Final Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle

Responses to Public Comments

CN 505.2

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
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Massachusetts Department of Environmental Protection
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Bureau of Water Resources
Kathleen M. Baskin, Assistant Commissioner

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Prepared by:

Massachusetts Division of Watershed Management
Watershed Planning Program

CN: 505.2

November, 2021

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Division of Watershed Management
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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 2018/2020 Reporting Cycle – Draft for Public Comment* (Draft 2018-2020 Integrated List) 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 list 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 2018-2020 Integrated List was placed on the MassDEP web site at https://www.mass.gov/lists/integrated-lists-of-waters-related-reports on 4/28/21. Notice of its availability for public review and comment was provided by electronic mail to approximately 150 different watershed associations and other interested parties (see Appendix). The notice also appeared in Vol. 98, Issues 09 and 10 of the Massachusetts Environmental Monitor (5/10, 5/26). The initial public comment period end date of May 28th was extended on 5/12 to June 21, 2021.

A total of 25 comment letters were received by the end of the public review period. Several commenters included with their letters data reports, graphical data displays and/or photographs in support of their comments. All of the comment letters are included in this responsiveness document, in their entirety, unless otherwise noted. Lengthy attachments or appendices to the letters were not reproduced here in order to save space.

This response document consists of two parts. Part I presents the responses to general, often recurring comments that convey broad programmatic areas of concern. 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 2018/2020 Integrated List based on each comment received.

For the 2018/2020 reporting cycle, MassDEP focused its efforts on the assessment of the aquatic life use for the watersheds that were not completed for the 2016 IR. Therefore, MassDEP is limiting its responses to comments pertaining to the aquatic life use to those watersheds for which the aquatic life use was assessed. Specific comments submitted as part of the 2018/2020 Integrated List review that pertain to the other unassessed watersheds will be considered at a future appropriate time. Comments related to the other designated uses for all waters statewide were addressed as appropriate on a case-by-case basis.

A final version of the 2018/2020 Integrated List, consistent with the comments and responses presented in this document, was submitted to EPA for final approval of the 303(d) List (i.e., Category 5).

Part I - Responses to General or Recurring Comments

COMMENT: MassDEP should provide more documentation supporting the assessment and listing of waters.

While several commenters acknowledged the efforts MassDEP made for the 2018/2020 IR to improve the level of documentation and rationale for individual delisting decisions, there were concerns that the level of transparency can be improved by providing supporting data for all assessment, listing and delisting decisions.

MassDEP Response: MassDEP appreciates the importance of providing transparency and detailed information with respect to the rationales applicable to the assessment, listing and delisting of waters for 305(b)/303(d) reporting. The improvements in documentation made for the 2018/2020 IR included basin-specific decision documents, and appendices describing the changes made from the previous cycle. To specifically address EPA's previous request, the decision documents included references to the supporting data used for delisting decisions. These data were pulled from internal watershed "repository" documents where data and information supporting the assessments are stored. MassDEP intends to continue to explore enhanced transparency opportunities for future IR cycles, including the inclusion of supporting data for listing decisions and enhanced data presentations (e.g., graphics).

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

Several commenters questioned the reasonableness of using data over five years old, in light of the fact that the 2018 Consolidated Assessment and Listing Methodology (CALM) document states that it is MassDEP's goal "to use the most recently validated data for making the use assessment decisions. Ideally these data are five years old or less." The use of seven years was suggested as a more appropriate maximum data age, especially given MassDEP's current 7-year rotating basin schedule.

MassDEP Response: Given MassDEP's rotating basin monitoring schedule and the biennial IR cycle, it is difficult to set and maintain a firm data age threshold. While MassDEP strives to use the most recent data available for assessments and integrated reporting (IR) purposes, data greater than five years old are sometimes used. For the 2018/2020 IR, MassDEP utilized a significant amount of previously unused biological, toxicological, and physico-chemical data that were greater than 5 years old.

As noted in the CALM, MassDEP analysts consider the representativeness of older data 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.

As MassDEP eliminates its data backlog, streamlines its use of quality-controlled external data, and stays on schedule for future Integrated Reports, we expect to progressively and incrementally reduce the use of older data as time goes on.

COMMENT: MassDEP should utilize more data from external sources, and provide feedback to external groups on how they can improve the quality of their data.

More than one commenter expressed concern that MassDEP is not using enough data from science-based watershed associations to inform assessment and listing decisions. Also, insufficient feedback regarding MassDEP's review and evaluation of the data (for usability in assessment and listing decisions) is provided by MassDEP back to external groups that have submitted data.

MassDEP Response: MassDEP values its strong partnership with other agencies and citizen groups in protecting, monitoring, and restoring waters of the Commonwealth. We strive to use quality-controlled external data where appropriate and applicable in assessment and listing decisions. For the 2018/2020 IR, MassDEP utilized data from 15 outside groups (including agency and non-government organizations) in assessing the aquatic life use (only) in nineteen watersheds. External data relevant to other uses (e.g., recreation) were not applicable (i.e., not used) due to the primary focus on the aquatic life use. Also, any data submitted to MassDEP after the data submittal deadline for the 2018/2020 IR (November 1, 2019) was not used.

MassDEP continues to provide technical assistance to outside citizen monitoring groups for 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 also recently hired an External Monitoring & Data Coordinator who is currently working to increase feedback to groups on potential improvements to quality and usability of submitted data, to streamline MassDEP's evaluation and use of outside data for 305(b)/303(d) decisions, and to explore expansion of volunteer monitoring in Massachusetts.

COMMENT: MassDEP should provide more complete assessments of fish community status related to fish passage barriers and dam removals.

While several commenters acknowledged MassDEP's efforts to better utilize data available from the MA Division of Marine Fisheries (DMF) to assess fish population status with respect to diadromous fish passage, they noted the lack of a statewide approach.

MassDEP Response: For the 2018/2020 IR, MassDEP leveraged available data from DMF on fish passage barriers and removals to develop an assessment & listing methodology to assess the status of diadromous fish habitat in coastal streams when evaluating the aquatic life use. We acknowledge that other data sources related to dams and fish passage also exist, such as local volunteer group information, project data from the Division of Ecological Restoration (DER), and information from the Connecticut River Atlantic Salmon Commission. For future IR cycles, it is MassDEP's intent to better utilize all available dam removal and fish passage information to conduct more comprehensive fish habitat quality assessments.

COMMENT: MassDEP's assessments of coldwater fisheries should be consistent with the Division of Fisheries and Wildlife's (DFW) Coldwater Fishery Resource (CFR) list.

MassDEP Response: As part of MassDEP's triennial review process, new Cold Waters are identified and designated in updated Surface Water Quality Standards (314 CMR 4.06). For example, MassDEP is currently proposing revisions to add 153 Cold Water streams to the tables of the SWQS. These Cold Waters are listed by MassWildlife as Coldwater Fish Resources (CFR)(321 CMR 5.00). MassDEP plans to continue to coordinate with MassWildlife on CFR listings and future SWQS classifications.

For MassDEP's assessments of cold waters, both the current cold water classifications in the Surface Water Quality Standards (314 CMR 4.06) and the MassWildlife Coldwater Fishery Resource List are used to evaluate the designated use. CFRs that are not designated as Cold Waters 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 MassWildlife Coldwater Fishery Resource 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 finalize the fecal coliform TMDL covering central and western Massachusetts watersheds.

MassDEP Response: Regarding the status of the fecal coliform TMDL covering 129 waterbody segments within 13 central and western Massachusetts watersheds, MassDEP to have a public

release of the TMDL for review and public comment in summer 2022. This watershed TMDL will reflect the revisions to the SWQS anticipated in 2021, including adoption of the 2012 EPA recreational criteria for bacteria.

COMMENT: MassDEP should clarify the listing of "Trash" and "Debris" as impairments, and should consider employing more effective management tools to better control trash in the environment.

MassDEP Response: For the 2018/2020 IR, MassDEP re-mapped the "Trash" impairment from "pollution" to a "pollutant", as defined by 40 CFR §122.2. This resulted in a category change from 4c (non-pollutant) to 5 (pollutant) for many Assessment Units (AUs). 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.

Minimization of trash in the environment is a serious challenge nationwide, especially in urbanized watersheds. Effective solutions require both regulatory and non-regulatory approaches. As EPA noted in their comments, "Municipal Separate Storm Sewer System (MS4) permits can be written to set standards to limit the amount of trash released from stormwater outfalls into municipal rivers and streams. In addition, a small number of municipal governments have set Total Maximum Daily Load (TMDL) limits for trash entering water bodies, to comply with state and regional water quality standards. The Clean Water Act does not mandate the use of these regulatory mechanisms for trash, but they are tools that localities may use together with other non-regulatory measures to reduce trash entering local waters.". EPA encourages MassDEP to consider utilizing these tools to address the trash impairments in Massachusetts waters. MassDEP is committed to exploring the design and implementation of practical measures at the state and local levels to control trash polluting the land and waters of the Commonwealth.

Part II - Responses to Individual Commenters

United States Environmental Protection Agency (EPA):

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REGION I
5 POST OFFICE SQUARE SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

Richard Chase
Massachusetts Department of Environmental Protection
Bureau of Water Resources - Watershed Planning Program
8 New Bond St.
Worcester, MA 01606

Re: Massachusetts' Draft Combined 2018/2020 Integrated List of Waters

Dear Richard:

This letter provides comments from the U.S. Environmental Protection Agency (EPA), Region 1 on the draft 2018-2020 Integrated List of Waters (ILoW) that was released for public comment on April 28, 2021.

We commend the Massachusetts Department of Environmental Protection (MassDEP) for its 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 ILoW watershed-based Assessment and Listing Decision Summaries (**Appendices 6-24 of the report)** contain, with one exception, the information required for EPA to review MassDEP's 303(d) (or "impaired waters") list provided in pages 117-215 of the ILoW report. To better facilitate our review of the draft impaired waters list, and as discussed, we'd like to request additional maps in areas where assessment unit (AU) re-segmentation has occurred (i.e., maps defining the original and new AU delineations, along with identification of water quality sampling locations upon which the assessment decisions are based).

It's clear MassDEP put in a concerted effort to coordinate with the Department of Fish and Game (DFG) and Department of Public Health (DPH) in this reporting cycle to ensure all relevant state data is used and considered for water quality use attainment decisions. Collaboration with DPH and DFG Divisions of Fisheries and Wildlife and Marine Fisheries biologists led to important updates to Fish Consumption and Aquatic Life Use (ALU) attainment in the assessed watersheds. DPH fish consumption advisories issued since the 2016 ILoW was completed were considered and are reflected in several new listings related to fish tissue impairments. DFG data was used to facilitate Cold Water Habitat evaluations, evaluate the Target Fish Community in selected mainstream rivers, and to refine the ALU habitat and flow data assessment methodology to include the status of fish passage and availability of diadromous fish habitat in coastal streams. EPA encourages MassDEP to continue to assess and improve these evaluation protocols in collaboration with their inter-departmental colleagues.

EPA acknowledges and appreciates the re-mapping of the Trash impairment from "pollution" to a "pollutant", as defined by 40 CFR §122.2. Under the Clean Water Act, Municipal Separate Storm Sewer System (MS4) permits can be written to set standards to limit the amount of trash released from stormwater outfalls into municipal rivers and streams. In addition, a small number of municipal governments have set Total Maximum Daily Load (TMDL) limits for trash entering water bodies, to comply with state and regional water quality standards. The Clean Water Act does not mandate the use of these regulatory mechanisms for trash, but they are tools that localities may use together with other non-regulatory measures to reduce trash entering local waters. EPA encourages MassDEP to consider utilizing these tools to address the trash impairments in Massachusetts waters.

MassDEP submitted an Alternative TMDL for Phosphorous Management in the Mystic River Watershed for EPA acceptance in May of 2020. This alternative restoration strategy is consistent with the EPA memorandum from Benita Best-Wong, dated August 13, 2015, with the subject line, "Information Concerning 2016 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions," and the EPA TMDL Vision framework. The Alternative TMDL is intended to inform and guide pollutant load reduction implementation by municipalities and others in the watershed. While the alternative restoration approach is being implemented,

MassDEP has re-mapped the nutrient impairments associated with the relevant AUs to Category 5-a, which indicates these impairments are still in Category 5 ("TMDL required"), but that an alternative restoration strategy is in place in lieu of a traditional TMDL until follow-up monitoring demonstrates that water quality standards have been achieved, or it is determined that a traditional TMDL is required. EPA encourages continued collaboration among project partners and Mystic River communities and is committed to ongoing engagement on regional stormwater management issues.

One issue of particular concern to EPA is the age of data (2001-2013) being used to support approximately 38 proposed pollutant delisting decisions, or about 13.5% of the total proposed delistings. This supporting data is, in one instance, a re-evaluation of data that is 20 years old according to a new assessment methodology. EPA recommends MassDEP carefully consider the relative representativeness of this data to the existing status of the waterbody, consistent with the following statement from the Massachusetts Consolidated Assessment and Listing Methodology (CALM) 2018 Guidance Manual: "The MassDEP's goal is to use the most recently validated data for making the use assessment decisions. Ideally these data are five years old or less." (page 13). Using the November 2019 cut-off for external data submissions as the baseline for the potential data universe to be considered for this report, data should ideally be collected at least as recently as 2014. Several of the proposed delistings of concern are for pollutants for which data can be readily collected at a field visit, such as temperature, dissolved oxygen, and sedimentation. EPA recommends that MassDEP revisit these AUs to collect more recent data for evaluation.

The new eelgrass methodology outlined in the 2018 CALM has resulted in the proposed delisting of three Estuarine Bioassessments impairments on Cape Cod. While EPA understands the desire to restrict the use of data to the 1995 and 2010-2013 Eelgrass Mapping Project datasets due to the level of confidence in this data, limiting the examination of eelgrass bed extent from 1995-present is in direct conflict with the Clean Water Act. If eelgrass existed in a location at the passage of the Clean Water Act 1972, then any data showing it as an existing use since 1972 must be considered. EPA urges MassDEP to locate and consider all historical data pertaining to existing eelgrass beds from 1972-present. Additionally, EPA encourages that MassDEP reconsider their assessment threshold for eelgrass from percentage loss of a meadow to other earlier indicators of declining water quality and bed impacts, such as depth distribution, shoot density and/or aboveground biomass of eelgrass beds. This data may be available through external sources, and EPA is willing to facilitate the acquisition of this data from appropriate sources for future assessment cycles.

It's also important to note that the dissolved oxygen (DO) assessment methodology outlined in the 2018 CALM conflicts with MA Surface Water Quality Standards (SWQS). While it is true that MA SWQS do not include the EPA recommended frequency, duration, or magnitude components to the DO standard, DO impairments must be assessed against the current SWQS. Please review the proposed DO delistings and ensure they comply with MA SWQS – for example, it is not appropriate to include a 1 mg/l magnitude of excursion allowance.

Thank you for the opportunity to review and comment on the draft 2018-2020 Integrated List of Waters. We look forward to continuing to work together to restore and protect Massachusetts' waters, and please feel free to contact Ivy Mlsna of my staff at (617) 918-1311 if you have any questions.

Sincerely,

MELVILLE COTE
Digitally signed by MELVILLE COTE
Date: 2021.06.21 16:48:30 -04'00'

Melville P. Coté, Jr., Chief
Surface Water Protection Branch

MassDEP response: See also MassDEP responses to General Comments (above) for EPA comments related to age of data, trash as a pollutant, fish passage, and coldwater fisheries.

MassDEP appreciates EPA's recognition of efforts we have made to increase transparency by providing better IR documentation with respect to data used and rationales for decisions. Going forward, it is our intent to continue making improvements in this area where feasible.

Information related to EPA's request for additional mapping showing the original and new AU delineations where assessment unit (AU) re-segmentation had occurred (and associated water quality sampling locations) was provided to EPA.

In response to EPA's comment regarding the use of available eelgrass bed mapping data for estuarine aquatic life use assessment, MassDEP has the following explanation. At the recommendation of MassDEP's Eelgrass Mapping Project program manager (now retired), MassDEP revised the eelgrass bed mapping evaluation procedures between the 2012 and 2016 reporting cycles (see the 2012 and 2016 Consolidated Assessment and Listing Methodology Guidance Manuals available online https://www.mass.gov/service-details/water-quality-assessments). Specifically, rather than utilizing the estimated eelgrass habitat from a set of 1951 black and white aerial photos which were only anecdotally validated, he recommended the initial round of the statewide mapping effort (referred to as the 1995 dataset) be used as the baseline for future quantitative comparisons and use attainment decisions. This change was implemented to standardize the comparisons using accurate, reliable, and well documented eelgrass bed habitat maps (protocols described in Costello and Kenworthy 2011), providing a consistent approach for MassDEP to use the best available information on general eelgrass extent in Massachusetts. The Eelgrass Mapping and Monitoring Program commenced in 1994 as an extension of MassDEP's on-going Wetlands Mapping Program and prior to this time little was known of the areal extent of the eelgrass resource statewide (although isolated reports had suggested that the resource was in significant decline). The first attempts to quantitatively map seagrass distribution and abundance in selected portions of the Massachusetts coast on a large scale was in the late 1980s. MassDEP acknowledges the lack of accurate, standardized statewide documentation of eelgrass bed habitat in Massachusetts coastal waters since November 28, 1975 (the promulgation date for EPA's water quality standards policy, including the definition of existing uses), however the best and most reliable information currently available is the Eelgrass Mapping Project data. MassDEP is willing to explore with EPA staff the potential and availability of other data that may suggest earlier indicators of declining water quality and bed impacts, such as depth distribution, shoot density and/or aboveground biomass of eelgrass beds for future iterations of CALM guidance related to eelgrass bed habitat.

Concerning the Dissolved Oxygen (DO) assessment methodology and the current SWQS for DO, the rationale for allowing occasional and infrequent (1-day minimum) excursions up to 1 mg/l below the designated SWQS threshold value in the likely absence of early life stages is described in Appendix D of the 2018 CALM. When extensive and/or long-term continuous datasets for DO are available, MassDEP evaluates the entire dataset, applying an appropriate level of reason to listing and delisting decisions. With such datasets, one or two excursions below the SWQS do not justify impairment of the use when the DO levels meet or exceed the threshold almost the entire time. With regard to delisting a DO impairment, very minor excursions below the WQS are acknowledged but if the vast majority (e.g., >90-99%) of the DO data indicate that the aquatic life use is supported (and other indicators show the same in a weight-of-evidence approach), then MassDEP considers delisting the DO impairment justified as long as the excursions are infrequent and of very short duration. MassDEP reevaluated the proposed DO delistings as requested by EPA. Each of the proposed delistings involved extremely limited excursions below the SWQS criteria, and/or there were very limited excursions within the spatial extent of the AU. Except for those DO delistings being deferred due to age of data, MassDEP did not initially propose any other changes to the proposed DO delisting decisions contained in the draft 2018/2020 IR. However, based on additional comments from EPA questioning the draft delisting decisions for MA70-02 and MA51-03, MassDEP agreed to defer to EPA's recommendation to retain the D.O. impairment cause for these two AU's.

There were three AUs in the Cape Cod Coastal Watershed Area when the first estuarine bioassessment impairments (eelgrass bed habitat loss) were made using 1951 baseline estimates during the 2012 reporting cycle that were identified as incorrect based on 1994 baseline comparisons during the 2018/2020 reporting cycle update. The information on these AUs is summarized below:

Areys Pond (MA96-70)
AU Size: 0.02 Square Miles
Classification: SA\ORW
2012 IR INFO:
There was an estimated 0.5 acres (~4.3% of the segment area) of eelgrass bed habitat present in 1951 however the confidence in the data were described as low.
2018/2020 IR INFO:
Proposed Estuarine Bioassessment impairment delisting: no eelgrass bed habitat has been mapped in Areys Pond at any time during the Eelgrass Mapping Project (1995 – 2013). Original basis for listing was incorrect. Furthermore, the removal of the estuarine bioassessment impairment does not change the status of this waterbody with respect to overall listing. **Aquatic Life Use is still assessed as Not Supporting with TN and Nutrient/Eutrophication Biological Indicator impairments (4A).**

Barnstable Harbor (MA96-01)
AU Size: 3.2 Square Miles
Classification: SA\ORW
2012 IR INFO:
There was an estimated 60.3 acres (~3% of the segment area) of eelgrass bed habitat present in 1951 offshore of Millway Beach and Cobbs Village but none was found in the harbor in 1995 or 2001. No mapping was done in 2006.
2018/2020 IR INFO:
Proposed Estuarine Bioassessment impairment delisting: In Barnstable Harbor AU, no eelgrass has been documented 1995 to 2017. Furthermore, according to the MEP project reports and information the harbor experiences high tidal velocities, unstable sediments (shifting sands), and winter storm exposures that offer less than ideal conditions for eelgrass bed habitat growth. The overall MEP analysis for the Barnstable Harbor AU indicates healthy habitat conditions, so the estuarine bioassessment impairment is being delisted. Original basis for listing was incorrect. This delisting will change the overall listing. **Aquatic Life Use will change from Not Supporting to Fully Supporting, resulting in listing from Cat 5 to 4A because of an approved bacteria TMDL.**

The River (MA96-76)
AU Size: 0.41 Square Miles
Classification: SA\ORW
2012 IR INFO:
There was an estimated 65.4 acres (~25% of the segment area) of eelgrass bed habitat present in 1951 (51.6 acres were described as having high confidence). In 1995 this area was estimated to have 35.5 acres (~13%), and in 2001 there were approximately 21.6 acres (~8%) of eelgrass bed habitat available. In 2006 there were 10.7 acres (~4.0% of segment area) of eelgrass beds.
2018/2020 IR INFO:
Proposed Estuarine Bioassessment impairment delisting: There was an increase in eelgrass bed habitat in The River -- eelgrass area 0.05549mi^2 in 1995 with 0.05814mi^2 in 2017 (an increase of 4.78%). The removal of the estuarine bioassessment impairment does not change the status of this waterbody with respect to overall listing. **Aquatic Life Use still assessed as Not Supporting with TN impairment.**

In response to EPA's comment regarding the age of data used for ~38 proposed delisting decisions, MassDEP reevaluated each one. Based on this review and in coordination with EPA on the rationales for each decision, MassDEP will defer 26 proposed pollutant delistings until a future cycle when new data are available that corroborate the delisting decision. The decision changes made can be found in Table 1. The remaining proposed impairment delistings were discussed with EPA and will be retained with removal reason changes in a few cases.

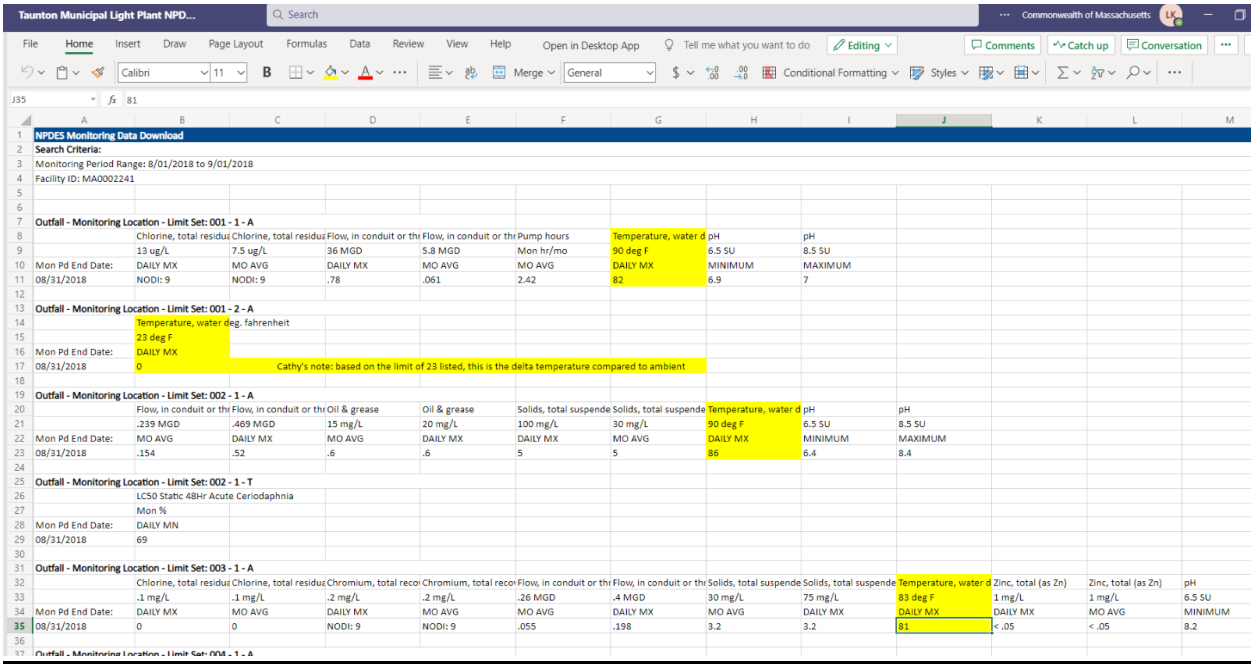
Table 1: Changes to Proposed Pollutant Delistings Contained in the Draft IR, Based on Age of Data

Waterbody	AU_ID	Impairment	Draft IR Impairment Change Summary	EPA comments	MassDEP response
Kettle Brook	MA51-01	Nutrient/Eutrophication Biological Indicators	Removed	flag - 10 year old data used to support delisting	Defer until more recent data are collected that confirm appropriateness of delisting.
Tatnuck Brook	MA51-15	Benthic Macroinvertebrates	Removed	flag for use of old data (2008)	Same as above
Tatnuck Brook	MA51-15	Sedimentation/Siltation	Removed	flag for use of old data (2008)	Same as above
Rumford River	MA62-63	Fish Bioassessments	Removed	flag - delisting based on re-evaluation of 2001 data	Same as above
Stop River	MA72-09	Phosphorus, Total	Removed	flag for use of old data (2007)	Same as above
Mine Brook	MA72-14	Temperature	Removed	flag for use of old data (2007)	Same as above
Trout Brook	MA72-19	Nutrient/Eutrophication Biological Indicators	Removed	flag for use of old data (2007)	Same as above
Neponset River	MA73-02	Metals	Removed	flag for use of old data (2009)	Same as above
Neponset River	MA73-03	Metals	Removed	flag for use of old data (2009)	Same as above
Mill Brook	MA73-08	Benthic Macroinvertebrates	Removed	flag for use of old data (2009)	Same as above
Beaver Brook	MA73-19	Benthic Macroinvertebrates	Removed	flag for use of old data (2009)	Same as above
Massapoag Brook	MA73-21	Benthic Macroinvertebrates	Removed	flad for use of old data (2009); delisting reason correct? New method, or new data instead?	Same as above
Unnamed Tributary	MA73-32	Benthic Macroinvertebrates	Removed	flag for use of old data (2009); delisting cause correct? New data?	Same as above
Crooked Meadow River	MA74-01	Nutrient/Eutrophication Biological Indicators	Removed	flag for use of old data (2009)	Same as above
Monatiquot River	MA74-08	Dissolved Oxygen	Removed	flag for use of old data (2009)	Same as above
Furnace Brook	MA74-10	Dissolved Oxygen	Removed	flag for use of old data (2009)	Same as above
North Nashua River	MA81-02	Benthic Macroinvertebrates	Removed	flag for use of old data (2008)	Same as above
Nashua River	MA81-05	Benthic Macroinvertebrates	Removed	flag for use of old data (2008)	Same as above
Malagasco Brook	MA81-29	Benthic Macroinvertebrates	Removed	flag for use of old benthic survey data (2008)	Same as above
Hop Brook	MA82A-05	Dissolved Oxygen	Removed	flag for use of old (2010) and limited data	Same as above
Hop Brook	MA82A-05	Dissolved Oxygen Supersaturation	Removed	flag for use of old and limited data	Same as above
Deep Brook	MA84A-21	Benthic Macroinvertebrates	Removed	flag for use of old data (2010)	Same as above
Goldthwait Brook	MA93-05	Phosphorus, Total	Removed	flag for use of old data (2007)	Same as above
Proctor Brook	MA93-39	Phosphorus, Total	Removed	flag for use of old data (2007, 2010), large diel DO swings	Same as above
French Stream	MA94-03	Dissolved Oxygen	Removed	flag for age of data (2006)	Same as above
Stop River	MA72-09	Dissolved Oxygen	Removed	flag for use of old data (2007); restoration activities cited not described	Same as above

Additional changes and clarifications made by MassDEP to the 2018/2020 IR based on consultation with EPA as part of their review and approval of the IR included the following (these comments from EPA were not included in their formal comment letter):

- MassDEP clarified that any delistings due to TMDL approvals (i.e., Category 5 to 4a) in basins not assessed in the 2018/20 cycle will be included in the 2022 cycle.
- For the MA94-16 Nutrient/Eutrophication Biological Indicators delisting, MassDEP concurred with EPA's recommendation to change the delisting reason in ATTAINS from *Applicable WQS attained; original basis for listing was incorrect* to *Clarification of listing cause* (based on the "remapping" to Estuarine Bioassessments).
- For the MA62078 delistings of Benthic Macroinvertebrates, Fish Bioassessments, and Sedimentation/Siltation (and Physical Substrate Habitat Alterations), MassDEP and EPA agreed that the delisting basis/explanation should be changed from *Applicable WQS attained; reason for recovery unspecified* to *Applicable WQS attained; original basis for listing was incorrect*.
- For MA62-62, EPA and MassDEP agreed that the reason for the delistings of Physical Habitat Substrate Alterations, Benthic Macroinvertebrates, Fish Bioassessments, and Sedimentation/ Siltation should be changed from *Applicable WQS attained; reason for recovery unspecified* to *Applicable WQS attained; original basis for listing was incorrect.*
- Regarding MassDEP's use of Google Earth imagery analysis (and other supporting data and indicators as available) for delisting decisions, MassDEP explained that online imagery, such as Google Earth imagery available over multiple years, is used when available and appropriate to inform decisions. While not specifically identified in the 2018 CALM (which describes the commonly used assessment methods, but not necessarily all data tools/sources), mention of this data source will be included in the 2022 CALM update.
- Regarding the draft MA71-20 Copper delisting, MassDEP agreed with EPA that the proposed delisting needed additional clarification. The original impairment was due to sediment copper concentrations (not water column copper) in excess of sediment threshold guidelines identified in the CALM. A Copper in Sediment impairment will be added, and the Copper delisting reason changed to *Clarification of listing cause*.
- Regarding the proposed MA73-01 Metals delisting, MassDEP reevaluated this decision in consultation with EPA and deferred to EPA's conclusions that a metal-specific cadmium impairment is appropriate based on the available data.
- Regarding the MA61-07 Temperature delisting, EPA suggested that the delisting be removed until the more recent 2019 data can be evaluated. They cited the 2018 data indicating 2 days of acute criteria exceedance. MassDEP reevaluated this decision in light of EPA's comments. The two MassDEP marine monitoring buoys in Mount Hope Bay provide an extensive dataset of continuous temperature (both surface and bottom) data at two locations (the Cole buoy in AU MA61-07 and one very nearby in AU MA61-06). These data provide for a more complete assessment of hourly, daily and seasonal variability. Similar to other parameters amenable to continuous data collection, MassDEP evaluates the entire dataset, applying an appropriate level of reason to listing and delisting decisions. This allows flexibility in cases where a very small number or percentage of readings fall above/below the applicable WQS, and where impairment of the designated use may not be justified. For this AU, the observed acute exceedances were neither frequent nor prolonged (exceedance time was calculated as follows: On August 9th, Cole Buoy sonde readings at the surface were above 29.4°C at 1415, 1430, 1530, and 1545 and on August 10th, at 1400, 1415, and 1500 so the maximum possible time above 29.4°C on August 9th was 90 minutes and on August 10th 75 minutes (total of 165 minutes, or 0.05% of the temperature measurements taken over 3900 hours at the Cole Buoy)). The maximum water temperature measured was 29.7°C. Additional information related to NPDES cooling water discharges in the near vicinity of the Mount Hope Bay buoys. The largest facility, Brayton Point Power Station had ceased all operations as of May 2017, Somerset Power (MA0001856) was decommissioned in 2010, and the third discharger of cooling water, the Taunton Municipal Lighting Plant (MA0002241) further upstream in the Taunton River,

reported minimal discharges during the month of August 2018 (see flow and temperature information from EPA ECHO database below). None of these discharges were considered to be factors in the elevated temperatures in the Mount Hope Bay AU MA61-07, nor were POTW discharges (none contain temperature monitoring requirements or limits since they do not contribute thermal stress to receiving waters). MassDEP also reviewed weather conditions at the time of the exceedances and documented that a heat wave (temperatures exceeding 90°F on three or more consecutive days) was occurring in the Mount Hope Bay area at that time. Based on the review of these data, the temperature exceedances at the Cole buoy in Mount Hope Bay are considered to be the result of the naturally occurring heat wave conditions and not a result of anthropogenic influences. Since excursions from criteria due to natural conditions should not be interpreted as violations of standards, the delisting of the temperature impairment for MA61-07 is considered to be appropriate.



NPDES Monitoring Data Download												
Search Criteria:												
Monitoring Period Range: 8/01/2018 to 9/01/2018												
Facility ID: MA0002241												
Outfall - Monitoring Location - Limit Set: 001 - 1 - A												
	Chlorine, total residua	Chlorine, total residua	Flow, in conduit or thr	Flow, in conduit or thr	Pump hours	Temperature, water d	pH	pH				
	13 ug/L	7.5 ug/L	36 MGD	5.8 MGD	Mon hr/mo	90 deg F	6.5 SU	8.5 SU				
Mon Pd End Date:	DAILY MX	MO AVG	DAILY MX	MO AVG	MO AVG	DAILY MX	MINIMUM	MAXIMUM				
08/31/2018	NODI: 9	NODI: 9	.78	.061	2.42	82	6.9	7				
Outfall - Monitoring Location - Limit Set: 001 - 2 - A												
	Temperature, water deg. fahrenheit											
	23 deg F											
Mon Pd End Date:	DAILY MX											
08/31/2018	0	Cathy's note: based on the limit of 23 listed, this is the delta temperature compared to ambient										
Outfall - Monitoring Location - Limit Set: 002 - 1 - A												
	Flow, in conduit or thr	Flow, in conduit or thr	Oil & grease	Oil & grease	Solids, total suspende	Solids, total suspende	Temperature, water d	pH	pH			
	.239 MGD	.469 MGD	15 mg/L	20 mg/L	100 mg/L	30 mg/L	90 deg F	6.5 SU	8.5 SU			
Mon Pd End Date:	MO AVG	DAILY MX	MO AVG	DAILY MX	DAILY MX	MO AVG	DAILY MX	MINIMUM	MAXIMUM			
08/31/2018	.154	.52	.6	.6	5	5	86	6.4	8.4			
Outfall - Monitoring Location - Limit Set: 002 - 1 - T												
	LC50 Static 48Hr Acute Ceriodaphnia											
	Mon %											
Mon Pd End Date:	DAILY MN											
08/31/2018	69											
Outfall - Monitoring Location - Limit Set: 003 - 1 - A												
	Chlorine, total residua	Chlorine, total residua	Chromium, total reco	Chromium, total reco	Flow, in conduit or thr	Flow, in conduit or thr	Solids, total suspende	Solids, total suspende	Temperature, water d	Zinc, total (as Zn)	Zinc, total (as Zn)	pH
	.1 mg/L	.1 mg/L	.2 mg/L	.2 mg/L	.26 MGD	.4 MGD	30 mg/L	75 mg/L	83 deg F	1 mg/L	1 mg/L	6.5 SU
Mon Pd End Date:	DAILY MX	MO AVG	DAILY MX	MO AVG	MO AVG	DAILY MX	MO AVG	DAILY MX	DAILY MX	DAILY MX	MO AVG	MINIMUM
08/31/2018	0	0	NODI: 9	NODI: 9	.055	.198	3.2	3.2	81	< .05	< .05	8.2

Massachusetts Rivers Alliance:

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

June 21, 2021

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

Re: Comments on 2018/2020 Integrated List of Waters

Dear Mr. Chase,

Thank you for the opportunity to provide comments on the proposed Massachusetts 2018/2020 Integrated List of Waters.

The Massachusetts Rivers Alliance is a non-profit organization whose mission is to protect and restore rivers across the Commonwealth. Mass Rivers has eighty member organizations from across the state, several of whom are submitting their own comments regarding their individual watersheds. Our comments will focus on overarching concerns with the proposed Integrated List of Waters that affect waterbodies throughout the state, as the final version of this list has significant impacts on water quality and river protection in Massachusetts.

Appendices and refined data. We are pleased to see MassDEP include appendices with supporting data for waters listed and delisted by major watershed. Presenting the data in this manner helps conservation organizations and other stakeholders easily identify and review waters of interest in their watershed. Additionally, we appreciate the refinement of aquatic plant impairment to include names of specific species, and that estuarine bioassessments have been added as another indicator of estuarine segments.

Referencing specific data for each listing. In reviewing the Integrated List, it is apparent that many listings still do not reference the specific data sources used by MassDEP to inform their

final decisions. While we recognize that this effort has improved since the prior Integrated List of Waters in 2016, more detail on data sources for each listing is needed to appropriately evaluate the Integrated List. We ask that MassDEP reference all data sources for its decisions to list or delist any segment or water body, and include a comprehensive reference section of all studies mentioned.

Fish passage and coldwater fisheries. We appreciate the improved assessment of fish passage in this year's Integrated List, specifically the inclusion of information on where restoration work, like dam removals, has 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, especially in basins that have (or should have) migratory fish populations. We ask that MassDEP include information on coldwater fisheries resource status for applicable listings, as provided by the Division of Fisheries and Wildlife, to improve accuracy of assessments.

Including graphs. While the narrative descriptions for given impairments provide insight on listing decisions, we ask MassDEP to develop and include time-series graphs and/or charts in their final assessment. A visual depiction of the data allows the public to more easily review and evaluate if conditions along given waterbodies are worsening or improving. The New Hampshire Department of Environmental Services includes this numeric and graphical data in their Integrated List of Waters; we encourage MassDEP to follow suit and present data in similar fashion in future lists.

Outdated data. Planning the future of the Commonwealth's waters should use the best available data to ensure accurate analysis. We understand that MassDEP faces resource constraints that limit water quality monitoring and assessments; however, much of the data used in the Integrated List is outdated, reaching as far back as 2006. We suggest narrowing the window of applicable data to the most recent seven years to strengthen data analysis and to be consistent with MassDEP's Sampling Plan. However, any decision to delist a waterway should be accompanied by clear, up-to-date data supporting that choice. The absence of recent data alone is not sufficient cause for a delisting. Several of our member organizations noticed that certain waterbodies were not listed, despite seeing conditions on the ground that were clearly problematic. For example, many ponds on the Cape with intense algal blooms were not included in the 2018/2020 Integrated List; more specific cases will be reported by organizations in their individual comments.

External partner data. Many Mass Rivers member organizations collect high-quality data that they are proud to share with MassDEP, as part of their deep commitment to protecting waterways in their service areas. While we appreciate the expanded inclusion of external data in this cycle's decision-making process, we are aware that not all data submitted is utilized by MassDEP and

that there is a lack of feedback by MassDEP to external partners explaining why specific data is not used. We recommend MassDEP improve feedback to these organizations and provide guidance on how they can improve the quality and format of their data so that it is more useful to MassDEP in assessing current conditions of waterbodies.

Fecal bacteria TMDL. The comprehensive freshwater *E. coli* and fecal coliform TMDL promised in this 2018/2020 List is long overdue, as evidenced by the numerous segments still impaired by fecal bacteria. Since the 2012 and 2014 Integrated Lists of Waters both note bacteria TMDLs in the western half of the state "will be targeted for completion in future years," conservation organizations have been disappointed in the delay of its development. We look forward to MassDEP's progress on this TMDL later in 2021 in conjunction with review of the Surface Water Quality Standards, as the Integrated List notes is MassDEP's plan.

Thank you for your agency's work improving water quality in Massachusetts, and for considering our comments. If you have any questions or would like to discuss these concerns further, please contact me at katharinelange@massriversalliance.org.

Sincerely,

Katharine Lange
Policy Specialist
Massachusetts Rivers Alliance

MassDEP response: See MassDEP responses to General Comments (above) for MRA comments related to age of data, referencing specific data for listings, fish passage, coldwater fisheries, graphic data presentations, the use of external data, and the status of the fecal coliform TMDL covering 13 central and western Massachusetts watersheds.

Indian Ponds Association:

Chase, Richard F. (DEP)

From: Emory Anderson <emoryanderson@comcast.net>
Sent: Thursday, May 6, 2021 9:34 AM
To: Chase, Richard F. (DEP)
Cc: Peter Atkinson
Subject: Comments on DRAFT Massachusetts 2018/2020 Integrated List of Waters
Attachments: Mystic Lake Status Update 2020.pdf; Mystic-and-Middle-Ponds-monitoring-2017-050618.pdf

Dear Mr. Chase,

I am president of the Indian Ponds Association (IPA) in Marstons Mills. Our association looks after Hamblin Pond, Middle Pond, and Mystic Lake. We have just read your latest reports on these three ponds and feel that your information is considerably out of date.

Hamblin Pond was given a second alum treatment in 2015. Consequently, the conditions of the water are greatly improved from what is stated in your report. We have not been monitoring the situation with the Asian clam, so we have no comment on that.

Regarding the Hydrilla infestation in Mystic Lake and Middle Pond, the Town of Barnstable has been funding herbicide treatments with Sonar since 2015 up to the present year.

Mystic Lake, which suffered massive mussel kills in 2009 and 2010 because of toxic cyanobacteria blooms, was treated with alum in 2010. Since then, Water Resources Services (Dr. Ken Wagner) has prepared two reports (attached) on conditions in Mystic and adjoining Middle. His most recent report indicates that excess phosphorus in the sediments of Mystic are responsible for late season episodes of cyanobacteria, and that a second alum treatment is warranted, owing to the fact that the 2010 treatment was insufficient because of restrictions on the dosage of alum imposed by the Natural Heritage and Endangered Species Program. We are now awaiting a decision by the Town as to whether a second alum treatment might be authorized.

The IPA routinely performs water testing (temperature, DO, and Secchi disk) every year from May through October and can provide such data if necessary. We also participate each year in the PALS testing of water quality.

Please feel free to contact me if you have questions.

Emory Anderson, PhD
President, Indian Ponds Association

****

Emory D. Anderson, PhD
Editor, ICES Journal of Marine Science
Editor, ICES Cooperative Research Report series
22 Indian Pond Point, P.O. Box 950
Marstons Mills, MA 02648, USA
Tel: +1-508-420-2303
Cell: +1-774-327-0898

MassDEP response: MassDEP appreciates and acknowledges the more current data contained in the pond reports (for Hamblin Pond, Middle Pond and Mystic Lake) submitted by the Indian Ponds Association. Using these new data (submitted after the external data submittal deadline for the 2022 IR), we plan to re-assess these ponds for the draft 2024 IR.

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

City of Framingham:

CITY OF FRAMINGHAM

DEPARTMENT OF PUBLIC WORKS | OPERATIONS

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Director
Diane M. Conner
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OPERATIONS CENTER
100 Western Avenue
Framingham, MA 01702

June 8, 2021

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

RE: Draft 2018/2020 Massachusetts Integrated List of Waters Report
Comments from City of Framingham

Dear Mr. Chase,

The City of Framingham appreciates the opportunity to provide comments on the *Massachusetts Integrated List of Waters for Clean Water Act 2018/2020 Reporting Cycle – Draft for Public Comment* (Integrated Report) that was made available for public comment on April 28, 2021. The Integrated Report lists waterbodies in Massachusetts that do not meet surface water quality standards (their capacity to support designated uses such as fishing, recreation, drinking water supply, or aquatic life support). The Draft 2018/2020 Integrated Report has identified nine water body segments in the Concord (SuAsCo) watershed within Framingham as impaired.

Cochituate Brook, described in the Integrated Report as "MA82A22 Unnamed tributary to the Sudbury River locally known as Cochituate Brook, headwaters, outlet north basin of Lake Cochituate, Framingham to mouth at confluence with Sudbury River, Framingham", is listed under Category 5 - "Waters requiring a TMDL". A chloride impairment was added to Cochituate Brook in the 2018/2020 Integrated Report with the explanation "Pollutant impairment added due to new data/assessment".

