientist and checked by a second one prior to the lab issuing an official report.

As an additional note, the RIDH lab was also used previously for colony ID and enumeration; in these cases, water samples were similarly protected from sunlight and transported in a cooler with ice packs. However, they are never frozen because doing so would render the tests impossible. We have then used conversions of the number of cells/colony or filament (i.e.,Microcystis 140 cells/colony, Anabaena 23 cells/filament) in the past to give us a proxy for cell count. However, we have moved away from this type of testing because we learned through our process that cell counts and toxicity are not necessarily correlated at Lake Archer. Some of our more toxic blooms have visibly presented with less scum and lower cell counts.

To measure the light-blue pigment found in cyanobacteria, phycocyanin, we purchased a fluorometer in 2021. The fluorometer has also served as a rough proxy of cell count for tracking overall trends of blue-green algae in the water. To date, our chief citizen scientist has tested 120 fluorometry samples and uploaded over 200 microscopic samples to Cyanoscope (run by the

[2] Source: https://drive.google.com/file/d/14RYHW7IISdm1IHgPnXwMqKTIHY3MneGM/view
[3] Source: https://lakearcher.files.wordpress.com/2021/08/ri-lab-template.pdf

Cyanobacteria Monitoring Collaborative and a project of iNaturalist) to identify different cyanobacteria in Lake Archer as a means to better understand blooms. She is also the top observer of two cyanobacteria, Dolichospermum lemmermannii (formerly referred to as Anabaena), and Microcystis aeruginosa, on Cyanoscope. Many of her uploaded samples of these two bacteria have received confirmation by identifiers on the website.

The records we have of toxic blooms are included in Appendix E. In those samples, the "Sample Name" denotes where the sample was taken. We had typically included samples both in the bloom and ~20 ft from the bloom in clear water. We sometimes include a third sample once the scum has visibly dissipated. Clearly, all these measures have been undertaken to understand how pervasive and persistent the toxins are in the lake.

The LAAC has mechanisms for alerting residents to reported algal blooms and any reported toxicity results including the LAAC website[4] as shown in Appendix H.

We have documented many of the blooms through a fluorometer (which measures values of phycocyanin, a pigment found in blue green algae) and correlated those samples with lab results and photographic evidence as we do our best to understand trends and look for patterns. Appendix C includes graphs of fluorometry readings at two locations over the course of the summer of 2021. Hilary Snook, senior environmental scientist at the EPA, encouraged us to monitor these levels longitudinally so that we could better understand existing trends at the lake and possibly use what we learned to anticipate future blooms going forward. We have attached photographic evidence of blooms along with their corresponding dates in Appendix G.

Stormwater Infrastructure and Rain

Under a section of the GI Plan titled "Undersized and Aging Stormwater Infrastructure," the report highlights that "[m]uch of this infrastructure is past its intended design lifespan and sized to accommodate storms that have been less intense than current storms are…." We have noted that almost all of the outfalls into Lake Archer lack infiltration or other Best Management Practices ("BMPs") for filtering runoff, which means that nutrient-laden stormwater discharges from the outfalls, untreated and unfiltered, directly into the lake.

Unsurprisingly, algal blooms at the lakes in Wrentham are almost always observed after rainstorms. This correlation between un-infiltrated stormwater entering the lakes and subsequent algal blooms implies that the nutrient loading from the stormwater is a primary

[4] Source: https://lakearcher.wordpress.com/testresults/

contributor to the algal blooms that the lakes have been experiencing. Numerous experts the LAAC has conversed with have confirmed this. This makes sense given that cyanobacteria feed off of phosphorus and nitrogen.

Water Quality Testing

During the summer of 2021, Wendy Gendron of ARC conducted a Water Quality Test Study ("WQ Study"). The WQ Study determined that the surface TP exceeded the Gold Standard on 5 of the 6 sampling dates. The report notes that oxygen below 18 ft is non-existent and that the situation has become worse since the last study was conducted in 2000.

The report notes "In-lake phosphorus is enough to support algal blooms on occasion and the constant source of phosphorus provided by sediments is likely the highest contributor of phosphorus during the dry summer months, but the watershed and groundwater studies need to be repeated for updated estimates and to develop a total nutrient budget of the lake and calculate percent contribution."

Documented Procedures

The LAAC understands the importance of repeatable test procedures for both its internal uses and for MassDEP reporting according to the CALM document. While it is the intention of the LAAC to submit an updated QAPP for 2023 to aid in collecting future data on HABs, the LAAC has been following a documented and scientific procedure developed in conjunction with scientists from the EPA, USGS, and other knowledgeable consultants. The procedure is attached in appendix B.

Citizens scientists who collect samples were trained by Hilary Snook, senior environmental scientist from the EPA, and/or a member of his team (Corey Conville, EPA biologist, and Shasten Sherwell, ORISE Fellow for the Southeast New England Program of the EPA) in June of 2021. The association continues to contact Hilary Snook regarding data collection and findings. We continually ask him questions to help the association better understand the science of cyanobacteria as well as the procedures associated with it. The LAAC website includes videos of the training with the EPA so that it may be shared with the public. To make this even more transparent to the public, accompanying documents have been provided on the website to convey the appropriate steps to take for grab samples, the integrated tube sampling, and Secchi disk measurements.

Massachusetts Department of Public Health Guidance

The MA DPH has met with us on numerous occasions to help understand the public health issues created by the toxic algal blooms at Lake Archer.

The data collected by the LAAC and analyzed by the RIDH have repeatedly shown toxicity levels above the limits where the MA DPH would issue an advisory. While only one advisory was issued in 2021 for an algae bloom, the MA DPH advised us that numerous other algae blooms experienced at Lake Archer over 2021 and 2022 are of concern to them, and they have asked that we make them aware of any future blooms on the lake. The fact that these blooms would have qualified for an advisory is further evidenced by the toxicity levels in samples tested by the RIDH.

CALM Document

Guidance from the *CALM* document helped us understand the importance of data collection procedures and what constitutes an impairment. We noted multiple places where Lake Archer would be considered impaired according to the guidelines.

In particular, we noted the 2022 *CALM* document guidelines for impairment for Harmful algal blooms on page 105. "MassDEP Guideline: to support the designated uses of aquatic life, recreation and aesthetics, a surface water containing cyanobacteria at levels where the MA DPH issues an advisory (i.e.,at a cell count of 70,000 cells/mL or more, corresponding to a toxin level of approximately 14 ppb) generally more than once during the summer growing season (April 1 to October 31) is considered an indicator of nutrient enrichment."

From the empirical data attached to this report, Lake Archer clearly "contains cyanobacteria at levels where the MA DPH issues an advisory" even if no advisory was issued. The LAAC submits this data to the MassDEP according to the guideline found in the *CALM* document with the understanding that this guideline is what is used to document a harmful algal bloom impairment.

We understand from page 67 that "MassDEP uses MA DPH cyanobacteria advisories when assessing primary, secondary, and aesthetics uses for HAB presence" as a consolidated method for understanding when waterbodies contain cyanobacteria at advisory levels. We noted on page 67 that "For the 2022 IR cycle, MassDEP is utilizing MA DPH advisory data from 2015-2019." We hope that, in the future, advisory data from the current year would be used, which would reflect the most current conditions found and reported on the Commonwealth's waterbodies.

CALM HAB Reporting

During discussions with the Wrentham Board of Health, we were informed that Lake Archer's status as a private lake means that regular testing of the waters for bacteria, algae, and other impairments does not occur by the Board of Health. Wrentham has been helpful when we brought this to their attention. Parts of the *CALM* document rely on these Board of Health reports and advisories in order to document waterbody impairments.

This means that, no matter how impaired some of the state's water bodies are, they might never qualify as impaired under the *CALM* documents guidelines. Lake Archer clearly exhibited surface water containing cyanobacteria at levels whereby the MA DPH issues an advisory; however, the water advisory database will not have records of these levels since no advisory was issued.

The blooms that occurred on Lake Archer in 2020, which occurred within the reporting period for the 2022 Integrated List of Waters, would never have caught the attention of the MassDEP reporting, even though the algae blooms qualify by the definition of an impairment from the *CALM* document.

The LAAC communicated these blooms to the Wrentham Board of Health, which should have meant it appeared in the reporting to MassDEP. By the definition in the *CALM* document, this should qualify as a potential impairment in the *2022 List of Integrated Waters ("2022 List")*. The LAAC requests that MassDEP review this scenario and consider adding an impairment to Lake Archer for Harmful Algae Blooms for the 2022 List.

Lack of Stormwater Infiltration

Algae blooms are occurring predictably on the lake regularly after rainstorms. This correlation implies that stormwater is a leading source of nutrient runoff into the lake, and this theory is supported by comments in the GI Plan and 2021 Water Quality Report.