The City tried to understand why the chloride impairment was added to the 2018/2020 Impaired List. The EPA recommended water quality criteria for chloride for freshwater for acute toxicity is 860 mg/L (one-hour average) and for chronic toxicity is 230 mg/L (four-day average). Neither value is to be exceeded more than once every three years.[1] The City downloaded available sampling data from the MassDEP website for Cochituate Brook.[2] Sampling data was available for five samples gathered by MassDEP between May and September 2010 and five samples collected between May and September 2015. The local watershed organization, OARS for the

[1] *Massachusetts Consolidated Assessment and Listing Methodology (CALM) Guidance Manual for the 2018 Reporting Cycle*, prepared by: Massachusetts Division of Watershed Management Watershed Planning Program, May 3, 2018.
[2] https://www.mass.gov/guides/water-quality-monitoring-program-data, Water Quality laboratory data, 2005-2018, with note "Extracted from WPP_WQData_2005-2018.mdb on 1/21/2021 3:17:50 PM"

Assabet, Sudbury, and Concord Rivers, has a water quality monitoring program but does not collect samples from this tributary. USGS maintains a real-time stream gauge at the Sudbury River, downstream from the Cochituate Brook tributary, but it does not collect chloride data.

MassDEP deduced that there is sufficient evidence to add the chloride pollutant impairment for Cochituate Brook to the 2018/2020 Integrate Report based on chloride laboratory data and the *in-situ* specific conductance data collected by MassDEP in 2010.[3] Three of five chloride water samples collected by DEP in 2010 exceeded the chronic chloride toxicity criterion (230 mg/L), with exceedances ranging from 250-290 mg/L. None of the samples collected by DEP in 2015 exceeded the criteria. It should be noted that the chloride impairment was not listed on the three Integrated Reports published and approved by EPA (2012, 2014, and 2016 Integrated Reports) even though the sampling data was collected in 2010 and 2015. Elevated chloride concentrations have not been documented in either the upstream or downstream waters - Lake Cochituate which feeds Cochituate Brook or the Sudbury River into which Cochituate Brook discharges.

Additionally, for the 2018 reporting cycle, MassDEP developed and validated a linear regression model to estimate chloride concentrations from specific conductance (SC) measurements. The regression model was developed using data generated by MassDEP from 1994 to 2012. Impairment due to chloride is considered to occur at specific conductance readings above 994 µS/cm.[4] Two of six readings from 2010 exceeded this threshold (1,018 uS/cm and 1,025 uS/cm in July 2010), and a third reading (990 uS/cm in Aug 2010) approached the threshold. MassDEP's guidance manual states that "Due to the cumulative uncertainty of estimated chloride values, best professional judgment should be applied at all times when using the [regression model for chloride], and especially for values within 10% of criterion values."[5] All the exceedances reported for Cochituate Brook were within 10% of the 994 µS/cm threshold. No specific conductance data for Cochituate Brook has been collected since 2010.

The City does not believe that the 2010 sample dataset is sufficient evidence to add a chloride pollutant impairment for Cochituate Brook to the 2018/2020 Integrate Report. According to USGS, targeted assessment with more frequent sampling during a range of seasons and stream flows provides unbias results and better supports future management of water quality.[6] "Because chloride concentrations in rivers and streams vary within and among years as the sources of chloride vary seasonally and over time, the continuous long-term monitoring across different seasons and hydrologic conditions … can help provide insight into the factors contributing to the trends, assist with local or watershed adaptive management, and elucidate potential risks to aquatic life and ecosystem health…."[7] Additional sampling or a different

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[3] Email from Richard Chase, MassDEP-Bureau of Water Resources, Division of Watershed Management, Watershed Planning Program, dated June 3, 2021.

[4] *Massachusetts Consolidated Assessment and Listing Methodology (CALM) Guidance Manual for the 2018 Reporting Cycle*, prepared by: Massachusetts Division of Watershed Management Watershed Planning Program, May 3, 2018.

[5] *Massachusetts Consolidated Assessment and Listing Methodology (CALM) Guidance Manual for the 2018 Reporting Cycle*, prepared by: Massachusetts Division of Watershed Management Watershed Planning Program, May 3, 2018, Appendix F.

[6] USGS, "Sampling design brings insights to changing stream quality", released date: May 6, 2019. https://www.usgs.gov/center-news/sampling-design-brings-insights-changing-stream-quality?qt-news_science_products=1#qt-news_science_products

[7] Sprague, Lori A et. Al, "Assessing water-quality changes in US rivers at multiple geographic scales using results from probabilistic and targeted monitoring" *Environmental Monitoring and Assessment* (May 4, 2019).

sampling approach would provide a more accurate current assessment of the surface water quality for Cochituate Brook for determination of potential impairments.

Runoff of salt from roads and impervious surfaces in urbanized areas is considered the main source of chloride impairments. The City believes the reduced chloride results between 2010 and 2015 reflect the City's improved winter road maintenance programs implemented by the City's Highway Department. As required by the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) General Permit, the City maintains a Stormwater Management Plan (SWMP) and the Department of Public Works maintains a Winter Operations Guide to reduce pollutants to local waters. The City has established and implemented procedures for the use and storage of salt and sand; minimizes the use of sodium chloride and other salts, evaluates opportunities for use of alternative materials, and ensures that snow disposal activities do not result in disposal of snow into waters. The Highway Department implements several programs to reduce the amount of salt applied to the roads including: pretreatment for priority routes, utilizing a fleet of computerized salt/sand spreader trucks to provide road treatment, and annual training on snow & ice operations provided to DPW personnel. Salt is stored within a storage shed at the DPW's Henry Street facility and snow fighting equipment is stored and maintained at the DPW Operations Center, neither of which is within the catchment area for Cochituate Brook. Both facilities have Stormwater Pollution Prevention Plans. All of the City's above listed enhanced winter operations and compliance with the MS4 permit should have further reduced chloride concentrations in Cochituate Brook. More recent sampling data may verify that the City's current winter operations are sufficient to protect water quality. The proposed new chloride impairment will result in the City being subject to additional requirements under Appendix H of the NPDES MS4 permit, which will significantly impact the City's operations. It does not seem reasonable to require the City to significantly change policy and procedures based on chloride sampling data from over a decade ago when updated operations most likely have addressed the chloride water quality concern.

Comment: The sampling data does not appear to justify the 2018/2020 draft Integrated Report Category 5 listing for chloride impairment for Cochituate Brook. Pollutant reduction resulting from the City's enhanced winter operations and compliance with the MS4 permit since the last sampling data should be considered before adding a chloride impairment to the Integrated Report.

Request: The City requests that MassDEP remove the Category 5 listing for chloride impairment for Cochituate Brook from the 2018/2020 Integrated Report. The City requests that MassDEP collect and analyze additional, recent sampling data before proposing a potential chloride impairment for Cochituate Brook.

Please feel free to contact the Framingham Engineering Department at 508-532-6010 or kr@framinghamma.gov if you have any questions.

Sincerely,

Kerry A. Reed, P.E., LEED AP
Framingham Department of Public Works

MassDEP response: MassDEP appreciates the efforts the City of Framingham is taking to minimize the impacts of road salt and associated chloride impacts to surface waters, including the use of best management practices for salt storage and application, and stormwater management planning.

Chloride assessment is best conducted using both discrete and continuous monitoring data, in order to capture worst-case conditions (which depending on the stream can be observed in the winter months or during the summer baseflow period). For the Cochituate Brook assessment unit, we did not have continuous specific conductance data to utilize to estimate chloride concentrations in-stream over an extended time in either 2010 or 2015. Note: the Concord watershed was not assessed for the aquatic life use and toxicants (i.e., chloride) for the previous 2014 and 2016 IRs, so the current IR was the first opportunity to utilize the albeit aged data from 2010. We always attempt to use the most current data (<5 years old) when possible, and take into consideration land-use and other changes when using older data.

The discrete chloride lab and specific conductance (SC) probe data from 2010 indicated impairment due to chronically elevated chloride (3 of 5 chloride samples > 230 mg/l chronic criterion; 2 of 6 SC measurements exceeded the 994 µs/cm target for estimated data, which includes a 10% margin of error above the 904 µs/cm calculated criterion, and 1 more SC measurement exceeded the 904 µs/cm calculated criterion by 9.5%). In 2015, limited chloride and SC data were collected for Cochituate Brook. When watershed assessments began for the 2018/20 cycle, however, the complete 2015 dataset was not yet final and therefore was not used. Since then, the 2015 data have been validated and finalized. None of the 2015 chloride samples exceeded the chronic criterion (although 2 of 5 were close at 200 and 220 mg/l) and all three SC readings were estimated to be below the chloride criteria (with SCs at ~700-900 µS/cm).

When the more recent 2015 data are considered, there appears to have been improvement in ambient chloride levels from 2010, but the 2015 dataset is very limited. Lacking more definitive indications of impairment in the most recent data, MassDEP plans to remove the chloride pollutant cause for Cochituate Brook,- but will identify an Alert status on this AU for chloride, and will call for additional future collection of continuous SC data (and chloride samples) to inform a more confident reassessment in a future IR reporting cycle. Given regional water quality trends indicating increasing instream chloride/SC, as well as the urbanized characteristics of the Cochituate Brook sub-watershed (i.e., 25% impervious cover and the presence of I-90 in the sub-watershed), MassDEP strongly urges the City of Framingham to continue to pursue aggressive best management practices regarding road salt application, both as a municipality and in outreach efforts to private landowners. Furthermore, MassDEP strongly suggests that the City voluntarily conduct chloride and/or conductivity monitoring of Cochituate Brook (continuous conductivity monitoring and/or discrete chloride monitoring), capturing both winter storm/melt and summer baseflow conditions, to reevaluate the success of municipal road salt reduction BMPs.

City of Chicopee:

From:	Laurie Goff
To:	Chase, Richard F. (DEP)
Cc:	Eric Kerr; Quinn T. Lonczak; Craig Biela
Subject:	Written comments on the Draft 2018/2020 Integrated List of Waters from Chicopee MA
Date:	Wednesday, June 9, 2021 7:44:15 AM
Attachments:	image001.jpg image002.png image003.png

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Mr. Chase,

I believe the comments regarding Chicopee's acute toxicity test failures are overstated. Stating that other facilities were "*almost* always in compliance" and that we have had "acute toxicity *problems* through all years and seasons" is inaccurate and problematically judgmental.
For 2015-2021, we illustrated LC50<100% 7/27 times (30%) which is not considered significant noncompliance. Further, for the period 2018-2020, LC50<100% only 2/12 occasions (17%).
Chicopee has spent in excess of $200 million on CSO abatement and is currently in the process of extensive and costly improvements to the POTW, made possible through one of the most expensive sewer user fees in the region with more increases in the works It is challenging enough for this community to continue its progress without having to suffer potshots from another governmental agency.

Respectfully,

Laurie Goff
Pretreatment Coordinator
City of Chicopee Water Pollution Control
80 Medina Street
Chicopee, MA 01013

413-594-3585
lgoff@chicopeema.gov

From:

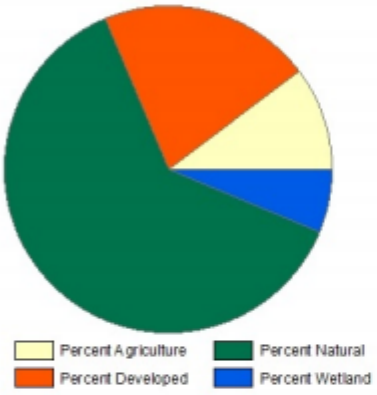
https://www.mass.gov/doc/20182020-draft-integrated-list-of-waters-appendix-15-connecticut-river-watershed-assessment-and-listing-decision-summary/download

Connecticut River (MA34-05)

Location:	Holyoke Dam (NATID: MA00973), Holyoke/South Hadley to Massachusetts/Connecticut border, Longmeadow.
AU Type:	RIVER
AU Size:	15.9 MILES
Classification/Qualifier:	B: WWF, CSO

Connecticut River - MA34-05

Watershed Area: 1081.15 square miles (Includes area outside Massachusetts)



Landuse Type	Entire Basin	5km Radius Proximal Subbasin	100m Stream Buffer	Proximal Stream Buffer
Land Use Area (square miles)	627.21	12.11	151.66	3.84
Agriculture	10.3%	5.4%	10.8%	2.5%
Developed	21%	48.7%	14.1%	30.4%
Natural	62.5%	32.7%	62.1%	46%
Wetland	6.2%	13.2%	13%	21.1%
Impervious Cover	8.3%			

Fish, other Aquatic Life and Wildlife Use: Fully Supporting (Alert)
There are reports of the non-native aquatic macrophyte, *Potamogeton crispus* (Curly-leaf pondweed), just downstream of the Holyoke Dam, as well as upstream of the Route 116 bridge in Holyoke. Species confirmation still needs to be made by MassDEP staff. Kleinschmidt consultant personnel conducted backpack electrofishing and boat shocking at nine transects between Holyoke Dam and the Rt.116 bridge in August 2004 (SampleID's 3987, 3984, 3990, 3986, 3983, 3989, 3985, 3982, 3988). The samples were dominated by moderately and/or tolerant macrohabitat generalist species although some fluvial species were also present. It should be noted that this would be the area that one would expect to see hardest hit by the former "Gas works" operations The former Gas Works once occupied a 2-acre peninsula on the Connecticut River 1500 feet downstream from the Holyoke Dam. Historic operations resulted in large releases of tar and oil to soil, groundwater, sediment, and surface water. Remediation of coal tar patches was carried out between 2002 and 2006, but it was suspected that as many as 30 additional acres of tar could still be present. In May 2012 a "Final Restoration Plan and Environmental Assessment" was published, addressing natural resources, injured, lost or destroyed due to releases of hazardous substances in areas at or impacted by release from the Holyoke Coal Tar Site. The Final RP/EA identified and evaluated several alternatives to restore the natural resources because of injury at the Site. Three restoration projects were funded: 1) Bartlett Fish Rod Company Dam removal, 2) Manhan Dam fishway installation, and, 3) Benthic mussel surveys, CT river mainstem. The towns of South Hadley, Holyoke, Chicopee, and Springfield are permitted to discharge treated municipal wastewater to this Connecticut River AU (MA34-05). Survival of *C. dubia, S. fontalis, O. mykiss,* and *P. promelas* exposed (48-hours) to river water collected for use in these facilitie's WET tests between March 2008 and September 2018 was always good (≥90%). Except for Chicopee, the other facilities were almost always in compliance with their WET testing limits.

The Chicopee facility has had acute toxicity problems through all years and seasons. MassDEP staff also conducted some limited water quality monitoring in the river at the USGS flow gaging station #01184000 downstream of Route 190, Suffield/Enfield Connecticut during the summer of 2008. The minimum DO was 8.3mg/L, the maximum saturation was 107%, the maximum temperature was 23.8, and pH ranged from 6.8 to 7.4SU (n=4). The seasonal average total phosphorus concentration was low (0.035mg/L, maximum 0.04mg/L). No observations of dense/very dense filamentous algae noted.
The Aquatic Life Use of this Connecticut River AU (MA34-05) is assessed as Fully Supporting based on the relatively good fish community in this warm water river close to the former Gas Works Site, the good survival of test exposed to the river between March 2008 and September 2018, and the good water quality conditions documented during the summer of 2008. An Alert is being identified because of the potential infestation of the non-native aquatic macrophyte *Potamogeton crispus*. The former alert associated with the risk that fish tissue contaminants pose to fish-eating wildlife is being carried forward and the alert for potential toxicity/habitat impacts of coal tar deposits is being removed.

MassDEP response: MassDEP acknowledges the City of Chicopee's efforts to improve effluent quality with upgrades at the WPCF including a new aeration system and improvements to the secondary clarifiers in 2018, plans to pilot a new coagulant in the secondary clarifiers, and the extensive and on-going efforts regarding CSO abatement (reduction in number of outfalls from 42 in 1988 to 18 as of December 2018).

For the 2018/2020 IR Connecticut River Watershed Aquatic Life Use reporting cycle update, MassDEP reviewed the City of Chicopee's whole effluent toxicity (WET) testing data collected from November 2007 to May 2018. During this timeframe, 47 valid acute WET tests were conducted on the Chicopee WPCF effluent (Outfall 010) as required by their NPDES permit. An additional 15 tests were taken at the wet weather bypass (BYPS) that is sampled for toxicity prior to blending with effluent during periods of high flow/storm situations as required by the facility's Consent Decree. Acute whole effluent toxicity to *P. promelas* on Outfall 010 was detected in 12 of 47 tests (26%), ranging from LC_{50}s 28.2 to 96.6% effluent, which did not meet the $LC_{50} \geq 100\%$ effluent permit limit. The LC_{50}s for the BYPS samples ranged from 1.69 - 98.4% effluent for the five (of 15) tests where toxicity was detected. Episodes of acute WET occurred in different years and most seasons, though not usually during the August tests (typically the low flow time of year).

Based on further review of the City's comment, the overall decision summary language related to the Chicopee WPCF will be clarified and revised in the 2018/2020 IR documentation as follows: *While the Chicopee WPCF experienced episodic acute whole effluent toxicity in some tests (26% had LC_{50}'s<100% effluent), they were usually in compliance with their WET testing limits. Upgrades and improved treatment have been implemented at the Chicopee WPCF including a new aeration system and improvements to the secondary clarifiers in 2018, plans to pilot use of a new coagulant in the secondary clarifiers, and the extensive and ongoing efforts regarding CSO abatement (reduction in the number of CSOs outfalls from 42 in 1988 to 18 as of December 2018).*

Town of Auburn:

From: Eilish Corey
To: Chase, Richard F. (DEP)
Subject: RE: Question on IR additions in Auburn
Date: Monday, May 17, 2021 8:37:04 AM

Hi Richard,

Yes, I'm specifically interested in:

- Addition of Fanwort at Dark Brook (MA51-16), Kettle Brook (MA501-01), Leesville Pond (MA51087), Pondville Pond (MA51120). It looks like these are mostly refining the vague non-native aquatic plant impairment. The Town has an aquatic weed removal program which also ties into our MS4 permit, so any additional information on the location and any leads on sources would help us with mitigation efforts.
- Addition of Brittle naiad/najas minor in Dark Brook Reservoir (MA51035), Tinkerville Pond (MA51167). Same reason as above.
- Removal of nutrient/eutrophication biological indicators for Kettle Brook. I'm happy to see this! Kettle Brook is the main tributary to Leesville Pond, which has a phosphorus TMDL. I'd like to know the reasoning, along with any sampling data if available, so we can try and figure out why it got better and where our efforts for fulfilling obligations of the TMDL would be best spent.
- Addition of Dewatering on Kettle Brook (MA501-01). This was actually added as part of the 2016 list, but figured I'd ask since we're not sure why it was added or what the implications are, particularly on the operations of a dam located shortly downstream.

Thanks,
Eilish

Eilish Corey, PE
Senior Civil Engineer
Pronouns: she/her/hers
Town of Auburn
Department of Public Works
5 Millbury Street
Auburn, MA 01501
Tel (508) 832-7814
www.auburnguide.com

MassDEP response: The following MassDEP response was provided via email during the comment period. Also, see MassDEP response to EPA comment regarding Kettle Brook.

From: Chase, Richard F. (DEP)
To: Eilish Corey
Cc: Johnson, Arthur (DEP); Carey, Richard (DEP)
Subject: RE: Question on IR additions in Auburn
Date: Thursday, June 3, 2021 11:53:00 AM
Attachments: image001.jpg
Blackstone_repos-excerpts_Auburn.docx

Hi Eilish,
I have attached a document containing segment-specific information related to your questions. See the highlighted text in the attachment for the 2018/20 Integrated Report assessment decisions you inquired about. Please note the 2018/2020 assessments were for the aquatic life use only.
Also, brief responses to your questions are provided below:

- *Addition of Fanwort at Dark Brook (MA51-16), Kettle Brook (MA501-01), Leesville Pond (MA51087), Pondville Pond (MA51120). It looks like these are mostly refining the vague non-native aquatic plant impairment. The Town has an aquatic weed removal program which also ties into our MS4 permit, so any additional information on the location and any leads on sources would help us with mitigation efforts.* That is correct. The more specific macrophyte *Cabomba caroliniana* (fanwort) impairment cause replaced the generic "Non-Native Aquatic Plants" cause.
- *Addition of Brittle naiad/najas minor in Dark Brook Reservoir (MA51035), Tinkerville Pond (MA51167). Same reason as above.* Same as above. The more specific cause replaced the generic one.
- *Removal of nutrient/eutrophication biological indicators for Kettle Brook. I'm happy to see this! Kettle Brook is the main tributary to Leesville Pond, which has a phosphorus TMDL. I'd like to know the reasoning, along with any sampling data if available, so we can try and figure out why it got better and where our efforts for fulfilling obligations of the TMDL would be best spent.* See attachment. Based on the lack of any indicators of nutrient enrichment problems, the nutrient/eutrophication biological indicators cause of impairment is proposed for delisting.
- *Addition of Dewatering on Kettle Brook (MA501-01). This was actually added as part of the 2016 list, but figured I'd ask since we're not sure why it was added or what the implications are, particularly on the operations of a dam located shortly downstream.*

We hope this helps.
Thank you,
Richard

Richard Chase
MassDEP-Bureau of Water Resources, Division of Watershed Management, Watershed Planning Program
8 New Bond Street, Worcester, MA 01606 p: (508) 767-2859
Richard.f.chase@mass.gov

From: Eilish Corey <ECorey@town.auburn.ma.us>
Sent: Monday, May 17, 2021 8:37 AM
To: Chase, Richard F. (DEP) <richard.f.chase@mass.gov>

Hyde Park Historical Society:

From: Sprague Pond Readville <spraguepondreadville@gmail.com>
Sent: Thursday, June 3, 2021 8:00 AM
To: Chase, Richard F. (DEP) <richard.f.chase@mass.gov>
Subject: Inquiry re Integrated List of Waters

We would like to provide comment on the draft 2018/2020 Integrated List of Waters for Massachusetts.

Our inquiry is whether the list of waters is available in an Excel or other worksheet sortable format.

We have only found the materials in PDF form.

Our main interest is Suffolk and Norfolk Counties, but we are interested in the full list to start.

Thank You.

Frank O'Brien

for Hyde Park Historical Society

From: Sprague Pond Readville
To: Chase, Richard F. (DEP)
Cc: Carey, Richard (DEP); Johnson, Arthur (DEP)
Subject: Re: Inquiry re Integrated List of Waters
Date: Friday, June 4, 2021 6:53:58 PM
Attachments: image001.jpg
image.png

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Thanks for this information and direction.

I did download the file "Summary of Changes to Integrated List of Waters for 2018/2020 Reporting Cycle"

It's useful, but may not have all the information I'm seeking; I could have been searching in the wrong place:

We're looking to do a sort on all waterbodies in Categories 2 thru 5, in descending order of size within watersheds and by units (ie miles, acres, etc). So all ponds and lakes are together, all river and brooks, and so on.

It would be great to also have the AU_ID, and Uses Attained, for reference.

The immediate purpose is to provide informed comment on the draft "Integrated List of Waters" for 2018/2020, with a focus on Sprague Pond in Boston/Dedham.

We are also looking at Great Pond designations, and matching up size in acres with MassDEP's current Great Pond list. This is for background and future use.

Thanks for the help.

Frank O'Brien
-

An example of what would be ideal in Excel worksheet form: the first 5 line items of Category 2:

					Uses Attained					
Waterbody	AU_ID	Description	Size	Units	Aesthetic	Fish Consumption	Fish, other Aquatic Life and Wildlife	Primary Contact Recreation	Secondary Contact Recreation	Shellfish Harvesting
Blackstone										
Cold Spring Brook	MA51-42	Headwaters, perennial portion north of Route 16, Uxbridge to mouth at inlet Rivulet Pond, Uxbridge.	1.10	Miles	X		X	X	X	
Dark Brook	MA51-49	Headwaters, outlet Dark Brook Reservoir, Auburn to mouth at inlet Stoneville Pond (east of Wallace Avenue), Auburn.	1.30	Miles	X		X	X	X	
Emerson Brook	MA51-29	Headwaters, outlet Lee Pond, Uxbridge to mouth at confluence with the Blackstone River, Uxbridge.	1.90	Miles	X		X	X	X	
Kettle Brook	MA51-19	Outlet Kettle Brook Reservoir #4, Paxton, to inlet Kettle Brook Reservoir #1, Leicester (as of 2010 excluding approximately 0.8 mile through segment Kettle Brook Reservoir #3 MA51081 and approximately 0.5 mile through segment Kettle Brook Reservoir #2MA51080).	1.90	Miles			X			
Laurel Brook	MA51-23	Headwaters, perennial portion, north of Yew Street, Douglas to mouth at confluence with Scadden Brook near the outlet of Sawmill Pond, Uxbridge	3.30	Miles			X			

MassDEP response: From a planning perspective, MassDEP continues to explore mechanisms for enhanced documentation and reporting of the draft IR decisions, rationales and supporting data. While MassDEP was not able to provide the specific type of information requested by the commenter, clarification was provided regarding the informational materials contained in the draft 2018/2020 Integrated Report package, including the availability of a filterable Excel file containing changes from the previous (2016) cycle for each cause of impairment. This file was found on the draft IR web page and if unprotected was sortable for search purposes. MassDEP also clarified that categorizations, descriptions and causes for Assessment Units were also provided in the main report tables, which included the Category 5 303(d) list.

City of Worcester:

DEPARTMENT OF PUBLIC WORKS AND PARKS
18 East Worcester Street
Worcester, Massachusetts 01604

Jay J. Fink, P.E.
Commissioner

508.929.1300
508.799.1448 Fax

Edward M. Augustus, Jr., City Manager

Assistant Commissioners
K. Russell Adams, P.E., Engineering
Robert C. Antonelli, Jr., Parks
Jarrett B. Conner, Administration

June 17, 2021

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

Dear Mr. Chase,

The City of Worcester appreciates the opportunity to comment on the Draft 2018/2020 Integrated List of Waters. The City of Worcester Lakes and Ponds program monitors water quality parameters in four of our biggest lakes (Lake Quinsigamond, Indian Lake, Coes Reservoir, and Bell Pond) to assess threats to water quality, inform lake management decisions, and guide remediation of those threats. Data collected as part of the program is done so under an approved Quality Assurance Project Plan (QAPP) and our team is currently preparing four years of data for submittal to the MADEP for future consideration. Summaries of those data and findings can be found at http://www.worcesterma.gov/water-sewer/recreational-waters .

In addition to the above water quality data collected as part of the monitoring program, the City has contracted with consultants to perform numerous comprehensive macrophyte surveys for the above referenced water bodies. We feel that the findings in the survey reports would be very beneficial to MADEP in the assessment of macrophyte impairments. Can you provide the acceptable standards for macrophyte survey data and the process those reports can be submitted to MADEP for consideration?

The City of Worcester looks forward to sharing our data and information with MADEP to provide a more complete understanding of current conditions in our waterways.

Thank You,

Jonathan Gervais
Environmental Manager
Worcester Department of Public Works & Parks

"Serving Our Community" *"Pride in Our Parks"*

MassDEP response: MassDEP appreciates efforts by the City of Worcester to monitor its lakes and ponds. We look forward to future data submittals using our email portal: external-data-submittals-to-WPP. In addition to lake management purposes, aquatic macrophyte surveys are also helpful in assessing the aesthetics and aquatic life uses. We do not currently have any specific format or content requirements relating to the submittal of aquatic plant survey data. Providing the contractor's final report based on the City's review and approval is sufficient for submittal. The work should be done by experienced limnologists in consultation with the City. The report should provide detailed descriptions of methods employed and results. Ideally, all field procedures, calculations and identifications (natives and non-natives) should be guided by a Quality Assurance Project Plan (QAPP) completed prior to initiation of work and clearly outlining objectives of the monitoring. Data for both rooted and non-rooted macrophytes are useful, the latter being more relevant to water column nutrient concentrations. In terms of data collection, use of Survey123 for ArcGIS and related apps are encouraged to collect aquatic plant data for invasive and native plants.

Upper Blackstone Clean Water:

UPPER BLACKSTONE CLEAN WATER

Stewardship Through Science

50 ROUTE 20 MILLBURY, MA 01527 P 508.755.1286 ubcleanwater.org

June 21, 2021

Richard Chase
Massachusetts Department of Environmental Protection
Division of Watershed Management/Watershed Planning Program
8 New Bond Street
Worcester, MA 01606
richard.f.chase@mass.gov

Re: *Draft Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020*

Dear Mr. Chase:

Upper Blackstone Clean Water (Upper Blackstone) is pleased to see that continuous dissolved oxygen data from the Blackstone River that were collected during a joint survey by MassDEP and Upper Blackstone in 2017 were used to support the delisting of Assessment Unit MA51-03 for dissolved oxygen impairments (*Draft Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020*; April, 2021).

Since plant upgrades were completed in 2009, Upper Blackstone has conducted a voluntary water quality monitoring program of the Blackstone River to assess the river's response to reduced nutrient concentrations in the wastewater treatment facility effluent. River quality monitoring has been completed under a MassDEP approved Quality Assurance Project Plan (QAPP) since 2014. The river monitoring program includes monthly water quality sampling for nutrients and chlorophyll-a and in recent years has included continuous temperature and dissolved oxygen measurements. In the past, periphyton and macroinvertebrate surveys have also been completed. Data are submitted annually to the Watershed Planning Program.

Upper Blackstone looks forward to continued collaboration with MassDEP to collect water quality data to improve the understanding of the current state of the Blackstone River.

Very truly yours,
UPPER BLACKSTONE CLEAN WATER

Karla H. Sangrey, P.E.
Engineer Director/Treasurer

C: K. Masterson, Z.Eichenwald, CDM Smith
T. Loftus, Upper Blackstone

N:\Administration\Blackstone River\Integrated List of Waters\comments on 2018-20 draft report.docx

Member Communities: Auburn, Cherry Valley Sewer District, Holden, Millbury, Rutland, West Boylston, Worcester

MassDEP response: MassDEP appreciates the past and on-going efforts by Upper Blackstone Clean Water to monitor the health of the Blackstone River. We look forward to future collaborations and data submittals via our email portal: external-data-submittals-to-WPP.

Based on additional comments from EPA questioning the draft delisting decisions for MA51-03, MassDEP agreed to defer to EPA's recommendation to retain the D.O. impairment cause for this AU. EPA concluded the data were inconclusive to warrant delisting at this time, citing evidence of significant diel changes in D.O. greater than 3 mg/l at several stations and levels less than 4 mg/l at site UBWPAD2.

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

June 21, 2021

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

Re: Comments on Draft 2018/2020 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 2018/2020 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."

General Comments:

External Data: We applaud DEP's effort to utilize external data and hope that this will continue. We did notice, however, that this draft of the Integrated List only referenced OARS data up through 2017, despite the 2018/2020 title. Quality controlled data from 2018 to 2020 have been provided to DEP by OARS each year through WQX, and may shed additional light on some of the proposed listings. It is not clear why this report being issued in 2021 does not include data from the last three years. We also note that while the internal data that were used were often very old and often only for a single year, the external data were annual and more recent. Since external contributors, like OARS, provide defensible, QAQC long-term data, it should be given due weighting.

Nitrogen: We noticed that Nitrogen is never listed as an impairment in upstream waters – probably because nitrogen is generally not the limiting nutrient in freshwater systems. However, excess nitrogen is a major impairment in estuaries, and the source of the nitrogen in estuaries is the upstream waters. Is there a way to call out excessive nitrogen upstream as an impairment, to account for this?

Mercury: We would like to note that mercury deposition, transport and methylation in riverine systems will behave differently than in lakes and ponds. However, DEP's general statewide monitoring appears to rely solely on data from lake and ponds. We recommend that fish tissue mercury data be collected specifically from affected rivers rather than relying on lake and pond data as a proxy for riverine levels.

Debris/Trash: Please clarify the definitions and explain why both Debris and Trash are listed as impairments for the same AUs in many cases. Often Debris was listed as Unchanged and Trash was listed as Changed (e.g., MA82B-03, MA82B-05, MA82A-09, MA82A-10, MA82A-22). We found this confusing.

Specific Comments for the Concord Basin:

Assabet Phosphorus: The removal of the Total Phosphorus impairment for all the Assabet River segments except the middle three is consistent with our data. We note that there are still serious aquatic plant biomass and/or algae impairments in the main impoundments in the middle three segments, including at Allen St. in Northborough.

Sudbury and Concord Mercury: According to information made available to OARS, mercury impairments in the Sudbury and Concord Rivers are based on data used to develop the Fish Consumption Advisories issued by the Mass. Department of Public Health (DPH)—data from 2015 for the Sudbury River and 2001 for the Concord River. We suggest that the most recent fish mercury data for the Sudbury River (Ashland-Framingham) in the "Final 2018 Sudbury River Long Term Fish Monitoring Report" prepared for DEP's Bureau of Waste Site Cleanup (Nyanza Superfund Site) by ES&M, released September 10, 2020, be used. Does DEP coordinate with the DPH to ensure that the most recent data are used in the FCAs? These rivers are heavily used by anglers, who deserve the most up-to-date advice.

Assabet Biomass: In evaluating biomass trends on the Assabet River, DEP did not use OARS' biomass data, which is included in the OARS Final Report that is issued every one or two years and shared with DEP. In general, the conclusions match our conclusions, except where the draft cites a significant decrease in duckweed between 2007 and 2014 (MA82B-04, MA82B-05). This claim does not hold up with our data spanning 2007-2020. The most recent report, "Water Quality Monitoring Program Final Report: 2018-2019 Field Seasons", OARS, March 2020, shows that there is no statistically significant trend in duckweed for 2007-2019. Figure 1 shows data through 2020 and shows that even though 2014 was lower than 2007, those two data points do not constitute a significant trend.

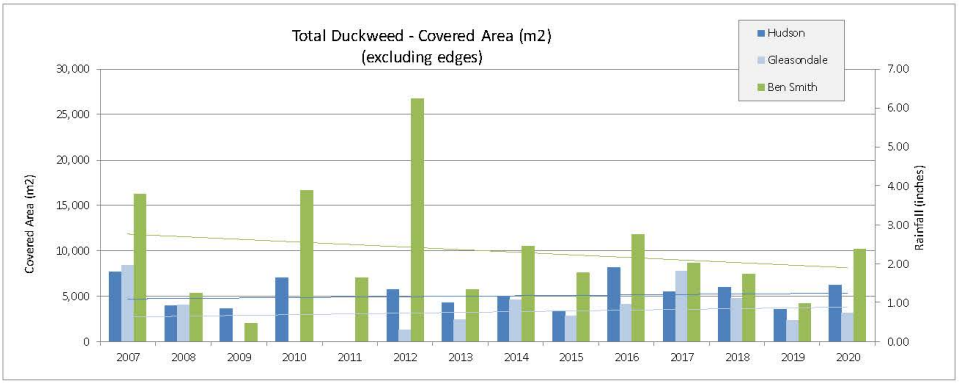


Figure 1: OARS Biomass survey data for the Hudson, Gleasondale, and Ben Smith impoundments (2007-2020)

Bacteria in Assabet: 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 bacteria impairment. In 2019 and 2020, OARS analyzed 30 samples for *E. coli*, 11 of which exceeded the EPA swimming threshold of 235 CFU/100mL. The geomean of all samples was 187 CFU/100mL, also exceeding the EPA geomean threshold of 126. These data were submitted to WQX.

Bacteria in Concord: AU MA82A-07 should be delisted for Bacteria. This listing is based on old data from 2006. OARS has been monitoring *E. coli* for two years at site CND-110 (Rt. 225 bridge in this AU). None of the 30

samples collected in 2019 and 2020 exceeded the EPA swimming threshold of 235 CFU/100mL. The geometric mean of all samples was 33 CFU/100mL. These data were submitted to WQX.

Dissolved Oxygen in Hop Brook: AU MA82A-05 should not be delisted for Dissolved Oxygen. OARS has been tracking significant eutrophication concerns in Carding Mill Pond, which is just above this AU, and our monitoring in 2020 has shown that the effects of this eutrophication extend downstream into this AU. OARS sampled site HBS-065, which is in this AU at the Surrey Lane footbridge, in August and September 2020, and recorded DO concentrations of 3.9 mg/L and 2.2 mg/L respectively. These data have been submitted to WQX.

Carding Mill Pond Nutrients: AU MA82015 should be listed as impaired for Nutrient/Eutrophication. Both upstream (Gristmill) and downstream (Hop Brook) are listed as impaired for Nutrient/Eutrophication, and our monitoring has shown that Carding Mill may actually be the most impaired of the three sections. Figure 2 is a picture of a typical summer day on Carding Mill Pond.

Figure 2: Picture of Carding Mill Pond 7/22/20

Chloride in River Meadow Brook: AU MA82A-10 should be listed as impaired for Conductivity/Chloride. OARS has long-term conductivity data showing a significant impairment at site RVM-005, which is in this AU at Gorham

St., Lowell. Figure 3 shows all data since 2004 converted to chloride based on the EPA's NE chloride regression model. Almost half of the points exceed the EPA's chloride criterion. These data have been submitted to WQX.

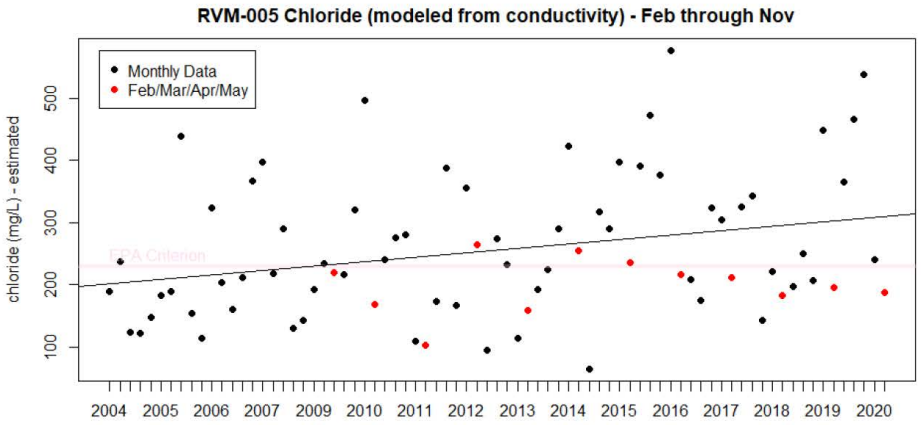


Figure 3: Chloride at RVM-005 modeled from OARS conductivity measurements based on the NE EPA chloride regression model.

Nashoba Brook Fish Bioassessment: AU MA82B-14 was delisted for Fish Bioassessment due to a change in the CALM guidance. This delisting should be justified by new field data rather than relying on comparisons of land use. We suggest that the listing be maintained until new data show that it is incorrect.

Cold Water Streams: In the comments for the 2016 Integrated List, OARS requested that the DFW Cold-Water-Streams be included in this listing. We notice that most of them are now included in the list. Thank you for adding them. However, most are still not qualified as Cold Water Fisheries. Can you please let us know what data (other than fish counts) could be used to qualify them as Cold Water Fisheries? We have a significant amount of data for two streams in particular: Cranberry Brook (MA82A-36), and Trout Brook (MA82A-35).

Minor edits:

MA82B-06 repeated text: In Appendix 14, the text for MA82B-06 is repeated three times.

Sites W0698 and NSH-047: In Appendix 14, in the description for MA82B-14, sites W0698 and NSH-047 were listed as different locations. They are actually exactly the same site – at the USGS gage.

Old names: It would be nice to clean up some of the waterbody names: Allowance Brook (MA82A-37) should be named Landham Brook; Assabet Brook (MA82B-17) should be named Elizabeth Brook; and many Unnamed Tributaries now have names, such as sections of Hop Brook above Carding Mill Pond (MA82A-16, MA82A-17).

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

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

Regarding Cold Water designations and CFRs, please see general responses to comments (Part 1 above). MassDEP's assessments of coldwater fisheries should be consistent with the Division of Fisheries and Wildlife's (DFW) Coldwater Fishery Resource (CFR) list. MassDEP incorporated all designated Cold Waters as AUs in the 2016 IR reporting cycle and is continuing to add new AUs in the 2018/2020 and 2022 IR cycles for waterbodies that will become designated Cold Waters in the next SWQS revision. We will also continue to add, as time/resources allow, additional AUs where cold water fish species have been documented in our efforts to continue to protect, maintain, and restore these resource areas. The named tributaries locally known as Cranberry Brook (MA82A-36) and Trout Brook (MA82A-36) should both be protected a Tier 1 Existing Use Cold Waters. It is recommended that additional deployed probe temperature data be collected from both streams.

MassDEP's use of the most recent data is often complicated by factors related to timing. In the case of OARS data, there was a delay in finalizing the 2016 IR and the work for the next reporting cycle (2018; which was then ultimately combined with 2020) was already underway to update the Aquatic Life Use in the Concord (Assabet, Sudbury, Concord) River Watershed. The external data submittal for the combined 2018/2020 IR was November 1, 2019 and based on our records all 2018 - 2020 OARS data were submitted after that date (12.17.19, 1.29.20, and 1.12.21 for 2018 through 2020 data). Please note that the deadline for the 2022 IR was January 15, 2021. The deadline for the 2024 IR is TBD but will likely be mid-January 2023, so there is a delay between the data collection year and the IR reporting cycle. MassDEP data, while not often collected annually in any given watershed, are specifically designed for CWA reporting purposes so are always utilized for the IR as are usable external data whenever possible and appropriate.

Regarding excess nitrogen (N) in freshwaters, this is typically not listed as an impairment for the primary reason cited by OARS --- that nitrogen is usually not the limiting nutrient to primary productivity. Because phosphorus (P) is generally considered to limit growth in freshwaters, it is listed as the pollutant for nutrient-impaired inland waters. Measures to control P (e.g., TMDL, Non-Point Source controls, MS4) can also be useful in decreasing nitrogen, which can decrease loading to coastal areas where the impacts from excess nitrogen are more pronounced. Also, regional efforts to specifically control N in coastal waters can include upstream controls, such as stricter N discharge limits for upstream NPDES permits and best management practices aimed at reducing erosion and sediment transport. Nutrient source identification would most likely be identified and/or accounted for in a NPDES permits and/or TMDLs.

Concerning current mercury testing and resulting impairments, MassDEP recognizes the limitations of existing monitoring programs. MassDEP and other state and federal agency staff as well as several consultants have conducted fish toxics sampling/monitoring as part of mercury and other waste site contaminants in rivers, lakes and coastal waters depending on the project needs. In addition to the lake/pond sampling conducted by the MassDEP Office of Research & Standards (ORS), WPP samples a few selected waterbodies each year based on public requests. There are also project-specific reports, such as the cited DEP BWSC Nyanza report for the Sudbury River. The MA DPH reviews these data and is responsible for the development of Fish Consumption Advisories to protect public health. Fish tissue mercury data specifically for rivers would also be useful to compare to mercury concentrations found in lakes, as well as to allow for site-specific riverine assessments of the fish consumption use based on the latest DPH Freshwater Fish Consumption Advisory List.

Regarding Assabet phosphorus, aquatic plants and algal levels, MassDEP recognizes the aquatic plant biomass and algae concerns in the main impoundments in the middle three segments, including at Allen St. in Northborough.

Regarding mercury impairments in the Sudbury and Concord, MA DPH reviews all fish contaminant monitoring data collected by MassDEP and other state and federal agency staff as well as several consultants and revises their Fish Consumption Advisory List periodically as needed based on any new data. And MassDEP coordinates with MA DPH staff regarding any updates/changes to the Freshwater

Fish Consumption Advisory List and updates the status of the Fish Consumption Use for waterbodies based on the most recent list as needed for the next IR reporting cycle.

Regarding biomass trends in the Assabet River, the OARS March 2020 report was not available at the time the Aquatic Life Use updates were being completed for the 2018/2020 IR reporting cycle. OARS concerns are noted and the available data will be reviewed during the next IR reporting cycle when the Assabet River AUs are being updated.