Upon researching the stormwater infrastructure around the lake as part of Wrentham's Municipal Vulnerability Preparedness ("MVP") Plan, we found that drainage for major roadways on every side of the lake are directed, without any infiltration, into the lake through 5 outfalls. The majority of the stormwater from Route 140 drains directly into the lake without filtration through a state-managed outfall. The stormwater from Lake St. and Lakeside Ave drains through 4 outfalls that also do not have infiltration.

Nutrient Reduction Campaigns

In addition to working with the town through the MVP program to try to implement green infrastructure in the town-owned storm drains, we have been meeting with the DOT regarding the state-owned outflow from Route 140. Simultaneously, the association is doing everything it can to reduce the nutrient load in the stormwater itself; chief among our priorities is educating residents about the role they can play in limiting the runoff from their property into the lake. The LAAC hosted the Charles River Watershed Association in 2022 for an informational session educating residents about ways that individual homeowners can help reduce runoff into the lake (Appendix K features a flyer). Since then volunteers for the LAAC have begun experimenting with vegetative buffers. The LAAC also launched a joint initiative with the CRWA to educate homeowners about the importance of reducing runoff and normalizing the behavior of skipping fertilizer near the lake. Through this program, residents are able to get free "love your lake" fish-shaped signs (Appendix L features an example) to post on their lawns as an alternative to those ubiquitous yellow "keep off - fertilizer application" signs.

The association created and distributed an algae quick reference guide to residents about HABs and the importance of reducing nutrient runoff from individual properties. The first version of this document was disseminated in 2021, and it was revised and shared again in 2022 (Appendix M).

We also implemented a leaf collection program in 2021 and 2022 aimed to facilitate the prompt, proper disposal of yard waste in the fall. We did this after learning about Bill Selbig's research through USGS on the impact that leaf removal and repeated street sweeping can have on stormwater: "The timely removal of leaf litter can reduce harmful phosphorus concentrations in stormwater by over 80 percent in Madison, Wisconsin, according to a recent U.S. Geological Survey study[5]." We have also connected directly with Bill's colleagues on the East Coast and worked with them to learn and adopt best practices for the lake.

Focus on all uses

The LAAC applauds MassDEP its focus on all designated uses in twenty-one watersheds for 2022. We recognize the shift from the focus primarily on aquatic use in 2018/2020. We recognize that MassDEP is resource-constrained, and appreciate the efforts to help improve the water bodies of the Commonwealth of Massachusetts.

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[5] Source: https://www.usgs.gov/news/state-news-release/removal-fallen-leaves-can-improve-urban-water-quality

Conclusion

With the recent and concerning changes to Lake Archer, the LAAC has worked hard to understand what causes algal blooms and how they impact the lake and those who use it. We are also dedicated to finding all the possible ways we can prevent them in the future. The pace at which Lake Archer has changed has been alarming, and we recognize that immediate action is necessary to prevent any further nutrient loading of Lake Archer.

The data we have collected clearly demonstrate that besides having an invasive weed impairment, Lake Archer has at least a Harmful Algal Bloom impairment and likely a water quality impairment from excessive nutrients. Using guidance from the CALM document, the LAAC recognizes that Lake Archer clearly "contains cyanobacteria at levels where the MA DPH issues an advisory." With the extreme changes that Lake Archer has undergone due to the presence of nutrient loading, it is essential that immediate action is taken to save this beautiful body of water that is home to many species of life that may be at risk.

We acknowledge that the cutoff date for receiving external data for the 2022 List was January 15, 2021. The 2020 reported bloom and the corresponding HAB report were gathered within the timeframe; however, at the time, we did not realize that this data was not automatically shared with the MassDEP. The November 2020 blooms should technically qualify as an impairment based on at least Aquatic Life Use if MassDEP characterized it that way, but we understand that this data on its own is potentially too subjective for qualification as an impairment in the 2022 Integrated List of Waters.

Almost all of the other data was collected after that cutoff date and would hopefully qualify lake Archer for an impairment in the 2024 Integrated Waters list.

We understand and respect the rules and guidelines from the MassDEP for the *List of Integrated Waters* and understand that there is some qualitative evaluation of data sources for data quality to determine an impairment. The LAAC hopes that the MassDEP recognizes the detrimental changes that are occurring on Lake Archer and will accept the data collected in 2020 (further substantiated by the evidence in this letter) to qualify Lake Archer for an impairment in the *2022 List*.