Regarding bacteria levels in the Concord watershed, MassDEP plans to utilize external bacteria data considered usable for assessment and listing purposes submitted prior to January 15, 2021 for the 2022 IR reporting cycle. For the 2018/2020 reporting cycle, only the Aquatic Life Use was updated for the Concord and other watersheds, not primary and secondary contact recreation.

Regarding the delisting of dissolved oxygen in Hop Brook (AU MA82A-05), MassDEP will defer the delisting decision until sufficient and more recent data are collected that confirm the appropriateness of the DO delisting.

Regarding nutrient levels in Carding Mill Pond (AU MA82015), MassDEP appreciates the concern of OARS staff regarding water quality conditions in Carding Mill Pond and consistency in IR reporting. We agree that Nutrient/Eutrophication Biological Indicators should also be identified as an impairment for the Aquatic Life Use for Carding Mill Pond (excessive algal growth was already identified as impairment to Primary and Secondary Contact Recreation and Aesthetic uses). This impairment will be added for consistency with changes being made in this reporting cycle for both the upstream and downstream AUs (Grist Mill Pond and Hop Brook).

Regarding chloride in River Meadow Brook (AU MA82A-10), MassDEP acknowledges and shares OARS' concerns regarding elevated chloride concentrations in River Meadow Brook. For the 2018/2020 reporting cycle, MassDEP included usable data OARS submitted by the 11/1/2019 deadline for external data; this included OARS data for the years 2009-2017. Unfortunately, OARS conductivity data from these years did not meet Level 3 status (Regulatory/Assessment Level) when an external data usability review was conducted. MassDEP will provide feedback forms to OARS staff for the data usability QC reviews that have been completed. For the 2022 IR cycle, all data available for this waterbody (including data collected as part of MassDEP's 2015-2016 River Meadow Brook Chloride Study, as well as any OARS data meeting external data usability requirements, i.e. Level 3 status) will be incorporated into use attainment decisions for River Meadow Brook.

Regarding the Nashoba Brook delisting for Fish Bioassessment (AU MA82B-14), MassDEP has determined that the Fish Bioassessment delisting is appropriate for Nashoba Brook. The presence and dominance of fluvial specialist fish species are indicative of good conditions in this low gradient stream and the original listing decision would not have been made (DFG sample #155, collected in June 2000 included a fluvial species (creek chubsucker), as well as a large proportion of a moderately tolerant macrohabitat generalist fish (chain pickerel)). EPA does not stipulate in any of its listing guidance that more recent data must be collected when a state changes its assessment methods.

Regarding requested minor edits:

- For MA82B-06 each impairment has to be delisting individually so the text is repeated three times (once each for algae, aquatic plant (macrophytes), and total phosphorus).
- The locations for sites W0698 and NSH-047 will be described near the footbridge at the USGS staff gage near Wheeler Lane in Acton.
- Lastly, MassDEP staff utilize SARIS (Stream and River Inventory System; see 2018 CALM, Section III) stream names for AUs but can acknowledge local names in the descriptions. We will revisit the suggestions you've made for these waterbodies and incorporate local names into the AU descriptions as part of the 2022 reporting cycle.

Nashua River Watershed Association:

June 21, 2021

Richard Chase

Massachusetts Department of Environmental Protection

Bureau of Water Resources

Watershed Planning Program

8 New Bond Street

Worcester, MA 01606

RE: Comments on the Draft 2018/2020 Integrated List of Waters

Dear Mr. Chase,

The Nashua River Watershed Association (NRWA) provides the following comments on the MassDEP's Draft 2018/2020 Integrated List of Waters (List). The NRWA is a regional leader in natural resource protection and environmental education for our 32 watershed communities in north central Massachusetts and southern New Hampshire, and has been conducting water monitoring under a MassDEP-approved QAPP since 2001.

Massachusetts Rivers Alliance is providing general, overarching comments about the List. NRWA supports these comments. The addition of the appendices for the individual basins, and the table listing the 2018/2020 Cycle Impairment Changes are welcome improvements to the List. NRWA adds the following specific comments about the List in our watershed.

Temperature and Dissolved Oxygen

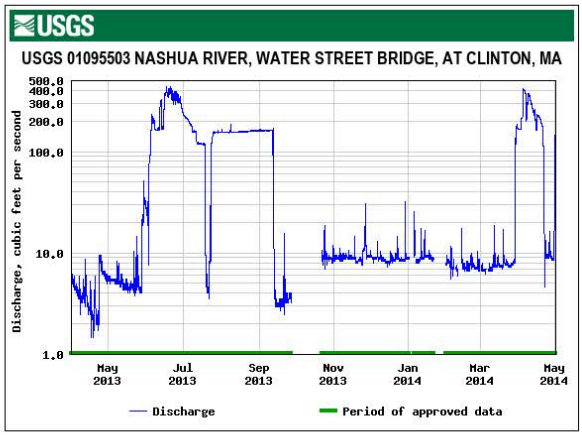
We agree with the addition of temperature as an impairment to several brooks and rivers, as well as dissolved oxygen to a few. Many of these streams are coldwater fish resource streams, threatened by rising temperatures.

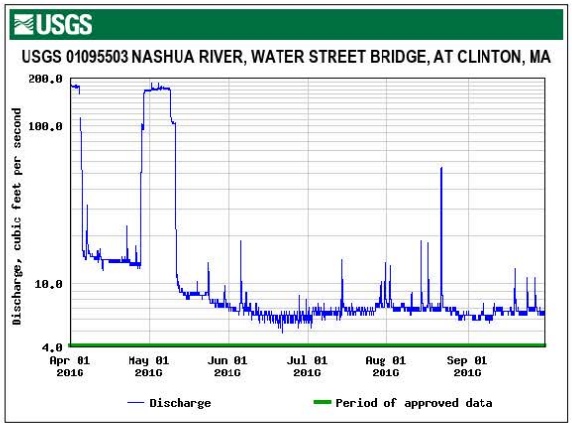
Phillips Brook is listed as a WWF, but is on the state's CFR list.

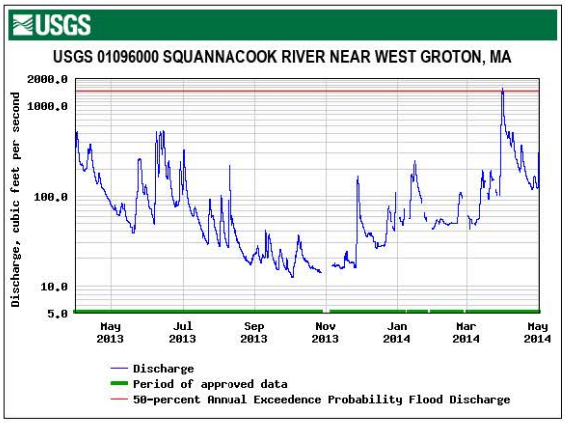
Nashua River Section 81-05- We agree with adding water chestnut to this section. However, in 2017, NRWA staff conducted a survey of invasive aquatic plants in the Oxbow National Wildlife Refuge. Based on this survey, Fanwort and Non-Native Aquatic Species (variable milfoil) should be included.

Nashua River Section 81-07- We understand the rationale for removing Total Phosphorus. However, we hope more recent data will be collected to confirm the rationale for the removal. Correction on the New Hampshire town through which the Nashua flows – it's Hollis, not Holliston.

Nashua River Section 81-09 – Total phosphorus was removed from this section. The MWRA-owned WWTP's phosphorus removal may be the cause for the reduction of total phosphorus. However, there is no discussion of flow through this reach, which is controlled by releases at the Wachusett Dam. This ability was not present before a bypass was built in approximately 2006. Additional attention should be paid to the flow at the time of sample collection, as it can vary by 100s of millions of gallons over the course of a few hours, therefore influencing the total phosphorus concentrations and other water quality parameters. Below are a few graphs showing flow from 2013 to 2014, during the drought 2016 (when flow was not released during the summer drought), and at a gage on the Squannacook River in 2013 to 2014, a reference gage often used for comparison.







Thank you for the opportunity to comment.

Best regards,

Martha S. Morgan

Water Programs Director

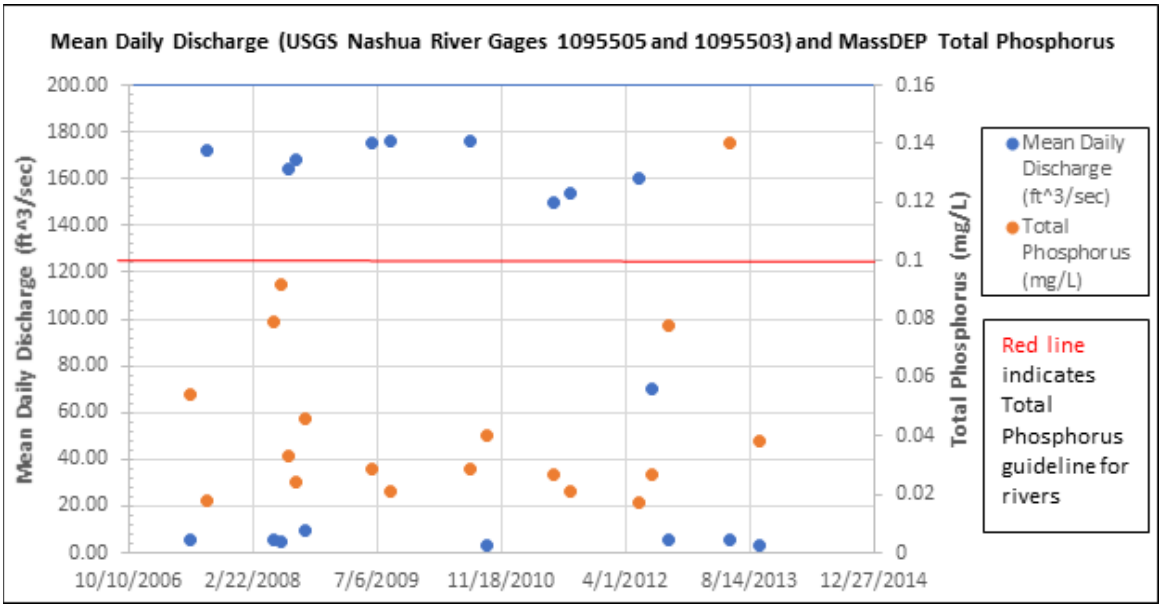
MassDEP response:

Regarding the Phillips Brook fishery classification status, the Massachusetts Surface Water Quality Standards (SWQS) that were in effect for the 2018/2020 IR identify Phillips Brook as a Class B, Warm Water Fishery, CSO (Headwaters, outlet Winnekeag Lake, Ashburnham to Westminster Street (Route 2A/31), Fitchburg (segment includes McTaggarts Pond and unnamed tributary to North Nashua River). Any changes to SWQS classification of Phillips Brook must undergo public review and comment prior to promulgation as part of a SWQS update. However, this stream is protected as a Tier 1 Existing Use Cold Water since a reproducing population of Eastern brook trout was documented in the brook in August 2002 and 2011.

Regarding the presence of invasive aquatic plants in the Nashua River (MA81-05), MassDEP would appreciate it if NRWA staff could provide date and location information, through our data portal, as it relates to observations of the non-native aquatic macrophyte species, *Cabomba caroliniana* (fanwort) and *Myriophyllum heterophyllum* (variable milfoil). MassDEP typically requires confirmatory reports by state agency staff before an AU is listed as impaired due to the presence of most non-native aquatic macrophyte species (Trapa natans is an exception). At this time, an Alert status will be identified for the Nashua River MA81-05 AU due to the potential presence of *C. caroliniana* and *M. heterophyllum*. Also, a recommendation will be made for MassDEP field crews to help identify these and any other non-native species infesting this AU.

Regarding additional monitoring to confirm the removal of the Total Phosphorus impairment for the Nashua River MA81-07 AU, further monitoring of this AU will be considered as part of MassDEP's future monitoring plans. [Note: Town name has been corrected from Holliston to Hollis]

Regarding the removal of the Total Phosphorus impairment for the MA 81-09 Nashua River AU, MassDEP plotted mean daily discharge values from two USGS Nashua River gages (1095505 and 1095503) and MassDEP raw total phosphorus data (W0681; May – September) for samples collected between June 2007 and September 2013 (flow data were not available for 2005 and 2006). The figure indicates that samples were collected under a variety of flow conditions. Note that use attainment decisions incorporated seasonally averaged total phosphorus data (May – September), rather than the raw data depicted in the figure.



* USGS gage 01095505 (Nashua River, 0.4 miles upstream from Rt 110 at Clinton, MA), located 1.5 miles downstream from the Water Street gage (see below), was discontinued on Nov. 1, 2011.
* The period of record for USGS gage 01095503 (Nashua River, Water Street Bridge, at Clinton, MA) began on June 24, 2011.
* Data from both gages were used in this figure.

Neponset River Watershed Association:

neponset river
WATERSHED ASSOCIATION

June 21, 2021

Via Electronic Mail to Richard.f.chase@mass.gov

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

RE: Draft 2018/2020 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 2018/2020 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.

Overall, NepRWA is pleased with some of the changes MassDEP has incorporated into this most recent Integrated List that make data sources and conclusions more transparent. Specifically, watershed-specific appendices, those calling out impairment additions, removals and changes, and the sortable Summary of Changes table made it much easier for conservation organizations and other stakeholders to easily identify and review relevant assessment units. Additionally, we appreciate the refinement of aquatic plant and other impairments, and the addition of estuarine bioassessments.

Data sources are more transparent in this draft, but more information would be helpful.

NepRWA also appreciates the improvements made to the identification of specific data sources for each listing. The lack of transparency in this regard was one of our main concerns during the 2016 Integrated List development, and we are pleased that more information is included in the 2018/2020 draft. However, we feel that more detail about relevant data sources is needed for each listing to appropriately evaluate the Integrated List. We ask that MassDEP reference all data sources for its decisions to list or delist any segment or waterbody, and include a comprehensive reference section of all studies mentioned.

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781.575.0354 | staff@neponset.org | www.neponset.org

Modifying the way in which this data is presented may also make it easier for stakeholders to review the information. While the narrative descriptions for impairments provide insight on listing decisions, we urge MassDEP to develop and include time-series graphs and/or charts in their final assessment. A visual depiction of the data allows the public to more easily review and evaluate conditions along assessment units. (See, for example, the New Hampshire Department of Environmental Services numeric and graphical data included in their Integrated List of Waters.)

Additionally, more information about external data and the decision to use (or not use) it would be helpful in refining data collected by watershed associations. We are a science-based organization and maintain a high-level QAPP, approved by both DEP and EPA, governing our data collection and analysis. It remains unclear at times whether our data has actually been used in the assessments (particularly given the exclusion of impairments identified below). More information about why some data was not used would be helpful not only for our data collection, but also for DEP in that that data we regularly submit may qualify as "Level 3" data, the most likely to be used for regulatory and water quality assessment purposes. Incorporating well planned and rigorously collected external monitoring data will fill critical data gaps that currently exist within DEP's assessment data set. With this data, DEP can make better informed decisions regarding the status of the many waterbodies in the state of Massachusetts.

Coldwater fishery identification and fish passage barrier assessments are incomplete.

NepRWA appreciates the improved assessment of fish passage in this year's Integrated List; specifically the inclusion of information on restoration work, like dam removals, that has 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, especially in basins that have (or should have) migratory fish populations. Additionally, we ask that MassDEP include clearer information on coldwater fisheries resource status for applicable listings, as provided by the Division of Fisheries and Wildlife, to improve accuracy of assessments.

The window of time used to assess waterbodies should be narrowed for the most accurate assessment.

Assessments of the health of the Commonwealth's waters should use the best available data to ensure accurate analysis. We understand that MassDEP faces resource constraints that limit water quality monitoring and assessments; however, much of the data used in the Draft 2018/2020 Integrated List is outdated, reaching as far back as 2006. We suggest narrowing the window of applicable data to the most recent seven years to strengthen data analysis and to be consistent with MassDEP's Sampling Plan.

Several impairments within the Neponset River watershed have been omitted and should be included the 2018/2020 Integrated List.

Several waterbodies within the Neponset River watershed demonstrate quality impairments, yet have not been included in the 2018/2020 Draft Integrated List. We urge DEP to consider more recent data (included below and separately submitted) and include the following in the 2018/2020 Integrated List (temperature data listed below was recorded in 2020):

- Traphole Brook (MA73-17) is a valuable Cold Water Fishery (identified by Division of Fish and Wildlife (DFW) and confirmed through 2020 sampling finding brook trout (*Salvelinus fontinalis*) eDNA in those waters). As a result, it should be included as a Category 5 waterbody impaired by temperature. According to the WQS, the average daily maximum temperature over seven consecutive days should not exceed 20 °C for a Cold Water Fishery (exceedances highlighted).

Table 1: Stream temperature metrics calculated for data collected in the Spring and Summer months of 2020 on Traphole Brook. Mean 7-day maximum is calculated as the mean of rolling 7-day maximum values. Time > 20°C is the duration of time that water temperatures exceeded 20°C. Time > 28.3°C is the duration of time that water temperatures exceeded 28.3°C. The highlighted values show that the cold-water standard is not met for four sites on Traphole Brook.

AU_ID	Site	Mean 7-day max (°C)	Time > 20°C (hrs)	Time > 28.3°C (hrs)
MA73-17	THB001	22.17	815	0
MA73-17	THB003	21.22	26.25	0
MA73-17	THB004	21.22	288	0
MA73-17	THB006	22.66	145	0

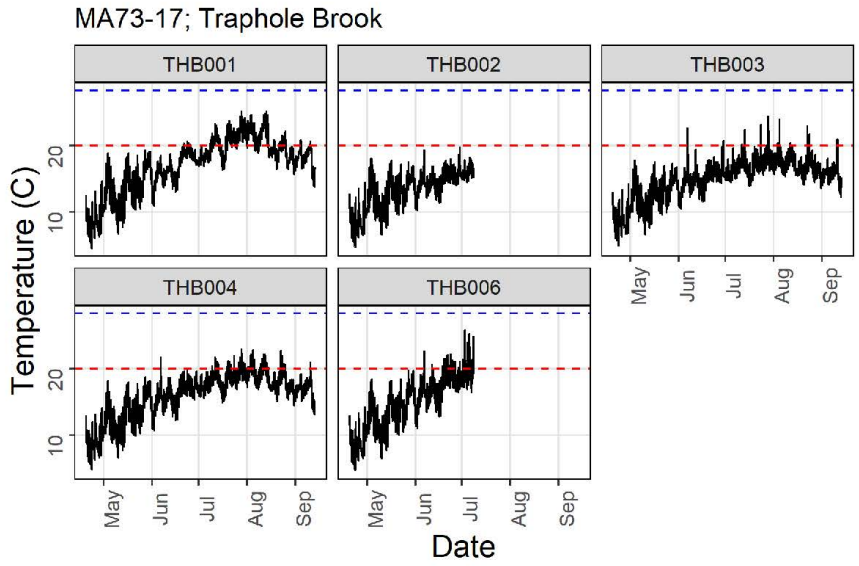

Figure 1: Continuous temperature values recorded at each stream segment in Spring and Summer of 2020 on Traphole Brook. The facets show the individual sites where temperature loggers recorded data within each assessment unit. The red dashed line is at 20°C and the blue dashed line is at 28.3°C.

- Germany Brook (MA73-15) should be listed and evaluated as a Cold Water Fishery, and should be included as a Category 5 waterbody impaired by temperature. Not only does DEP's own description of findings in Germany Brook include the presence of Eastern Brook Trout, but also DFW identifies it as a Cold Water Fishery, and NepRWA has confirmed the presence of cold water fish through its 2020 sampling finding brook trout eDNA in those waters. (Temperature exceedances highlighted).

Table 2: Stream temperature metrics calculated for data collected in the Spring and Summer months of 2020 on Germany Brook – definitions are the same as Table 1.

AU_ID	Site	Mean 7-day max (°C)	Time > 20°C (hrs)	Time > 28.3°C (hrs)
MA73-15	GEB001	24.15	705	0
MA73-15	GEB002	23.35	917.25	0

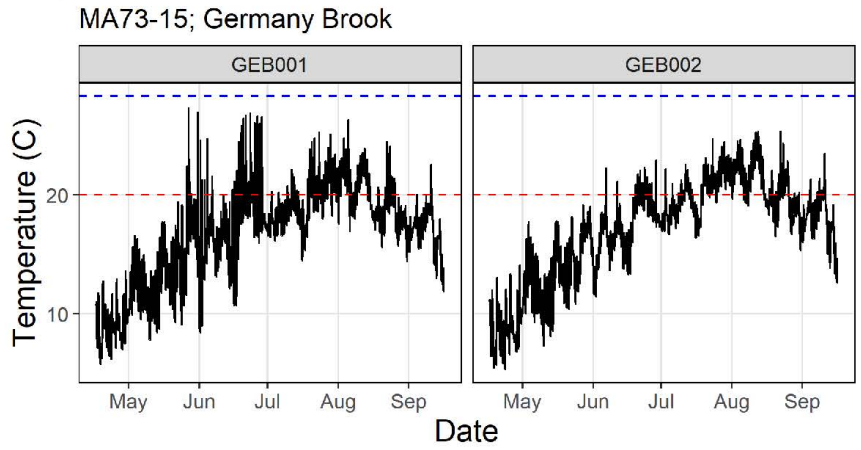

Figure 2: Continuous temperature values recorded at each stream segment in Spring and Summer of 2020 on Germany Brook. Description is the same as Figure 1.

- Beaver Brook (MA73-19) should be identified and evaluated as a Cold Water Fishery supporting brook trout based on 2020 sampling finding brook trout eDNA in those waters. As a result, it should be listed as a Category 5 waterbody impaired by temperature. Even if this assessment unit continues to be assessed as a warm water fishery, it should be listed with a temperature impairment, as temperatures above 28.3 °C were detected at at least one data collection site (exceedances highlighted).

Table 3: Stream temperature metrics calculated for data collected in the Spring and Summer months of 2020 on Beaver Brook – definitions are the same as Table 1.

AU_ID	Site	Mean 7-day max (°C)	Time > 20°C (hrs)	Time > 28.3°C (hrs)
MA73-19	BEB002	26.16	1608.5	4.25
MA73-19	BEB003	25.01	1278.5	0
MA73-19	BEB004	27.89	2080	81.5

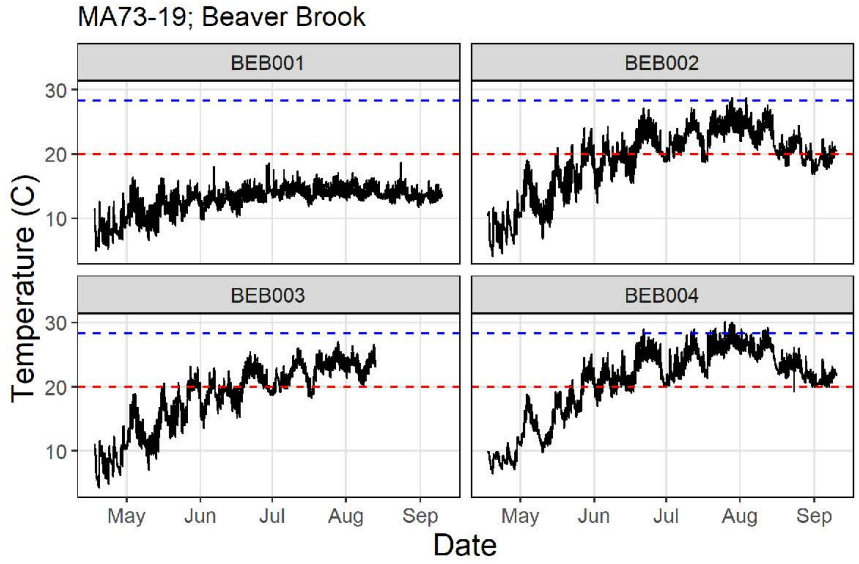

Figure 3: Continuous temperature values recorded at each stream segment in Spring and Summer of 2020 on Beaver Brook. Description is the same as Figure 1.

- Ponkapoag Brook (MA73-27) should be identified and assessed as a Cold Water Fishery (based on MassDEP's data, designation as such by DFW, and confirmed through 2020 NepRWA sampling finding brook trout eDNA in those waters). As a result, it should be listed as a Category 5 waterbody impaired by temperature.

  Even if this assessment unit continues to be assessed as a warm water fishery, it should be listed with a temperature impairment, as temperatures above 28.3 °C were detected at at least one data collection site. Additionally, this assessment unit should be listed as a Category 5 waterbody impaired for dissolved oxygen (shown below in the dissolved oxygen section).

Table 4: Stream temperature metrics calculated for data collected in the Spring and Summer months of 2020 on Ponkapoag Brook – definitions are the same as Table 1.

AU_ID	Site	Mean 7-day max (°C)	Time > 20°C (hrs)	Time > 28.3°C (hrs)
MA73-27	POB001	28.12	2194.5	100.25
MA73-27	POB002	25.71	765.5	0
MA73-27	POB003	26.78	1508.75	0
MA73-27	POB004	24.33	430.75	0

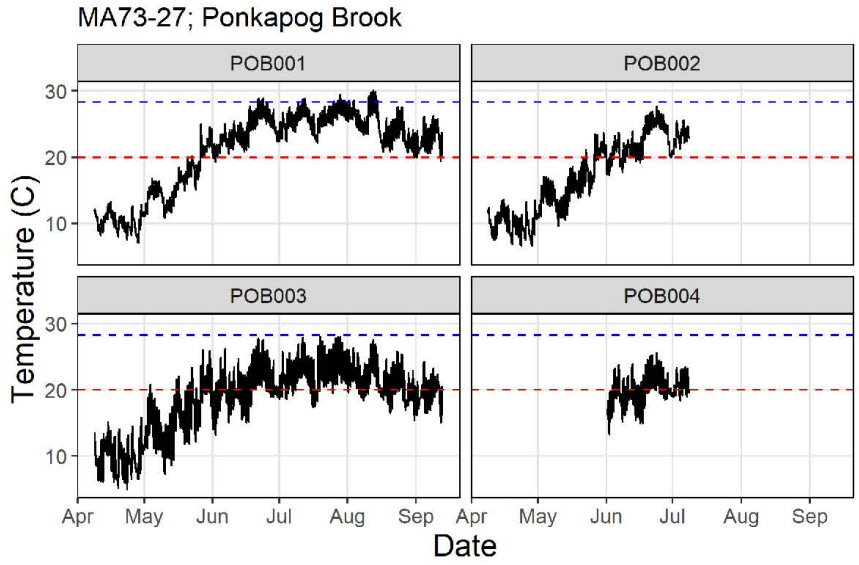

Figure 4: Continuous temperature values recorded at each stream segment in Spring and Summer of 2020 on Ponkapoag Brook. Description is the same as Figure 1.

- Pine Tree Brook (MA73-29) should be identified and assessed as a Cold Water Fishery, and listed as a Category 5 waterbody impaired by temperature. This assessment unit is identified as a Cold Water Fishery by DFW, and NepRWA has confirmed the presence of trout through its 2020 sampling finding brook trout eDNA in those waters.)

  Even if this assessment unit continues to be assessed as a warm water fishery, it should be listed with a temperature impairment, as temperatures above 28.3 ˚C were detected at at least one data collection site (exceedance highlighted).

Table 5: Stream temperature metrics calculated for data collected in the Spring and Summer months of 2020 on Pine Tree Brook – definitions are the same as Table 1.

AU_ID	Site	Mean 7-day max (˚C)	Time > 20˚C (hrs)	Time > 28.3˚C (hrs)
MA73-29	PTB003	24.69	414.5	0
MA73-29	PTB004	25.51	1381.83	8.67
MA73-29	PTB005	24.17	1280.17	0
MA73-29	PTB006	24.16	844.5	0
MA73-29	PTB007	27.35	1600.67	21.67
MA73-29	PTB008	24.56	1388.17	0

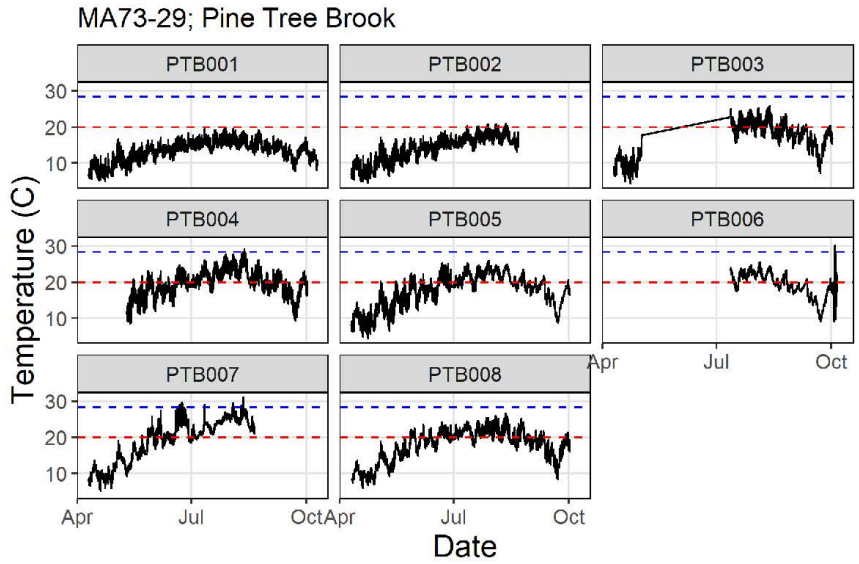

Figure 5: Continuous temperature values recorded at each stream segment in Spring and Summer of 2020 on Pine Tree Brook. Description is the same as Figure 1.

- Tubwreck Brook (MA73-07) should be identified and assessed as a Cold Water Fishery. MassDEP data indicates this designation, and DFW designates it as such. As a result, this stream should be listed as a Category 5 waterbody impaired by temperature.

Table 6: Stream temperature metrics calculated for data collected in the Spring and Summer months of 2020 on Tubwreck Brook – definitions are the same as Table 1.

AU_ID	Site	Mean 7-day max (°C)	Time > 20°C (hrs)	Time > 28.3°C (hrs)
MA73-07	MMB001	20.56	18.75	0
MA73-07	MMB002	23.03	1487.5	0

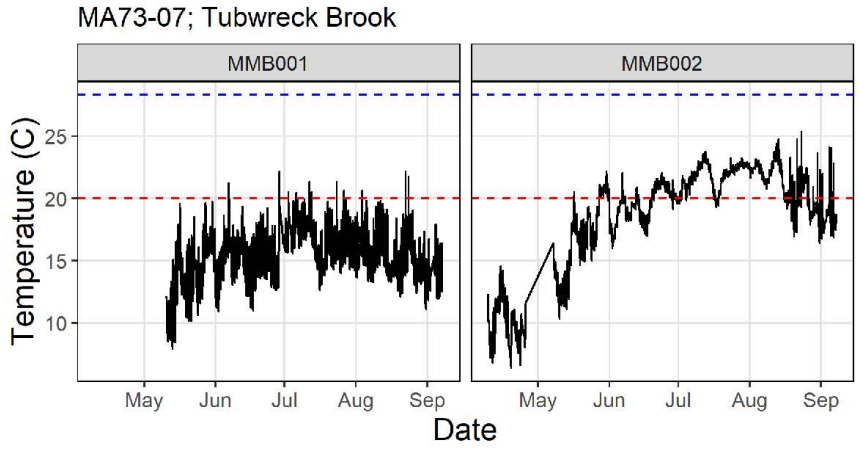

Figure 6: Continuous temperature values recorded at each stream segment in Spring and Summer of 2020 on Tubwreck Brook. Description is the same as Figure 1.

- Several assessment units not currently listed should be included as Category 5 waterbodies impaired for dissolved oxygen based on data collected between 2016 and 2020:

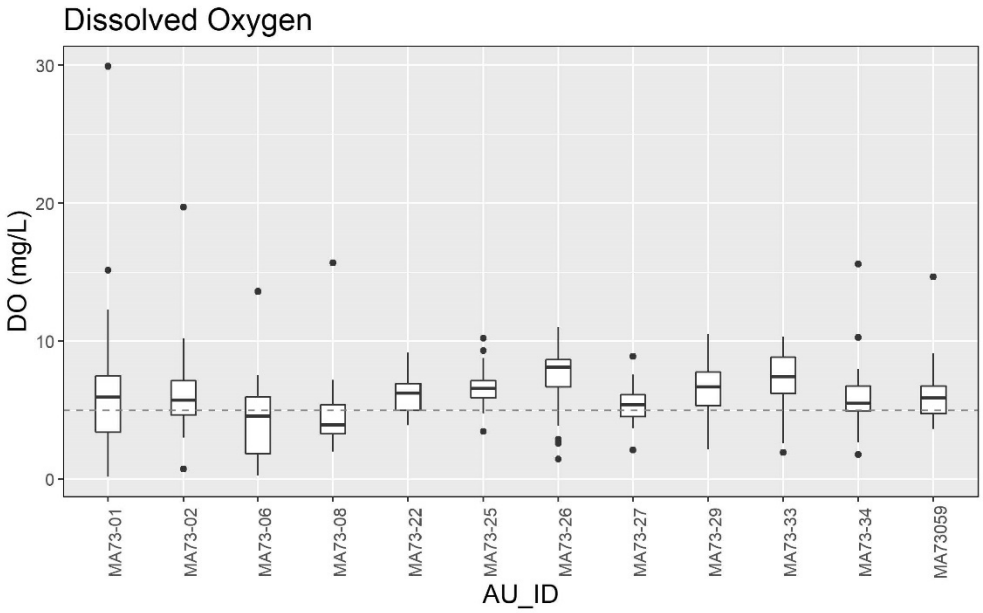

Figure 7: Dissolved Oxygen levels for years 2016-2020 where levels fell below 5mg/L at least 12% of the time. The red dashed line is at 5mg/L.

Table 7: Stream segments that have had water samples with less than 5ml/L of dissolved oxygen during the years 2016 – 2020 that are **not** currently listed as being impaired for DO. Values were calculated by combining all samples taken within each assessment unit for all five years.

AU_ID	Average DO (mg/L)	Minimum DO (mg/L)	Percent of samples DO < 5mg/L	Absolute number of samples with DO <5mg/L
MA73-06	4.49	0.28	0.67	20
MA73-25	6.63	3.46	0.17	5
MA73-27	5.47	2.13	0.4	12
MA73-33	7.23	1.93	0.17	5
MA73-34	6.04	1.8	0.3	9

Note: Ponkapoag Brook (MA73-27) is one of the stream sites that we are suggesting should be a cold-water fishery, which has a threshold of 6ml/L. At this site, 70% of water samples (21 samples in 5 years) had dissolved Oxygen levels that were less than 6mg/L.

- Two assessment units, School Meadow Brook (MA73-06) and Mill Brook (MA73-08) should be listed as Category 5 waterbodies impaired for pH. The pH for both streams regularly fell below 6.3 during the last 5 years.

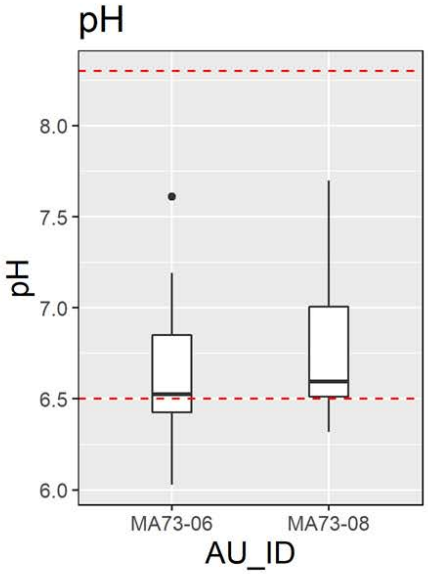

Figure 8: The pH at the two sites where the low threshold was regularly crossed during the 2016 - 2020 samples seasons. The red dashed line is at pH = 6.5 and pH = 8.3.

- Several stream segments should be listed as Category 5 waterbodies impaired for *E.coli* based on data collected between 2016 and 2020:

Table 8: The geometric mean of the last 6 months of data (i.e. the 2020 data) for the streams where the value was greater than 126cfu **and** the stream segment is not currently listed. Note: there is an upper limit to our *E. coli* detection, so the geometric mean may be higher.

AU_ID	Geometric Mean (cfu)
MA73-24	519
MA73-22	385
MA73-17	234
MA73-34	155
MA73-12	137

Table 9: Single sample upper threshold limit for *E. coli* for streams that are not currently listed for *E. coli*.

AU_ID	Number of samples greater than 235 cfu
MA73-17	5
MA73-22	4
MA73-34	2
MA73-08	2
MA73-12	1
MA73-19	1
MA73-21	1

- Several waterbodies indicate an impairment for Total Phosphorus, but we lack the biological impact data. Since 2016, eight sites have had seasonal averages greater than 0.1mg/L of total Phosphorus: MA73-01, MA73-02, MA73-08, MA73-26, MA73-27, MA73-29, MA73-33, MA73-34. We do not have Chlorophyll A data at these sites to comment on if the Phosphorus is leading to a biological response, however, we would recommend that these sites be tested for Chlorophyll A levels to determine is Phosphorus should be listed as an impairment.

Table 10: Seasonal Total Phosphorus (TP) average values at the sites that are not currently listed for Phosphorus. At these sites we recommend investigating the biological impact.

AU_ID	year	TP Seasonal Average (mg/L)
MA73-34	2020	0.17
MA73-27	2018	0.15
MA73-02	2016	0.15
MA73-29	2016	0.12
MA73-01	2020	0.12
MA73-29	2020	0.11
MA73-27	2019	0.11
MA73-08	2020	0.11
MA73-08	2018	0.11

Conclusion

In sum, NepRWA appreciates the improvements in MassDEP has made to its integrated list draft. MassDEP has made it clearer when external data is used, and the individual watershed-specific appendices and sortable table make it much easier for stakeholders to review MassDEP's conclusions and provide meaningful feedback. There is more that MassDEP could do to improve transparency, however. Additionally, it would be very helpful for DEP to provide feedback to science-based watershed associations like ours 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 2018/2020 Integrated List, 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,

Kerry M. Snyder
Advocacy Director

MassDEP response: See MassDEP responses to General Comments (above) for NepRWA comments related to age of data, referencing specific data for listings, fish passage, coldwater fisheries, graphic data presentations, and the use of external data.

Regarding feedback on external data submittals, MassDEP intends to provide feedback forms to NepRWA staff for the data usability QC reviews that have been completed. These include the 2017-2018 basin-wide monitoring data (bacteria, nutrients, DO, pH, temp) submitted on 3/19/2019, 2019 bacteria data submitted on 12/17/2019, 2020 bacteria data submitted 11/11/2020, and the 2019-2020 basin-wide monitoring data (bacteria, nutrients, DO, pH, Chl a, Phaeophytin) submitted 1/15/2021 (the later two submitted for the 2022 IR reporting cycle).

Regarding the potentially omitted impairments, the continuous temperature data for the above-mentioned brooks have not yet been submitted to MassDEP's external data submittal portal so have not yet been reviewed for usability. MassDEP would appreciate NepRWA staff submitting these continuous data as well as the deployed probe sampling station locations and all QC data (e.g., side-by-side checks of the loggers against a field probe, NIST thermometer checks in water bath before or after deployment, etc.) to our external data portal so that these data can be considered for use in the 2024 IR reporting cycle (the deadline for the 2022 IR was January 15, 2021 and the preparation/evaluations are already well underway and should include NepRWA data if submitted by that date while the deadline for the 2024 IR is TBD but will likely be mid-January 2023). Guidance for submitting can be found online: external-data-submittals-to-the-watershed-planning-program.

Data from NepRWA used for the 2018/2020 IR reporting cycle included DO data from 2017 and 2018 however the 2016 DO data, while submitted in time for use, lacked QC information so was not considered useable for Level 3 assessment decisions. DO data from 2019 and 2020, although presented in this comment letter, was not submitted by the 11/1/2019 deadline for use in the 2018/2020 IR reporting cycle. Please note that MassDEP analysts did evaluate the 2017 and 2018 NepRWA DO data in these waterbodies (with some caution due to sporadic issues with meter QC where noted) along with all other biological and water quality monitoring data according to the weight-of-evidence approach for Aquatic Life Use attainment decisions as described in the 2018 CALM guidance manual. While no DO impairment decisions were made based on these specific data, alerts were identified because of low DO in Ponkapoag Brook and the Unnamed Tributary locally considered part of Spring Brook. These streams will be examined closely in light of NepRWA concerns in future IR reporting cycles.

Although pH tends to often be slightly acidic in School Meadow Brook (MA73-06) and Mill Brook (MA73-08), both are described as being influenced by wetlands so the slightly low pH conditions are considered naturally occurring. None of the NepRWA pH data at either sampling location (n=51 and 45 measurements generally 5 or 6 times a year from 2008 to 2014 and 2017 to 2018 in these brooks, respectively) was <6.0SU (guidance in CALM allows for slight pH excursions considered the result of natural conditions (i.e., 0.5SU from the 6.5SU criterion) so no impairment decision will be made for these waterbodies.

Only the Aquatic Life Use was updated for the 2018/2020 IR so the Primary and Secondary Contact Recreation Use attainment decisions using NepRWA bacteria data for these waterbodies will be addressed in the 2022 IR reporting cycle. It is noted here that Purgatory Brook (MA73-24) is already listed for E. coli but is in Category 4A as it is covered by an approved TMDL.

Regarding the potential nutrient impairments, MassDEP will consider nutrient indicator sampling as part of future monitoring efforts (e.g., deployed probes, chlorophyll a, and nutrient sampling) in the those waterbodies requested by NepRWA staff that exhibited seasonal total phosphorus concentrations >0.1mg/L sometime between 2016 and 2020 but are not yet listed as nutrient impaired. These AUs include MA73-34, -27, -02, -29, -27, and –08. It is noted here that the Neponset River (MA73-01) and Meadow Brook (MA73-33) are already listed in Category 5 for total phosphorus.

Muddy River Restoration Project:

Muddy River Restoration Project
Maintenance and Management Oversight Committee
Post Office Box 470535
Brookline, Massachusetts 02447
www.muddyrivermmoc.org

June 21, 2021

Via Email to richard.f.chase@mass.gov

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

Re: Draft Massachusetts 2018/2020 Integrated List of Waters
Appendix 12, Charles River Watershed Assessment and Listing Decision Summary, Muddy River (AU MA72-11)

To whom it may concern:

The Muddy River Restoration Project Maintenance and Management Oversight Committee (the "MMOC") is pleased to provide this letter of comments regarding the Draft 2018/2020 Integrated List of Waters. Our comments focus on the information regarding the **Muddy River (Assessment Unit MA72-11)** set forth in **Appendix 12, Charles River Watershed Assessment and Listing Decision Summary at page 87**.

The MMOC was created in 2002 by the Secretary of Environmental Affairs (the "Secretary") to represent the citizens of the Commonwealth in order to ensure full transparency and public participation in the Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project – EOEEA No. 11865 (the "Muddy River Restoration Project" or sometimes the "Project"), and to provide independent citizen oversight of the Project. The goals of the Muddy River Project include improvement of water quality to Class B Water Quality Standards, enhancement of aquatic and riparian habitat, and improvement of stormwater management throughout the Muddy River watershed.

The MMOC's Water Quality Subcommittee has reviewed the Draft Massachusetts 2018/2020 Integrated List of Waters and has the following comments:

1. Some of the information which is provided in Appendix 12, Assessment and Listing Decision, for the Muddy River (AU MA72-11) is not accurate, specifically, the

information regarding Phase II of the Muddy River Project. We recommend deleting the 2 sentences that begin "Phase II was scheduled to begin…," and "According to a Boston Sun Staff…" and replacing them with information from the Army Corps, which designed and is managing the construction of Phase II. We suggest the following:

> "Phase II began in June 2020, with the Project taking roughly three years to complete. According to a presentation for the public on June 30, 2020 (https://www.muddyrivermmoc.org/phase-2-summer-2020-construction-preview-tuesday-june-30-2020/) and the Army Corps' June 2020 report of construction activity in the next 90 days (https://www.nae.usace.army.mil/Portals/74/docs/Topics/MuddyRiver/June_2020_Muddy_River_90_Day_Info_060420.pdf), Phase 2 includes dredging one to eight feet of sediment for flow conveyance in the Back Bay Fens and Riverway sections of the Muddy River, excavation of the sandbar and island at Leverett Pond, and the removal of some phragmites from the wetland and riparian areas of the Back Bay Fens and Riverway (only those which affect flow conveyance). After removal of river sediments and phragmites, restoration of the river's shoreline in construction areas will consist of planting emergent wetland plants and restoring riparian vegetation in upland areas by planting trees and shrubs."

The Watershed Planning Program might want to coordinate with those at MassDEP who are working on the Project for further information. Special Projects Coordinator Steven Lipman may be the appropriate contact.

2. With respect to the reference in the last two paragraphs of the Assessment relating to the possibility of Potamogeton crispus at the mouth of the Muddy and the addition of an Alert, especially in light of the age of the report (2001), we would encourage MassDEP to confirm the finding, if at all possible, before issuing the Final 2018/2020 List. If that is not possible, it should certainly be confirmed or corrected in the next update in 2022.

3. We would like to make MassDEP aware that surface water quality monitoring is required as part of the Muddy River Restoration Project. Data from the monitoring program is designed to be used by MassDEP to evaluate whether the Muddy River is meeting the Class B Water Quality Standards. In the program, sampling is to occur quarterly at nine locations within the Muddy River and at seven outfalls into the river during both wet and dry weather. Samples are to be analyzed for bacteria, total suspended solids (TSS), total phosphorus (TP), nitrogen (TN), nitrogen metals, pH, dissolved oxygen (DO), temperature, and other parameters. We suggest that MassDEP use this data collected in the next IR update in 2022.

In summary, we do not disagree with the listing of the Muddy River (AU MA72-11) as Not Supporting, with all former impairments being carried forward. But we do suggest that before the Final List is issued, that there be (a) further review and confirmation of the potential existence of a non-indigenous species at the mouth of the river, and (b) corrections to and updating of the description of Phase II of the Muddy River Project.

Thank you for the opportunity to provide these comments.

Very truly yours,

Frances Allou Gershwin

Frances Allou Gershwin, Chair
Tel: 617-794-3582
fgershwin@muddyrivermmoc.org

cc:
Jim Montgomery, Commissioner, Massachusetts Department of Conservation and Recreation (Mass DCR)
Erin Gallentine, Commissioner, Brookline Department of Public Works
Ryan Woods, Commissioner, Boston Parks and Recreation Department

MassDEP response: MassDEP appreciates the longstanding efforts of the Muddy River Oversight Committee to improve the water quality in the Muddy River. MassDEP would welcome receipt of project monitoring data via our email portal: external-data-submittals-to-WPP.

Regarding inaccuracies in the Appendix 12 of the 2018/2020 IR involving Phase II of the project, we have deleted the cited two sentences and replaced them with the suggested text from the U.S Army Corps.

Concerning the potential presence of the non-native P. crispus at the mouth of the Muddy River, we are unable to confirm its presence at this time, and will recommended that an aquatic macrophyte survey be conducted to identify any non-native aquatic macrophyte impairments for a future reporting cycle.

MassBays-South Shore Region:

Massachusetts Bays NATIONAL ESTUARY PARTNERSHIP
251 Causeway Street, Suite 800 Boston MA 02114
www.massbays.org

June 18, 2021

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

Re: 2018/2020 Integrated List of Waters Comments

Dear Mr. Chase,

Thank you for the opportunity to comment on the 2018/2020 Integrated List of Waters. My comments are as follows:

I appreciate that data availability and quality are a crucial part of the decisionmaking that goes into creating this list. As a scientist and technical resource for citizen science groups on the South Shore and beyond, I appreciate that there has been a greater effort to integrate citizen science data of adequate quality, especially the cooperation between MassDEP and EPA on the WQX data portal and the AquaQAPP program. We hope that these two efforts will help provide MassDEP with more data that has been collected in an acceptable way to inform future Integrated Lists. I noted that while some sites did include some citizen science data, a majority were still being evaluated on much older datasets where newer data are available, especially the North and South River

I am pleased that impairments like fish passage and algal blooms are being more carefully considered and coordination with other state agencies has allowed restoration progress to be reflected in the Integrated List, as well as providing an additional impetus for restoration in locations still impaired for fish passage. This holistic approach to stream health will go a long way towards helping communities understand the issues that their water bodies are facing, and provide documented and citable evaluations of these impairments. That said, there are many more stream segments that are impaired for fish passage due to physical obstructions and low flow, and going forward towards the next round it would be good to continue ensuring that the list is comprehensive. The detailed appendices were helpful and I hope more of the segments can include details – perhaps providing a priority list for additional information in future monitoring grants (i.e. "underserved" segments).

I look forward to working with MassDEP on improving the way data are collected and checked for quality by citizen groups and fostering a positive relationship that will help inform future versions of the Integrated List.

Sincerely,

Sara P. Grady, Ph.D.
NSRWA Watershed Ecologist
MassBays South Shore Regional Coordinator

NSRWA
The North & South Rivers Watershed Association is a regional partner of the
Massachusetts Bays National Estuary Program (MassBays)
MassBays is hosted by the Massachusetts Executive Office of Energy and Environment's Office of Coastal Zone Management and funded by the U.S. Environmental Protection Agency

MassDEP response: See MassDEP responses to General Comments (above) for MassBays-South Shore Region comments related to age of data, fish passage, more detailed documentation, and the use of external data. We appreciate the monitoring and stewardship efforts of MassBays and the North & South Rivers Watershed Association (NSRWA), in assisting MassDEP generate the Integrated Report.

Lake Archer Association:

From: Gayle Sudit
To: Chase, Richard F. (DEP)
Subject: comments on the Draft Massachusetts combined 2018/2020 Integrated List of Waters
Date: Monday, June 21, 2021 2:10:36 PM

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

Dear Mr. Chase:

We, the board members of the Lake Archer Association (LAA), a volunteer-led non-profit organization in Wrentham, MA, submit the following comments on the Draft Massachusetts combined 2018/2020 Integrated List of Waters. We appreciate the extension that you granted for sharing our feedback on this report.

Two of our board members, along with our environmental consultant, Wendy Gendron of ARC, experienced a pleasant and productive meeting with members of your staff, Sue Flint and Bob Smith, to discuss a QAPP. We submitted it to the DEP for review, and heard back that it covers the "QA/QC elements needed for a sampling QAPP very well." We are working to address the specific comments/questions raised during the review process. The association is partnering with ARC to pursue water quality testing this summer to demonstrate phosphorus and dissolved oxygen impairments. Our objective is to submit data collected with an approved QAPP to the DEP by 2022 for consideration and, hopefully, for inclusion in the 2024 impairment list. Currently, we also have a 604b water quality testing grant application submitted to the state. By late summer/early fall, our status with this grant should be known, as we would like to continue monitoring next year as well.

In the meantime, we would like to share some background information while data is being collected re: the combined 2018/2020 integrated list of waters. Nearly two decades

before LAA was formed in 2018, a study of the three lakes in Wrentham, including Lake Archer, was executed by ESS in 2000. The data collected as part of that study demonstrates a phosphorus impairment and a dissolved oxygen issue, but it was not formally submitted to the DEP for consideration on the impaired waters list.

We would be happy to share the ESS study if that would be helpful. Following guidance (p. 39) from the CALM document, we calculated the seasonal average (with at least three samples) of total phosphorus using the ESS data and compared it to the "gold book" standard of 0.025 mg/l. ESS reported a phosphorus level at 0.12 mg/L in July 2000. It was also collected in May (0.02 mg/L), June (0.02 mg/L), and August (0.05 mg/L). We averaged this and found that our seasonal average was 0.0525 mg/L, which is more than double that of the "gold book." The 2000 ESS report also documents low dissolved oxygen concentrations in the hypolimnion below 5 to 7 meters. Additionally, we discovered a 1987 study that said that the "in lake phosphorus data averaged 0.06 milligrams per liter (mg/L)." Clearly, Lake Archer has had issues dating back to at least 2000 that have not been officially recognized nor addressed.

Additionally, Lake Archer suffered a toxic algae bloom in November 2020. This bloom began at the start of the month, seemed to dissipate, and re-occurred at the end of the month. A grab sample was professionally collected by our environmental consultant and analyzed by Dr. Ken Wagner, who edited the Massachusetts General Environmental Impact Report (GEIR). We would be happy to share the phycologist's report. The summary is that our cell count was 7.7 times the threshold used by the MA DPH to issue a water advisory; their benchmark is 70,000 cells per mL, and we had 540,000 cells/mL. It was Dolichospermum lemmermannii, a filamentous cyanobacterium that is a known producer of anatoxin-a. One of our contacts at the EPA suggested that we share this with you, in case we eventually qualify for a Harmful Algae Bloom impairment as a result of increased nutrient load. Meanwhile, we are actively pursuing ways to reduce the nutrient load of the lake while engaging residents in our efforts.

Another concern that has developed is the presence of suds and foam on the lake, which we fear is caused by an illicit discharge. Recently, the town performed a dry weather survey and saw no discharge from the storm drains during dry weather. Earlier this month we hosted a Citizen Scientists Training from the EPA and learned how to do some basic water quality testing ourselves (fluorometry, algae grab sampling, secchi disk, and plankton tow). Using our newly-gained education, we plan to collect dry weather water samples from the outfalls to help further address possible IDDE concerns.

As we mentioned above, our intention is to have our environmental consultant collect new phosphorus and dissolved oxygen data during summer 2021 under a DEP-approved QAPP for consideration in the 2024 integrated list. In the meantime, we hope that this background information can provide your team with helpful information about Lake Archer. We are passionate about preserving our lake and the Charles River watershed of which it is a part. Identifying and addressing impacts on the lake will help us accomplish this task. Please let us know if any additional information is needed. We have also been coordinating with Charles River Watershed Association, and support their detailed comments on the 2018/2020 draft report.

We thank you for your time and consideration.

Sincerely,

Mike
Mike Glass
President, Lake Archer Association

Gayle
Gayle Sudit
Vice President, Lake Archer Association

Penny
Penny Nadeau
Treasurer, Lake Archer Association

Bob
Bob Marini
Secretary, Lake Archer Association

Ann
Ann Natalizia
Director, Lake Archer Association

Jessica
Jessica Briar
Communications Director, Lake Archer Association

lake-archer-board@googlegroups.com

MassDEP response: MassDEP applauds the recently formed Lake Archer Association for their committed stewardship and for initiating monitoring to assess lake health, including the development of a Quality Assurance Project Plan (QAPP) for DEP review and approval. The newly acquired data will help inform future Integrated Reports (IR) with respect to determining the trophic status and assessing the aquatic life use for the lake. In addition to data collected under the QAPP, other available and recent corroborative information would also be helpful to submit to DEP (such as the cited 2020 HAB report and photo-documentation of episodic events). MassDEP welcomes receipt of monitoring data from outside groups via our email portal: external-data-submittals-to-WPP.

Jones River Watershed Association:

Jones River Watershed Association

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

Memo
Comment on 2018/2020 Integrated Waters List
21 June 2021

In reference to the materials posted to the Mass.gov website requesting comments on the above referenced updated Integrated Waters List, we offer the following comments on the South Coastal Basin, Jones River and tributary waters.

1.
Our Primary comment is that the entirety of the Jones River Mainstem from Kingston Bay into Silver Lake has been re-classified a CFR or ColdWater Fishery Resource, as of, if not prior to February 2021. See https://www.mass.gov/info-details/coldwater-fish-resources Including First, Second (Laundry), Third, and Furnace Brooks, part of Spring Brook and part of Bassett's Brook. It is no longer a "WWF". The Elm Street Dam and Fishway (MA94-13 and MA 94-14) was removed by November 2019, and complied with all ten state, federal, and local permits.

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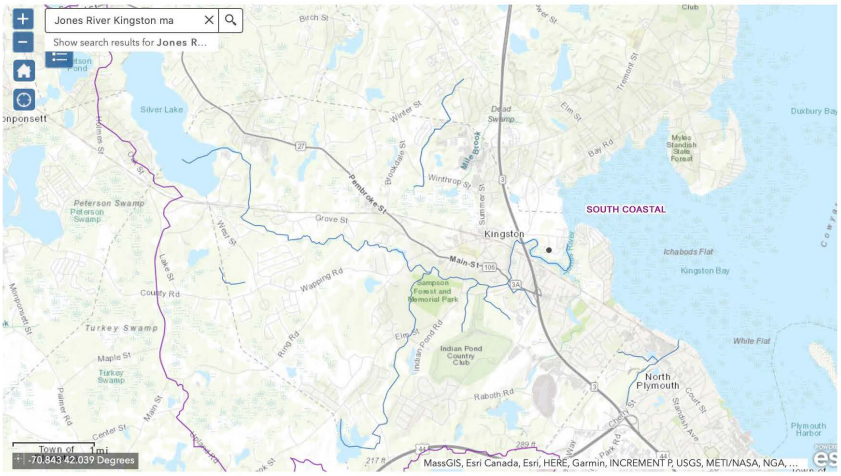

https://www.mass.gov/info-details/coldwater-fish-resources

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2.
DEP should describe its understanding of "outlet Silver Lake". There seems to be some internal confusion regarding where Silver Lake is bounded, where the "outlet" is, and where the Brockton (aka Silver Lake) dam is located. In speaking with a senior DEP staff, it became clear that this person thought there were 2 dams controlling flow from Silver Lake. There is one. It is on the Jones River 1500± feet downstream of the outlet from Silver Lake. This 1500 feet of the headwater is impaired due to management of the 38in. high dam that was constructed in 1905 to raise the level of Silver Lake to allow Brockton to take 2MGD of water. The evolution of water management policies has caused serious man-made degradation of this outstanding resource water.

South Coastal	Jones River	MA94-12	Headwaters, outlet Silver Lake, Kingston to former dam (NATID: MA00396) near Wapping Road, Kingston.	5	5	(Dewatering*)		Unchanged
South Coastal	Jones River	MA94-12	Headwaters, outlet Silver Lake, Kingston to former dam (NATID: MA00396) near Wapping Road, Kingston.	5	5	(Fish Passage Barrier*)		Unchanged
South Coastal	Jones River	MA94-12	Headwaters, outlet Silver Lake, Kingston to former dam (NATID: MA00396) near Wapping Road, Kingston.	5	5	Algae		Unchanged
South Coastal	Jones River	MA94-12	Headwaters, outlet Silver Lake, Kingston to former dam (NATID: MA00396) near Wapping Road, Kingston.	5	5	Aquatic Plants (Macrophytes)		Unchanged

			Wapping Road, Kingston.					
South Coastal	Jones River	MA94-12	Headwaters, outlet Silver Lake, Kingston to former dam (NATID: MA00396) near Wapping Road, Kingston.	5	5	Dissolved Oxygen		Unchanged
South Coastal	Jones River	MA94-12	Headwaters, outlet Silver Lake, Kingston to former dam (NATID: MA00396) near Wapping Road, Kingston.	5	5	Turbidity		Unchanged
South Coastal	Jones River	MA94-13	From former dam (NATID: MA00396) near Wapping Road, Kingston to dam (NATID: MA00395) at Elm Street, Kingston.	5	5	(Dewatering*)		Unchanged
South Coastal	Jones River	MA94-13	From former dam (NATID: MA00396) near Wapping Road, Kingston to dam (NATID: MA00395) at Elm Street, Kingston.	5	5	Algae		Unchanged

South Coastal	Jones River	MA94-13	From former dam (NATID: MA00396) near Wapping Road, Kingston to dam (NATID: MA00395) at Elm Street, Kingston.	5	5	Aquatic Plants (Macrophytes)		Unchanged
South Coastal	Jones River	MA94-13	From former dam (NATID: MA00396) near Wapping Road, Kingston to dam (NATID: MA00395) at Elm Street, Kingston.	5	5	Dissolved Oxygen		Unchanged
South Coastal	Jones River	MA94-13	From former dam (NATID: MA00396) near Wapping Road, Kingston to dam (NATID: MA00395) at Elm Street, Kingston.	5	5	Turbidity		Unchanged
South Coastal	Jones River	MA94-14	From dam (NATID: MA00395) at Elm Street, Kingston to mouth at Kingston Bay, Kingston.	4a	5	Fecal Coliform	61734	Unchanged
South Coastal	Jones River	MA94-14	From dam (NATID: MA00395) at Elm Street, Kingston to mouth at Kingston Bay, Kingston.	4a	5	Fish Bioassessments		Added

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South Coastal	Jones River	MA94-14	From dam (NATID: MA00395) at Elm Street, Kingston to mouth at Kingston Bay, Kingston.	4a	5	Nutrient/Eutrophication Biological Indicators		Added

Silver Lake (MA94143)

Because of periodic water shortages, the Massachusetts Legislature has allowed the City of Brockton to divert water from Monponsett Pond in the Taunton River Watershed and Furnace Pond in the North River Watershed into Silver Lake between October and May. Since both of these waterbodies are more enriched, their influence on water quality in Silver Lake is of concern. Brockton's Water Management Act (WMA) registration allows the withdrawal of 11.11 MGD from the three reservoirs. The Brockton Water Commission operates a water treatment facility on the shore of Silver Lake that is permitted (NPDES MAG640029) to discharge filter backwash and supernatant into a lagoon to Silver Lake. Water quality monitoring was conducted in Silver Lake during 2008 and 2009 as part of the river herring spawning and nursery habitat assessment (Chase et al. 2013). The maximum depth at station SL4 (the deep hole station) was reported to be 20.5 m. Oxygen depletion when stratified ranged between depths of 8 to 12 m during 2008 and 2009 profiles (very rough estimate of 40% of the lake surface area using 9m (30') contour). The maximum temperature was 27.15°C. The pH was often slightly acidic (generally ranging from 6.15 to 6.75SU) typical of naturally occurring conditions in this area. There were several measurements at depth during stratification when pH was as low as 5.65SU. Specific conductivity was low (highest measured was 189 uS/cm) and the Secchi disk depths were all good ranging from 2.4 to 3.1 m. Total phosphorus was not measured at the deep hole station SL4 but concentrations at the other three surface sampling locations in the lake were low (0.003 to 0.021 mg/L). There are three barriers along the upper end of the Jones River in Kingston that do not allow passage of river herring and American eel into Silver Lake: the natural sand berm at the Silver Lake outlet (passage score of 7- severe impediment), the Forge Pond Dam (passage score of 10—no possible passage), and the Lake Street culvert (passage score of 5 – restricted passage). Based on the flow alteration associated with water withdrawals and diversions, the three obstructions to fish passage into Silver Lake (Assessment Unit MA94143), and the oxygen depletion occurring at depths >9m, the Aquatic Life Use is assessed as impaired.

Regarding the above draft description from 2018-20IlApp23_SCoastal_DRAFT210323.docx we offer the following local perspective.

The 1964 Legislation was a direct result of the City of Brockton on fire during the worst of century drought—not "periodic water shortages". The diversions from the Taunton and North River basins were intended to be temporary fixes, not a permanent theft and chronic impairment of one of the Commonwealth's greatest natural treasurers. The situation endures because of a failure to understand and address the impacts, not lack of alternative resources for the City of Brockton. As a **direct result of** a failure of management policy the fisheries in the region are in steep decline, and the water quality of Silver Lake and the largest rive r draining to Cape Cod Bay has been imperiled. The 11.11 MGD was incorrectly allowed despite a DEP staff calling attention to the **INTERBASIN TRANSFER** and mix of water, as well as the failure to account for additional water delivered from Pine Brook under emergency

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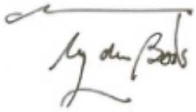
authorization AND the fact that Brockton artificially increased its withdrawal in order to set the stage to steal more water from the region. Brockton had fewer people in 1980, yet it was pumping 17 to 18 MGD. DEP and the State accept this either due to a lack of understanding, time to review or some other rational without basis in sustaining a healthy environment. To continue to rely on this perversity is counterproductive and contrary to the Clean Water Act.

However, DEP should be glad to know that the Central Plymouth County Water District Commission just awarded a contract to perform an enhanced water quality assessment of Silver Lake—including plant life—which as a result of the transfer of water from East Monponsett Pond etc. has transplanted a glacial lake worth of plants that did not live in Silver Lake even 30 years ago.

Unfortunately, I have run completely out of time and want DEP at least to consider these comments, although we could in fact provide more and hope to do a better job of it in the coming years.

Thank you for the updates, and your consideration.

Sincerely,



Pine duBois

Executive Director

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MassDEP response: Regarding the fishery designation status for the Jones River, the Massachusetts Surface Water Quality Standards (314 CMR 4.00; SWQS) in effect for the 2018/2020 IR identify the freshwater portion of the Jones River as a Class B, Warm Water Fishery (and from the outlet of Silver Lake, Kingston to former dam (NATID: MA00396) near Wapping Road, Kingston as a High Quality Water - HQW). At the time MassDEP analysts were updating the Aquatic Life Use status of the Jones River AUs for the 2018/2020 IR reporting cycle, there were no fish population sampling data available to indicate the presence of cold water fish species in the freshwater portion of the Jones River. The Massachusetts Department of Fish and Game (DFG), Division of Fisheries and Wildlife staff has very recently mapped the Jones River mainstem as a Coldwater Fish Resource (CFR) (~February 2021) based on fish sampling data they collected in the river near Elm Street, Kingston on 6 June 2020. These data, along with any other data and information associated with the Elm Street Dam and fishway removal project in summer/fall 2019 will be reviewed as part of the 2022 IR. In the interim, the presence of cold water fish species (excluding stocked trout), and resultant designation by DFG as a CFR, will allow the Jones River habitat to be protected as an Existing Use Cold Water pursuant to 314 CMR 4.06(1)(d)7.

Regarding the description of the outlet of Silver Lake, the fish passage description in the decision document will be reworded slightly to aid in clarity. There are three barriers along the upper end of the Jones River in Kingston that do not allow passage of river herring and American eel into Silver Lake: the natural sand berm at the Silver Lake outlet i.e., at the point of discharge to Forge Pond (passage score of 7- severe impediment), the Forge Pond (aka Brockton) Dam, located just upstream of Lake Street (passage score of 10—no possible passage), and the Lake Street culvert (passage score of 5 – restricted passage).

MassDEP appreciates the local historical perspective provided concerning Silver Lake and the City of Brockton, and we acknowledge the frustration and efforts of the Jones River Watershed Association members to restore and protect water quality in the Jones River Watershed. We also strongly recommend that any water quality monitoring project proposed to be conducted in Silver Lake and/or the Jones River Watershed receive all appropriate DEP reviews/approvals (QAPPs, etc.) to maximize the potential for assessment-level data (Level 3) usable for 305(b) and 303(d) decision-making. Details of these requirements can be found online: external-data-submittals-to-the-watershed-planning-program.

Fore River Residents Against the Compressor Station (FRRACS):

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South Shore, MA

June 21, 2021

Comments DRAFT Massachusetts 2018/2020 Integrated List of Waters

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

Fore River Residents Against the Compressor Station (FRRACS) is not only fighting against the Weymouth Compressor Station, but fighting for a cleaner future for the Fore River Basin.

FRRACS appreciates the opportunity to comment on the DRAFT Massachusetts 2018/2020 Integrated List of Waters. We have several concerns about the report and our water quality.

Our members hail from around Massachusetts and specifically hundreds from the Fore River Basin Communities of Braintree, Quincy and Weymouth. The Fore River Basin has two Environmental Justice Neighborhoods of Quincy Point and Germantown.

Smelt Brook - Perched Culvert

On Page 51 the report incorrectly states that there is no diadromous fish passage upstream of the perched culvert on Brookside Road. Although Rainbow Smelt and other fish are not able to pass upstream of this culvert American eel are able to climb up the wall of the culvert and can pass all the way upstream to the eel ladder at Pond Meadow Park's Dam by Pond Meadow Reservoir. Some eel may not be able to make it but many do. We see this culvert as a pollution impairment as most fish are not as mobile as eels, however we think it is important to note the eel ladder and passage upstream at Pond Meadow Park.

This has been documented by Marine Fisheries who helped the rangers at Pond Meadow Park (Weymouth-Braintree Regional Conservation District). The Rangers do an eel count each year. Additionally this culvert stream crossing is documented in the NAACC database by a Town of Braintree Survey.

Old Swamp River

On pages 48 and 49 the MassDEP should add information on the fish passage barrier called the SNUP dam on the Old Swamp River. The Town of Weymouth recently applied to the Division of Ecological Restoration (DER) as a priority project to remove this defunct dam. We supplied comments in support of dam removal and the Town's Application to DER. The SNUP Dam prohibits passage of diadromous river herring under certain high and low flow events. Under ideal conditions fish can pass through the sluice gate in the dam and have been documented

spawning in the Old Swamp River in the median of Route 3. This segment has fantastic spawning habitat for herring and trout with riffles, pools and mossy banks. We request you add the SNUP Dam as a fish passage barrier pollution impairment to this segment of river.

Mill River

On page 35 and 36 the Mill River is described. Historically there was fish passage all the way up the Mill River from Whitman's Pond to Great Pond Reservoir in Weymouth. However two structures, one grouping of riprap dam behind 824 Washington Street in Weymouth and a dam on the River at 134 Mill Street in Weymouth. The owner of the dam at 134 Mill Street, Kathy Swain, recalled at a site visit in 2021 that historically fish were able to get to the base of their dam but have not seen them recently. Kathy is looking at applying as a DER priority project for dam removal in the future. We request you add these two dams as fish passage barrier pollution impairments to these sections of river. Additionally the Dam at the Great Pond Reservoir in Weymouth was not equipped with a fish ladder structure when it was recently renovated unlike Great Pond Reservoir in Braintree.

Monatiquot River Delisting for Dissolved Oxygen

We are concerned about the delisting of the Monatiquot River for dissolved oxygen. We would like to see more data collected before delisting the Monatiquot for dissolved oxygen. The River Street Bridge is at a segment of the river with more elevation changes with riffles and pools than the slower moving and flat section of the Union Street crossing. The segment by Union Street is a location where it is believed that river herring are spawning and fry live before heading back to the ocean as there is no lake where Alewife can access at this point to spawn. The slow moving segment of river is from approximately Route 3 stream crossing to approximately Merritt Ave upstream of the River Street Crossing. Other reaches of the river have larger elevation changes and riffles for an exception of the impoundment behind Armstrong Dam that extends to approximately Jefferson Street.

Therefore we request that MassDEP do more monitoring at Union Street and to not delist for dissolved oxygen until more data is collected.

Vision of a Better Future

Fore River Residents envision a better future where the Fore River Basin and its tributaries are restored and will be safe to swim, boat, fish, shellfish and paddle. Currently water pollution from stormwater, sanitary sewer overflows and industrial water and air pollution degrades our otherwise clean water denying our constitutional rights under the Constitution of the Commonwealth of Massachusetts Article 97. The constitution states, "The people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic, and esthetic qualities of their environment". This is currently not the case for residents of the Fore River Basin.

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Cumulative Impact and Equity

The Fore River Basin has 10 polluting facilities located in a small geographic area. We are concerned about cumulative environmental and public health impacts from air and water pollution in the basin.

MassDEP in their permits historically did not consider cumulative impacts of multiple polluting facilities in a geographic area such as the Fore River Basin.

We urge the EPA and MassDEP to consider cumulative water pollution, health, and environmental impacts from the different polluting facilities in the Fore River Basin and have water monitoring in different areas of the Fore River Basin to measure water quality conditions and mitigate toxic and hazardous pollutant sources for people and the environment.

More environmental data needs to be collected on water and air quality in EJ neighborhoods. Communities like the Fore River Basin do not have the capacity at the moment to do monthly water quality monitoring like what happens in other watersheds like the Charles River - there is no staff or nonprofits working on it so things go under the radar.

Sanitary Sewer Overflows Monatiquot and Fore Rivers

From January 2013 to May of 2019 the Town of Braintree documented 49 Sanitary Sewer Overflows. In many of them sewage was pumped into the Monatiquot River or its tributaries which all flow into the Fore River Basin. Many of these documented releases had large discharges.

From July 2015 to June 2020 there were 92 documented sanitary sewer overflows in the City of Quincy.

We urge MassDEP and USEPA to investigate sanitary sewer overflows in Braintree and Weymouth as has been done previously in Quincy. EPA and MassDEP must take action to remedy these point source pollutants in order to improve water quality in the Fore River Basin and Boston Harbor.

The Town of Weymouth did not have their sanitary sewer overflow documentation easily accessible on their website, however they do occur and have been witnessed by members and supporters. We request that MassDEP and USEPA ensure that Weymouth posts this data publicly on their website.

Some of sanitary sewer overflows are very close to public access points: trails, proposed trails, kayak launch and a beach that has regularly poor water quality:

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Patriot Ledger 2017 Smith Beach
Patch 2017 Smith Beach and Wollaston Beach Closures
Patriot Ledger 2012 Smith Beach in Braintree closed again, all others open

The Town of Braintree and the MWRA did not list any sanitary sewer overflows into the Fore River from the manholes right on the tidal shore of the Fore River (figures 2, 3, 5, 6, 7). However, manholes in East Braintree have metal grates on top to allow the sewer manhole caps to surcharge like a geyser to not lose the caps (Figures 5-7). Are these permitted discharges? How often do these sewer manholes discharge?

We demand that these be remedied and raised like other manholes along the Fore River so they do not surcharge and so that no salt water infiltrates to Deer Island.

The MWRA's East Braintree Siphon (figures 2, 3) have many cracks and holes and is in poor condition. Saltwater is likely intruding at this location and raw sewage may flow out of the cracks and holes during and after rain events. Too much infiltration of salt water with sea level rise threatens the viability of the Deer Island Wastewater Treatment Plant. We urge USEPA and MassDEP to investigate this siphon and work with the MWRA to get it fixed.

Warning Signs and Communication Needed

In the current reality EEA, Department of Public Health (DPH), Division of Marine Fisheries (DMF) and all departments should post warnings for environmental hazards like contaminated shellfish or swimming/boating safety with sewage overflows on signage and online in multiple languages. It is hard to find this information.

Specifically, DMF should post signage for contaminated shellfish stating "closed to shellfishing" on beaches and parks in multiple languages in public access beaches and parks in the Tidal Fore River and Town River Bay. We have reached out to DMF about this. Signs are currently located on Mound Street Beach in Quincy Point (figure 8). Signs are needed at Avalon Beach in Quincy Point, King's Cove and Lovell's Grove Parks in North Weymouth, Smith Beach in Braintree and Baker Beach, Fire Station Beach and Snug Harbor Beach in Germanton (Quincy).

Now that the sewage notification bill is law we demand that MassDEP promulgate regulations as intended by the legislature to notify residents where and when these sanitary sewer overflows occur. We also demand these notices be translated especially for environmental justice communities of Quincy Point and Germantown. People should know when it is safe to boat, swim and recreate in our waterways.

The locations of sanitary sewer overflows are repeat locations where the municipalities pump sewage into the river so they know where it is happening and when it is happening generally speaking and could notify residents when to avoid recreating in that segment of river.

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People paddle in the Monatiquot River, Town River and the Fore River as well as lakes and reservoirs like Pond Meadow Pond on Smelt Brook. There are also numerous swimming beaches in the Fore River Basin in Braintree, Quincy and Weymouth. Some overflows like the ones on the tidal section of the Fore River in East Braintree sometimes involve surcharging manholes so they have mental bars over them, however the Town of Braintree and MWRA can remedy these manholes so they do not surcharge. It is unclear to us whether these manholes with the metal grates above them are permitted discharge locations and the sewage discharges are being monitored and reported as required by the Clean Water Act. We urge USEPA and MassDEP to investigate these manholes and other discharges of raw sewage and help remedy these point source pollution problems.

Additional Fisheries Concerns

There are many fish species in the Fore River Basin.

The Fore River has one of the largest rainbow smelt runs in the Commonwealth. Smelt go up different tributaries to the Fore River, including but not limited to Smelt Brook and the Monatiquot River, to spawn crossing the main part of the Fore River Basin by CITGO terminal

The Fore River has a significant river herring run of Alewife and Blueback Herring that go up the Monatiquot River to spawn. Atlantic Tomcod also are known to spawn in the Fore River.

Additionally migratory American eel are known to migrate up tributaries to the Fore River including Smelt Brook which has an eel ladder at Pond Meadow Park and the Monatiquot River which is actively being restored as a part of a dam removal and river restoration project. A fishway project for fish passage at natural rock falls in the Monatiquot has gone out to bid in Spring of 2021. Once the fishway is complete at the rock falls and the Armstrong and Ames Pond Dams are removed, fish passage will be restored to the Monatiquot, Farm and Blue Hill Rivers and Great Pond Reservoir in Braintree.

Migratory fish utilizing other tributaries in the basin including Smelt Brook which has long segments of culverts in Weymouth Landing. Rainbow Smelt and American Eel migrate through Smelt Brook culverts.

There is a possibility American eel, Rainbow Smelt or some other species of migratory fish are also using Hayward Creek to migrate and spawn. Adult American eel likely live in Eaton's Pond as juveniles can climb through the outfall of the dam.

Additionally, support of fish migration in Hayward Creek is supported by a fishway that supports some time of unidentified migratory fish species. The fishway is near the culvert inlet off of West Howard Street (figures 9 and 10).

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The Army Corps of Engineers built this fishway and some type of fish spawning substrate or armoring above the ladder as a part of their Hayward Creek Local Protection Project (figures 9 and 10).

Because there was a fishway and substrate created in this project specifically there likely is some unknown additional migratory fish species in Hayward Creek and Eatons Pond. We implore MassDEP and EPA to consider looking into what species the fisway was made for and take into account potential migratory rainbow smelt and american eel habitat in permitting.

Thank you for your attention and we look forward to hearing back from you on our questions.

Best,

Robert Kearns
Fore River Residents Against the Compressor Station Board Member

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Figure 1: Sanitary Sewer Overflow 44 Allen Street Monatiquot River Braintree Mar 31, 2014

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Figure 2: MWRA East Braintree Siphon November 2020 with Cracks and broken concrete

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Figure 3: MWRA East Braintree Siphon November 2020 with Cracks and broken concrete NOTE: Wrack Line from high tide. Likely sewage is coming out and infiltration of salt water to Deer Island

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Figure 4: Smelt Brook Siphon Sewer Overflow does not overflow as much since Harbor Cleanup

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Figure 5: Fore River Sewer manholes:Town of Braintree/ MWRA designed to open and discharge sewage

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Figure 6: Fore River Sewer manholes:Town of Braintree/ MWRA designed to open and discharge sewage

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Figure 7: Fore River Sewer manholes:Town of Braintree/ MWRA designed to open and discharge sewage

Figure 8: Closed to Shellfishing Sign by DMF at Mound Street Beach in Quincy Point

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Figure 9: Hayward Creek Fishway (Unknown Species)

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Figure 10. Hayward Creek Fishway (Species unknown)

MassDEP response:

MassDEP acknowledges the many and varied comments made by the Fore River Residents Against the Compressor Station (FRRACS) in their Draft 2018/2020 Integrated Report (IR) comment letter. Several issues raised, however, are outside the scope of the MassDEP's Draft IR. Nonetheless, comments pertaining to Sanitary Sewer Overflows (SSO) and Warning Signs/Communication have been forwarded to responsible MassDEP personnel for follow-up if appropriate. Responses to FRRACS' comments directly related to the Draft 2018/2020 Draft IR are presented below.

The 2018/2020 CALM document (pp. 26-27) presents how MassDEP uses the most recent Diadromous Fish Restoration Priority List available from the Massachusetts Division of Marine Fisheries (MarineFisheries) to assess the Aquatic Life Use support status based on diadromous fish habitat. Released in 2016, this list documents the status of the State's diadromous fish passageways and barriers and prioritizes waters for fish passage restoration projects using a scoring system made up of 13 valuation parameters and 15 location attributes. When evaluating the status of the Aquatic Life Use based on diadromous fish habitat, MassDEP uses the scoring criteria for two MarineFisheries valuation parameters: "Population Status" and "Passage". "Population Status" scores range from 0 (no run present) to 10 (one of largest local runs). "Passage" scores range from 0 (no obstruction) to 10 (no possible passage). The CALM document presents, in considerable detail, how these scores and other data and information were used for the 2018/2020 reporting cycle to determine that the Aquatic Life Use would be assessed as 1) supported, 2) not supported due to the presence of one or more fish passage barriers, or that 3) insufficient information is available to make an assessment. Only those diadromous fish passageways that have been evaluated and scored by MarineFisheries were used for assessment, and MassDEP acknowledges that additional barriers to fish migration may exist that are not included on the 2016 priority list.

MassDEP consulted with MarineFisheries to determine whether any of the potential barriers cited in the FRRACS comment letter should be added as impairments to the 2018/2020 assessment and listing decisions. The final decisions are presented in the responses below.

- Smelt Brook. MassDEP appreciates the information regarding the manual passage of eels at the Pond Meadow Lake Dam eel ladder. It will be added to MassDEP's internal repository document as well as the Weymouth-Weir public decision document. DMF biologists had identified the Pond Meadow Lake Dam as having no present passage (score =10) for river herring and American eel with an existing population score of 0 and this information had not been included. The Aquatic Life Use in Smelt Brook Pond (MA74018) will also be impaired because of the Fish Passage Barrier at the Pond Meadow Lake Dam.

- Old Swamp River. MassDEP analysts brought this to the attention of DMF biologists who concur with the addition of this dam as a fish passage barrier on Old Swamp River (they assigned a passage score = 10 based on the lack of passage during all of their site visits and a population score =10). So, a fish passage barrier impairment will be added, which will change the Aquatic Life Use attainment decision from Fully Supporting to Not Supporting.

- Mill River. MassDEP analysts also brought this to the attention of DMF biologists who concur with the addition of the dams (riprap dam behind 824 Washington Street and dam at 134 Mill Street) as fish passage barriers on the Mill River as well as the dam at Great Pond Reservoir in Weymouth (an unnamed tributary connects the two waterbodies) (passage scores =10 and population scores = 10 for all three dams). DMF biologists indicate a Mill River Watershed habitat assessment is needed and, in addition to the dams, there are also several long culverts that need to be evaluated. A fish passage barrier impairment will be added to the Mill River AU which will change the Aquatic Life Use attainment decision from Fully Supporting to Not Supporting. Additional AUs that also have fish passage impairments (Great Pond Reservoir in Weymouth and the unnamed tributary) will be added for the 2022 reporting cycle.

Regarding the Monatiquot River delisting for Dissolved Oxygen, MassDEP appreciates this request and the local knowledge of these reaches of the Monatiquot River and will request additional monitoring of DO in

the river near Union Street to confirm whether a dissolved oxygen impairment delisting is warranted in the future. Due to the need for additional data, the draft dissolved oxygen impairment delisting will be removed from the 2018/2020 IR.

Charles River Watershed Association:

June 21, 2021

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 2018/2020 Integrated List of Waters

Dear Mr. Chase,

Charles River Watershed Association ("CRWA") submits the following comments on the Draft Massachusetts 2018/2020 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. 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. The Integrated List provides a critical assessment of the overall health of the Charles River watershed and forms the basis for future pollution reduction efforts.

As MassDEP is aware, in order to provide meaningful input on the Integrated List, it is necessary to carefully comb through the data, verify their accuracy, and compile detailed technical comments—a significant undertaking for watershed organizations and volunteer-based groups. The original comment period for the draft Integrated List was only 30 days. CRWA, along with a coalition of organizations, requested a 60-day extension. As noted above, a complete and accurate Integrated List that incorporates public feedback is critical to improving water quality in the Charles River watershed and throughout the Commonwealth. While we appreciate the 3-week extension ultimately granted, we continue to be concerned that such a short comment period on a highly technical and data-dense document is not conducive to adequate public input.

Overall Comments

Improvements in Documentation and Organization

The inclusion of the data used in MassDEP's assessment in the spreadsheet and the watershed-specific appendices is a significant improvement from the 2016 report. In general, the documentation has continued to improve over the years. The organization of the 2018/2020 List allows reviewers and commenters to sort by watershed and by changes in condition to quickly see delistings by watershed. We are pleased to see these improvements.

Data Age and Use of External Partner Data

A number of classifications in the draft Integrated List are based on older data; more recent data are needed to make accurate assessment decisions. Going forward, we strongly recommend that data used to make assessment decisions be collected within seven years of the date of the Integrated List. This would align with MassDEP's seven-year schedule for surface water monitoring. Moreover, as the effects of climate change continue to affect and shape the quality of Massachusetts' water bodies, the use of older data does not accurately reflect current conditions.

In addition, CRWA and other watershed organizations have provided more recent sampling data for many sites than appear to have been used in the assessment decisions. In some cases, data provided by watershed organizations are more continuous and long-term than the data collected by MassDEP, but the report seems to give more weight to MassDEP data. We request clarification on why our data are not considered "regulatory level" for MassDEP's purposes and what steps we can take to provide data that will be of use to MassDEP in compiling future Integrated Lists.

For the Charles River specifically, many of the notes in the draft report indicate that CRWA data were only used for the years 2009, 2012, and 2013 for most of the main stem assessment units. CRWA submits consistent and reliable data annually to EPA's Water Quality Exchange (WQX) Data Portal that should be utilized in MassDEP's assessment decisions. If our data are not meeting MassDEP's standards, please explain why so that we can ensure our data are usable for listing decisions. Otherwise, they should be included in the final 2018/2020 Integrated List.

Non-Native Aquatic Plants Refinement and Categorization

Restoring lakes and ponds by removing invasive plant species is a priority for CRWA to promote the health of native species and allow for recreational activities. CRWA appreciates the refinement of the "non-native aquatic plants" impairment category and the availability of species-specific information. In particular, milfoil and water chestnut impairments are now listed with a level of detail not seen in previous reports. In some cases, however, it was not clear what the source of the species data was, which we request be included in future reports. For segments listed in category 4c, it is not clear which TMDL is being used for placement in this category. Please make this clear in the final Integrated List.

Including Coldwater Fisheries as Designated Use

CRWA encourages MassDEP to coordinate closely with the Department of Fish and Game ("DF&G") when classifying water bodies as supporting coldwater fisheries. DF&G has classified more streams in the Commonwealth as coldwater fisheries than are currently listed in the water quality standards issued by MassDEP. The discrepancy between departments makes it extremely difficult for watershed organizations to assist municipalities in conservation planning efforts. Specifically, where coldwater fish species are observed, CRWA believes that those assessment units should be classified as supporting the use of a coldwater fishery. Where coldwater fish species are observed and the water body meets the DF&G Coldwater Protocol, CRWA believes that using the targeted fish community approach is not an appropriate substitute for classification as a coldwater fishery. These assessment units should be included in the 2018/2020 Integrated List.

More Fish Passage Barrier Impairments Should be Included

CRWA is pleased to see the inclusion of fish passage barriers in many of the assessed uses. It appears that the fish passage barrier impairment was included in several downstream units with dams. In addition to these units, CRWA requests that other assessment units with dams be evaluated for their fish passage ability, especially those immediately upstream of dams with existing fish passage. We recommend that MassDEP consult with watershed organizations who have on-the-ground experience with the dams in their watershed to make these determinations.

State Surface Water Quality Standards

The Integrated List documents which water bodies (or segments thereof) throughout the Commonwealth are not meeting state water quality standards. It is critical that the water quality standards be updated regularly based on the best available information, including establishing standards for emerging contaminants of concern. CRWA commented on the most recent updates to the state water quality standards in November 2019. The final updates have not yet been published. We reiterate several of our prior comments here, as these critical updates to the water quality standards should also be reflected in the 2022 Integrated List.

First, as noted above, the definition and classification of coldwater fisheries should be consistent across state agencies and regulatory frameworks. The discrepancies between DF&G's and MassDEP's lists of coldwater fisheries should be resolved. Further, the water quality standards should reference the Wetlands Protection Act regulations pertaining to coldwater fisheries.

Second, criteria should be developed for cyanobacteria concentrations (cells/mL), aesthetics, and/or toxin levels (µg/L). The Massachusetts Department of Public Health ("DPH") already has guidelines for cyanobacteria, which are currently used for decision-making regarding declarations of harmful cyanobacterial bloom advisories in Massachusetts, and U.S. EPA recently came out with its own guidance for cyanobacteria toxins in recreational waters. Given this existing and readily available information, MassDEP should incorporate these criteria in the surface water quality standards.