The MassDEP is an invaluable agency that we are fortunate to have as a protector of our environment, which includes water bodies such as Lake Archer. Please accept our apologies for not initially fully understanding the necessary steps to get recognition of our predicament. We are laypeople who feel passionate about protecting this natural resource and are trying to learn

and understand this process. We have devoted hundreds of hours to educate ourselves so that we can best serve and protect Lake Archer. Your attention and consideration of the data and comments we have submitted are greatly appreciated.

With gratitude,
The Lake Archer Association Board

MassDEP response: MassDEP has reviewed the 2021 Lake Archer nutrient data and the 2020-2022 Lake Archer HABs data that was submitted by LACC with this comment letter and also through the External Data Portal. MassDEP acknowledges the documented scientific procedures submitted along with the HABS data and the approved QAPP that was submitted to accompany the nutrient data. Both datasets have cleared the preliminary review process and are deemed useable for assessment purposes. The data will henceforth undergo the formatting and analysis necessary for inclusion in the next assessment update for the Charles River Basin in a future IR cycle.

Sustainable Hyde Park:

From:	Sustainable Hyde Park
To:	Chase, Richard F. (DEP)
Subject:	Comment on MassDEP's draft 2022 IR for Charles River Watershed
Date:	Friday, December 2, 2022 1:35:20 PM

December 2, 2022

To:
Richard F. Chase
MassDEP-Bureau of Water Resources,
Watershed Planning Program
8 New Bond Street, Worcester, MA 01606

From:
Jonah Villanueva
Sustainable Hyde Park

Thank you for the time and work on the 2022 IR.

For the Neponset River Watershed, we are writing to advise as follows:

Sprague Pond: MA73053 currently listed in Mystic River as Cat 3 at page 66, should be in Neponset River Watershed.

Sprague Pond is 8.2 acres existing (and an estimated 10.25 acres historically).

Not listed in Neponset River Watershed:

Davenport Creek: At Hallet St.

If additional field information or documentation would be of value, please advise.

Thank you for undertaking this important project

- - -

MassDEP response: Thank you for noting the need for a clerical fix to the Category 3 Table in the IR (page 66 of the draft). A "Boston Harbor: Neponset" heading has been added between the MA71 Assessment Unit (AU) and MA73 AU rows. Regarding Davenport Creek near Hallet Street, this stream reach can be added as an Assessment Unit (AU) for the next Neponset River Watershed and Coastal Drainage Area update in a future IR cycle, provided sufficient quality-controlled data are available for assessment of one or more designated uses and upon confirmation of perennial streamflow.

Sustainable Roslindale:

From:	Sus Roz
To:	Chase, Richard F. (DEP)
Subject:	Comment on MassDEP's draft 2022 IR for Charles River Watershed
Date:	Friday, December 2, 2022 8:16:57 AM

December 2, 2022

To:
Richard F. Chase
MassDEP-Bureau of Water Resources,
Watershed Planning Program
8 New Bond Street, Worcester, MA 01606

From:
Noah Diaz-Murphy
Sustainable Roslindaie

Thank you for the time and work on the 2022 IR.

For the Charles River Watershed, we are writing to inquire whether the following are included in the draft, as we have not been able to locate in any category.

If not included, please include in the final IR.

Bussey Brook: Boston, from its origin at VFW Parkway traffic circle to Blackwood Meadow in the Arnold Arboretum, joining the Stony Brook culvert.

Canterbury Brook: Boston, from its origin at Morton St to culvert at Brook St.

Goldsmith Brook: Boston, from its origin near the Arborway Circle at Arnold Arboretum to culvert within Arnold Arboretum unnamed marsh.

Wigwam Pond: Dedham

Unnamed Brook: George Wright Golf Course, Boston.

If additional field information or documentation would be of value, please advise.

Thank you for undertaking this important project.

- - -

MassDEP response: Thank you for providing input to MassDEP's draft 2022 IR. The perennial portion of Bussey Brook in Boston and Wigwam Pond in Dedham can both be added as Assessment Units (AU) providing there are sufficient quality-controlled data to evaluate one or more designated uses, for the next Charles River Watershed IR update in a future IR cycle. The other streams requested --- Canterbury, Goldsmith, and an Unnamed brook in George Wright Golf Course --- are either intermittent or do not appear in the hydrography coverage, so it is unlikely that these can be added as AUs.

Connecticut River Conservancy:

Connecticut River Conservancy

Clean water. Healthy habitat. Thriving communities.

15 Bank Row, Greenfield, MA 01301

Richard Chase
Massachusetts Department of Environmental Protection
Division of Watershed Management
8 New Bond St.
Worcester, MA 01606

Subject: Draft 2022 Integrated List of Waters

Dear Mr. Chase,

I am submitting comments on the draft 2022 Integrated List of Waters (IR) on behalf of the Connecticut River Conservancy (CRC). CRC is the principal nonprofit environmental advocate for protection, restoration, and sustainable use of the Connecticut River and its watershed. The Connecticut River and its tributaries (including the Deerfield, Millers, Chicopee, Farmington, and Westfield River basins) take up approximately one-third of the land area of Massachusetts.

Overall Comments

CRC appreciates the opportunity to review the watershed-based assessment and listing decision summaries, which provides stakeholders with the opportunity to review the decision-making process and appreciate the rationale behind these listings. Additionally, data provided by CRC and the Deerfield River Watershed Association (DRWA) were incorporated into listing decisions for the first time; we are grateful for the opportunity to provide information to DEP and look forward to continuing to contribute data for consideration in future integrated lists.

CRC is glad to note that bacteria TMDLs will be developed for the Chicopee, Connecticut, Deerfield and Westfield River watersheds. Given that the most recent TMDL for any watershed within the Connecticut River watershed was developed in 2006, we believe it is of critical importance to develop these TMDLs by 2024.

In 2020 CRC drew DEP's attention to how the CALM methodology regarding fish passage barriers is skewed to coastal watersheds; we would again like to bring this to DEP's attention.[1] The Connecticut River watershed supports numerous migratory fish species including alewife and blueback herring, sea lamprey, striped bass, American eel and American shad as well as the federally endangered shortnose sturgeon.[2] At the same time, the Connecticut River watershed is one of the most dammed watersheds in the country and the current CALM methodology precludes the listing of segments that would otherwise be considered impaired due to fish passage barriers. For example, The Green River (MA33-30), with only one barrier between it and Long Island Sound (the Holyoke Dam) could be habitat to American eel

[1] Page 31 of the 2022 CALM states, "[Note: for other waters not on the aforementioned diadromous fish restoration priority list, where impediments to fish passage (such as dams) exist but fish passage structure(s) are absent, no impairment decision is currently made.]"
[2] https://www.fws.gov/office/connecticut-river-fish-and-wildlife-conservation/what-we-do/projects-research

and sea lamprey, at a minimum, if it were not for the existence of several dams with no fish passage that are owned by the City of Greenfield. CRC suggests the DEP consult with the MA Division of Marine Fisheries and the USFWS Connecticut River Coordinators office to address this issue. Page 6 of the report states that one of the major changes to the CALM for 2022 is "Diadromous Fish Habitat: any remaining rivers and lakes where diadromous fish runs exist but passage is restricted, severely restricted, or has no possible passage were added as AUs and assessed according to the decision flowchart." We did not notice any changes to the CALM in this area and it might be more correct to specify that this happened only in eastern Massachusetts coastal watersheds.

The 2022 CALM lays out the time periods for which data were considered in attainment decisions and listing/delisting decisions ranging from 2011 – 2020 depending on the data source and ultimate use; specifically, only data less than 5 years in age would be used to evaluate use attainment including listing/delisting decisions. However, new listings for Deerfield use 2012 data as the only source of information, which seems contrary to the 2022 CALM.

Deerfield Basin

Both Ashfield Pond (MA33001) was not assessed for primary contact recreation and because no bacteria data were available. Page 9 of the draft IR states that DEP used Massachusetts DPH harmful algae bloom reports, fish consumption advisories, and public beach (bacteria) postings for its assessments. E. coli data for Ashfield Pond, (Ashfield Park) are available in the annual *Massachusetts Freshwater Beaches: Water quality data for public and semi-public beaches.*[3] Additionally, Ashfield Pond was closed due to an algal bloom in 2020.[4] These data sources should be consulted for listing/delisting decisions.

Similarly, Pelham Lake (MA33016) and Green River MA33-2 were not assessed due to lack of data, which are likewise available in the *Massachusetts Freshwater Beaches: Water quality data for public and semi-public beaches.* As noted in the description of the river segment, the Green River is dammed to create a public swimming area in the summer and is listed as "Greenfield Municipal Bathing Beach". These data sources should be consulted for attainment decisions.