Finally, criteria should be developed for per- and polyfluoroalkyl substances ("PFAS") in surface waters. PFAS, also known as "forever chemicals" due to the fact that they do not break down naturally and will remain in the environment for long periods of time, pose significant threats to ecological and human health in our watershed communities. Health concerns associated with PFAS exposure include decreased fertility, reduced ability of the immune system to fight infections, and cancer. Although MassDEP has set standards for PFAS in Massachusetts drinking water, protections should also be in place for those who use surface water for recreational purposes through incorporation in the surface water quality standards.

Comments on Specific Charles River Basin Segments

CRWA thanks MassDEP for incorporating our suggestions on the 2016 draft Integrated List. Our comments on several of the assessment units in the Charles River watershed in the draft 2018/2020 Integrated List are below.

Delisting Decisions

CRWA believes that many of the segments proposed for delisting should not be delisted because old data were used in the decision-making process. CRWA requests that MassDEP provide a written explanation as to why these old data are being used, as use of old data is inconsistent with the last MassDEP CALM.

Stop River (MA72-09)

CRWA questions the delisting of this segment for impairments from dissolved oxygen ("DO") and total phosphorus ("TP"). The DO and TP data being used to support this delisting are from 2002 and 2007, which is not recent enough to assess the current state of DO in this stream segment and is inconsistent with the 2018 CALM. We believe that this segment should not be delisted until current water quality data are collected. Going forward, data used to make assessment decisions should be collected within seven years of the date of the Integrated List, since MassDEP will be implementing a seven-year schedule for surface water monitoring.

In the description of data collected in this segment, MassDEP notes that the data were collected during or just before drought conditions were present. Data collected during drought conditions are just as relevant as other data, and should be included in the datasets used to make listing decisions. Drought conditions are becoming more common with climate change; giving equal weight to these data reflects accurate in-stream conditions that may limit aquatic life more often in the future.

Stop River (MA72-10)

CRWA appreciates and agrees with the need to conduct more monitoring in this segment before a listing decision about TP concentrations is made. We encourage MassDEP to coordinate with the MCI-Norfolk Water Pollution Control Facility during the next Integrated List cycle and use any TP data they are collecting pursuant to the requirements of their NPDES permit.

CRWA disagrees with delisting temperature as an impairment for this segment solely due to the change in the CALM assessment method. If segments are to be delisted due to a change in assessment method, then recent data, collected after the assessment method changes, must be used to make that decision.

Though CRWA does not have continuous monitoring at this location, we have observed temperatures exceeding 25°C regularly in the summer months since 2012 (Table 1). Since these conditions are observed early in the morning, it is likely that this segment reaches higher temperatures later in the day during summer months. CRWA strongly recommends that this segment remain listed as impaired for temperature until more recent data have been collected.

Table 1. Data collected at CRWA Site 269T exceeding 25°C since 2012.

Date Collected	Time Collected	Temperature (°C)
7/17/2012	6:10 AM	25.4
7/16/2013	6:10 AM	25.8
7/15/2014	6:06 AM	25.0
7/21/2015	6:06 AM	27.7
8/18/2015	6:06 AM	27.0
7/17/2018	6:07 AM	26.5

Mine Brook (MA72-14)

Similarly, the delisting of temperature of this segment is based on older (2007) data. CRWA urges MassDEP to use data from the past seven years in their assessments. This is especially true for temperature, as we have observed that average water temperature has increased in recent years due to climate change.

Trout Brook (MA72-19)

The delisting of Trout Brook for 'Nutrient/Eutrophication Biological Indicators' is again based on older (2007) data. CRWA has more recent benthic macroinvertebrate samples (2016, 2018) that should be used by MassDEP.

Houghton Pond (MA72050)

MassDEP notes that the non-native aquatic plant impairment is being delisted in this assessment unit due to an error. Though errors do happen, this alert status is still based on data collected in 1997, far too old to be referenced in the 2018/2020 report. CRWA requests that more updated sampling or observations be collected at Houghton Pond as soon as possible to confirm or deny the non-native aquatic plant impairment.

Charles River Main Stem

Charles River (MA72-07)

This segment should be listed as impaired for fish passage. Two dams, just upstream and downstream of Echo Bridge in Hemlock Gorge Reservation, do not have any means of fish passage (no fish ladder) and their height limits successful fish passage.

Charles River (MA72-38)

We appreciate this segment being listed as impaired for fish passage, and encourage MassDEP to list more segments with dams as impaired for fish passage as well, as described above. In this segment, we also noted that no data from the EPA's long-term buoy located at the Museum of Science were evaluated in making assessment decisions this cycle. CRWA encourages MassDEP to utilize temperature, conductivity, and dissolved oxygen data that are being collected by the EPA buoy in future reporting cycles.

Coldwater Fisheries

As mentioned previously, the discrepancy between MassDEP's and DF&G's classification of water bodies as coldwater fisheries should be corrected. In particular, three streams in the Charles River watershed should be listed as coldwater fishery resources: Trout Brook in Dover (MA72-19), Shepherds Brook in Franklin (MA72-50), and Stony Brook in Waltham/Weston (MA72-26).

Charles River Lakes and Ponds

Crystal Lake (MA72030)

CRWA appreciates that MassDEP incorporated data from the DPH Harmful Algal Bloom (HAB) database to reassess the use of this water body. It is our understanding that more recent data (2019) are also available from the City of Newton that indicate an extended cyanobacteria bloom. We request that MassDEP provide more information in the final 2018/2020 Integrated List about how the agency incorporates municipality-specific datasets for HABs if the municipality does not coordinate with DPH.

Lake Archer (MA72002)

CRWA has collaborated with the Lake Archer Association for the past year, since a cyanobacteria bloom occurred in Lake Archer. It is our understanding that older data from 2000, which were never submitted to MassDEP, indicate a phosphorus impairment. The Association plans to collect newer data in the next year to evaluate the designated uses for DO and TP. CRWA supports this effort, and will assist them as needed to ensure that their data meet appropriate standards for MassDEP to use in the 2022 Integrated List.

Thank you for reviewing our comments on the draft Massachusetts 2018/2020 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.

Sincerely,

Lisa Kumpf
Aquatic Scientist
lkumpf@crwa.org
781-788-0007 x228

Heather Miller
General Counsel & Policy Director
hmiller@crwa.org
781-788-0007 x234

cc: Ivy Mlsna, EPA Region 1
Todd Richards, Massachusetts Department of Fish and Game

MassDEP response: See MassDEP responses to General Comments (above) for CRWA comments related to age of data, referencing specific data for listings, fish passage, coldwater fisheries, and the use of external data.

For Cold waters, MassDEP incorporated all designated Cold Waters as AUs in the 2016 IR reporting cycle and is continuing to add new AUs in the 2018/2020 and 2022 IR cycles for waterbodies that will become designated Cold Waters in the next SWQS revision. We will also continue to add, as time/resources allow, additional AUs where cold water fish species have been documented in our efforts to continue to protect, maintain, and restore these resource areas. In the cases of Trout, Shepherds and Stony brooks, these streams were evaluated as Tier 1 Existing Use cold waters.

Regarding the data source(s) used for non-native species impairments, MassDEP plans to include more specificity in future IRs that indicate where the data were sourced from. The refinement of the non-native aquatic species from a generic to a species-specific name became more available to MassDEP analysts as part of the transition from EPA's ADB to ATTAINS databases. During the 2018/2020 IR cycle, MassDEP staff went through a careful validation process to reevaluate the validity of the Department's non-native aquatic invasive species for the watersheds, including the Charles, that were being updated for the Aquatic Life Use. MassDEP will be striving to improve the transparency regarding data sources in future reporting cycles. There appears to be a misunderstanding reflected in this comment pertaining to 4C impairments and TMDLs. The impairments appearing in Category 4C are not pollutants as defined by the CWA and, therefore, do not require TMDLs. Pollutant impairments appear in Category 4A if approved TMDLs cover all pollutants in the assessment unit, or in Category 5 if TMDLs are still needed for some or all pollutants impairing the waterbody. Approved TMDLs or alternative TMDLs (i.e., "Actions") are identified in these two list categories.

Concerning the pace of review and updating of the Massachusetts Surface Water Quality Standards, MassDEP has been working diligently in coordination with EPA to complete and seek approval for much needed revisions to the standards that reflect the latest scientific information available. This regulatory package is more comprehensive than originally planned and will include, among other changes, improvements to the surface water classification tables 1 through 27 (within section 314 CMR 4.06) including the listing of approximately 150 new cold water streams; an update to the Site-specific Criteria in Table 28; the adoption of EPA's 2012 recommended recreational criteria for bacteria; and the incorporation of a new toxic pollutants table listing EPA ambient water criteria for aquatic life and human health (new Table 29). The current timeline for EPA approval of the draft revisions (which were submitted for public review and comment in 2019) is Fall, 2021. Going forward, MassDEP is following national and state development of surface water criteria for PFAS, cyanobacteria biovolumes and algal toxins for potential incorporation into the SWQS and/or CALM.

Regarding the proposed delistings, MassDEP will defer the following proposed delistings until more recent data are collected that confirm the appropriateness of the delistings (despite improved conditions being documented in several AUs) as follows:

- Stop River (MA72-09) dissolved oxygen and total phosphorus,
- Mine Brook (MA72-14) temperature,
- Trout Brook (MA72-19) Nutrient/Eutrophication Biological Indicators

Regarding the proposed temperature delisting for Stop River (MA72-10), this delisting is different than the other proposed delistings mentioned above in that the original impairment (2008 IR cycle) was prior to the development of assessment methods for continuous temperature data that are described in the 2016 and 2018 CALM guidance manuals and in this case, no impairment decision would have ever been made (both CRWA 2002 to 2005 and MassDEP summer 2007 continuous temperature data met temperature criteria). EPA does not stipulate in any of its listing guidance that more recent data must be collected if a state changes (and in this case improves) its assessment methodology. Therefore, MassDEP has determined that this temperature delisting is appropriate.

The Houghton Pond (MA72050) non-native aquatic plant impairment is also being delisted due to an error. During the 2018/2020 IR cycle, MassDEP staff went through a careful validation process to reevaluate the validity of the Department's non-native aquatic invasive species for the basins being assessed. It was during this effort that staff noted the Non-Native Aquatic Plants impairment was made in error, since it was not based on a species identification (and only on a note of Myriophyllum sp. needing confirmation). In fact, an Alert for Myriophyllum sp. was identified in the Charles River Watershed 2002-2006 Water Quality Assessment Report (published in 2008), so it is apparent that the impairment was a clerical error. In the 2018/2020 IR cycle, MassDEP, in addition to reviving the Alert status for a non-native species in Houghton Pond, also made an internal recommendation that an aquatic macrophyte survey should be conducted at Houghton Pond with timing to coincide with when Myriophyllum heterophyllum would be flowering if present in the pond.

Regarding the EPA buoy data, MassDEP will make note to incorporate EPA buoy data in future IR reporting cycles.

Regarding Crystal Lake (MA72030), the City of Newton should be encouraged to coordinate with DPH on HAB related incidents. MassDEP utilizes statewide data reported to DPH for IR reporting. Unless the city plans to submit their data directly to MassDEP via the external data portal or to EPA's WQX database, the information would likely not be considered readily available information and therefore possibly not utilized.

Regarding Lake Archer (MA72002), MassDEP acknowledges CRWA's concern for Lake Archer. Please note that the deadline for the 2022 IR was January 15, 2021 and the preparation/evaluations for the 2022 IR are already well underway and will include any usable (i.e., Level 3) Lake Archer data if submitted by that date. The deadline for the 2024 IR is TBD but will likely be mid-January 2023.

Connecticut River Conservancy:

Connecticut River Conservancy

Clean water. Healthy habitat. Thriving communities.

15 Bank Row, Greenfield, MA 01301
413.772.2020 · www.ctriver.org

June 21, 2021

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

Submitted electronically to Richard.f.chase@mass.gov

Subject: Proposed Massachusetts Year 2018-2020 Integrated List of Waters

Dear Mr. Chase,

I am submitting comments on the proposed Massachusetts Year 2018-2020 Integrated List of Waters 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. Given the extent of the state and the limited time available in the comment period, we were only able to look at a handful of segments and provide limited comments.

Overall comments

CRC has been collecting data relevant to the Integrated List for quite a while. While we apparently missed the deadline for submitting data for this round of the Integrated List, we look forward to providing you with data to be used in the 2022 listing.

The searchable Excel file provided to reviewers this year was very helpful, as were the separate appendices by basin for the aquatic life use reports. Setting up the pdf files to be able to jump to sections listed in a table of contents would also be extremely helpful.

It would be nice if the appendices by basin had more recent data and a more technical analysis. The source and date of data used for listing impairments should be provided in the Integrated List.

CRC would like to point out that the Connecticut River and its major tributaries in MA, the Chicopee River, Westfield River, Deerfield River, and Millers River, all have historic or current migratory fish runs. Unfortunately, the Consolidated Listing and Assessment Methodology (CALM) relies only on priorities listed by the Massachusetts Division of Marine Fisheries to list fish passage impairments, and this Division does not do much in the CT River basin. CRC recommends that DEP consult with DMF, or better yet, the Connecticut River Atlantic Salmon Commission (CRASC), to list fish passage-related impairments in our part of the Commonwealth.

It appears there is a disconnect between the analyses of the Sustainable Water Management Initiative (SWMI) and the aquatic life use analysis appendices. As an example, CRC found two segments that were considered to be >65% impacted in the biological category (colored deep red) in the SWMI interactive map, yet were listed as "fully supporting" for the aquatic life use in the appendix for the CT River basin in the draft 2018-2020 Integrated List. These segments are Russellville Brook MA34-62 and Mohawk Brook MA34-82, but these are just two examples and we did not have the time to go through the full appendix in our greater basin.

CRC is glad to see refinement in the listings of non-native aquatic plants. Now that Cynthia Boettner has retired from the USFWS Silvio Conte Wildlife Refuge, our organization has taken on coordination of water chestnut removal. CRC staff, volunteers, and partners are now using the Water Reporter app to track the location of water chestnut and keep track of the amount of plants removed each year. For future listing years, please contact CRC or go to our website at https://www.ctriver.org/get-involved/volunteer-portal/ to look at our data. Alternatively, please let us know how we can submit information about water chestnut or other aquatic plants to DEP.

It has now been more than a decade since MassDEP has written a TMDL that had anything to do with impairments in our section of the state. The 2016 Integrated List predicted the long-awaited Bacteria TMDLs for the Connecticut, Deerfield, Westfield, Chicopee, and Millers basins would be coming in FY2017-2018. We note that the 2014 Integrated List promised these TMDLs were coming out in FY2015-2016. Now, this document is predicted to be released in 2022.

Connecticut River Basin comments related to Appendix 15

It is not clear why an appendix for the CT River basin was completed this round, since it does not seem to incorporate any new DEP monitoring data (unlike the updates that were made to the Deerfield River basin for the 2016 listing).

Connecticut River MA34-01

- The most recent DEP data cited in this segment is from 2008. It was our impression that there was a more recent sampling round that could have been incorporated into this assessment.
- A mussel survey completed in 2012 by Biodrawversity for FirstLight Power was accessed by DEP staff from a website and cited in this narrative. Given that MassDEP typically requires data to be specifically submitted to them, and DEP has detailed quality control requirements, how did the Department determine this study met their standards and decided to use it? The narrative states the study "documented adequate mussel habitat and species." How is "adequate" defined? This study summarized results in the impoundment section, and how did DEP separate the results for segments MA34-01 and MA34-02?
- There are now dozens of studies that have been completed for the hydropower relicensing in this stretch that could potentially be used for future assessments. Please see northfield-relicensing.com, which is a new website in 2021 (note the dash).
- Just upstream of the Route 10 bridge, there is now (since 2018) a USGS gaging station at https://waterdata.usgs.gov/ma/nwis/uv/?site_no=01161280&PARAmeter_cd=00065,00060, and this station measures several water quality parameters in real time, and some of the data have been "approved" by the USGS. The MassDEP is a partner in this venture. It would make sense to incorporate some of these data into the 2018/2020 Integrated List analysis.

Connecticut River MA34-02

- There appear to be no relevant data from MassDEP or MA Division of Fisheries and Wildlife (DFW).
- A mussel survey completed in 2012 by Biodrawversity for FirstLight Power was accessed by DEP staff from a website and cited in this narrative. Given that MassDEP typically requires data to be specifically submitted to them, and DEP has detailed quality control requirements, how did the Department determine this study met their standards and decided to use it? The narrative states the study "documented adequate mussel habitat and species." How is "adequate" defined? This study summarized results in the impoundment section, and how did DEP separate the results for segments MA34-01 and MA34-02?
- There are now dozens of studies that have been completed for the hydropower relicensing in this stretch and could potentially be used for future assessments. Please see northfield-relicensing.com, which is a new website in 2021 (note the dash).

Connecticut River MA34-03

- It is not entirely useful to cite toxicity data for a company no longer operating in this segment.
- Are there any MassDEP water quality data for this segment?
- This segment refers to 2009 electrofishing by MA DFG, but does not list any of the species found.
- A mussel survey completed in 2012 by Biodrawversity for FirstLight Power was accessed by DEP staff from a website and cited in this narrative. Given that MassDEP typically requires data to be specifically submitted to them, and DEP has detailed quality control requirements, how did the Department determine this study met their standards and decided to use it? The narrative states the study "documented adequate mussel habitat and species." How is "adequate" defined? The bypass section had a lower average species richness score than the power canal – does this represent adequate habitat?
- The narrative states, "Further downstream USGS staff conducted limited nutrient sampling in the river at Main Street, Greenfield in April and August 2005." Main Street in Greenfield does not abut the Connecticut River and in fact drains to the Green River which is in the Deerfield basin. It is unclear what sampling location this is supposed to be. Moreover, the data are now 16 years old.
- There are now dozens of studies that have been completed for the hydropower relicensing in this stretch and could potentially be used for future assessments. Please see northfield-relicensing.com, which is a new website in 2021 (note the dash).

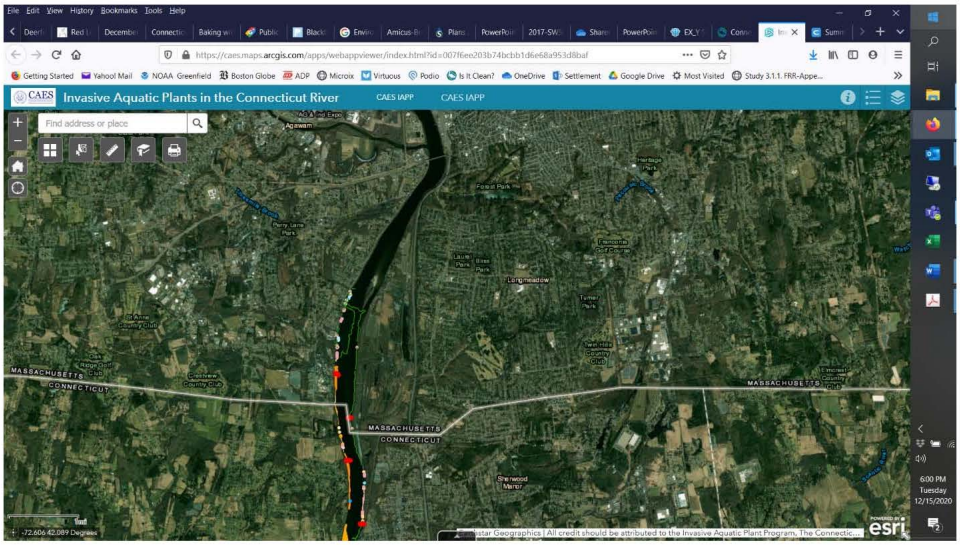
Connecticut River MA34-04

- The written summary of the Midwest Biodiversity and MassDFG sampling mentions no species in particular. It is not clear why there was such an extensive level of detail done for the Deerfield watershed during the 2016 listing, in terms of hydropower licenses, the flows, and the details of fish surveys, and no corresponding level of detail provided for the Connecticut River.
- The only DEP data cited is from 2008.
- There is mention of USGS sampling of "nutrients" with a seasonal average of 0.021 mg/L. Which "nutrient" is this an average of?
- This summary mentions Chang Farms ceased discharge to Sugarloaf Brook in 2007, but does not mention that there is permitted discharge to the Connecticut River now.

Connecticut River MA34-05.

- The written summary of 2004 Kleinschmidt sampling mentions no species in particular. The reference section does not cite the Kleinschmidt work. How was it determined by MassDEP that this study met strict DEP quality control requirements for the use of 3rd party data? It is not clear why there was such an extensive level of detail done for the Deerfield watershed during the 2016 listing, in terms of hydropower licenses, the flows, and the details of fish surveys, and no corresponding level of detail provided for the Connecticut River.
- The Connecticut Agricultural Experiment Station Invasive Aquatic Plant Program (CAES IAPP) surveyed the Connecticut River from Agawam, MA to the Long Island Sound during 2019 and 2020. Results are posted on a website at https://caes.maps.arcgis.com/apps/webappviewer/index.html?id=007f6ee203b74bcbb1d6e68a953d8baf . A screen shot shown below in Figure 2 indicates that there are several invasive plant species present in the CT River in Massachusetts (the survey only went as far north as a point in Agawam). It's more easily viewed online, but the colored dots and shapes indicate the presence of different invasive plant species. In the figure below, the Westfield River is shown entering the Connecticut River at the top of the screen. The invasive plant species found in the survey that straddled the MA/CT border included hydrilla (*Hydrilla verticillata*), Eurasian watermilfoil (*Myriophyllum spicatum*), and curlyleaf pondweed (*Potamogeton crispus*).

Screen shot of CAES IAPP invasive plant survey of the Connecticut River



Thank you for the opportunity to comment. I can be reached at adonlon@ctriver.org or (413) 772-2020 x. 205.

Sincerely,

Andrea F. Donlon
River Steward

MassDEP response: See MassDEP responses to General Comments (above) for CRC comments related to age of data, referencing specific data for listings, fish passage, graphic data presentations, the use of external data, and the status of the fecal coliform TMDL covering 13 central and western Massachusetts watersheds.

Regarding the scope of 2018/2020 assessments, MassDEP's focus was to complete Aquatic Life Use updates that were not completed during the 2016 IR reporting cycle which included water quality and biological monitoring data from MassDEP's 2008 survey in the Connecticut River Watershed. Results of MassDEP water quality monitoring from 2011 through 2018 (excluding MAP2 lake survey project data) will be utilized in the 2022 reporting cycle.

Regarding SWMI, MassDEP along with the Executive Office of Energy and Environmental Affairs (EEA) and its member agencies, worked with numerous stakeholder groups to develop a new policy framework for comprehensively managing water withdrawals throughout the Commonwealth to ensure an appropriate balance among competing water needs and the preservation of water resources. MassDEP has reviewed the SWMI framework and associated research performed by the USGS in an effort to determine its applicability to the Massachusetts' Surface Water Quality Standards (SWQS) and the assessment and listing of waters under the CWA and has concluded that it is inappropriate to list waters as impaired based solely on the biological categories (BC) or groundwater withdrawal categories (GWC) (formerly GWL) derived from the SWMI models. While these predicted BC and GWC values are appropriate for their intended use, that is, permitting under the Water Management Act (WMA), they have no direct relationship to the SWQS and are not sufficient, in and of themselves, for determining the use-support status of specific water bodies. The objectives, analytical techniques, types of data used, and methodologies for these two different programs are quite different. The resulting categorizations cannot be expected to be the same or comparable. MassDEP presents its methodology for assessing and listing waters pursuant to sections 305(b), 314 and 303(d) of the CWA in its Consolidated Assessment and Listing Methodology (CALM) document. This document describes, in considerable detail, how physico-chemical, biological, flow and habitat data, and other information are used as multiple lines of evidence to assess aquatic life use support. Critical to this assessment process is the availability of credible scientific data obtained from the actual water bodies under assessment. BC and GWC values, however, do not represent actual instream measurements of water quality and biological integrity but are derived from GIS large-scale overlays (such as impervious surface, watershed area, wetland area) or are themselves modeled (August flow alteration), to facilitate permitting activities. Therefore, they cannot be used 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 or habitat assessments indicate impairments from low-flow conditions.

Regarding the data source(s) used for non-native species impairments, MassDEP plans to include more specificity in future IRs that indicate where the data were sourced from, as well as seek additional sources, such as the CRC portal. MassDEP would appreciate CRC staff providing the data related to location of water chestnut and other non-native aquatic plants along with any other water quality data to our external data portal. Guidance for submitting data can be found online: external-data-submittals-to-the-watershed-planning-program.

Regarding the Biodrawversity/FirstLight Power report, MassDEP had previously reviewed the 2012 Biodrawversity/FirstLight Power mussel survey data as part of the ongoing Turners Falls and Northfield Mountain Hydroelectric FERC project #1889, 2485 relicensing process. Results of the mussel survey were considered usable biological data and incorporated into the 2018/2020 IR Aquatic Life Use update for the Connecticut River. The primary objective of the survey was to provide up-to-date information on the distribution, abundance, and habitat of the freshwater mussels in the Connecticut River impoundment, bypass reach, and power canal of the Turners Falls hydroelectric facility (the survey also included areas influenced by the Northfield Mountain pumped storage facility). Mussels were found in a wide range of water depths, flow and substrate conditions. The mussel study was used as part of the overall evaluation to corroborate the assessment decisions for the AUs in question.

Regarding the new USGS gaging station just upstream of the Route 10 bridge, MassDEP will be utilizing the USGS data from this location in a future IR reporting cycle.

Regarding MA34-02, MassDEP confirms that there appear to be no relevant data from MassDEP or MA Division of Fisheries and Wildlife (DFW).

Regarding MA34-03:

- the ambient and whole effluent toxicity testing information available from the facility located within this AU were relevant for this IR reporting cycle, so were reviewed and included.
- the boat electrofishing was conducted by Midwest Biodiversity Institute biologists in August/September 2009. All three samples were dominated by macrohabitat generalist species including smallmouth bass, bluegill, American eel, yellow perch, rock bass, common carp, spottail shiner while fluvial specialist/dependant species were documented including Atlantic salmon, brown trout, tesselated darter, longnose dace, and white sucker. Two sea lamprey (not classified) were also collected and released. The sampling information is in the DFG fish population database, but the collectors will be corrected to indicate Midwest Biodiversity Institute staff rather than DFG biologists.
- Like the upstream impounded reach of the river four species were found in the bypass reach while three were found in the power canal. The average richness/site was less than that found in the impounded reach but the habitat in the bypass reach and power canal are different than those in the upstream impounded reach of the river. The bypass reach generally has a high gradient, moderate to strong flows, shallow depths (less than 2-3 meters, with some isolated deeper pools), with substrate comprised of gravel, cobble, boulder, and bedrock. In contrast, the power canal has a lower gradient, more uniform and strong flows, deeper water, and predominantly finer substrates (silt, sand). While the summary statistics were slightly different between the bypass reach and the power canal, no specific judgements were made regarding the adequacy of the habitat since mussels were present in both areas. See also response to similar comment in Connecticut River MA34-01 above.
- For the USGS nutrient sampling in the river at Main Street, Greenfield, the USGS describes their station 01167305 as CONNECTICUT RIVER @ MAIN STREET, NR GREENFIELD, MA. The coordinates for this site are 42.5805556 -72.5797222 placing it at the Montague City Road bridge crossing the Connecticut River just upstream from the confluence of the Deerfield River. The slight correction will be made. The limited nutrient sampling data from this site fell into the window of information being used to update Aquatic Life Use attainment decisions, albeit dated, for the 2018/2020 IR reporting cycle so was included.

Regarding MA34-04:

- The decision documents made available to the public for the 2018/2020 IR reporting cycle contain an abbreviated summary of information used to make the Aquatic Life Use attainment decision. The repository documents on file at MassDEP contain the more detailed information (e.g., fish sample species counts, lengths, etc.). Prior published water quality assessment reports for the Connecticut River Watershed available online (2003 CT WQAR) provide more detailed information related to hydropower licenses and flows.
- The reference to USGS “nutrients” data will be clarified to total phosphorus.
- The statement mentioning Chang Farms will be corrected to include the current discharge location information.

Regarding MA34-05:

- The Kleinschmidt report fish sampling data were readily available through the DFG database, the primary source of finfish survey data used by MassDEP for assessment, and therefore, were used in the 2018/2020 IR reporting cycle (Kleinschmidt was identified as the collector). As mentioned above, the decision documents made available to the public for the 2018/2020 IR reporting cycle contain an abbreviated summary of information used to make the Aquatic Life Use attainment decisions, but additional information related to hydropower licenses and flows can be found in online water quality assessment reports.

- For invasive plant species present in the Connecticut River in Massachusetts, alerts will be made for the presence of these non-native aquatic macrophyte species with a recommendation that surveys be conducted with the intention of confirming their presence in the Connecticut River near the MA/CT border. Additionally, as mentioned above, MassDEP would appreciate CRC staff providing the data related to location of these non-native aquatic plants along with any other water quality data to our external data portal. Guidance for submitting can be found online: external-data-submittals-to-the-watershed-planning-program.

City of Taunton:

City of Taunton
Office of the Mayor

Shaunna L. O'Connell
Mayor

Ed Correira
Chief of Staff

Radka Barter
Deputy Chief of Staff

Gill E Enos
Budget Director

141 Oak Street
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June 21, 2021

SUBMITTED VIA EMAIL
Richard.F.Chase@mass.gov

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

Re: Proposed 2018/2020 Section 303(d) Impairment Listings for the Taunton Estuary

Dear Mr. Chase:

We are pleased to provide the following comments on the proposed Impairment listings for the Taunton Estuary.

As noted in the 2018 CALM procedures for rendering water quality impairment listings under Section 303(d) of the Clean Water Act, when determining whether a waterbody is to be designated as nutrient impaired, MassDEP is required to collect and analyze site-specific data on each of the potential response indicators and the nutrient concentration data to ascertain if the nutrient enrichment present is problematic and the nutrient concentration is above the acceptable threshold level. Only when that data and information confirm an impairment due to nutrients, based upon the above procedures, can a waterbody be designated as nutrient impaired in a Massachusetts Integrated List of Waters for the Clean Water Act (*i.e.*, 303(d) listing). In accordance with federal rules governing Section 303(d) impairment listings, the latest available information should be utilized to ensure listing decisions are scientifically defensible and well informed.

MassDEP has proposed to list multiple segments of the Taunton Estuary as nutrient impaired, asserting that excessive algal growth is occurring and claiming periodic low DO conditions occurring in the Taunton Estuary are due to these factors. We respectfully state that this position is misplaced, based upon the system evaluations that have been conducted by Dr. Brian Howes of SMAST (MassDEP's estuarine studies expert). As noted in the attached comments and letter, Dr. Howes indicates that his studies have confirmed that the system is not nutrient impaired and is not experiencing excessive algal growth. He notes further that his analyses have confirmed that the infrequent low DO condition occurring in the Taunton system is likely due to conditions in Mount Hope Bay, not the Taunton Estuary. Moreover, the scope of conditions that fail to meet the current DO criteria do not exceed a 10% threshold, used to ensure that only truly impaired waters are listed.

Based on the attached comments and Dr. Howes' expert evaluation, we ask that the proposed nutrient and excessive algal growth impairments for the Taunton system be deleted and that the cause of the periodic low DO condition occurring in the lower estuary be attributed to conditions occurring in Mount Hope Bay.

Please note that the Town of Somerset requested that they be added to this letter as a signatory. Covid protocols have prevented obtaining their direct signature.

Sincerely,

Shaunna

Shaunna O'Connell, Mayor
City of Taunton

Ecc: Fred Cornaglia, Commissioner
Paul A. Sylvia, PE Superintendent of Water & Sewer, Somerset Ma

Enclosure

SMAST University of Massachusetts Dartmouth
The School for Marine Science and Technology

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

Re: Proposed 2018/2020 Section 303(d) Impairment Listings for the Taunton Estuary

Dear Mr. Chase:

On behalf of local communities that discharge to the Taunton Estuary, I have been asked to review MassDEP's proposed listing of the Taunton Estuary as impaired for nutrients, dissolved oxygen, and excessive algal (phytoplankton) growth. Based on the detailed research and water quality studies that my group at UMass Dartmouth have conducted on this system, under the auspices of SMAST, the proposed designations do not reflect the improvements in the system or the site specific water quality details that have been learned through the studies. I would like propose a reconsideration and refinement of the listing based on the findings discussed below.

SMAST conducted detailed assessments of the Taunton Estuary in 2004-2006 and a more recent 2018 intensive effort. It is not apparent that the latest Section 303(d) impairment assessment accurately evaluated the most recent dataset or my 2018 SMAST report (attached) comparing the 2018 data to the earlier assessment that concluded that existing water quality in the Taunton Estuary was greatly improved and no longer reflected a locally driven nutrient impaired condition. Municipal actions, taken after the 2004-2006 survey, have lowered nitrogen inputs and summer chlorophyll a concentrations dropped 50% to 75% and are now in the good to excellent range for this system (averaging about 3.5 - 4 ug/l chlorophyll a through the relevant time period for system analysis). Based upon the most current information for this system, existing nitrogen levels are not causing excessive phytoplankton growth and do not seem to be linked to low dissolved oxygen (DO) events. As noted in the 2018 SMAST report, low DO does periodically occur in the stratified waters of the lower segments of the estuary, but not in the upper water column or in the upper reaches of the estuary. This spatial distribution of low DO in lower estuary and high D.O. in the upper reaches is atypical for Massachusetts estuaries where the opposite distribution is generally the case. Examining the totality of the system, it is clear that the cause of the low D.O. in the lower estuary is from the much lower DO water entering on the flooding tides from Mt.Hope Bay. Therefore, the D.O. impairment in the lower Taunton estuary is caused by impaired water quality conditions in Mount Hope Bay and not conditions in the Taunton estuary. This finding shows that improvements in water quality in the Taunton estuary cannot be controlled by managing nutrient levels in the Taunton Estuary, but is mainly external to its watershed inputs.

This conclusion was further verified by the DO readings conducted by MassDEP at the Cole and Taunton Buoy stations. Those stations, located in Mount Hope Bay and at the mouth of the Taunton Estuary, have a long record documenting low DO (~2 mg/l) in the stratified bottom

waters of adjacent Mt. Hope Bay, just outside of the entrance to the Taunton Estuary. These higher salinity, lower DO Mt. Hope Bay waters travel up the Taunton Estuary on the inflowing tides and cause the observed DO conditions. When this condition occurs, DO in the lower water column of the lower reaches of the Taunton Estuary may temporarily drop below 5 mg/l. The upper water column in this same section remains above 5 mg/l and the upper reaches of the Taunton Estuary are similarly unimpaired. When this external influence from Mt. Hope Bay is not occurring, DO throughout the water column in the lower reaches of the Taunton Estuary remains above the MassDEP 5 mg/l minimum.

Based upon the available water quality data alone, it is clear that the periodic low DO condition in the Taunton Estuary is not caused by *in situ* excessive phytoplankton (algal) growth from nutrients occurring in the Taunton Estuary – it is caused by the low DO, stratified conditions in Mount Hope Bay being transferred into the system by the tides. The resolution of nutrient concerns in Mount Hope Bay is a more complex and different evaluation. There is insufficient evidence that focusing pollution reduction efforts on the Taunton system will resolve this issue, but there is evidence that improving Mt. Hope Bay water quality will have an immediate and direct positive effect on the lower Taunton estuary, at this time.

In conclusion, the Taunton Estuary should not be classified as nutrient impaired from its own watershed inputs. Based on the latest available data and detailed analyses performed by SMAST, the proposed listing for the saline portion of the Taunton Estuary should be amended to delete nitrogen, nutrients, and excessive algal growth as impairments or causes of the transient low DO conditions. The DO impairment for the lower segments of the estuary should remain, but the cause should be clearly identified as nutrient enrichment of Mount Hope Bay, exacerbated by the natural stratification that occurs in that system. Proper identification of the cause of the lower Taunton Estuary's DO issue, should help focus attention on the real problem to be solved, i.e. impaired DO in Mt. Hope Bay.

If the Department has any questions regarding these technical conclusions, please inform me of the specific concerns and SMAST will endeavor to address them.

Sincerely,

Brian Howes, Chancellor Professor
Manager, Coastal Systems Program
School for Marine Science and Technology
University of Massachusetts Dartmouth
706 S. Rodney French Blvd
New Bedford, MA 02744
508-326-0912

Attachment

MassDEP response:

MassDEP appreciates the comments received from the City of Taunton regarding the draft nutrient-related impairments for the Taunton River (MA62-02, MA62-03 and MA62-04). We also applaud the efforts taken to lower nitrogen inputs to the river, including upgrades to the Taunton WWTF. As part of our re-evaluation of the draft impairments, we reviewed the comment letter from Dr. Howes in support of the City's comments, and reexamined the SMAST 2018 data report, which was used to inform the draft impairment decisions.

We agree with Dr. Howes that actions taken and planned by the POTWs (in MA62-02) to reduce nitrogen effluent concentrations are key factors in improving water quality in the Taunton River estuary and Mount Hope Bay (MHB). These improvements, in compliance with the NPDES Permit No. MA0100897, are intended to limit ambient nitrogen levels below levels that would lead to excess algal production and impacts to dissolved oxygen levels. As part of the draft 2018/2020 assessments, the 2018 SMAST study report and associated data were helpful in providing additional information to evaluate the aquatic life use in the Taunton River estuary. We do not disagree that 2018 TN levels have generally decreased from historic averages at the subset of 2018 sites samples, and that the tidal action and movement of water from MHB into the Taunton River may be contributing to increased nutrient levels and reduced bottom DOs in the river. We also concur that nutrient dynamics in the Taunton estuary and MHB system are complex, and that improvement in WQ conditions in the bay could have positive impacts to the WQ in the lower Taunton estuary.

While MassDEP has documented chronically low DO in the bottom waters at the "Taunton" marine buoy in MHB and these conditions are likely contributing to the low DO's observed upstream in the Taunton River estuary due to tidal movement, the Taunton River watershed is contributing a significant percentage of nitrogen to the river through both point- and non-point sources. The impacts from these loads may be exacerbated by ambient nitrogen moving upstream during tidal action, but the nitrogen inputs from the watershed are a significant contributing factor impacting the estuary and downstream MHB waters. As described in the 2018 SMAST report, the levels of nitrogen and chlorophyll observed in 2018 within the Taunton River Estuary clearly indicate nitrogen enrichment and the sources of impairment appear to be a combination of nitrogen loading from the watershed and the nitrogen influx from MHB tidal flows. Based on the elevated TN and chlorophyll values and often marginal DO levels in the estuary (and downstream), the combined nutrient inputs are resulting in impairment of the aquatic life use in the estuary and impacting downstream waters.

We disagree that the 2018 dataset confirms the lack of spikes in Taunton estuary TN and related algal indicators. In MA62-02, the concentration of chlorophyll *a* ranged from 0.75 to 27.5µg/L with 9 of 26 measurements above 10µg/L and the total nitrogen concentrations ranged from 1.143 to 1.887mg/L (average = 1.396mg/L). Further downstream in MA62-03, chlorophyll-a values were lower (max= 8.72µg/L) but the total nitrogen concentrations were well elevated ranging from 0.594 to 1.887mg/L (average = 0.915mg/L n=38). And in MA62-04, just upstream of MHB, surface chlorophyll a ranged from 1.46 to 18.35µg/L (n=66) and surface total nitrogen concentrations ranged from 0.368 to 1.065mg/L (average = 0.568mg/L n=65). While surface DOs generally were above 5 mg/l in 2018 in the estuary, the elevated upstream nitrogen levels are likely contributing to the observed spikes in algal biomass in the estuary.

Based on our re-evaluation, we are retaining the TN pollutant cause in MA62-02, -03 and 04, and retaining the chlorophyll-a (and TP) pollutant cause in MA62-02. Recognizing the potential for tidal influence to contribute to the TN impairments in MA62-03 and MA62-04, we have added the hydromodification group pollutant Source ID 897 ("Contribution from downstream waters due to tidal action") to the list of potential sources for the TN and low DO impairments, in addition to the other sources already listed (e.g., "Municipal Point Source Discharges", Wet-Weather Discharges).

Town of Middleborough:

Incorporated 1669

CRANBERRY CAPITAL
OF THE WORLD

Town of Middleborough
Massachusetts
Department of Public Works
65 Sachem Street
Middleborough, MA 02346
Phone 508-946-2481 Fax 508-946-2484

Christopher Peck
D. P. W. Director

DIVISIONS
Highway
Sanitation
Insect & Pest Control
Tree Warden
Wastewater
Water

June 16, 2021

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

Re: Proposed Section 303(d) Impairment Listings for the Taunton Estuary

Dear Mr. Chase:

We are pleased to provide the following comments on the proposed Impairment listings for the Taunton Estuary.

As noted in the 2018 CALM procedures for rendering water quality impairment listings under Section 303(d) of the Clean Water Act, when determining whether a waterbody is to be designated as nutrient impaired, MassDEP is required to collect and analyze site-specific data on each of the potential response indicators and the nutrient concentration data to ascertain if the nutrient enrichment present is problematic and the nutrient concentration is above the acceptable threshold level. Only when that data and information confirm an impairment due to nutrients based upon the above procedures can a waterbody be designated as nutrient impaired in a Massachusetts Integrate List of Waters for the Clean Water Act (*i.e.*, 303(d) listing). In accordance with federal rules governing Section 303(d) impairment listings, the latest available information should be utilized to ensure listing decisions are scientifically defensible and well informed.

MassDEP has proposed to list multiple segments of the Taunton Estuary as nutrient impaired, asserted that excessive algal growth is occurring and claimed periodic low DO conditions occurring in the Taunton Estuary are due to these factors. We respectfully state that this position is misplaced, based upon the system evaluations that have been conducted by DR. Brian Howes of SMAST (MassDEP's estuarine studies expert). As noted in the attached letter, Dr. Howes indicates that his studies have confirmed that the system is not nutrient impaired and not experiencing excessive algal growth. He notes further that his analyses have confirmed that the infrequent low DO condition occurring in the Taunton System is due to conditions in Mount Hope Bay, not the Taunton Estuary.

Based on Dr. Howes' expert evaluation we ask that the proposed nutrient and excessive algal growth impairments for the Taunton system be deleted and that the cause of the periodic low DO condition occurring in the lower estuary be attributed to conditions occurring in Mount Hope Bay.

Sincerely,

Director of Public Works

SMAST University of Massachusetts Dartmouth
The School for Marine Science and Technology

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

Re: Proposed 2018/2020 Section 303(d) Impairment Listings for the Taunton Estuary

Dear Mr. Chase:

On behalf of local communities that discharge to the Taunton Estuary, I have been asked to review MassDEP's proposed listing of the Taunton Estuary as impaired for nutrients, dissolved oxygen, and excessive algal (phytoplankton) growth. Based on the detailed research and water quality studies that my group at UMass Dartmouth have conducted on this system, under the auspices of SMAST, the proposed designations do not reflect the improvements in the system or the site specific water quality details that have been learned through the studies. I would like propose a reconsideration and refinement of the listing based on the findings discussed below.

SMAST conducted detailed assessments of the Taunton Estuary in 2004-2006 and a more recent 2018 intensive effort. It is not apparent that the latest Section 303(d) impairment assessment accurately evaluated the most recent dataset or my 2018 SMAST report (attached) comparing the 2018 data to the earlier assessment that concluded that existing water quality in the Taunton Estuary was greatly improved and no longer reflected a locally driven nutrient impaired condition. Municipal actions, taken after the 2004-2006 survey, have lowered nitrogen inputs and summer chlorophyll a concentrations dropped 50% to 75% and are now in the good to excellent range for this system (averaging about 3.5 - 4 ug/l chlorophyll a through the relevant time period for system analysis). Based upon the most current information for this system, existing nitrogen levels are not causing excessive phytoplankton growth and do not seem to be linked to low dissolved oxygen (DO) events. As noted in the 2018 SMAST report, low DO does periodically occur in the stratified waters of the lower segments of the estuary, but not in the upper water column or in the upper reaches of the estuary. This spatial distribution of low DO in lower estuary and high D.O. in the upper reaches is atypical for Massachusetts estuaries where the opposite distribution is generally the case. Examining the totality of the system, it is clear that the cause of the low D.O. in the lower estuary is from the much lower DO water entering on the flooding tides from Mt.Hope Bay. Therefore, the D.O. impairment in the lower Taunton estuary is caused by impaired water quality conditions in Mount Hope Bay and not conditions in the Taunton estuary. This finding shows that improvements in water quality in the Taunton estuary cannot be controlled by managing nutrient levels in the Taunton Estuary, but is mainly external to its watershed inputs.

This conclusion was further verified by the DO readings conducted by MassDEP at the Cole and Taunton Buoy stations. Those stations, located in Mount Hope Bay and at the mouth of the Taunton Estuary, have a long record documenting low DO (~2 mg/l) in the stratified bottom

waters of adjacent Mt. Hope Bay, just outside of the entrance to the Taunton Estuary. These higher salinity, lower DO Mt. Hope Bay waters travel up the Taunton Estuary on the inflowing tides and cause the observed DO conditions. When this condition occurs, DO in the lower water column of the lower reaches of the Taunton Estuary may temporarily drop below 5 mg/l. The upper water column in this same section remains above 5 mg/l and the upper reaches of the Taunton Estuary are similarly unimpaired. When this external influence from Mt. Hope Bay is not occurring, DO throughout the water column in the lower reaches of the Taunton Estuary remains above the MassDEP 5 mg/l minimum.

Based upon the available water quality data alone, it is clear that the periodic low DO condition in the Taunton Estuary is not caused by *in situ* excessive phytoplankton (algal) growth from nutrients occurring in the Taunton Estuary – it is caused by the low DO, stratified conditions in Mount Hope Bay being transferred into the system by the tides. The resolution of nutrient concerns in Mount Hope Bay is a more complex and different evaluation. There is insufficient evidence that focusing pollution reduction efforts on the Taunton system will resolve this issue, but there is evidence that improving Mt. Hope Bay water quality will have an immediate and direct positive effect on the lower Taunton estuary, at this time.

In conclusion, the Taunton Estuary should not be classified as nutrient impaired from its own watershed inputs. Based on the latest available data and detailed analyses performed by SMAST, the proposed listing for the saline portion of the Taunton Estuary should be amended to delete nitrogen, nutrients, and excessive algal growth as impairments or causes of the transient low DO conditions. The DO impairment for the lower segments of the estuary should remain, but the cause should be clearly identified as nutrient enrichment of Mount Hope Bay, exacerbated by the natural stratification that occurs in that system. Proper identification of the cause of the lower Taunton Estuary's DO issue, should help focus attention on the real problem to be solved, i.e. impaired DO in Mt. Hope Bay.

If the Department has any questions regarding these technical conclusions, please inform me of the specific concerns and SMAST will endeavor to address them.

Sincerely,

Brian Howes, Chancellor Professor
Manager, Coastal Systems Program
School for Marine Science and Technology
University of Massachusetts Dartmouth
706 S. Rodney French Blvd
New Bedford, MA 02744
508-326-0912

Attachment

MassDEP response:

MassDEP appreciates the comments received from the Town of Middleborough and Dr. Howes regarding the draft nutrient-related impairments for the Taunton River (MA62-02, MA62-03 and MA62-04). Please see MassDEP's responses to the City of Taunton.

Town of Raynham:

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

June 14, 2021

Re: Proposed Section 303(d) Impairment Listings for the Taunton Estuary

Dear Mr. Chase:

We are pleased to provide the following comments on the proposed Impairment listings for the Taunton Estuary.

As noted in the 2018 CALM procedures for rendering water quality impairment listings under Section 303(d) of the Clean Water Act, when determining whether a waterbody is to be designated as nutrient impaired, MassDEP is required to collect and analyze site-specific data on each of the potential response indicators and the nutrient concentration data to ascertain if the nutrient enrichment present is problematic and the nutrient concentration is above the acceptable threshold level. Only when that data and information confirm an impairment due to nutrients based upon the above procedures can a waterbody be designated as nutrient impaired in a Massachusetts Integrate List of Waters for the Clean Water Act (*i.e.*, 303(d) listing). In accordance with federal rules governing Section 303(d) impairment listings, the latest available information should be utilized to ensure listing decisions are scientifically defensible and well informed.

MassDEP has proposed to list multiple segments of the Taunton Estuary as nutrient impaired, asserted that excessive algal growth is occurring and claimed periodic low DO conditions occurring in the Taunton Estuary are due to these factors. We respectfully state that this position is misplaced, based upon the system evaluations that have been conducted by Dr. Brian Howes of SMAST (MassDEP's estuarine studies expert). As noted in the attached letter, Dr. Howes indicates that his studies have confirmed that the system is not nutrient impaired and not experiencing excessive algal growth. He notes further that his analyses have confirmed that the infrequent low DO condition occurring in the Taunton System is due to conditions in Mount Hope Bay, not the Taunton Estuary.

Based on Dr. Howes' expert evaluation we ask that the proposed nutrient and excessive algal growth impairments for the Taunton system be deleted and that the cause of the periodic low DO condition occurring in the lower estuary be attributed to conditions occurring in Mount Hope Bay.

Sincerely,

Town of Raynham Board of Selectmen

Joseph Pacheco Chair

Richard Schiavo Vice Chair

Patricia Riley Clerk

Town of Raynham Board of Sewer Commission

Joseph A. Bettencourt Chair

Joseph M. Bickel Vice Chair

Jeff Kelleher Clerk

Comments on the 2018-2020 Draft Massachusetts 303(d) List

The Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle (Draft Integrated List) includes new impairment assessments for the Taunton River Estuary (AUIDs MA62-02, MA62-03, and MA62-04). In each case, nutrients have been added as the cause of the impairment. (Table 1)

Table 1: Category 5 Waters

AUID	2012	2016	2018-2020
MA62-02	Fecal Coliform (4a)	Enterococcus (4a) Fecal Coliform (4a)	Enterococcus (4a) Fecal Coliform (4a) Chlorophyll-a TN TP
MA62-03	Fecal Coliform (4a) D.O.	D.O. Fecal Coliforms	D.O. Fecal Coliforms TN
MA62-04	Fecal Coliform (4a) Fish Bioassessment D.O.	D.O. Enterococcus Fecal Coliform Fish Bioassessments	D.O. Enterococcus Fecal Coliform Fish Bioassessments TN

AUID – Assessment Unit ID

CALM Methodology Applicable to Nutrient Impairment Designations

The Massachusetts SWQS includes a narrative criteria for nutrients.[1] Narrative standards are

[1] "Unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and [concentrations] shall not exceed the site specific criteria developed in a TMDL. … Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication [defined elsewhere in the SWQS as 'The human induced increase in nutrients resulting in acceleration of primary productivity, which causes nuisance conditions, such as algal blooms or dense and extensive macrophyte growth, in a waterbody], including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs and BAT for non POTWs, to remove such nutrients to ensure protection of existing and designated uses…" *See* 314 CMR 4.05(5)(c).

common in regulating nutrients because nutrients do not have a direct negative impact on aquatic life and waterbody responses are highly site-specific as described in *Nutrients in Estuaries*[2] at 3:

> In the case of nutrients it is understood that there is a great deal of variability in inherent nutrient levels and the biotic responses to nutrients. This natural variability is due to differences in geology, climate and waterbody type. Because of that variation, EPA has accepted that various types of waterbodies need to be evaluated differently and that recommended nutrient concentration levels need to reflect such a variation. Thus, nutrient criteria are not typically transferable from […] one type of estuary to another.

Consequently, "[t]o evaluate a waterbody for nutrient-related impairment MassDEP analysts rely on *multiple* supporting indicators as evidence of nutrient enrichment." CALM at 39. There are two types of indicators utilized to for making nutrient-related impairment decisions for the *Aquatic Life Use*: 1) biological indicators, which "include the presence of nuisance growths of primary producers or population changes in certain critical species" and 2) changes to certain physio-chemical analytes (such as dissolved oxygen, pH, and chlorophyll a), which is an indication of high primary productivity. *Id.* Each of these indicators must be evaluated based upon site-specific information for the waterbody being reviewed for an impairment determination. The response indicator screening guidelines for rivers, lakes, and estuaries can be found in the CALM at 41.

While the more combinations of these indicators are documented, the stronger the case that the *Aquatic Life Use* is not supported, "[n]utrient enrichment is not considered to be problematic when biological response indicator data are below threshold values for primary producer data, even if nutrient concentrations exceed their recommended criteria."[3] *Id.* "However, when multiple biological (particularly primary producer) and physico-chemical response indicators suggest that nutrient enrichment is problematic and concentration data exceed the recommended thresholds, the nutrient (total phosphorus or total nitrogen) is also identified as a cause of impairment." *Id.* These findings, multiple response indicators documenting nutrient enrichment and nutrient concentration exceeding the recommended threshold criteria, must both be present to designate a waterbody as nutrient impaired.

Therefore, when determining whether a waterbody is to be designated as nutrient impaired, MassDEP is required to collect and analyze site-specific data on each of the potential response indicators and the nutrient concentration data to ascertain if the nutrient enrichment present is

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[2] *Nutrients in Estuaries*: A Summary Report of the National Estuarine Experts Workgroup, November 2010.

[3] For the 2018 reporting cycle, the seasonal average of the total phosphorus concentration data will be screened against the 1986 EPA recommended "Gold Book" concentrations for rivers (0.1 mg/l flowing waters, 0.05 mg/l for rivers entering lake/reservoir) and lakes (0.025 mg/l). For estuarine waters, the seasonal average of the total nitrogen data will be screened against the MEP critical indicator threshold of >0.5 mg/l for waters where eelgrass habitat was not documented and >0.4 mg/l for waters where eelgrass habitat has been confidently documented at some point in time. *See* CALM at 39.

problematic and the nutrient concentration is above the acceptable threshold level. Only when that data and information confirm an impairment due to nutrients, based upon the above procedures, can a waterbody be designated as nutrient impaired in a Massachusetts Integrated List of Waters for the Clean Water Act (*i.e.*, 303(d) listing).

Comments on Nutrient and Nutrient Related Impairment Designations

The rationale for these impairment listings is discussed in Appendix 24 of the Draft Integrated List. The need for and reasonableness of the proposed impairment unit designations are discussed individually below, in light of the CALM procedures and the unique characteristics of the Taunton Estuary system.

- **Taunton River (MA62-02 – from Route 24 Bridge to Berkley Bridge)**

Appendix 24 provides the following assessment for MA62-02: The Aquatic Life Use for the Taunton River AU is assessed as Not Supporting based on the evidence of nutrient enrichment documented during the 2018 summer surveys including elevated chlorophyll-a concentrations and nutrients (total phosphorus and total nitrogen). (Draft Integrated List, Appendix 24 at 157).

The data from the 2018 summer survey is presented in a report by the University of Massachusetts-Dartmouth, SMAST – Coastal Systems Program scientists.[4] (Howes Report). In describing the 2018 data, the Draft Integrated List provides the following:

> Sampling was conducted at two depths at this site (surface and mid depth) close to mid ebb tide between June and September. Salinity was low (0.3 ppt), the minimum DO measured was 5.36 mg/L, and the maximum temperature was 26.1°C. The concentration of chlorophyll *a* ranged from 0.75 to 27.5µg/L with 9 of 26 measurements above 10 µg/L. These occurred on 5 of the 13 sampling dates. The average total phosphorus concentration was slightly elevated (0.102 mg/L) and the total nitrogen concentrations ranged from 1.143 to 1.887 mg/L (average = 1.396 mg/L).
>
> (Appendix 24 at 157)

There are a series of misplaced evaluations contained in this assessment. The segment should not be listed as impaired for chlorophyll 'a' or nutrients.

This assessment is contrary to the detailed evaluation presented in the updated 2019 Howes Report that evaluated the 2018 data set for this system. (Attachment). The water quality samples were collected on the outgoing tide and the salinity measurements show the water is fresh – where TP, not TN, would be the nutrient limiting algal growth. The Howes Report concluded that "Chlorophyll-a levels in the *incoming freshwater flows* at MBHA indicate the organic enrichment of this freshwater portion of the system stemming from the high phosphorus levels."

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[4] Howes, Brian, Roland Saminy, David Schlezinger, and Sara Sampieri Horvet. Technical Memorandum Nutrient Water Quality Monitoring in the Taunton River June – September 2018. University of Massachusetts Dartmouth School for Marine Science and Technology, Dartmouth: SMAST, August 2, 2019.

(Howes Report at 16). The elevated chlorophyll-a concentration reported for sampling station MBHA likely represents the chlorophyll-a load from further upstream since the detention time of water in this reach is not sufficient to allow significant algal growth. Moreover, the freshwater algae present in this reach are in response to upstream phosphorus concentration, not total nitrogen, as noted in the Howes Report. The phosphorus concentration present is not inducing additional algal growth, as demonstrated by the lower algal levels occurring downstream.

The impairment listings for chlorophyll-a, TN, and TP should be withdrawn for this Assessment Unit. Algal analyses are performed on growing season average conditions, as documented in the numerous NPDES and state issued permits to control excessive algal growth and the reference documents contained in the CALM. The growing season average is well below the 10 µg/l target for pheophytin-corrected chlorophyll 'a' – the relevant measure of algae growing in this segment. Even the growing season average total chlorophyll pigment measurement is less than 10 µg/l. Therefore, this parameter should not be considered indicative of nutrient impairment. As noted previously, these data are insufficient to determine whether the concentration of chlorophyll-a is due to the ambient concentration of nutrients or the advective transport from upstream portions of the Taunton River or its tributaries. The pheophytin levels confirm much of the algae present are dead and, therefore, were transported from upstream waters. This transport of dead algae does not support a conclusion that these waters are nutrient impaired.

Finally, as discussed in the CALM (at 25), a nutrient impairment Aquatic Life Use assessment decision is not made on the chlorophyll-a indicator alone. Additional evaluations of other water quality monitoring data are also required. Dissolved Oxygen (DO) concentration is used as a primary indicator related to nutrient impairment and excessive algal growth. (Draft Integrated List at 33). As noted in Appendix 24, the minimum measured DO of this segment is well above 5.0 mg/L. Total phosphorus concentration data are screened against the 1986 recommended "Gold Book" concentrations for rivers (0.1 mg/L). The reported average concentration for total phosphorus (0.102 mg/L) does not exceed the screening value as the significant digit only addresses tenth of a milligram, not thousandths. Finally, for whatever algal growth is occurring in this segment, TN is certainly not the cause for the measured chlorophyll-a concentrations in this Assessment Unit, as noted in the Howes Report – the waters are fresh, not saline. Consequently, the required additional evaluations do not support the added listings. Therefore, these new listings for chlorophyll-a, TP, and TN should be removed from the Integrated List.

- **Taunton River (MA62-03 – from Berkley Bridge to Assonet River)**

Appendix 24 provides the following assessment for MA62-03: The Aquatic Life Use for the Taunton River AU will continue to be assessed as Not Supporting for low DO. The influence of salinity transitions was evident (range 10.2 to 23.2 ppt) in this reach of the river so total nitrogen is being added as an impairment based on evidence of nutrient enrichment found in both the up and downstream Taunton River AUs (MA62-02 and MA62-04) even though chlorophyll-a concentrations were below 10 µg/L in this reach of the river during the 2018 summer surveys conducted by SMAST scientists. (Draft Integrated List, Appendix 24 at 158).

The data from the 2018 summer survey is presented in the Howes Report. In describing the 2018 data, the Draft Integrated List provides the following:

> Nutrient related water quality monitoring was conducted at one station in this Taunton River AU (MA62-03) in the vicinity of Ferry Point downstream from the confluence of Muddy Cove Brook, Dighton/Berkley (Station MHB-21) during the summer of 2018 by the University of Massachusetts-Dartmouth, SMAST-Coastal Systems Program (CSP) scientists. Sampling was conducted at two depths at this site (surface and bottom depth) close to mid ebb tide between June and September. Salinity ranged from 10.2 to 23.2 ppt and there was little evidence of any stratification. The minimum DO was 3.69 mg/L and was below 5.0 mg/L on only one day (21 August) of the 13 sampling events. The maximum temperature was 29.0°C. Chlorophyll a ranged from 0.56 to 8.72 µg/L. The average total phosphorus concentration was 0.138 mg/L and the total nitrogen concentrations ranged from 0.594 to 1.887 mg/L (average = 0.915 mg/L n=38).
>
> (Appendix 24 at 158)

This assessment is contrary to the detailed evaluation presented in the Howes Report and contrary to the methodology discussed in the CALM. The CALM establishes the Primary Producer Biological Screening Guidelines for Estuaries. (CALM at 25). The screening procedure for Estuaries provides that the Use is Supported when chlorophyll-a $\leq$ 5 µg/L and the Use is Impaired when chlorophyll-a > 10 µg/L. If an exceedance of any threshold indicator is found, an additional evaluation of other water quality monitoring data is required to make an assessment decision. The 2018 station average chlorophyll-a concentration for MHB-21 was 4.4 µg/L. (Howes Report at 17). The CALM notes that when chlorophyll-a concentrations are $\leq$ 5 µg/L, the overall health of the system is generally good to excellent (Howes et al. 2003). (CALM at 22). Thus, the extensive data collected in 2018 supports Aquatic Life Use attainment, contrary to MassDEP's determination to list TN as an impairment. This level of algal growth does not impair an estuarine system's DO levels. Given the excellent chlorophyll-a concentration observed in this Assessment Unit, the TN concentration is irrelevant. The CALM only provides that these other water quality monitoring data are assessed if there is an exceedance of the threshold indicator.

The explanation for adding TN as an impairment appears to be based on evidence of nutrient enrichment found in both the up and downstream Taunton River AUs (MA62-02 and MA62-04). This is not a justification discussed in the CALM and should be deleted from Appendix 24 as irrelevant. Impairment assessments are based on data, and the CALM devotes an entire section of the document to ensuring that the data to be evaluated are appropriate and reliable scientific data. (CALM at 13). The data presented in the Howes Report were determined to be such data and the AU evaluation must be based on the data for that AU, regardless of what is reported for adjacent AUs.

MA62-03 continues to be improperly assessed as Not Supporting for low DO. This assessment is marginally supported by the data, with only one low observation of 3.96 mg/L in the bottom waters and the remaining observations above 5.0 mg/L. This does not exceed the 10% threshold

that is used for finding a violation of water quality objectives. Moreover, the Howes Report notes that the Taunton River Estuary does not exhibit the typical pattern of DO concentrations for drown river valley estuaries, with the lowest DO found in the upper estuary. Rather, bottom water DO concentrations decrease from the upper estuary to the lower estuary. This is attributed to low DO *in the boundary waters of Mount Hope Bay*. (Howes Report at 20). Howes further notes:

> The atypical oxygen distribution in this estuary is even more uncommon when the TN levels and distribution are taken into account. In most estuaries with TN levels as high as the Taunton River Estuary, DO depletion is generally larger than observed in this estuary in 2004-2006 and 2018 and chlorophyll-a levels much higher. Whatever the mechanism, the general relationship has been seen in 4 summers of monitoring and suggests that this tidal estuary is less sensitive to nitrogen (response per unit nitrogen added) than most others in the region. <u>It is therefore possible that standard relationships of key metrics related to TN will need to be tailored to the Taunton River rather than using standard values</u>.
>
> (Howes Report at 20) (Emphasis provided).

Based on this assessment, it is clear that TN control is not likely to address the low DO conditions that occasionally arise in the estuary. Lowering nitrogen levels in the Taunton Estuary will not improve the infrequent occurrence of bottom water DO, since that water originates from Mount Hope Bay. Consequently, the low DO conditions will not be resolved without improvement in the boundary water conditions. MassDEP should evaluate these conditions to assess whether they are natural conditions related to periods of prolonged stratification or excessive algal growth occurring in Mount Hope Bay. No Nitrogen or nutrient impairment designation as the cause of the infrequent low DO is technically defensible at this time.

- **Taunton River (MA62-04 – from Assonet River to Braga Bridge)**

Appendix 24 provides the following assessment for MA62-04: The Aquatic Life Use for the Taunton River AU will continue to be assessed as Not Supporting for low DO. Total nitrogen is being added as an impairment (seasonal average mid-ebb tide total nitrogen concentration 0.568mg/L) based on some evidence of nutrient enrichment (chlorophyll a concentrations as high as 18.35 µg/L and above 10 µg/L on three survey dates during the summer 2018 SMAST scientist surveys) and some high saturations along near shore areas. (Draft Integrated List, Appendix 24 at 159-160).

Nutrient related water quality monitoring was conducted at four stations in this AU by SMAST CSP scientists. The data from the 2018 summer survey is presented in the Howes Report. In describing the 2018 data, the Draft Integrated List provides the following:

> Sampling was conducted at three depths each site (surface, mid, and bottom) close to mid ebb tide between June and September. Data summary: Salinity 14.5 to 29.0 ppt at the surface and 19.6 to 31.0 ppt at the bottom (n=60 each depth). The minimum DO was 5.07 mg/L at the surface and 3.96 mg/L at the bottom (n=66 and 59 measurements, respectively) with 20 measurements below 5.0 mg/L on as many

> as seven of the 13 survey dates. The maximum temperature was 28.7°C. Surface chlorophyll a range 1.46 to 18.35 µg/L (n=66) with average 3.92 µg/L and bottom 0.46 to 7.58 µg/L (n=60) with average 3.88 µg/L. Four of 66 measurement (6%) >10 µg/L (once at MHB18, twice at MHB1, and once at MHB2) on three dates. The average surface total phosphorus concentration was 0.107 mg/L and total nitrogen concentrations ranged from 0.368 to 1.065 mg/L (average = 0.568 mg/L n=65). Near bottom average total phosphorus concentration was similar 0.108 mg/L and total nitrogen concentrations ranged from 0.291 to 0.859 mg/L (average = 0.568 mg/L n=59).
>
> (Appendix 24 at 159)

As with the evaluation for MA62-03, this assessment is contrary to the detailed evaluation presented in the Howes Report and contrary to the methodology discussed in the CALM. The CALM establishes the Primary Producer Biological Screening Guidelines for Estuaries. (CALM at 25). The screening procedure for Estuaries provides that the Use is Supported when growing season chlorophyll-a ≤ 5 µg/L and the Use is Impaired when growing season chlorophyll-a > 10 µg/L. If an exceedance of any threshold indicator is found, an additional evaluation of other water quality monitoring data is required to make an assessment decision. The 2018 average chlorophyll-a concentration was 3.9 µg/L. The CALM notes that when chlorophyll-a concentrations are ≤ 5 µg/L the overall health of the system is generally good to excellent (Howes et al. 2003). (CALM at 22). Thus, the extensive data collected in 2018 supports Aquatic Life Use attainment, contrary to MassDEP's determination to list TN as an impairment. Given the excellent chlorophyll-a concentration observed in this Assessment Unit, the TN concentration is irrelevant. The CALM only provides that these other water quality monitoring data are assessed if there is an exceedance of the threshold indicator.

MA62-04 continues to be improperly assessed as Not Supporting for low DO. As discussed previously, the Howes Report attributed the observed DO pattern to low DO in the boundary waters of Mount Hope Bay and noted that the standard relationships of key metrics related to TN will need to be tailored to the Taunton River rather than using standard values. (Howes Report at 20). Based on this assessment, it is clear that TN control in the Taunton Estuary will not address the low DO conditions that occasionally arise in the estuary. Moreover, the low DO conditions will not be resolved without improvement in the boundary water conditions. MassDEP should evaluate these conditions to assess whether they are natural conditions related to periods of prolonged stratification or due to excessive algal growth occurring in that system.

SMAST University of Massachusetts Dartmouth
The School for Marine Science and Technology

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

Re: Proposed 2018/2020 Section 303(d) Impairment Listings for the Taunton Estuary

Dear Mr. Chase:

On behalf of local communities that discharge to the Taunton Estuary, I have been asked to review MassDEP's proposed listing of the Taunton Estuary as impaired for nutrients, dissolved oxygen, and excessive algal (phytoplankton) growth. Based on the detailed research and water quality studies that my group at UMass Dartmouth have conducted on this system, under the auspices of SMAST, the proposed designations do not reflect the improvements in the system or the site specific water quality details that have been learned through the studies. I would like propose a reconsideration and refinement of the listing based on the findings discussed below.

SMAST conducted detailed assessments of the Taunton Estuary in 2004-2006 and a more recent 2018 intensive effort. It is not apparent that the latest Section 303(d) impairment assessment accurately evaluated the most recent dataset or my 2018 SMAST report (attached) comparing the 2018 data to the earlier assessment that concluded that existing water quality in the Taunton Estuary was greatly improved and no longer reflected a locally driven nutrient impaired condition. Municipal actions, taken after the 2004-2006 survey, have lowered nitrogen inputs and summer chlorophyll a concentrations dropped 50% to 75% and are now in the good to excellent range for this system (averaging about 3.5 - 4 ug/l chlorophyll a through the relevant time period for system analysis). Based upon the most current information for this system, existing nitrogen levels are not causing excessive phytoplankton growth and do not seem to be linked to low dissolved oxygen (DO) events. As noted in the 2018 SMAST report, low DO does periodically occur in the stratified waters of the lower segments of the estuary, but not in the upper water column or in the upper reaches of the estuary. This spatial distribution of low DO in lower estuary and high D.O. in the upper reaches is atypical for Massachusetts estuaries where the opposite distribution is generally the case. Examining the totality of the system, it is clear that the cause of the low D.O. in the lower estuary is from the much lower DO water entering on the flooding tides from Mt.Hope Bay. Therefore, the D.O. impairment in the lower Taunton estuary is caused by impaired water quality conditions in Mount Hope Bay and not conditions in the Taunton estuary. This finding shows that improvements in water quality in the Taunton estuary cannot be controlled by managing nutrient levels in the Taunton Estuary, but is mainly external to its watershed inputs.

This conclusion was further verified by the DO readings conducted by MassDEP at the Cole and Taunton Buoy stations. Those stations, located in Mount Hope Bay and at the mouth of the Taunton Estuary, have a long record documenting low DO (~2 mg/l) in the stratified bottom

waters of adjacent Mt. Hope Bay, just outside of the entrance to the Taunton Estuary. These higher salinity, lower DO Mt. Hope Bay waters travel up the Taunton Estuary on the inflowing tides and cause the observed DO conditions. When this condition occurs, DO in the lower water column of the lower reaches of the Taunton Estuary may temporarily drop below 5 mg/l. The upper water column in this same section remains above 5 mg/l and the upper reaches of the Taunton Estuary are similarly unimpaired. When this external influence from Mt. Hope Bay is not occurring, DO throughout the water column in the lower reaches of the Taunton Estuary remains above the MassDEP 5 mg/l minimum.

Based upon the available water quality data alone, it is clear that the periodic low DO condition in the Taunton Estuary is not caused by *in situ* excessive phytoplankton (algal) growth from nutrients occurring in the Taunton Estuary – it is caused by the low DO, stratified conditions in Mount Hope Bay being transferred into the system by the tides. The resolution of nutrient concerns in Mount Hope Bay is a more complex and different evaluation. There is insufficient evidence that focusing pollution reduction efforts on the Taunton system will resolve this issue, but there is evidence that improving Mt. Hope Bay water quality will have an immediate and direct positive effect on the lower Taunton estuary, at this time.

In conclusion, the Taunton Estuary should not be classified as nutrient impaired from its own watershed inputs. Based on the latest available data and detailed analyses performed by SMAST, the proposed listing for the saline portion of the Taunton Estuary should be amended to delete nitrogen, nutrients, and excessive algal growth as impairments or causes of the transient low DO conditions. The DO impairment for the lower segments of the estuary should remain, but the cause should be clearly identified as nutrient enrichment of Mount Hope Bay, exacerbated by the natural stratification that occurs in that system. Proper identification of the cause of the lower Taunton Estuary's DO issue, should help focus attention on the real problem to be solved, i.e. impaired DO in Mt. Hope Bay.

If the Department has any questions regarding these technical conclusions, please inform me of the specific concerns and SMAST will endeavor to address them.

Sincerely,

Brian Howes, Chancellor Professor
Manager, Coastal Systems Program
School for Marine Science and Technology
University of Massachusetts Dartmouth
706 S. Rodney French Blvd
New Bedford, MA 02744
508-326-0912

Attachment

MassDEP response:

MassDEP appreciates the comments received from the Town of Raynham and Dr. Howes regarding the draft nutrient-related impairments for the Taunton River (MA62-02, MA62-03 and MA62-04). Please see MassDEP's responses to the City of Taunton. In addition, we have the following responses to the additional comments provided in the "Comments on the 2018-2020 Draft Massachusetts 303(d) List" attachment.

Regarding the added impairments for MA62-02 (TN, Chlorophyll-a and TP) contained in the draft 2018/2020 IR, there is clear evidence of elevated phosphorus, nitrogen and chlorophyll-a in this estuarine AU based on the 2018 data at station MHB-A (located upstream of the Taunton wastewater facility). While the majority of this AU is freshwater during ebb tides, the lower limits of this transition reach (approaching the Berkeley Bridge) are significantly more saline during flood tides based on the 1970 and 1986 MA DWPC water quality salinity surveys. We concur that the limiting nutrient in freshwater is typically phosphorus, but this roughly 8 mile long AU is not entirely freshwater. Also, use of molar N:P ratios to estimate nutrient limitation is often inconclusive especially at ratios near numerical thresholds for N vs. P limitation (e.g., Redfield). We acknowledge that the molar N:P ratios for DIN and PO4 at station MHB-A appear to indicate P-limitation. However, the molar DIN:TP ratios for individual 2018 MHB-A surface results show several instances with ratios less than 10 indicating the potential for N limitation at times (using TP accounts for P bioavailability from readily-bioavailable dissolved P fractions such as total reactive and soluble reactive P, as well as non-refractory particulate P). Although more data would be useful throughout this estuarine AU to better characterize summer nutrient and indicator conditions, the existing 2018 data showing high nutrient and chlorophyll-a levels support impairment decisions for TN, TP and chlorophyll-a.

Regarding the added impairment for MA62-03 (TN) and the existing low DO impairment, the 2018 data at MHB-21 show significantly elevated TN concentrations (0.6-1.8 mg/l), in addition to the elevated levels found in the upstream and downstream AUs. These nutrient levels and evidence of some DO excursions below the water quality standard support the listing of the TN pollutant, given that nitrogen levels within the estuary are caused by watershed nitrogen inputs as well as nitrogen entering from Mt. Hope Bay tidal movement. There are currently insufficient data to justify delisting DO as a cause of impairment. Continuous DO data containing magnitude, frequency and duration information would be useful in DEP's evaluation of worst-case conditions during ebbing tides. The discrete DO data at MHB-21 were generally above 5 mg/l, but the minimums of 3.65 mg/l (bottom) and 4.5 mg/l (surface) indicate that DO can fluctuate below the 5 mg/l threshold at times. Continuous data would help to determine if these excursions were isolated incidents or indicative of more frequent violations of the 5 mg/l threshold. MassDEP is retaining the TN and low DO (existing) pollutant causes in this AU. Recognizing the potential for tidal influence to contribute to the impairments, we have added the hydromodification group pollutant Source ID 897 ("Contribution from downstream waters due to tidal action") to the list of potential sources for the TN and low DO impairments in this AU.

Regarding the added impairment for MA62-04 (TN) and the existing low DO impairment, the 2018 data at MHB-1, MHB-2, MHB-18 and MHB-19 show average summer TN concentrations of approximately 0.57 mg/l in both surface and bottom waters (with a maximum of 1.07 mg/l at the surface) and surface chl-a values as high as 18 ug/l. The high nitrogen levels and evidence of elevated chl-a in this AU support the listing of the TN pollutant. Because the nitrogen levels within the estuary are likely the result of both watershed nitrogen inputs and nitrogen entering from Mt. Hope Bay tidal movement, we have added the hydromodification group pollutant Source ID 897 ("Contribution from downstream waters due to tidal action") to the list of potential sources for the TN and low DO in this AU.

City of Brockton:

City of Brockton
Department of Public Works

LAWRENCE ROWLEY
COMMISSIONER

June 15, 2021

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

Re: Proposed Section 303(d) Impairment Listings for the Taunton Estuary

Dear Mr. Chase:

We are pleased to provide the following comments on the proposed Impairment listings for the Taunton Estuary.

As noted in the 2018 CALM procedures for rendering water quality impairment listings under Section 303(d) of the Clean Water Act, when determining whether a waterbody is to be designated as nutrient impaired, MassDEP is required to collect and analyze site-specific data on each of the potential response indicators and the nutrient concentration data to ascertain if the nutrient enrichment present is problematic and the nutrient concentration is above the acceptable threshold level. Only when that data and information confirm an impairment due to nutrients based upon the above procedures can a waterbody be designated as nutrient impaired in a Massachusetts Integrate List of Waters for the Clean Water Act (*i.e.*, 303(d) listing). In accordance with federal rules governing Section 303(d) impairment listings, the latest available information should be utilized to ensure listing decisions are scientifically defensible and well informed.

MassDEP has proposed to list multiple segments of the Taunton Estuary as nutrient impaired, asserted that excessive algal growth is occurring and claimed periodic low DO conditions occurring in the Taunton Estuary are due to these factors. We respectfully state that this position is misplaced, based upon the system evaluations that have been conducted by DR. Brian Howes of SMAST (MassDEP's estuarine studies expert). As noted in the attached letter, Dr. Howes indicates that his studies have confirmed that the system is not nutrient impaired and not experiencing excessive algal growth. He notes further that his analyses have confirmed that the infrequent low DO condition occurring in the Taunton System is due to conditions in Mount Hope Bay, not the Taunton Estuary.

"City of Champions"
BROCKTON CITY HALL • 45 SCHOOL STREET • BROCKTON, MASSACHUSETTS 02301
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dpw@cobma.us

Based on Dr. Howes' expert evaluation we ask that the proposed nutrient and excessive algal growth impairments for the Taunton system be deleted and that the cause of the periodic low DO condition occurring in the lower estuary be attributed to conditions occurring in Mount Hope Bay.

Sincerely,

Lawrence Rowley,
DPW Commissioner

Attachment

SMAST University of Massachusetts Dartmouth
The School for Marine Science and Technology

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

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SMAST conducted detailed assessments of the Taunton Estuary in 2004-2006 and a more recent 2018 intensive effort. It is not apparent that the latest Section 303(d) impairment assessment accurately evaluated the most recent dataset or my 2018 SMAST report (attached) comparing the 2018 data to the earlier assessment that concluded that existing water quality in the Taunton Estuary was greatly improved and no longer reflected a locally driven nutrient impaired condition. Municipal actions, taken after the 2004-2006 survey, have lowered nitrogen inputs and summer chlorophyll a concentrations dropped 50% to 75% and are now in the good to excellent range for this system (averaging about 3.5 - 4 ug/l chlorophyll a through the relevant time period for system analysis). Based upon the most current information for this system, existing nitrogen levels are not causing excessive phytoplankton growth and do not seem to be linked to low dissolved oxygen (DO) events. As noted in the 2018 SMAST report, low DO does periodically occur in the stratified waters of the lower segments of the estuary, but not in the upper water column or in the upper reaches of the estuary. This spatial distribution of low DO in lower estuary and high D.O. in the upper reaches is atypical for Massachusetts estuaries where the opposite distribution is generally the case. Examining the totality of the system, it is clear that the cause of the low D.O. in the lower estuary is from the much lower DO water entering on the flooding tides from Mt.Hope Bay. Therefore, the D.O. impairment in the lower Taunton estuary is caused by impaired water quality conditions in Mount Hope Bay and not conditions in the Taunton estuary. This finding shows that improvements in water quality in the Taunton estuary cannot be controlled by managing nutrient levels in the Taunton Estuary, but is mainly external to its watershed inputs.

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In conclusion, the Taunton Estuary should not be classified as nutrient impaired from its own watershed inputs. Based on the latest available data and detailed analyses performed by SMAST, the proposed listing for the saline portion of the Taunton Estuary should be amended to delete nitrogen, nutrients, and excessive algal growth as impairments or causes of the transient low DO conditions. The DO impairment for the lower segments of the estuary should remain, but the cause should be clearly identified as nutrient enrichment of Mount Hope Bay, exacerbated by the natural stratification that occurs in that system. Proper identification of the cause of the lower Taunton Estuary's DO issue, should help focus attention on the real problem to be solved, i.e. impaired DO in Mt. Hope Bay.

If the Department has any questions regarding these technical conclusions, please inform me of the specific concerns and SMAST will endeavor to address them.

Sincerely,

Brian Howes, Chancellor Professor
Manager, Coastal Systems Program
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University of Massachusetts Dartmouth
706 S. Rodney French Blvd
New Bedford, MA 02744
508-326-0912

Attachment

City of Brockton
Department of Public Works

LAWRENCE ROWLEY
COMMISSIONER

June 9, 2021

Richard Chase
Massachusetts Department of Environmental Protection
Division of Watershed Management
Watershed Planning Program
8 New Bond Street
Worcester, MA 01606
richard.f.chase@mass.gov

Dear Mr. Chase:

The City of Brockton (City) is writing to comment on Massachusetts Department of Environmental Protection's (MassDEP's) *Draft Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle*. The City has comments on the following Assessment Units:

- Silver Lake (MA94143), added to the 2018/2020 303(d) list for dissolved oxygen.
- Matfield River (MA62-32), added to the 2018/2020 303(d) list for nutrient/eutrophication biological indicators.
- Taunton River (MA62-01), added to the 2018/2020 303(d) list for dissolved oxygen.
- Salisbury Plain River (MA62-05 and MA62-06), which did not consider updated data collected by Brockton following the AWRF upgrade.

This letter provides a brief discussion of the capital improvements implemented by the City to improve water quality in its water supply and receiving waters followed by a discussion of how these improvements should impact MassDEP's water quality assessments for the 2018/2020 303(d) list.

Capital Improvements by Brockton

Over the past fifteen years the City has made significant capital investments to improve water quality in Silver Lake, the Salisbury Plain River, the Matfield River, and the Taunton River. However, data used by MassDEP to support listing decisions in the 2018/2020 draft 303(d) list rely on data collected prior to these significant capital improvements and therefore do not represent the current water quality condition of these waterbodies. Capital improvements implemented by Brockton include the installation of three SolarBee hypolimnetic aeration units in Silver Lake and upgrades to the Brockton Advanced Water Reclamation Facility (AWRF), Phases 1, 2 and 3, completed in 2009, impacting water quality in downstream receiving waters (Salisbury Plain River, Matfield River, Taunton River). In addition to these improvements, the City is currently implementing a Biological Nutrient Removal Upgrade project at the

AWRF. This work included modifications to the aeration tanks as well as process optimization to meet more stringent total phosphorus and total nitrogen effluent limitations imposed in the facility's 2017 NPDES permit. These upgrades are expected to be completed in July 2021.

Silver Lake SolarBee

Silver Lake is Brockton's primary water supply reservoir, supplying the Silver Lake Water Treatment Plant through an intake located at elevation 32.5 feet NGVD, 15 feet below the water surface at full pool. In response to low dissolved oxygen leading to anoxic release of manganese in the deeper layer of the lake (its hypolimnion) that was impacting raw water quality, Brockton installed three SolarBee hypolimnetic aeration systems (**Figure 1**) in 2014. The aeration system has been in operation since 2014 and has resulted in significant improvements in both lake oxygen and raw water quality to the water treatment plant. The water quality improvements from this system are discussed in the context of MassDEP's proposed dissolved oxygen listing of Silver Lake below.

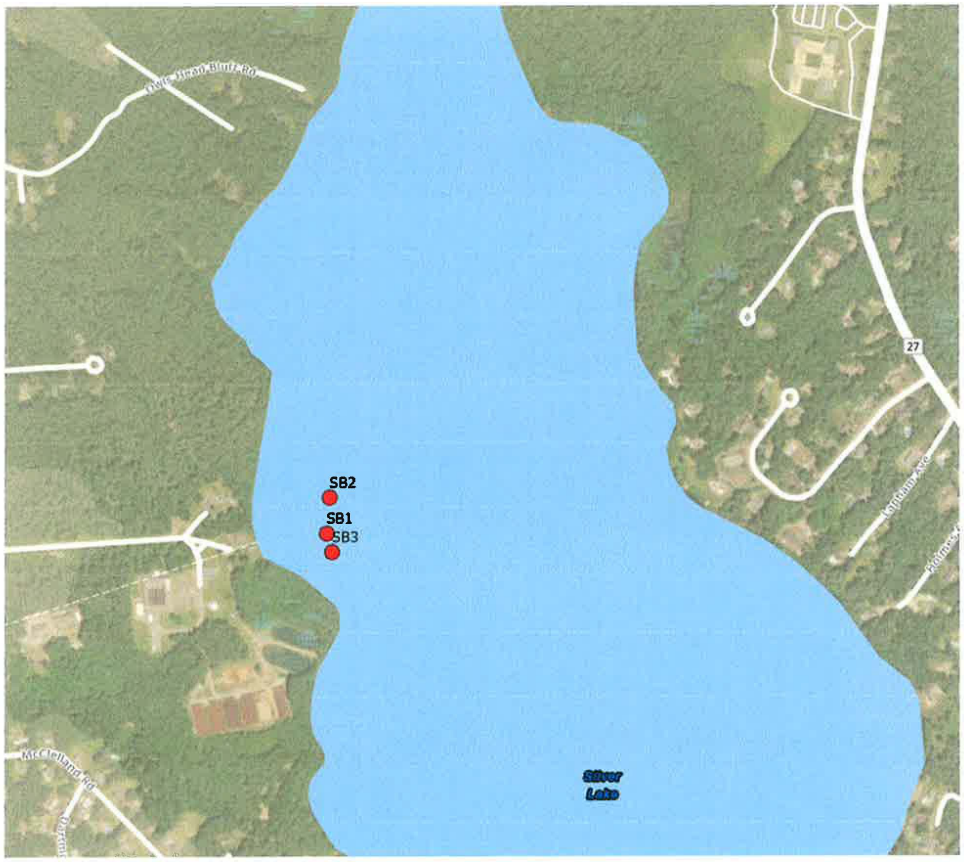


Figure 1: SolarBee Locations (SB1, SB2, and SB3)

Brockton AWRF Upgrades

The Brockton AWRF discharges to the Salisbury Plain River, which then flows to the Matfield River and the Taunton River. The AWRF's NPDES permit was renewed by EPA Region 1 in 2005 and again in 2017. These permits included enhanced nitrogen and phosphorus removal requirements. The 2005 permit added a 0.2 mg/L 60-day rolling average total phosphorus limit, with a compliance schedule to accommodate facility upgrades necessary to meet this limit. The facility upgrades (Phase 1, 2 and 3) required to meet the 0.2 mg/L total phosphorus limit were completed in 2009 in accordance with the City's 2006 Consent Decree. The 2017 permit further reduced the summertime total phosphorus limit to an average monthly concentration limit of 101 µg/L and an average monthly load limit of 15.2 lb/day and reduced total nitrogen to a monthly average load limit of 450 lb/day. The improvements required by the 2017 permit were subject to a compliance schedule that requires compliance with the new permit limits within 54 months of the effective date of the NPDES permit. Interim total phosphorus concentration limits were set to the previous 0.2 mg/L 60-day rolling average (April through October) and a requirement to maximize total nitrogen removal. To reliably meet the lower limits in the new permit, the City began the Biological Nutrient Removal Upgrade project and process optimization in 2019, with a targeted completion date of July 2021. Furthermore, during this time, the AWRF has replaced the original filter media with 5 µm filter media to achieve the 101 µg/L total phosphorus limitation required in the 2017 permit. For the last five years of effluent data, total phosphorus concentrations have met this 0.2 mg/L rolling average total phosphorus limit, and the monthly average summer total nitrogen concentrations were 4.38 mg/L. Data from EPA's ECHO system indicate that the AWRF has reliably met the 101 µg/L limit since summer 2020, about a year earlier than required per the compliance schedule.

Comments on the 2018/2020 Impairment Decisions

Silver Lake (MA94143)

The 2018/2020 Draft Integrated Report adds a dissolved oxygen impairment to Silver Lake based on water quality monitoring conducted by MassDEP in 2008 and 2009. These data indicated "oxygen depletion when stratified," with low dissolved oxygen conditions roughly extending over 40 percent of the lake bottom.