The draft IR includes a new temperature impairment for East Branch North River (MA33-19). We support the recommendation of additional long-term temperature data collection and would like to make DEP aware that CRC completed restoration projects upstream of this segment and downstream of Jesse Wood Lane in 2020 that may help address this impairment.

The draft IR includes a new E. coli impairment for Unnamed Tributary (MA33-137) based on 6 samples from 2012 with a geometric mean was 153 cfu/100 mL. While this does surpass the threshold of 126 cfu/100mL, CRC questions whether this presents a significant enough exceedance to justify the attainment decision, especially considering the age of these data.

The East Branch North River (MA33-19), Green River (MA33-30), Hinsdale Brook (MA33-21), South River (MA33-102), and an unnamed tributary to Creamery Brook in the South River watershed in Ashfield (MA33-137) have temperature impairments added based on 2012 assessments. Given that 2012 was only one year after Hurricane Irene, which did extensive damage in the Deerfield basin, it seems that using an assessment from this year is potentially not representative of current conditions. Impairments

[3] https://www.mass.gov/lists/water-quality-at-massachusetts-swimming-beaches
[4] https://ashfield.org/BBMessages

may be present, but we hope DEP can reassess these impairments when it returns to the Deerfield basin in the near future.

Millers River Basin

Lake Mattawa (MA35112) in Orange is listed as impaired for non-native aquatic plants and the use attainment summary specifically lists variable milfoil (*Myriophyllum heterophyllum*) as the non-native plant contributing to the listing decision. Other segments in the draft IR list impaired waters naming specific non-native aquatic plants. Why is Lake Mattawa listed as impaired for "nonnative aquatic plants" instead of "variable milfoil'?

The draft IR also explains for primary and secondary contact recreation "No bacteria data are available to assess the status of the Primary Contact Recreational Use for Lake Mattawa, so it is Not Assessed." However, the report *Massachusetts Freshwater Beaches: Water quality data for public and semi-public beaches*[5] includes bacteria data from 2021 and previous years for Orange Town Beach, which is another name for Lake Mattawa. In 2021 there were 16 samples taken with a a single maximum exceedance. CRC suggests that these data, which DEP consults for listing, are used to inform use attainment for recreation.

Westfield River Basin

Ashley Pond (MA32002) and Pequot Pond MA32055 have both been listed due to the presence of invasive water chestnut (*Trapa natans*). CRC hosts a robust water chestnut monitoring and removal program throughout the Connecticut River and its tributary watersheds. CRC staff and volunteers have identified additional infestations of water chestnut in Pond Brook (MA32-24) and Powdermill Brook (MA32-09).

The temperature impairment for Westfield River (MA32-04) was continued, though, as DEP notes, many of the exceedances are naturally occurring. We appreciate the need to collect more data to make an appropriate delisting decision and we're supportive of DEP's suggestion, "to split this AU into two new AUs one upstream from any influence of the flood control project and one downstream)" if there are not sufficient data to inform a listing/delisting decision in the next IR cycle.

We appreciate the work of DEP staff to draft the 2022 Integrated List of Waters and the opportunity to submit these comments. For further questions, I can be reached at kwentling@ctriver.org.

Sincerely,

Kelsey J Wentling

Kelsey Wentling (she/her)
River Steward in MA
Connecticut River Conservancy

[5] https://www.mass.gov/lists/water-quality-at-massachusetts-swimming-beaches.

MassDEP response: See MassDEP responses to General Comments (Part I) for CRC comments related to age of data, and fish passage.

Additionally, MassDEP is clarifying that new impairment (i.e., listing) decisions made in the Deerfield River Watershed based on data collected between 2011 and 2015 (MassDEP survey year was 2012) is not contrary to the CALM guidance which states that for the 2022 reporting cycle, MassDEP WPP data from 2011 through 2018 will be utilized for use attainment decisions. Lacking recent data and in cases where quality-controlled data greater than five years old are readily available and considered appropriate to use, it is reasonable to not limit the use of data to only the five most recent years. This is especially true for contributing basins showing very little land use changes since the data were collected.

Regarding fish passage, MassDEP will note in the 2022 IR report that the diadromous fish habitat methodology described in the 2022 CALM applied to near shore coastal waterbodies, and refinement of methods for larger mainstem freshwater rivers and their tributaries (i.e., Connecticut and Merrimack rivers) will be part of a future CALM update, in coordination with DMF biologists and other state and federal environmental agency staff.