Dissolved oxygen profiles are measured by the SolarBee installation staff when the SolarBee units are installed in the spring (typically May) and removed in the fall (typically November). The DO profiles met the 6 mg/L Class A water quality standard at all depths except for March 2019, where all three profiles showed uniformly low dissolved oxygen concentrations, even at the surface. Since surface dissolved oxygen will equilibrate with the atmosphere the March 2019 profiles likely indicate improper meter calibration and not low dissolved oxygen conditions throughout the water column. The SolarBee installation and removal reports are included as **Attachment 1**.

Based on the investments made by the City in 2014, the water quality condition in Silver Lake is substantially different than it was in 2008 and 2009 when the monitoring was completed by MassDEP. Therefore, the 2008 and 2009 data are not representative of current conditions and should not be used to assess impairments. The City requests that MassDEP remove the dissolved oxygen impairment from the final 2018/2020 303(d) list.

Matfield River (MA62-32)

The Matfield River was added to the Massachusetts Draft 2018/2020 303(d) list for nutrient/eutrophication biological indicators based on backpack electrofishing conducted in 2007 and water quality sampling conducted in 2006. The fish survey found that "[m]ost of the sample was made up of macrohabitat generalists tolerant to environmental perturbations." The water quality sampling in 2006 found low dissolved oxygen, dense/very dense filamentous algae, and elevated total phosphorus concentrations.

The water quality conditions observed by MassDEP in 2006 and 2007 pre-date the total phosphorus upgrades required to meet the 2005 permit that were brought online in 2008 and those mandated in the 2017 (current) permit. The 101 µg/L total phosphorus limit required in the 2017 permit will soon be in effect (and the AWRF is already meeting this lower phosphorus limit following the installation of new, 5 µm filter fabric), reducing further the total phosphorus concentration from the Brockton AWRF to its receiving waters. These water quality data, therefore, are not relevant to the current water quality of the Matfield River.

In addition to the data referenced by MassDEP, in 2010 the City worked with CDM Smith and Biodrawversity to perform a water quality survey of the Salisbury Plain River and Matfield River following the AWRF Phase 1, Phase 2, and Phase 3 upgrade completed in 2009. This monitoring program consisted of ten monitoring sites, with monitoring completed for benthic macroinvertebrates and habitat assessment (6 sites), fish (3 sites), and analytical chemistry and field parameters (all sites). Of these sites, three were located on the Matfield River. Samples were analyzed for particulate organic carbon, particulate organic nitrogen, chlorophyll *a*, phaeophytin *a*, total phosphorus, orthophosphate, ammonia, nitrate + nitrite, dissolved inorganic nitrogen, dissolved organic nitrogen, turbidity, dissolved oxygen, temperature, specific conductivity, and pH. These data were collected under an approved Quality Assurance Project Plan (QAPP) and submitted for review and approval to EPA and MassDEP. The City can provide the report and data if these are not in MassDEP's records.

Data from the 2010 monitoring program indicate that in the Matfield River, DO met the state water quality criterion of 5 mg/L (range = 6.0 to 7.92 mg/L) and total phosphorus averaged 53 µg/L (range = 47 to 64 µg/L). This represents a significant improvement over the conditions documented in MassDEP's delisting documentation (citing a low DO of 3.6 mg/L, an average total phosphorus concentration of 130 µg/L and a maximum total phosphorus concentration of 220 mg/L). The RBPIII and habitat assessment data indicate that the Matfield River was "moderately impacted" at two of the three sites and "slightly impacted" at one site. Furthermore, the periphyton are described as "light to heavy," in contrast to the "dense/very dense" observations cited by MassDEP in the delisting documentation. Taken collectively, these data indicate that water quality in the Matfield River has improved since the AWRF Phase 1, Phase 2, and Phase 3 upgrades were brought online.

While the 2010 monitoring data indicate that some degree of impairment could remain in the Matfield River, these data are over ten years old, and this monitoring program was conducted prior to the implementation of subsequent, more stringent total phosphorus and total nitrogen limits imposed in the 2017 NPDES permit renewal. Based on the water quality improvements observed following the 2005 permit and AWRF Phase 1, Phase 2, and Phase 3 upgrade, and the additional nutrient reductions required in the 2017 permit, the 2006-07 data used to list the Matfield River for nutrient/eutrophication biological indicators is no longer representative of the current water quality condition. Similarly, the

2010 monitoring data are no longer representative of the current water quality conditions of the Matfield River. Additional, post-upgrade monitoring needs to be conducted before MassDEP can determine whether the Matfield River remains impaired for nutrient/eutrophication biological indicators.

The City requests that MassDEP remove the water quality impairments added as a result of the 2006 and 2007 data and that these changes should be included in the final 2018/2020 303(d) list. Further, the Matfield River should be reassessed prior to any new impairment listings.

Taunton River (MA62-01)

The freshwater Taunton River (Assessment Unit MA62-01) was added to the draft 2018/2020 303(d) list for dissolved oxygen impairments based on monitoring conducted by MassDEP in 2006 and again by USGS in summer 2019. In addition to the new dissolved oxygen impairment, MassDEP cites fish surveys conducted in 2005, 2009, and 2014.

The City requests that MassDEP not consider the 2006 data in its dissolved oxygen assessment. This data, which is over 15 years old, does not represent the current condition of the Taunton River as there have been upgrades to several POTWs upstream of this location, including Brockton. Likewise, the fish survey data collected in 2005, 2009, and 2014 should no longer be considered by MassDEP for evaluations of the Aquatic Life Use. As with the City's comments on the Matfield River, water quality conditions observed in 2005, 2006, 2009, and 2014 are no longer representative of current water quality conditions.

Salisbury Plain River (MA62-05 and MA62-06)

MassDEP does not propose any changes to the listing status of the Salisbury Plain River (Assessment Units MA62-05 and MA62-06) relative to the Aquatic Life Use in the draft 2018/2020 303(d) list. However, in the Assessment and Listing Decision Summary, MassDEP cites dissolved oxygen data collected in 2006 and 2013 in the reach upstream of the Brockton AWRF (MA62-05), and dissolved oxygen and benthic macroinvertebrate data collected in 2006 in the reach downstream of the Brockton AWRF (MA62-06). As the City notes in its comments on the proposed dissolved oxygen listing for the Matfield River and the Taunton River, these data were collected prior to the AWRF Phase 1, Phase 2, and Phase 3 upgrades and more recent filter improvements to reduce total phosphorus to 101 µg/L during the growing season.

Since the 2006 monitoring data were collected, the City worked with CDM Smith and Biodrawversity to conduct a water quality study of the Salisbury Plain River (see the Matfield River discussion for a description of this program). During this program, three sites on the Salisbury Plain River were monitored (one site upstream of the AWRF in MA62-05 and two sites downstream of the AWRF in MA62-06). At the upstream site, DO met the 5 mg/L water quality criterion and total phosphorus was 48 µg/L. The RBPIII survey, however, found that this site was "severely impacted." The downstream two sites also met the 5 mg/L DO water quality criterion (range = 5.32 – 10.93 mg/L) and total phosphorus was 54 to 55 µg/L. RPIII surveys at these two locations found "moderately impacted" conditions. As with the Matfield River impairments, these data suggest improvements relative to the conditions observed by MassDEP in 2006.

While both segments of the Salisbury Plain River would likely have been evaluated as impaired for Aquatic Life Use based on the 2010 monitoring, the City requests that the 2006 data no longer be

considered in the assessment because these data are no longer representative of current water quality conditions. Furthermore, the 2010 data are likewise no longer representative of current water quality conditions following the completion of improvements required to meet the 101 µg/L total phosphorus limit.

Summary

The City appreciates this opportunity to comment on MassDEP's draft 2018/2020 Integrated Report. As discussed in this letter, the City is concerned that MassDEP is relying on water quality data collected well before the City's AWRF Phase 1, 2, and 3 upgrades, completed in 2009 and more recent AWRF improvements, including the on-going Biological Nutrient Removal Upgrade project, were made to address the more stringent nutrient limits imposed with the 2017 NPDES permit. Also, MassDEP is relying on water quality data called in Silver Lake prior to the 2014 installation of the SolarBee hypolimnetic aeration system. Since the historical data used to support the Aquatic Life Use impairments added to Silver Lake, the Matfield River, and the Taunton River pre-date these significant capital improvements, the City requests that MassDEP no longer consider these historical data in the context of the water quality assessment process.

The City further requests the MassDEP collect additional data on Silver Lake and the receiving waters of the Brockton's AWRF prior to future assessment of the attainment status of these water bodies. The City has made millions of dollars of improvements and conducted the 2010 monitoring program. The next assessments of these water bodies need to reflect their condition after these investments.

The City is looking forward to working with MassDEP to continue to improve water quality in its drinking water supply and receiving waters.

Sincerely,

Lawrence C. Rowley
Commissioner of Public Works

cc: Mr. David A. Norton, Water & Sewer Contract Administrator
Mr. Patrick Hill, Director of Operations

Attachment 1
Silver Lake DO Data

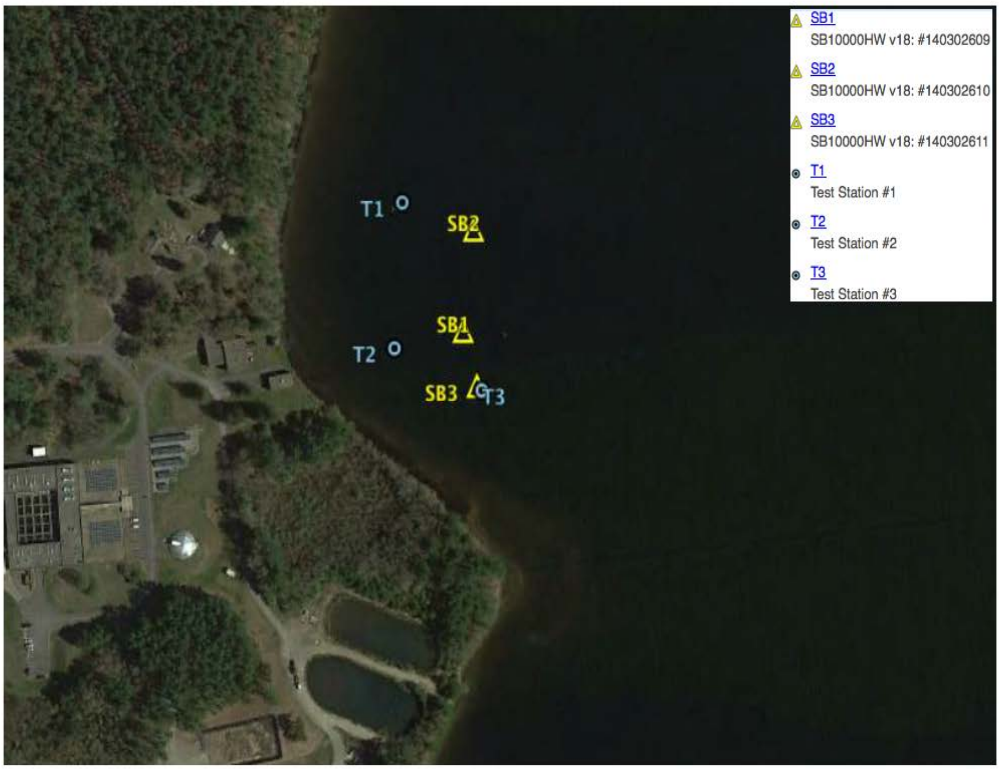
Medora Corporation

GridBee SolarBee

Service Report From
October 17, 2016

City of Brockton

Silver Lake



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GPS positions are recorded for all test stations and SolarBee machines.
Depending on conditions, there can be a positioning discrepancy of +/-60 feet at any given time.

Water Quality Testing

Test Station #T1	
Start Time:	9:05 AM
GPS Location:	42.02485,-70.81389
Secchi Depth (ft.):	11.00
Top Of Slurry (ft.):	NA
Weight Bearing (ft.):	19.50
Water Color:	Clear Yellowish Brow

Test Station #T3	
Start Time:	9:35 AM
GPS Location:	42.02378,-70.81319
Secchi Depth (ft.):	11.17
Top Of Slurry (ft.):	NA
Weight Bearing (ft.):	33.67
Water Color:	Clear Yellowish Brown

Depth (meters, feet)		Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)	Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
(surface)	0	16.35	9.06	7.36	0.190	16.04	8.98	7.10	0.191
(0.30 m)	1	16.24	9.01	7.33	0.190	6.05	8.87	7.10	0.191
(0.61 m)	2	16.18	9.00	7.31	0.190	15.95	8.85	7.09	0.191
(0.91 m)	3	16.11	8.92	7.28	0.190	15.95	8.85	7.09	0.191
(1.22 m)	4	16.06	8.99	7.27	0.190	15.92	8.84	7.09	0.191
(1.52 m)	5	15.97	8.94	7.25	0.190	15.92	8.84	7.09	0.191
(1.83 m)	6	15.92	8.94	7.23	0.190	15.88	8.83	7.09	0.191
(2.13 m)	7	15.88	8.91	7.21	0.190	15.88	8.83	7.08	0.191
(2.44 m)	8	15.86	8.87	7.20	0.190	15.85	8.78	7.08	0.191
(2.74 m)	9	15.85	8.87	7.19	0.190	15.85	8.78	7.09	0.191
(3.05 m)	10	15.85	8.85	7.14	0.190	15.85	8.78	7.09	0.191
(3.35 m)	11	15.83	8.81	7.15	0.190	15.83	8.68	7.09	0.191
(3.66 m)	12	18.83	8.81	7.15	0.190	15.83	8.68	7.09	0.191
(3.96 m)	13	15.82	8.78	7.12	0.190	15.83	8.68	7.09	0.191
(4.27 m)	14	15.82	8.78	7.12	0.190	15.82	8.64	7.08	0.191
(4.57 m)	15	18.52	8.78	7.12	0.190	15.82	8.64	7.08	0.191
(4.88 m)	16	15.82	8.78	7.12	0.190	15.82	8.64	7.08	0.191
(5.18 m)	17	15.81	8.74	7.13	0.190	15.82	8.64	7.07	0.191
(5.49 m)	18	15.81	8.74	7.13	0.190	15.82	8.64	7.07	0.191
(5.79 m)	19					15.81	8.62	7.07	0.191
(6.10 m)	20					15.81	8.62	7.07	0.191
(6.40 m)	21					15.81	8.60	7.06	0.191
(6.71 m)	22					15.81	8.60	7.06	0.191
(7.01 m)	23								

Test Station #T3	
Start Time:	9:35 AM
Secchi Depth (ft.):	11.17
Top Of Slurry (ft.):	NA
Weight Bearing (ft.):	33.67
Total Depth (ft.):	23.50
Water Color:	Clear Yellowish Brown
Slurry Color:	NA
Sediment Color:	NA

Depth (meters, feet)		Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
(surface)	0	16.04	8.98	7.10	0.191
(0.30 m)	1	16.05	8.87	7.10	0.191
(0.61 m)	2	15.95	8.85	7.09	0.191
(0.91 m)	3	15.95	8.85	7.09	0.191
(1.22 m)	4	15.92	8.84	7.09	0.191
(1.52 m)	5	15.92	8.84	7.09	0.191
(1.83 m)	6	15.88	8.83	7.09	0.191
(2.13 m)	7	15.88	8.83	7.08	0.191
(2.44 m)	8	15.85	8.78	7.08	0.191
(2.74 m)	9	15.85	8.78	7.09	0.191
(3.05 m)	10	15.85	8.78	7.09	0.191
(3.35 m)	11	15.83	8.68	7.09	0.191
(3.66 m)	12	15.83	8.68	7.09	0.191
(3.96 m)	13	15.83	8.68	7.09	0.191
(4.27 m)	14	15.82	8.64	7.08	0.191
(4.57 m)	15	15.82	8.64	7.08	0.191
(4.88 m)	16	15.82	8.64	7.08	0.191
(5.18 m)	17	15.82	8.64	7.07	0.191
(5.49 m)	18	15.82	8.64	7.07	0.191
(5.79 m)	19	15.81	8.62	7.07	0.191
(6.10 m)	20	15.81	8.62	7.07	0.191
(6.40 m)	21	15.81	8.60	7.06	0.191
(6.71 m)	22	15.81	8.60	7.06	0.191
(7.01 m)	23				

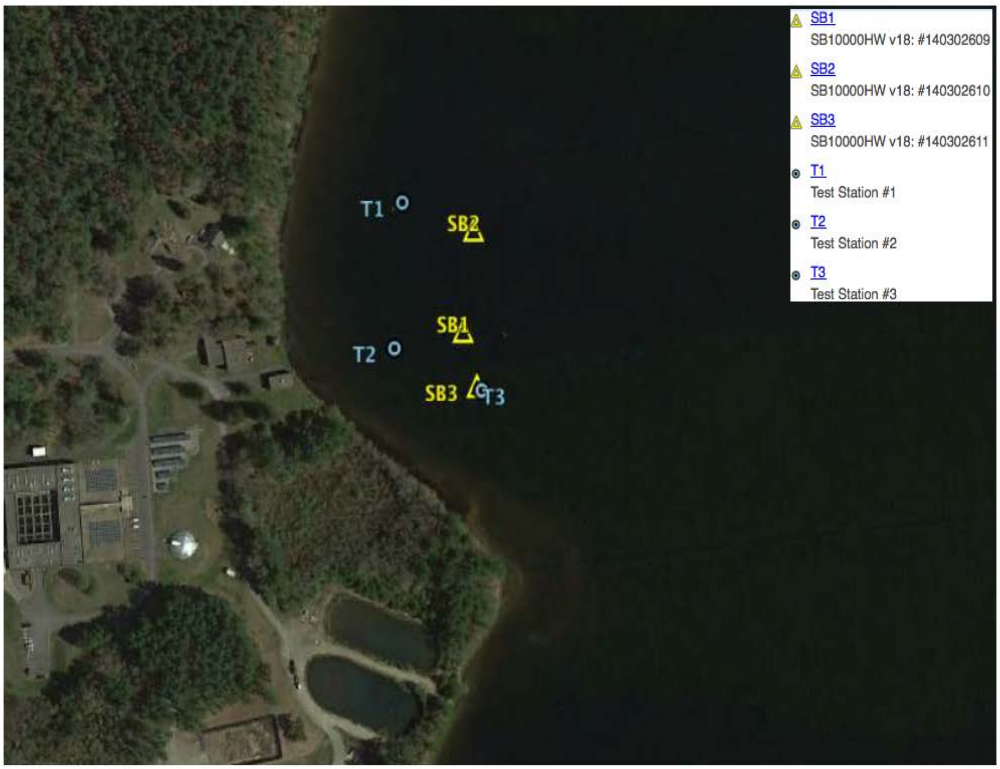
Medora Corporation

GridBee SolarBee

Service Report From
May 08, 2017

City of Brockton

Silver Lake



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GPS positions are recorded for all test stations and SolarBee machines.
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Water Quality Testing

Test Station #T1	
Start Time:	5:00 PM
GPS Location:	42.02485,-70.81389
Secchi Depth (ft.):	11.00
Top Of Slurry (ft.):	NA
Weight Bearing (ft.):	24.83
Water Color:	Light Green

Test Station #T3	
Start Time:	4:33 PM
GPS Location:	42.02378,-70.81319
Secchi Depth (ft.):	11.00
Top Of Slurry (ft.):	NA
Weight Bearing (ft.):	29.00
Water Color:	Light Green

Depth (meters, feet)		Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)	Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
(surface)	0	14.77	10.20	8.09	0.209	14.18	10.31	8.49	0.209
(0.30 m)	1	14.77	10.17	8.09	0.209	14.21	10.17	8.47	0.208
(0.61 m)	2	14.79	10.16	8.09	0.209	14.27	10.14	8.44	0.209
(0.91 m)	3	14.79	10.15	8.08	0.209	14.56	10.12	8.43	0.209
(1.22 m)	4	14.78	10.14	8.08	0.209	14.55	10.14	8.41	0.209
(1.52 m)	5	14.78	10.14	8.08	0.209	14.35	10.17	8.41	0.209
(1.83 m)	6	14.79	10.14	8.07	0.209	14.37	10.15	8.40	0.209
(2.13 m)	7	14.79	10.14	8.07	0.209	14.39	10.13	8.40	0.209
(2.44 m)	8	14.76	10.14	8.08	0.209	14.46	10.12	8.39	0.209
(2.74 m)	9	14.75	10.12	8.08	0.209	14.44	10.14	8.38	0.209
(3.05 m)	10	14.67	10.10	8.07	0.209	14.45	10.13	8.37	0.209
(3.35 m)	11	14.63	10.08	8.07	0.209	14.48	10.12	8.37	0.209
(3.66 m)	12	14.61	10.07	8.07	0.209	14.49	10.13	8.35	0.209
(3.96 m)	13	14.59	10.06	8.07	0.209	14.49	10.13	8.35	0.209
(4.27 m)	14	14.47	10.07	8.07	0.209	14.47	10.13	8.35	0.209
(4.57 m)	15	14.37	10.04	8.07	0.209	14.46	10.12	8.34	0.209
(4.88 m)	16	14.13	9.98	8.07	0.209	14.41	10.11	8.33	0.209
(5.18 m)	17	14.02	9.91	8.05	0.209	14.30	10.07	8.32	0.209
(5.49 m)	18	13.92	9.87	8.05	0.209	14.29	10.04	8.31	0.209
(5.79 m)	19	13.91	9.82	8.04	0.209	14.12	10.00	8.31	0.209
(6.10 m)	20	13.78	9.82	8.03	0.209	14.02	9.94	8.30	0.209
(6.40 m)	21	12.13	9.92	8.03	0.209	11.70	9.84	8.28	0.211
(6.71 m)	22	11.53	9.86	8.03	0.209	11.14	9.65	8.25	0.209
(7.01 m)	23	10.84	9.51	8.00	0.208	10.98	9.53	8.23	0.209
(7.32 m)	24	10.69	9.37	7.99	0.206	10.57	9.47	8.20	0.210
(7.62 m)	25					10.38	9.41	8.17	0.209
(9.14 m)	30								

Water Quality Testing

Test Station #T3	
Start Time:	4:33 PM
GPS Location:	42.02378,-70.81319
Secchi Depth (ft.):	11.00
Top Of Slurry (ft.):	NA
Weight Bearing (ft.):	29.00
Total Depth (ft.):	23.50
Water Color:	Light Green
Slurry Color:	NA
Sediment Color:	NA

Depth (meters, feet)	Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
(surface) 0	14.18	10.31	8.49	0.209
(0.30 m) 1	14.21	10.17	8.47	0.208
(0.61 m) 2	14.27	10.14	8.44	0.209
(0.91 m) 3	14.56	10.12	8.43	0.209
(1.22 m) 4	14.55	10.14	8.41	0.209
(1.52 m) 5	14.35	10.17	8.41	0.209
(1.83 m) 6	14.37	10.15	8.40	0.209
(2.13 m) 7	14.39	10.13	8.40	0.209
(2.44 m) 8	14.46	10.12	8.39	0.209
(2.74 m) 9	14.44	10.14	8.38	0.209
(3.05 m) 10	14.45	10.13	8.37	0.209
(3.35 m) 11	14.48	10.12	8.37	0.209
(3.66 m) 12	14.49	10.13	8.35	0.209
(3.96 m) 13	14.49	10.13	8.35	0.209
(4.27 m) 14	14.47	10.13	8.35	0.209
(4.57 m) 15	14.46	10.12	8.34	0.209
(4.88 m) 16	14.41	10.11	8.33	0.209
(5.18 m) 17	14.30	10.07	8.32	0.209
(5.49 m) 18	14.29	10.04	8.31	0.209
(5.79 m) 19	14.12	10.00	8.31	0.209
(6.10 m) 20	14.02	9.94	8.30	0.209
(6.40 m) 21	11.70	9.84	8.28	0.211
(6.71 m) 22	11.14	9.65	8.25	0.209
(7.01 m) 23	10.98	9.53	8.23	0.209
(7.32 m) 24	10.57	9.47	8.20	0.210
(7.62 m) 25	10.38	9.41	8.17	0.209
(9.14 m) 30				

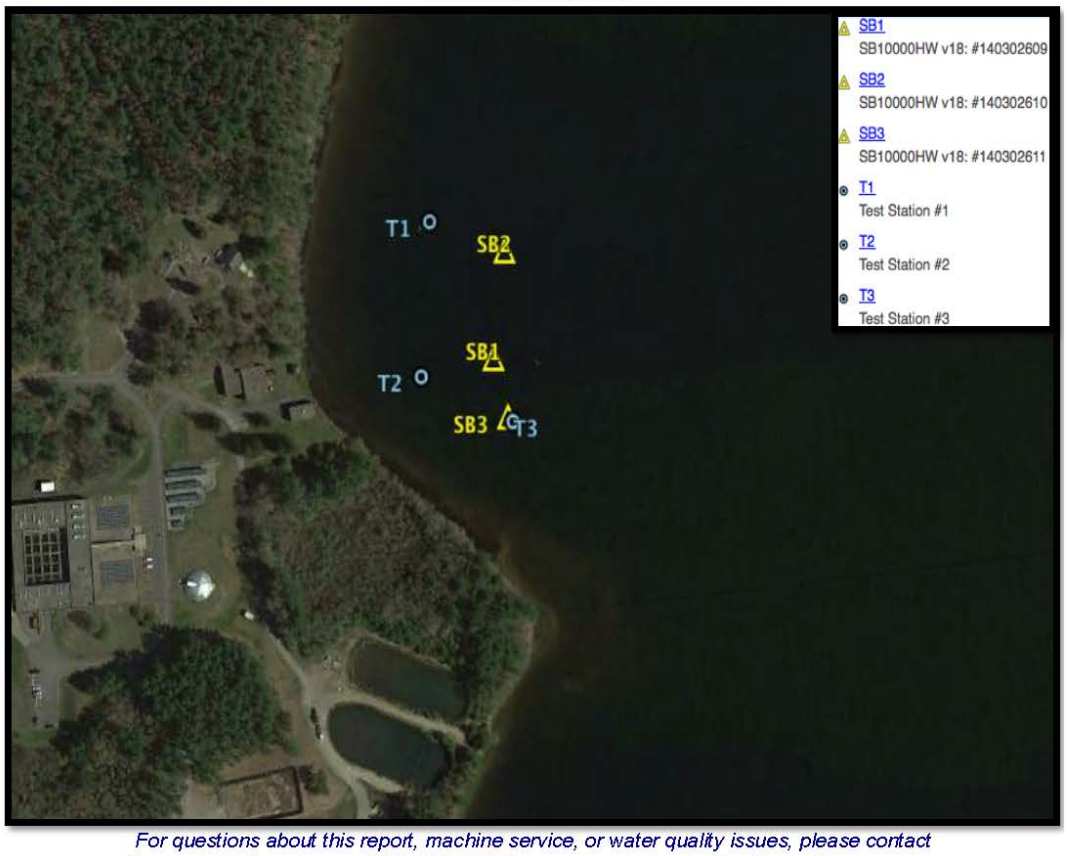
Medora Corporation

GridBee SolarBee

Service Report From November 07, 2018

City of Brockton

Silver Lake



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Water Quality Testing

Test Station #T1	
Start Time:	9:10 AM
Secchi Depth (ft.):	9.00
Weight Bearing (ft.):	21.25
Water Color:	Copper

Test Station #T2	
Start Time:	9:24 AM
Secchi Depth (ft.):	9.00
Weight Bearing (ft.):	29.33
Water Color:	Copper

Depth (meters, feet)	Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)	Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
(surface) 0	11.86	14.28	8.10	0.210	11.88	14.24	7.85	0.211
(0.30 m) 1	11.86	14.10	8.08	0.210	11.88	14.20	7.83	0.211
(0.61 m) 2	11.86	13.89	8.06	0.210	11.84	14.11	7.80	0.211
(0.91 m) 3	11.85	13.73	8.04	0.210	11.81	14.00	7.79	0.211
(1.22 m) 4	11.85	13.58	8.03	0.210	11.81	13.87	7.78	0.211
(1.52 m) 5	11.85	13.44	8.01	0.210	11.81	13.75	7.76	0.211
(1.83 m) 6	11.85	13.33	8.00	0.210	11.80	13.68	7.75	0.211
(2.13 m) 7	11.85	13.25	7.99	0.210	11.77	13.57	7.73	0.210
(2.44 m) 8	11.85	13.15	7.98	0.210	11.77	13.52	7.72	0.210
(2.74 m) 9	11.84	13.07	7.96	0.210	11.77	13.48	7.72	0.210
(3.05 m) 10	11.83	12.98	7.95	0.210	11.77	13.42	7.71	0.210
(3.35 m) 11	11.83	12.91	7.94	0.210	11.76	13.36	7.70	0.210
(3.66 m) 12	11.80	12.88	7.90	0.210	11.76	13.31	7.70	0.210
(3.96 m) 13	11.80	12.82	7.92	0.210	11.76	13.30	7.69	0.210
(4.27 m) 14	11.80	12.78	7.91	0.210	11.76	13.27	7.68	0.210
(4.57 m) 15	11.78	12.74	7.89	0.210	11.76	13.25	7.68	0.210
(4.88 m) 16	11.78	12.72	7.88	0.210	11.75	13.20	7.67	0.210
(5.18 m) 17	11.78	12.69	7.87	0.210	11.75	13.19	7.67	0.210
(5.49 m) 18	11.78	12.70	7.86	0.210	11.75	13.17	7.66	0.210
(5.79 m) 19	11.77	12.70	7.85	0.210	11.72	13.12	7.65	0.210
(6.10 m) 20	11.77	12.69	7.84	0.210	11.72	13.12	7.65	0.210
(6.40 m) 21	11.77	12.69	7.82	0.210	11.72	13.12	7.64	0.210
(6.71 m) 22					11.72	13.11	7.64	0.210
(7.01 m) 23					11.72	13.09	7.64	0.210
(7.32 m) 24					11.72	13.09	7.64	0.210
(7.62 m) 25					11.70	13.09	7.63	0.210

Test Station #T3	
Start Time:	9:42 AM
Secchi Depth (ft.):	9.00
Weight Bearing (ft.):	33.75
Water Color:	Copper

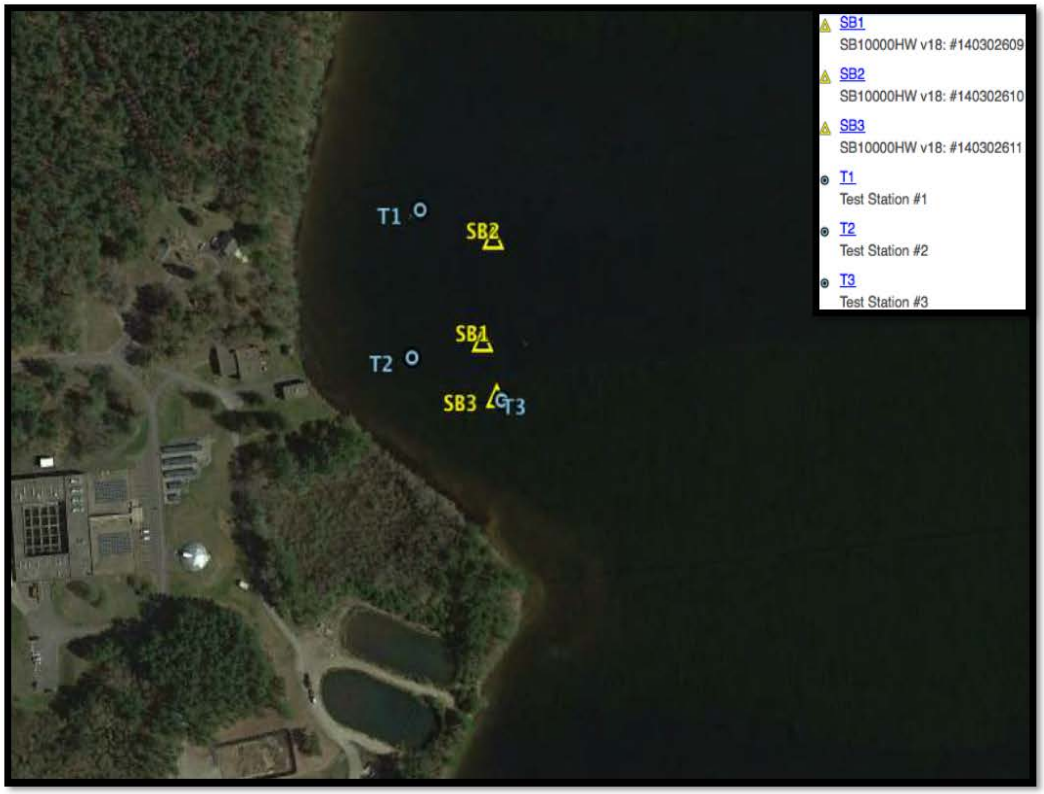
Depth (meters, feet)		Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
(surface)	0	11.76	14.39	7.67	0.211
(0.30 m)	1	11.75	14.36	7.66	0.211
(0.61 m)	2	11.74	14.35	7.66	0.211
(0.91 m)	3	11.74	14.30	7.65	0.211
(1.22 m)	4	11.74	14.24	7.64	0.211
(1.52 m)	5	11.74	14.14	7.63	0.211
(1.83 m)	6	11.74	14.04	7.63	0.211
(2.13 m)	7	11.73	13.94	7.63	0.211
(2.44 m)	8	11.73	13.86	7.61	0.211
(2.74 m)	9	11.73	13.79	7.60	0.211
(3.05 m)	10	11.73	13.71	7.60	0.211
(3.35 m)	11	11.73	13.65	7.60	0.211
(3.66 m)	12	11.72	13.65	7.60	0.211
(3.96 m)	13	11.72	13.55	7.60	0.211
(4.27 m)	14	11.72	13.53	7.59	0.211
(4.57 m)	15	11.72	13.49	7.58	0.211
(4.88 m)	16	11.72	13.46	7.58	0.211
(5.18 m)	17	11.71	13.42	7.58	0.211
(5.49 m)	18	11.71	13.40	7.57	0.211
(5.79 m)	19	11.71	13.38	7.57	0.211
(6.10 m)	20	11.71	13.36	7.56	0.211
(6.40 m)	21	11.71	13.35	7.50	0.210
(6.71 m)	22	11.71	13.34	7.56	0.210
(7.01 m)	23	11.71	13.32	7.56	0.210
(7.32 m)	24	11.71	13.32	7.56	0.210
(7.62 m)	25	11.71	13.32	7.55	0.210
(9.14 m)	30	11.71	13.32	7.55	0.210

MEDORA corporation

Service Report From
March 23, 2019

City of Brockton

Silver Lake



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Water Quality Testing

Test Station #T1	
Secchi Depth (ft.):	8.50
Total Depth (ft.):	29.58
Water Color:	Brown

Test Station #T2	
Secchi Depth (ft.):	8.83
Total Depth (ft.):	25.67
Water Color:	Brown

Depth (meters, feet)		Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)	Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
(surface)	0	4.55	3.63	7.81	0.126	4.66	3.37	7.20	0.126
(0.30 m)	1	4.57	3.67	7.71	0.126	4.65	3.37	7.19	0.126
(0.61 m)	2	4.57	3.66	7.62	0.126	4.65	3.36	7.18	0.126
(0.91 m)	3	4.57	3.65	7.57	0.126	4.64	3.36	7.18	0.126
(1.22 m)	4	4.57	3.64	7.51	0.126	4.64	3.36	7.18	0.126
(1.52 m)	5	4.57	3.63	7.48	0.126	4.62	3.35	7.18	0.126
(1.83 m)	6	4.57	3.62	7.44	0.125	4.61	3.34	7.17	0.126
(2.13 m)	7	4.59	3.61	7.41	0.125	4.60	3.34	7.17	0.126
(2.44 m)	8	4.57	3.60	7.38	0.125	4.60	3.33	7.17	0.126
(2.74 m)	9	4.56	3.59	7.35	0.125	4.61	3.31	7.16	0.126
(3.05 m)	10	4.57	3.58	7.34	0.125	4.60	3.31	7.15	0.126
(3.35 m)	11	4.56	3.58	7.32	0.125	4.57	3.30	7.15	0.126
(3.66 m)	12	4.56	3.57	7.31	0.125	4.59	3.39	7.14	0.126
(3.96 m)	13	4.56	3.56	7.28	0.125	4.57	3.29	7.14	0.126
(4.27 m)	14	4.57	3.55	7.27	0.125	4.58	3.27	7.14	0.126
(4.57 m)	15	4.57	3.55	7.26	0.125	4.58	3.24	7.13	0.126
(4.88 m)	16	4.57	3.54	7.25	0.125	4.58	3.20	7.14	0.126
(5.18 m)	17	4.57	3.53	7.25	0.125	4.57	3.13	7.13	0.126
(5.49 m)	18	4.57	3.52	7.24	0.125	4.57	3.16	7.13	0.126
(5.79 m)	19	4.57	3.51	7.23	0.125	4.57	3.16	7.13	0.126
(6.10 m)	20	4.57	3.43	7.21	0.125	4.57	3.15	7.13	0.126
(6.40 m)	21	4.57	3.37	7.21	0.125	4.57	3.16	7.13	0.126
(6.71 m)	22	4.57	3.38	7.20	0.125	4.57	3.18	7.12	0.126
(7.01 m)	23	4.57	3.40	7.20	0.125	4.57	3.19	7.12	0.126
(7.32 m)	24	4.57	3.41	7.19	0.125	4.57	3.19	7.12	0.126
(7.62 m)	25	4.57	3.41	7.19	0.125	4.57	3.21	7.12	0.126

Test Station #T3	
Secchi Depth (ft.):	8.83
Total Depth (ft.):	38.50
Water Color:	Brown

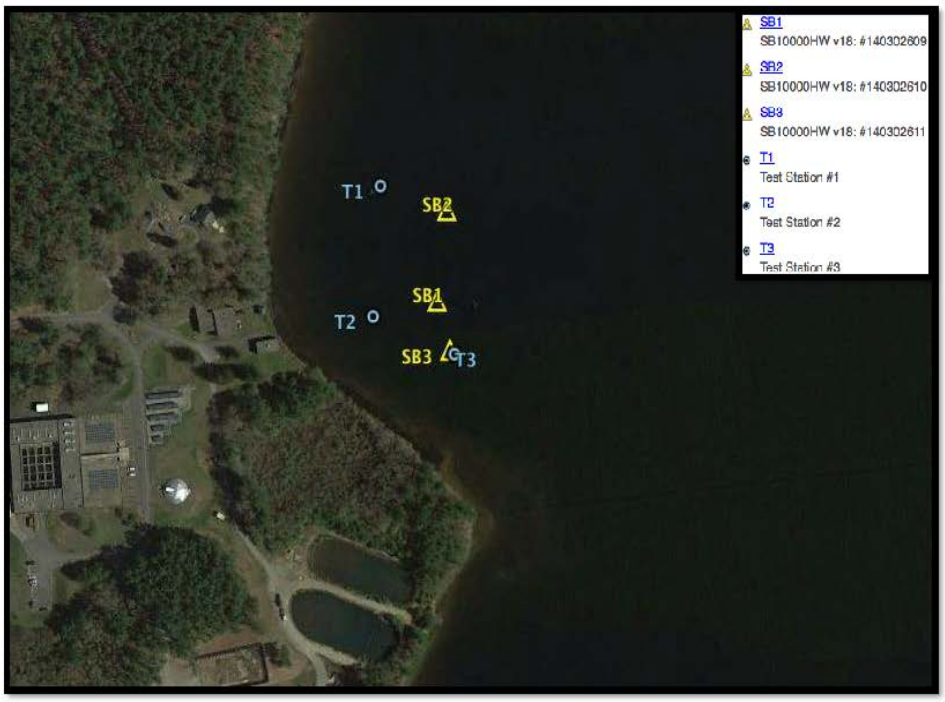
Depth (meters, feet)		Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
(surface)	0	4.48	3.00	7.27	0.127
(0.30 m)	1	4.57	2.99	7.21	0.126
(0.61 m)	2	4.60	3.06	7.19	0.126
(0.91 m)	3	4.60	3.01	7.18	0.126
(1.22 m)	4	4.59	3.03	7.18	0.126
(1.52 m)	5	4.58	3.08	7.17	0.126
(1.83 m)	6	4.58	3.06	7.16	0.126
(2.13 m)	7	4.57	3.09	7.16	0.126
(2.44 m)	8	4.59	3.10	7.15	0.126
(2.74 m)	9	4.58	3.10	7.15	0.126
(3.05 m)	10	4.58	3.11	7.15	0.126
(3.35 m)	11	4.58	3.11	7.15	0.126
(3.66 m)	12	4.58	3.13	7.15	0.126
(3.96 m)	13	4.56	3.13	7.15	0.126
(4.27 m)	14	4.55	3.13	7.14	0.126
(4.57 m)	15	4.55	3.13	7.13	0.126
(4.88 m)	16	4.56	3.12	7.13	0.126
(5.18 m)	17	4.55	3.12	7.14	0.126
(5.49 m)	18	4.56	3.11	7.13	0.126
(5.79 m)	19	4.56	3.11	7.13	0.126
(6.10 m)	20	4.55	3.10	7.13	0.126
(6.40 m)	21	4.55	3.10	7.13	0.126
(6.71 m)	22	4.56	3.10	7.13	0.126
(7.01 m)	23	4.55	3.09	7.13	0.126
(7.32 m)	24	4.55	3.09	7.12	0.126
(7.62 m)	25	4.55	3.09	7.12	0.126

MEDORA
is now part of IXOM

Service Report From
November 11, 2020

City of Brockton

Silver Lake



For questions about this report, machine service, or water quality issues, please contact
Customer Service at 866-437-8076 or customerservice@medoraco.com

Medora Corporation water quality testing is intended to provide general indications of water quality and slurry / sludge / sediment profiles at the time of testing. In most cases, there are not enough test points for statistical significance. This information should not be considered a substitute for larger, more comprehensive system studies that Medora Corporation and other companies can provide at an additional cost.

GPS positions are recorded for all test stations and machines.
Depending on conditions, there can be a positioning discrepancy of +/-60 feet at any given time.

Water Quality Testing

Test Station #T1	
Secchi Depth (ft.):	8.00
Total Depth (ft.):	29.42

Test Station #T2	
Secchi Depth (ft.):	8.00
Total Depth (ft.):	13.17

Depth (meters, feet)		Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)	Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
(surface)	0	13.40	10.28	7.70	0.190	13.60	10.44	7.11	0.189
(0.30 m)	1	13.10	10.34	7.43	0.189	13.60	10.43	7.05	0.189
(0.61 m)	2	13.10	10.37	7.24	0.189	13.50	10.44	7.05	0.189
(0.91 m)	3	13.10	10.36	7.14	0.189	13.40	10.46	7.04	0.189
(1.22 m)	4	13.20	10.39	7.11	0.189	13.20	10.46	7.00	0.189
(1.52 m)	5	13.10	10.38	7.09	0.189	13.20	10.43	7.00	0.189
(1.83 m)	6	13.00	10.32	7.07	0.189	13.20	10.40	6.99	0.189
(2.13 m)	7	13.00	10.30	7.05	0.189	13.10	10.39	6.97	0.189
(2.44 m)	8	13.00	10.30	7.04	0.189	13.10	10.34	6.96	0.189
(2.74 m)	9	13.10	10.31	7.02	0.189	13.10	10.26	6.94	0.189
(3.05 m)	10	13.10	10.30	7.01	0.189	13.00	10.24	6.92	0.189
(3.35 m)	11	13.00	10.28	6.99	0.189	13.00	10.24	6.92	0.189
(3.66 m)	12	13.00	10.28	6.98	0.189	13.00	10.12	6.90	0.189
(3.96 m)	13	13.00	10.24	6.97	0.189				
(4.27 m)	14	13.00	10.21	6.96	0.189				
(4.57 m)	15	13.00	10.14	6.94	0.189				
(4.88 m)	16	12.90	10.09	6.92	0.189				
(5.18 m)	17	12.90	10.05	6.90	0.189				
(5.49 m)	18	12.80	10.01	6.89	0.189				
(5.79 m)	19	12.60	9.81	6.84	0.190				
(6.10 m)	20	12.20	9.72	6.82	0.189				
(6.40 m)	21	12.10	9.62	6.79	0.189				
(6.71 m)	22	11.90	9.42	6.76	0.189				
(7.01 m)	23	11.90	9.28	6.73	0.189				
(7.32 m)	24	11.90	9.24	6.71	0.189				
(7.62 m)	25	11.70	9.03	6.68	0.189				

Water Quality Testing

Test Station #T3	
Secchi Depth (ft.):	8.00
Total Depth (ft.):	19.67
Water Color:	Green

Depth (meters, feet)		Temp. (deg. C)	D.O. (mg/L)	pH	Spec. Cond. (mS/cm)
(surface)	0	13.50	10.51	7.06	0.189
(0.30 m)	1	13.50	10.50	7.03	0.189
(0.61 m)	2	13.50	10.51	7.02	0.189
(0.91 m)	3	13.40	10.49	7.01	0.189
(1.22 m)	4	13.40	10.49	7.00	0.189
(1.52 m)	5	13.40	10.47	6.99	0.189
(1.83 m)	6	13.30	10.45	6.98	0.189
(2.13 m)	7	13.20	10.35	6.97	0.189
(2.44 m)	8	13.10	10.28	6.95	0.189
(2.74 m)	9	13.10	10.24	6.93	0.189
(3.05 m)	10	13.10	10.22	6.92	0.189
(3.35 m)	11	13.00	10.20	6.91	0.189
(3.66 m)	12	13.00	10.19	6.98	0.189
(3.96 m)	13	13.00	10.20	6.89	0.189
(4.27 m)	14	13.00	10.23	6.89	0.189
(4.57 m)	15	12.80	10.04	6.87	0.189
(4.88 m)	16	12.50	9.87	6.84	0.189
(5.18 m)	17	12.40	9.77	6.81	0.189
(5.49 m)	18	12.30	9.45	6.78	0.189
(5.79 m)	19	12.00	8.88	6.68	0.189

MassDEP response:

MassDEP appreciates the comments received from the Town of Brockton and Dr. Howes regarding the draft nutrient-related impairments for the Taunton River estuary. Please see also MassDEP's responses to the City of Taunton.