COMMENT: MassDEP should utilize MassDPH freshwater beach data and 2020 algal bloom data for Ashfield Specifically on fish pasage, Pond (MA33001), and MassDPH freshwater beach data for Pelham Lake (MA33016), the Green River Assessment Unit (AU) (MA33-02), and Lake Mattawa (MA35112) to assess the recreational uses for listing/delisting decisions.

MassDEP response: MassDEP appreciates CRC's concern regarding data availability to evaluate use attainment for Ashfield Pond (MA33001), Pelham Lake (MA33016), the Green River AU (MA33-02), and Lake Mattawa (MA35112). For the 2022 IR cycle, cyanobacteria harmful algal blooms (C-HABs) posting data were obtained by MassDEP from MA DPH for the 2015-2019 recreational seasons. Regarding the public beach bacteria monitoring data (except for posting information from inland beaches managed by MassDCR) and as stated in the 2022 CALM guidance, "MassDPH has expressed concern that more uncertainty exists with the reporting accuracy of freshwater beach posting information than with coastal beaches, and… this concern has precluded MassDEP analysts from making assessment decisions based on the information from freshwater beaches" (pers. comm., Celona). For this reason, the bacteria data collected at the municipal beaches at Ashfield Pond (MA33001), Pelham Lake (MA33016), the Green River AU (MA33-02), and Lake Mattawa (MA35112) were not utilized. Please know that both C-HABs posting data including 2020 up through the currently available year as well as the freshwater public and semi-public beach bacteria posting data (if considered usable) will be utilized for the Deerfield and Millers River Watershed updates in a future IR reporting cycle and available C-HAB and bacteria postings data to make use attainment decisions for these waterbodies will be summarized.

COMMENT: CRC would like to make DEP aware that CRC completed restoration projects in the East Branch North River AU (MA33-19).

MassDEP Response: MassDEP greatly appreciates CRC's work on restoration projects that may improve the thermal regime in the East Branch North River (MA33-19) and kindly requests that information about the projects (basic description of project including completion date, location, partners, expected outcomes) be provided to MassDEP WPP program staff via the external data submittal portal (Submit, WQData (DEP) <wqdata.submit@mass.gov>) for consideration in a future IR cycle.

COMMENT: Do bacteria data collected in 2012 from an Unnamed Tributary (MA33-137) constitute enough evidence to justify an impairment decision?

MassDEP Response: MassDEP appreciates CRC's concern regarding the new *E. coli* bacteria impairment for the Primary Contact Recreational Use of this Unnamed Tributary (MA33-137) in the Deerfield River Basin. As CRC staff are probably aware, MassDEP promulgated a revision to the

Massachusetts Surface Water Quality Standards (314 CMR 4.00) in November of 2021, with revisions made to bacteria criteria based on EPA's 2012 recreational water quality recommendations. EPA's 2012 criteria require calculation of geometric means for rolling or static windows throughout the recreational season (rather than just calculation of a seasonal geometric mean), require use of a statistical threshold value, and *are intended to be more protective than the prior recommended criteria*. In its 2022 CALM document, MassDEP introduced the Use Attainment Impairment Decision Schema (Appendix J) adapting the Massachusetts 2021 bacteria criteria for use attainment decisions. The *E. coli* data from this Unnamed Tributary (MA33-137) were evaluated according to the 2022 guidance in a consistent manner with other data evaluated in the 2022 IR cycle. Of note, the Primary Contact Recreational Use impairment of Unnamed Tributary MA33-137 would have been made under the prior CALM guidance, as well as the new 2022 CALM guidance. Consultation of satellite imagery indicates that while there is not excessive development in the sub-watershed (4% impervious cover), much of the upstream portion of this small stream runs through agricultural land, so an anthropogenic source of elevated bacteria concentrations cannot be ruled out. At this time, a use impairment is deemed appropriate, but please note that MassDEP analysts have recommended follow-up bacteria monitoring to facilitate reevaluation of this decision.

COMMENT: For the five AUs where temperature impairments were added based on 2012 data, the data may not be representative of current conditions since they were collected one year after Hurricane Irene.

MassDEP response: MassDEP appreciates CRC's concern regarding sample data representativeness for the new Temperature impairments identified for five AUs: the East Branch North River (MA33-19), Green River (MA33-30), Hinsdale Brook (MA33-21), South River (MA33-102), and an Unnamed Tributary to Creamery Brook in Ashfield (MA33-137). The Temperature impairments were determined in a manner consistent with the 2022 CALM guidance and the data considered representative. Recommendations will be added to conduct follow-up sampling in all five AUs so that the appropriateness of the impairments can be reevaluated.

COMMENT: Why is Lake Mattawa (MA35112) listed as impaired for non-native aquatic plants when the use attainment summary specifically lists variable milfoil?

MassDEP Response: When MassDEP analysts identify an impairment for a waterbody, the name of the impairment is determined by what codes are available in EPA's ATTAINS database. Not all non-native species are individually listed in ATTAINS, and variable milfoil (*Myriophyllum heterophyllum*) is one such species. For non-native plants where a specific species code is not available, the generic code Non-Native Aquatic Plants is used.

COMMENT: CRC requests the addition of the non-native aquatic macrophyte water chestnut (*Trapa natans*) to two additional AUs in the Westfield River Watershed: Pond Brook (MA32-24) and Powdermill Brook (MA32-09).

MassDEP Response: MassDEP WPP staff followed up with CRC staff regarding this comment, and it was agreed that until CRC can provide MassDEP with more information regarding these infestations, MassDEP will identify Alerts for the Pond Brook (MA32-24) and Powdermill Brook (MA32-09) AUs and will also make recommendations to acquire more information about the infestations before the next IR cycle for the Westfield River Watershed.

COMMENT: CRC agrees with the need to collect more temperature data to potentially delist Temperature for the Westfield River AU MA32-04 and/or to split the AU into two new AUs.

MassDEP response: MassDEP acknowledges and appreciates CRC's comment agreeing with the need to collect more temperature data to potentially support a delisting decision for Westfield River AU MA32-

04, or to potentially split the AU into two new AUs, one upstream of the ACOE Knightville Flood Control Project and one downstream of the project, in a future IR cycle.

Appendix

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Bethany A. Card
Secretary

Martin Suuberg
Commissioner

Notice of Availability for Comment:

DRAFT Massachusetts 2022 Integrated List of Waters

MassDEP has available for public review and comment the ***DRAFT Massachusetts 2022 Integrated List of Waters*** ("Integrated Report" or IR), which represents the most recent update on the status of Massachusetts' waters. This report is submitted to the United States Environmental Protection Agency (EPA) every two years in fulfillment of the reporting requirements of sections 305(b) (Summary of Water Quality Report) and 303(d) (List of Impaired Waters) of the Clean Water Act (CWA).

Section 303(d) of the CWA requires states to identify those waterbodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and to prioritize and schedule them for the development of a total maximum daily load (TMDL). A TMDL establishes the maximum amount of a pollutant that may be introduced into a waterbody and still ensure attainment and maintenance of water quality standards. The development of the 303(d) List (Category 5 of the Integrated Report) includes a public review and comment process, and the final version of the list must be formally approved by the EPA.

The 2022 Integrated Report is available for review and comment on MassDEP's web site at https://www.mass.gov/lists/integrated-lists-of-waters-related-reports.

Written comments on the Draft 2022 Integrated Report should be submitted no later than **5:00 PM on December 23, 2022** via email (preferred) to *richard.f.chase@mass.gov* or mailed to:

Richard F. Chase
MassDEP-Bureau of Water Resources, Watershed Planning Program
8 New Bond Street, Worcester, MA 01606
Richard.f.chase@mass.gov

For MassDEP's 2022 Integrated Report, quality-controlled data submitted to DEP prior to the pre-established deadline of 1/15/2021 were considered, relative to the watersheds that were assessed. Data submitted after the 1/15/2021 deadline will not be considered for the 2022 Integrated Report but will be reviewed and considered in a subsequent cycle, dependent on the assessment workloads planned for future IR cycles.

DEP plans to address all public comments in a Responses to Comments document that will be posted with the final IR.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

REVISION
(originally issued 11/23/22; revisions highlighted)

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Written comments on the Draft 2022 Integrated Report should be submitted no later than **5:00 PM on January 6, 2023** **(Note: the deadline for comments has been extended from the original date of December 23, 2022)** via email (preferred) to *richard.f.chase@mass.gov* or mailed to:

Richard F. Chase
MassDEP-Bureau of Water Resources, Watershed Planning Program
8 New Bond Street, Worcester, MA 01606
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