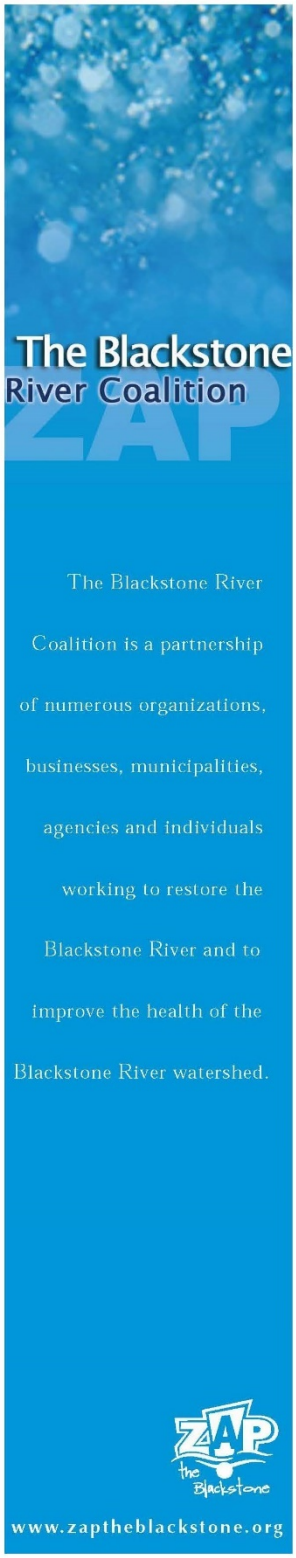
Regarding the City's request that MassDEP remove the dissolved oxygen (DO) impairment for Silver Lake (MA94143), MassDEP reviewed the City of Brockton's comment as well as the SolarBee installation and removal reports submitted as Attachment 1 to the comment letter. MassDEP notes that the SolarBees and sampling locations were in shallower water than where oxygen depletion was measured by DMF biologists during the summers of 2008 and 2009 when the lake was stratified and anoxic conditions ranged between depths of 8 to 12m to the bottom estimated to be ~40% of the lake surface area using 9m (30') contour). The maximum depth for the five more recent DO profile reports attached to the City's comment letter (October 2016, May 2017, November 2018, March 2019, and November 2020) was only 7.6m except for one (T#3 of the November 2018 report maximum depth was 9.14m). Additionally, while the City's more recent DO data were indicative of excellent conditions (well above 8.0mg/L, except for the March 2019 report which the City notes the meter was most likely not properly calibrated), the sample collection times were in the spring and fall and not during the worse-case summer stratification timeframe (i.e., no data from June through September). While MassDEP acknowledges the City's investment and efforts to improve oxygen concentrations in Silver Lake with the installation of three SolarBee aerators, without any DO data collected at the deep hole of the lake during the summer stratification period the dissolved oxygen impairment will be retained at this time. We recommend additional DO profile data be collected under an approved QAPP at the deep hole during the worse-case summer stratification period to better evaluate the effectiveness of the SolarBee aerators on in-lake water quality conditions (specifically DO).

Regarding the assessments of the Salisbury Plain River and the Matfield River, the City requested that data collected from the Salisbury Plain River in 2006 (AUs MA62-05 and MA62-06) and the Matfield River in 2006 and 2007 (MA62-32) not be utilized in the IR reporting documentation since the nutrient related treatment upgrades at the Brockton Advanced Water Reclamation Facility (AWRF) were not reflected in those data. The City also pointed out their Receiving Water Assessment Supplemental Environmental Project (SEP) study completed under an approved QAPP in September 2010 had not been utilized. This SEP project was done in part to quantify improvements to water quality and biological communities in the Salisbury Plain River and Matfield River resulting from the first three Phase upgrades at the Brockton AWRF. Because of the significant changes in effluent quality at the AWRF, the City requested that MassDEP remove the nutrient/biological enrichment indicator impairment that was added to the Matfield River AU (MA62-32) since the data utilized were no longer representative of current water quality conditions. MassDEP staff acknowledge the City's substantial capital investment and efforts to improve effluent quality with nutrient related treatment upgrades at the AWRF to meet NPDES permit limits for total phosphorus and to maximize total nitrogen removal. MassDEP agrees that older data collected prior to these upgrades and improved treatment at the AWRF do not reflect the most current water quality conditions in the Salisbury Plain and Matfield rivers. MassDEP routinely presents historical data in watershed repositories and assessment decision documents to provide historical context and to document water quality conditions over time. Historical data provide the baseline for demonstrating improvement or other changes in water quality when compared with more recent data. Because MassDEP's 2006 and 2007 data were not recorded in any previous assessment and listing cycles, they will be retained here for future reference. The Brockton AWRF, while the major point source discharge, is not the only source of nutrients to these rivers. MassDEP recommends that water quality monitoring be conducted to evaluate whether there are improved conditions (e.g., benthic macroinvertebrate and algal sampling, deployed DO multiprobes, and nutrient sampling) in the Salisbury Plain and Matfield rivers since the nutrient-related facility upgrades at the AWRF have been implemented. While improvements in water quality conditions, particularly those associated with nutrient-related stressors should be occurring (the AWRF reports compliance with the stringent 0.101mg/L total phosphorus limit since summer 2020), the existing impairments (moderately impacted benthic community, low DO, and elevated total phosphorus) will be carried forward until such time as biological and water quality data are collected that document Aquatic Life Use attainment. The nutrient/biological enrichment indicator impairment, which was proposed to be added

based on the evidence of dense/very dense filamentous algae documented during the summer of 2006, will be removed given these observations in summer 2006 were made prior to any of the nutrient treatment upgrades at the Brockton AWRF and the existing impairments in place already appropriately address the nutrient-related impairment that has affected the Matfield River AU (MA62-32).

Regarding the Taunton River (MA62-01) assessment, MassDEP staff agrees that older data collected prior to upgrades and improved treatment at the AWRF and other POTWs upstream of this Taunton River AU (MA62-01) does not reflect the most current water quality conditions in the river. However, as explained in the prior response, these data will be retained in the watershed decision document to provide a record of historical conditions and ongoing changes in the water quality of the Taunton River. USGS documented DO concentrations in the Taunton River that were below standards (4 and 4.5mg/L in July and August) at their gaging station 01108000 near Titicut Road, Bridgewater during the summer of 2019. These USGS measurements did not represent worse-case (pre-dawn) conditions. Therefore, the low DO impairment will not be removed at this time. MassDEP recommends that additional water quality monitoring be conducted to evaluate whether DO conditions have improved in this Taunton River AU (MA62-01) since the nutrient-related upgrades at the NPDES facilities upstream, including the Brockton AWRF (online/functioning well since summer 2020), have been implemented.

Blackstone River Coalition:



June 21, 2021

Richard Chase
Ma Dept of Env Protection
Bureau of Water Protection
Watershed Planning Program
8 New Bond Street
Worcester, MA 01606

Dear DEP Staff,

Thank you for the major compilation of best available data for the Blackstone Watershed. It is encouraging that data shows the River has improved enough to remove D.O. as cause of being on 303 d list. I applaud the State for their efforts in upgrading Treatment Plants. I and others do note the age of your DO data which causes questions about current status. I also do not see references to measurements at critical times, such as daybreak on hot days.

I appreciate the value of considering the entiore stretch of the maistem as a series of river sections. My concern is that by including major impoundments, which often do not exhibit riverine characteristics, sch as Fisherville Pond, or Rice City Pond, along with small sections of free flowing river, will result in different allowable loads of Phosphorous to avoid excessive eutrophication (The recommended 025mg/l is a goal for flowing water, but not an impoundment.

For good or for bad, much of the Blackstone rivers are a series of impoundments.

The BRC looks forward to working with your agency & RIDEM and USGS to seee if we can find opportunities to improve water quality by manging flows. Moat appropriate might be working with DCR as they rebuild the Blackstone Canal that the State might implement some of the suggestions devloped for Rice City Pond.

Cordially,

Peter G. Coffin

Peter Coffin
Coordinator, Blackstone River Coalition
508 753.6087
Peter.coffin@zaptheblackstone.org

MassDEP response: See MassDEP responses to General Comments (above) for the BRC comments related to age of data and the need for greater transparency.

We acknowledge the importance of considering retention times for rivers with impounded reaches (such as the Blackstone River) and the potential effects of elevated nutrient concentrations. In defining Assessment Units (AUs), MassDEP reviews available morphometric and hydrological data for man-made impoundments to estimate whether they should be defined and assessed as lake AUs or incorporated into river AUs. As a general rule, those impoundments exhibiting unidirectional flow and retention times of less than fourteen days (at flow rates greater than 7Q10) are considered river AUs. For Blackstone River impounded segments, they are all currently assessed as rivers.

Blackstone River Valley National Heritage Corridor:

Blackstone River Valley
National Heritage Corridor

June 21, 2021

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

Re: Comments on 2018-2020 Integrated List of Waters

Dear Mr. Chase,

Thank you for the opportunity to comment on the *Proposed Massachusetts 2018/2020 Integrated List of Waters.*

Blackstone River Valley National Heritage Corridor, Inc., (BHC) works with community partners to preserve and promote the Valley's historic, cultural, natural, and recreational resources for current and future generations. Blackstone River Valley National Heritage Corridor, Inc. (BHC) is a nonprofit 501 (c)(3) corporation, successor of the former federal commission for the Blackstone River Valley National Heritage Corridor. BHC is committed to the long-term vitality and pride of the region by partnering with municipalities, nonprofits, businesses and residents to restore, retain and reinvigorate the Valley by providing support and services throughout the 25 Massachusetts and Rhode Island towns and cities of the National Heritage Corridor. Therefore, our comments will focus on the Blackstone River watershed.

We appreciate the changes in the *Massachusetts Consolidated Assessment and Listing Methodology (CALM) Guidance Manual for the 2018/2020 Reporting Cycle*, especially the specificity of the appendices detailing data in the Assessment Listing Decision Summary, as well as the Summary of Changes for 2018/2020 Reporting Cycle.

We note that the Blackstone River's Dissolved Oxygen impairment has been removed, good news indeed. The data assessed was from 2008 through 2017. Our question is, in general, once an impairment is off the list, will it be left off forever, or will DO testing continue to determine if the impairment re-emerges? Of course, the issues of low DO, high phosphorus, and excessive weed growth in the impoundments remain.

Also, we note that two Coldwater Fisheries – Bacon Brook and Center Brook – have been downgraded from Cat. 2 to Cat. 5 because of Temperature impairment, not good news. Bacon Brook Temperature data is from 2008 and 2011. Center Brook Temperature data is from 2008. In general, it would be helpful to make clear which segments are Coldwater Fisheries. We recommend that the designation CFR should be added as a Qualifier on the Classification/Qualifier line under the title of all segments so designated by Massachusetts Division of Fisheries and Wildlife.

As to the age of the data, we are aware that substantial budget and staffing cuts at MassDEP have created a significant challenge for water quality monitoring and assessments. While we recognize that the practice of watershed management is resource-intensive, we find it discouraging that MassDEP is not able to produce and validate new data (< 5 years old). In order to help bridge that gap, we would urge more reliance on external data regularly obtained by qualified volunteer monitoring groups, such as the Blackstone River Coalition.

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

Sincerely,

Donna Williams, Member, BHC Board of Directors
Richard T. Moore, Chair, BHC Board of Directors

Blackstone River Valley National Heritage Corridor, Inc.'
Linwood Mill, 670 Linwood Avenue
Whitinsville, MA 01588
(508) 234 - 4242

MassDEP response: See MassDEP responses to General Comments (above) for the BHC comments related to age of data, the use of external data, and coldwater fisheries.

Regarding the question pertaining to impairment delistings, the availability of future water quality data indicating impairment may cause the pollutant in question (e.g., dissolved oxygen) to be added back to the 303(d) List of Impaired Waters in a future reporting cycle when the associated designated use (e.g., aquatic life) is reassessed for that location.

The two brooks impaired for temperature (Bacon Brook (MA51-41) and Center Brook (MA51-34)) are considered "existing use" Tier 1 Cold Water resources based on their CFR designations, and were assessed as Not Supporting based on elevated temperature above the Tier 1 CWF criteria. The methodology for this analytical approach is described in the MassDEP 2018 Consolidated Assessment & Listing Methodology (CALM): 2018 CALM. As the MA Surface Water Quality Standards (SWQS) are periodically updated, we are working to add CFR qualifiers to the SWQS as appropriate.

Buzzards Bay Coalition:

June 21, 2021

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

Re: Proposed Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 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") proposed Massachusetts Year 2018/2020 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 summary, the Coalition asserts that the following water bodies should be listed on the 303(d) list as impaired for total nitrogen:

- Allens Pond
- Salters Pond
- Wings Cove
- Clarks Cove
- Mattapoisett Harbor
- Pocasset River

www.savebuzzardsbay.org
114 Front Street, New Bedford, Massachusetts 02740 | Tel: 508-999-6363 Fax: 508-984-7913
21 Luscombe Avenue, Woods Hole, Massachusetts 02543 | Tel: 508-540-6222

I. Background on Buzzards Bay Data Provided

A. Data Supporting These Comments

The Coalition submits dissolved oxygen data, chlorophyll data, and total nitrogen data in graphic presentation in this narrative. The raw data used to create these graphs were submitted to MassDEP electronically to WQData.Submit@mass.gov on March 1, 2018, November 1, 2019, and January 15, 2021. The data are also available through the Woods Hole Open Access Server (https://hdl.handle.net/1912/25762). These 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 Baywatchers 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. Where Baywatchers Data is Being Used and Relied On.

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 the 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 personnel managing the monitoring program includes the Project Officer, Tony Williams, Director of Monitoring Programs at the Buzzards Bay Coalition; Project Quality Assurance Officer; Dr. Chris Neill, Ecosystems Center MBL/Woodwell Climate Research Center; EPA Project Officer, Alicia Grimaldi, EPA; EPA Quality Assurance Officer, Nora Conlon, EPA; and MassDEP Quality Assurance Officer Suzanne Flint, MassDEP. Their contact information is

provided in the QAPP as part of the electronic data submission. The Coalition expects that if MassDEP finds additional information necessary, they will present the Coalition with an opportunity to comply.

II. The Coalition Requests the Listing of the Following Buzzards Bay Waters. Abundant Data Show that these Waters should be Listed as Impaired for Nitrogen on the 2018/2020 List of Category 5 Waters

The Coalition's water quality monitoring data are regularly used and relied upon by state and federal regulators and meets the MassDEP's and EPA's reliability requirements as discussed above. That data clearly shows that listing of these waters is appropriate. The Coalition requests that the following waters be added to the Commonwealth of Massachusetts' 303(d) list of Category 5 waters as impaired for total nitrogen. The Coalition's water quality monitoring data support these listings.

Water Body	Impairment
Allens Pond, Dartmouth	**Nitrogen (Total)**
Salters Pond, Dartmouth	**Nitrogen (Total)**
Wings Cove, Marion	**Nitrogen (Total)**
Clarks Cove, Dartmouth/New Bedford	**Nitrogen (Total)**
Mattapoisett Harbor, Mattapoisett	**Nitrogen (Total)**
Pocasset River, Bourne	**Nitrogen (Total)**

The Massachusetts Surface Water Quality Standards designate these waterbodies as Class SA waters. Class SA waters are waters with excellent habitat for fish, other aquatic life and wildlife and for primary and secondary contact recreation. The standards also clearly state that these waters shall have excellent aesthetic value (314 CMR 4.05(4)(a)), have dissolved oxygen levels not below 6.0 mg/L (314 CMR 4.05(4)(a)(1)(a)) requiring that natural seasonal and daily variations above this level be maintained (314 CMR 4.05(4)(a)(1)(b)).

The following submittal demonstrates that the waterbodies listed above fall short of meeting these Massachusetts Surface Water Quality Standards. The Coalition recognizes that while Mattapoisett Harbor has additional related impairments (nutrient/eutrophication biological indicators, and estuarine bioassessments) added on the 2014 list, it is critical that the regulatory agencies recognize that this water segment is impaired for nitrogen and list it as such.

Nutrient-specific assessments lead to direct removal of nutrients from the coastal waters of Buzzards Bay. Bioassesments or biomonitoring look at various factors to determine the overall health of a body of water.[1] While these types of assessments are important and provide a general condition of the ecosystem, they are not focused enough to lead to action items or the actual immediate removal of pollutants, such as nitrogen, from the Bay.

[1] Environmental Monitoring: Bioassesments. https://www.mass.gov/guides/water-quality-monitoring

MassDEP has classified nitrogen as a pollutant that requires a TMDL in many areas of southeastern Massachusetts.[2] In order to target areas that are suffering from excessive nitrogen levels and remove as much nitrogen as possible from these areas, it is imperative that MassDEP list Allens Pond, Salters Pond, Wings Cove, Clarks Cove, Mattapoisett Harbor, and Pocasset River as impaired for nitrogen areas requiring a TMDL for nitrogen.

A. Allens Pond Fails to Meet State Water Quality Standards and Must be Listed as Impaired for Total Nitrogen on the 2018/2020 List of Category 5 Waters.

The Coalition requests that Allens Pond, in the town of Dartmouth be listed as impaired for total nitrogen. The Coalition's water quality monitoring data support its listing.

Figure 1. Allens Pond Site Map

Allens Pond demonstrates water quality decline related to excess nutrients. Excessive levels of nitrogen are common in southeastern Massachusetts and result in ecosystem degradation with impacts including loss of eelgrass beds, algae blooms, fish kills and reductions in important marine life. In order to target areas that are suffering from excessive levels nitrogen, like Allens Pond, and remove as much nitrogen as possible from these areas, it is imperative that MassDEP list Allens Pond as impaired for total nitrogen, requiring a TMDL for nitrogen.

1. Allens Pond Dissolved Oxygen

The Coalition submits multiple years of oxygen data taken from sites AP1, AP1A, AP2, and AP2A depicting water quality impairment due to nutrient over-enrichment. The Coalition's dissolved oxygen data show that Allens Pond consistently falls below the numeric criteria of 6 mg/L as designated in 314 CMR 4.05(4)(a)(1)(a) and warrants listing on the 303(d) list.

[2] Total Maximum Daily Load (TDML) Basics. https://www.mass.gov/guides/the-basics-of-total-maximum-daily-loads-tmdls

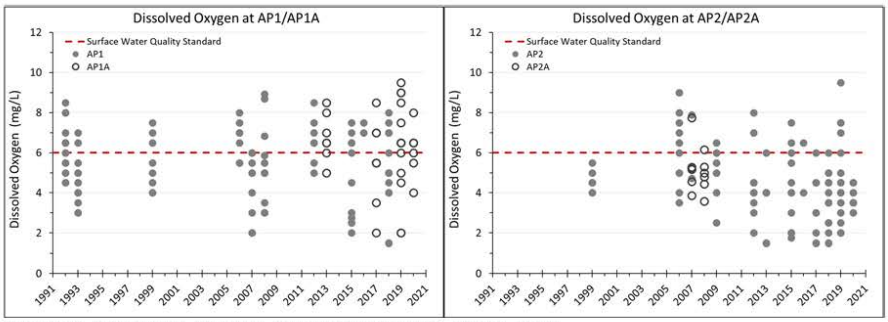


Figure 2. Dissolved Oxygen Concentrations in Allens Pond

The dissolved oxygen concentrations in Figure 2 clearly shows a majority of samples below the numeric dissolved oxygen criteria established in the Massachusetts Surface Water Quality Standards.

2. Allens Pond Chlorophyll Data

The Coalition's chlorophyll data show that Allens Pond does not possess the excellent aesthetic values required of SA waters pursuant to 314 CMR 4.05(4)(a), "These waters shall have excellent aesthetic value" and warrants listing on the 303(d) list.

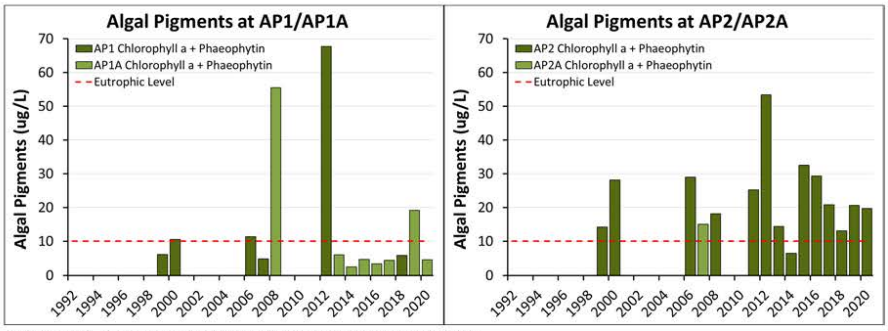


Figure 3. Phytoplankton Pigments in Allens Pond

The phytoplankton pigment data presented in Figure 3 show very high concentrations, with the annual average of total algal pigments being above 10 mg/L at station AP2/AP2A for all but one year. The high concentrations of chlorophyll indicate degraded water clarity in violation of the excellent aesthetic value required in Massachusetts Surface Water Quality Standards.

3. Allens Pond Total Nitrogen Data

The Coalition's total nitrogen data for Allens Pond (Figure 4) demonstrates total nitrogen concentrations that are quite high, in some years reaching over 2 mg/L. Excess nitrogen levels

will cause low dissolved oxygen numbers and promote algae growth, results that are illustrated above. The incidences of high total nitrogen concentration and high chlorophyll indicate that Allens Pond fails to attain state water quality standards and must be listed on the 303(d) list as impaired for total nitrogen.

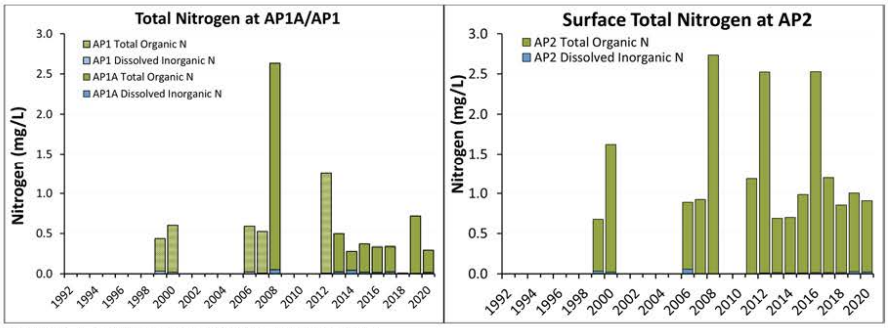


Figure 4. Total Nitrogen in Allens Pond

In summary, the dissolved oxygen data at sampling sites AP1, AP1A, AP2 and AP2A are in clear violation of surface water quality standards, falling below dissolved oxygen levels of 6 mg/L. Elevated chlorophyll levels that degrade water clarity and aesthetic value, as well as total nitrogen concentrations that can be very high are also evident. **The data above show that Allens Pond is suffering from eutrophication due to excess nutrients and must be listed on the Commonwealth of Massachusetts' 303(d) list of Category 5 waters requiring a TMDL for total nitrogen.**

B. Salters Pond Fails to Meet State Water Quality Standards and must be Listed as Impaired for Total Nitrogen on the 2018/2020 List of Category 5 Waters.

The Coalition requests that Salters Pond be listed as impaired for total nitrogen. The Coalition's water quality monitoring data support its listing.

Figure 5. Salters Pond Site Map

Salters Pond demonstrates water quality decline related to excess nutrients. As described above, excessive levels of nitrogen are common in southeastern Massachusetts and result in ecosystem degradation with impacts including loss of eelgrass beds, algae blooms, fish kills and reductions in important marine life. In order to target areas that are suffering from excessive nitrogen levels, like Salters Pond, and remove as much nitrogen as possible from these areas, it is imperative that MassDEP list Salters Pond as impaired for total nitrogen.

1. Salters Pond Dissolved Oxygen

The Coalition submits multiple years of oxygen data taken from three locations illustrating water quality impairment due to nutrient over-enrichment. The Coalition's dissolved oxygen data show that Salters Pond consistently falls below the numeric criteria of 6 mg/L as designated in 314 CMR 4.05(4)(a)(1)(a) and warrants listing on the 303(d) list.

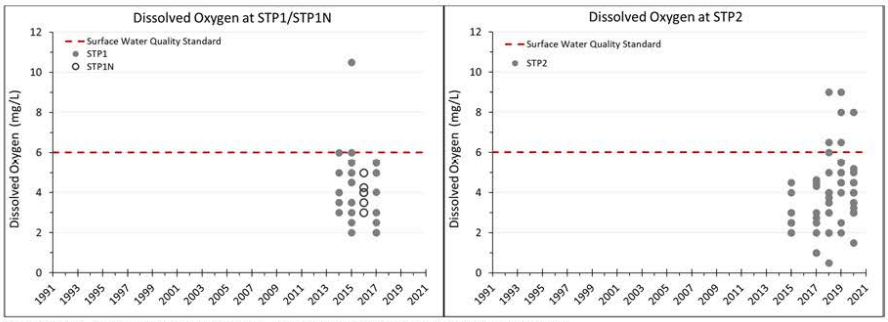


Figure 6. Dissolved Oxygen Concentrations in Salters Pond

The dissolved oxygen concentrations in Figure 6 clearly shows a majority of samples below the numeric dissolved oxygen criteria established in the Massachusetts Surface Water Quality Standards.

2. Salters Pond Chlorophyll Data

The Coalition's chlorophyll data show that Salters Pond does not possess the excellent aesthetic values required of SA waters pursuant to 314 CMR 4.05(4)(a), "These waters shall have excellent aesthetic value" and warrants listing on the 303(d) list.

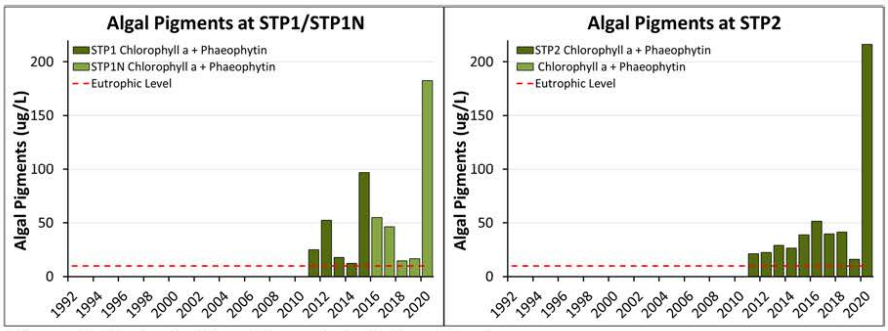


Figure 7. Phytoplankton Pigments in Salters Pond

The data presented in Figure 7 show high levels of phytoplankton pigments at sampling stations STP1, STP1N, and STP2, including levels over 150 µg/L in 2020. The high concentrations of chlorophyll indicate degraded water clarity in violation of the excellent aesthetic value required in Massachusetts Surface Water Quality Standards.

3. Salters Pond Total Nitrogen Data

The Coalition's total nitrogen data for Salters Pond suggests that the nitrogen levels promote the algae growth and the low dissolved oxygen numbers shown above. Figure 8 exhibits total nitrogen concentrations in Salters Pond that are regularly above 2 mg/L and sometimes above 4 mg/L. The incidences of high total nitrogen concentration and high chlorophyll indicate that Salters Pond fails to attain state water quality standards and must also be listed on the 303d list as impaired for total nitrogen.

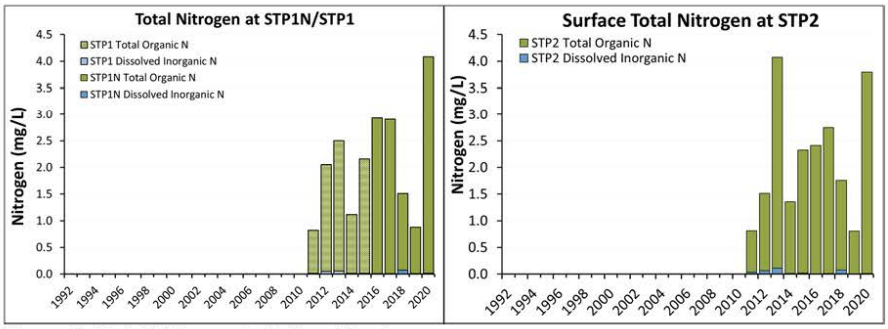


Figure 8. Total Nitrogen in Salters Pond

The above data clearly indicate that Salters Pond is suffering from eutrophication due to excess nutrients and must be listed on the Commonwealth of Massachusetts' 303(d) list of Category 5 waters requiring a TMDL for total nitrogen. Dissolved oxygen data at sampling sites STP1 and STP2 are in clear violation of surface water quality standards, falling below

dissolved oxygen levels of 6 mg/L. Salters Pond also has elevated chlorophyll levels that degrade water clarity and aesthetic value and very high total nitrogen concentrations.

C. Wings Cove Fails to Meet State Water Quality Standards and Must be Listed on the 2018/2020 List of Category 5 Waters for Total Nitrogen.

The Coalition requests that Wings Cove be listed as impaired for total nitrogen. The Coalition's water quality monitoring data support its listing.

Figure 9. Wings Cove Site Map

Wings Cove demonstrates water quality decline related to excess nutrients. As described above, excessive levels of nitrogen are common in southeastern Massachusetts and result in ecosystem degradation with impacts including loss of eelgrass beds, algae blooms, fish kills and reductions in important marine life. In order to target areas suffering from excessive levels of nitrogen, like Wings Cove, and remove as much nitrogen as possible from these areas, it is imperative that MassDEP list Wings Cove as impaired for total nitrogen, requiring a TMDL for nitrogen.

1. Wings Cove Dissolved Oxygen

The Coalition submits oxygen data from multiple years from stations WCM1 and WCM2 depicting water quality impairment due to nutrient over-enrichment. The Coalition's dissolved oxygen data show that Wings Cove consistently falls below the numeric criteria of 6 mg/L as designated in 314 CMR 4.05(4)(a)(1)(a) and warrants listing on the 303(d) list.

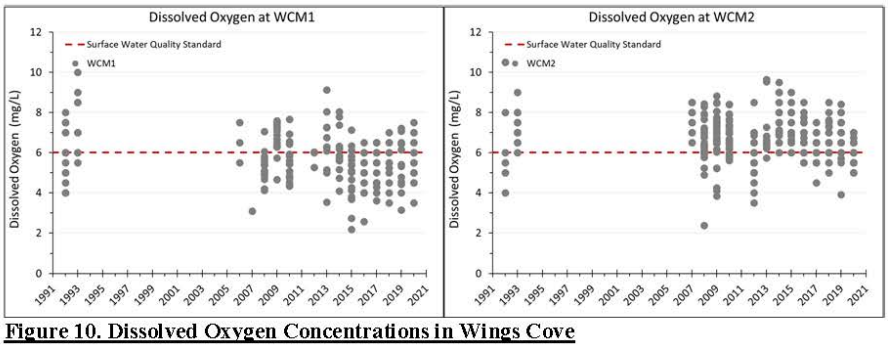


Figure 10. Dissolved Oxygen Concentrations in Wings Cove

The dissolved oxygen concentrations in Figure 10 clearly shows a significant number of samples below the numeric dissolved oxygen criteria established in the Massachusetts Surface Water Quality Standards, particularly at station WCM1 in the inner portion of Wings Cove.

2. Chlorophyll Data

The Coalition's chlorophyll data show that Wings Cove does not possess the excellent aesthetic values required of SA waters pursuant to 314 CMR 4.05(4)(a), "These waters shall have excellent aesthetic value" and warrants listing on the 303(d) list.

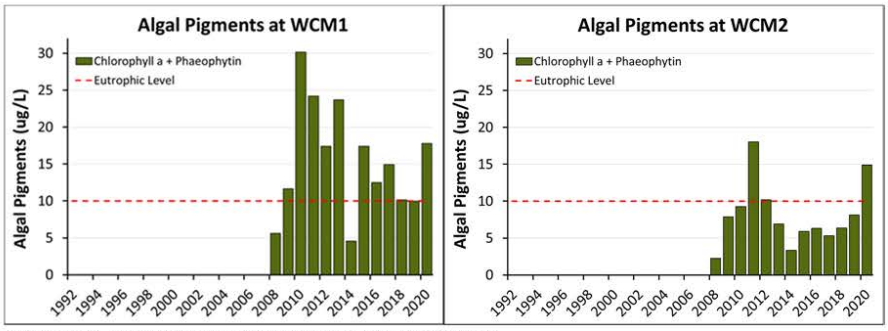


Figure 11. Phytoplankton Pigments in Wings Cove

The data presented in Figure 11 show high levels of algal pigments at sampling stations WCM1 and WCM2. The high concentrations of chlorophyll indicate degraded water clarity in violation of the excellent aesthetic value required in Massachusetts Surface Water Quality Standards.

3. Wings Cove Total Nitrogen Data

The Coalition's total nitrogen data for Wings Cove suggests that the nitrogen levels are leading to the low dissolved oxygen numbers and promoting the algae growth depicted above.

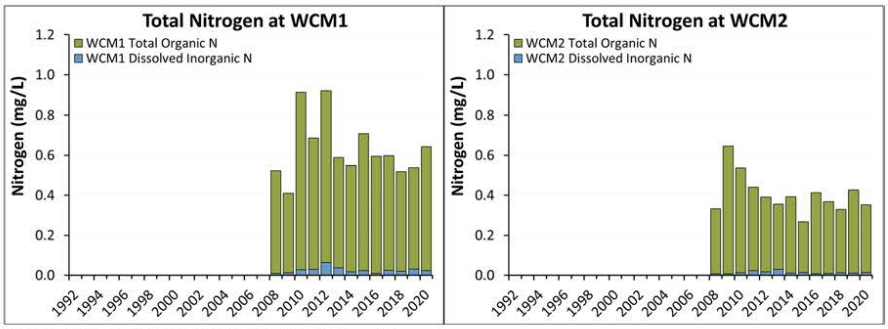


Figure 12. Total Nitrogen in Wings Cove

Figure 12 exhibits high total nitrogen concentrations in Wings Cove, typically greater than 0.5 mg/L at WCM1 in the inner cove and reaching close to 1 mg/L in some years. The incidences of high total nitrogen concentrations and high chlorophyll indicate that Wings Cove fails to attain state water quality standards and must be listed on the 303d list as impaired for total nitrogen.

The combined data above demonstrate that Wings Cove is suffering from eutrophication due to excess nutrients and must be listed on the Commonwealth of Massachusetts' 303(d) list of Category 5 waters requiring a TMDL for total nitrogen. Dissolved oxygen data at sampling sites WCM1 and WCM2 are in clear violation of surface water quality standards, falling below dissolved oxygen levels of 6 mg/L. Sampling sites WCM1 and WCM2 also have elevated chlorophyll levels that degrade water clarity and aesthetic value, as well as high total nitrogen concentrations.

D. Clarks Cove Fails to Meet State Water Quality Standards and Must be Listed on the 2018/2020 List of Category 5 Waters for Total Nitrogen.

The Coalition requests that Clarks Cove be listed as impaired for total nitrogen. The Coalition's water quality monitoring data support its listing.

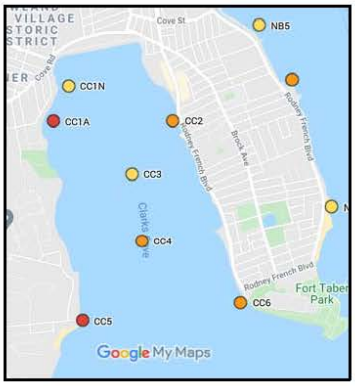
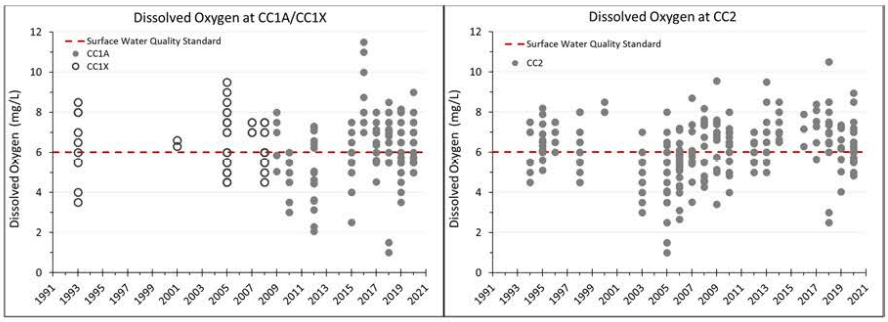


Figure 13. Clarks Cove Site Map

Wings Cove demonstrates water quality decline related to excess nutrients. As described above, excessive levels of nitrogen are common in southeastern Massachusetts and result in ecosystem degradation with impacts including loss of eelgrass beds, algae blooms, fish kills and reductions in important marine life. In order to target areas suffering from excessive levels of nitrogen, like Clarks Cove, and remove as much nitrogen as possible from these areas, it is imperative that MassDEP list Clarks Cove as impaired for total nitrogen, requiring a TMDL for nitrogen.

4. Clarks Cove Dissolved Oxygen

The Coalition submits oxygen data from multiple years from stations CC1A, CC1X, CC2, CC4, and CC5 depicting water quality impairment due to nutrient over-enrichment. The Coalition's dissolved oxygen data show that Clarks Cove consistently falls below the numeric criteria of 6 mg/L as designated in 314 CMR 4.05(4)(a)(1)(a) and warrants listing on the 303(d) list.



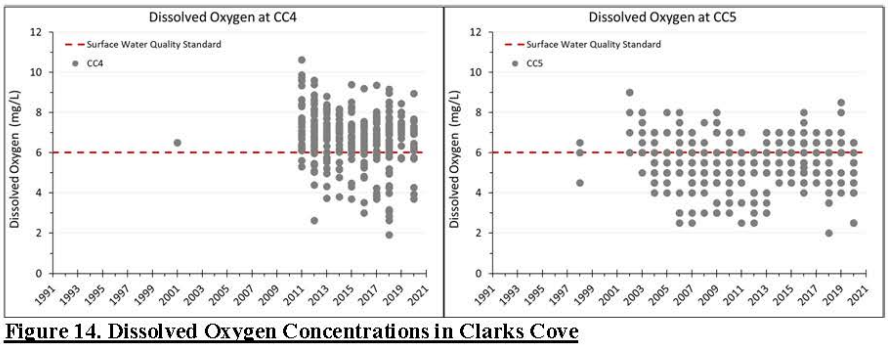
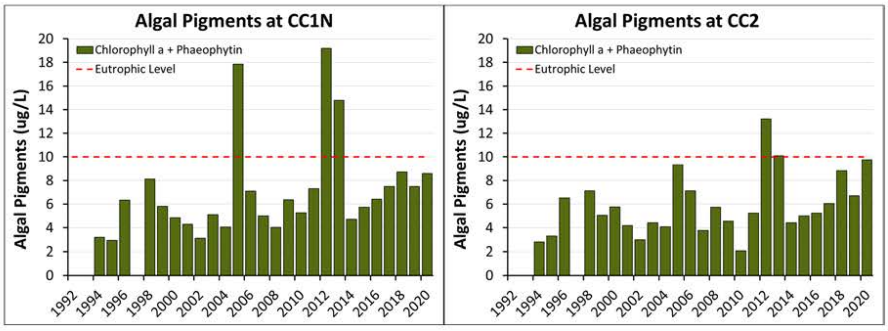


Figure 14. Dissolved Oxygen Concentrations in Clarks Cove

The dissolved oxygen concentrations in Figure 14 clearly shows many samples below the numeric dissolved oxygen criteria established in the Massachusetts Surface Water Quality Standards.

5. Chlorophyll Data

The Coalition's chlorophyll data show that Clarks Cove does not consistently possess the excellent aesthetic values required of SA waters pursuant to 314 CMR 4.05(4)(a), "These waters shall have excellent aesthetic value" and warrants listing on the 303(d) list.



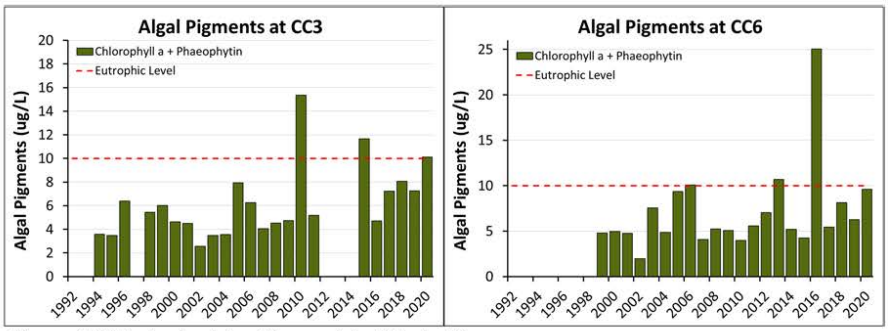
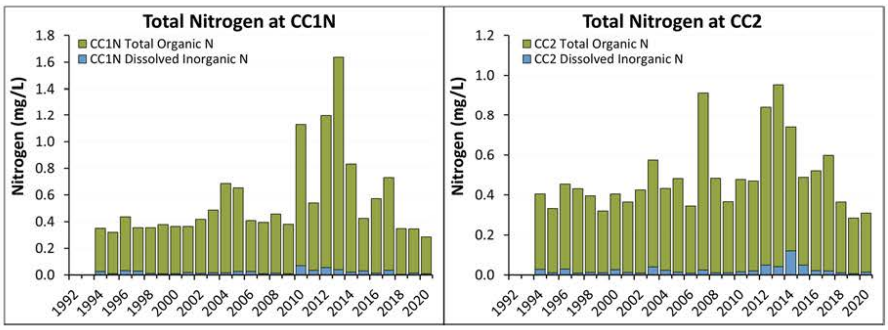


Figure 15. Phytoplankton Pigments in Clarks Cove

The data presented in Figure 15 show periodic high levels of algal pigments at sampling stations throughout Clarks Cove. There also appears to be a long-term trend of increasing pigments over time in Clarks Cove. High concentrations of chlorophyll indicate degraded water clarity in violation of the excellent aesthetic value required in Massachusetts Surface Water Quality Standards.

6. Clarks Cove Total Nitrogen Data

The Coalition's total nitrogen data for Clarks Cove suggests that the nitrogen levels are leading to the low dissolved oxygen numbers and promoting the algae growth depicted above.



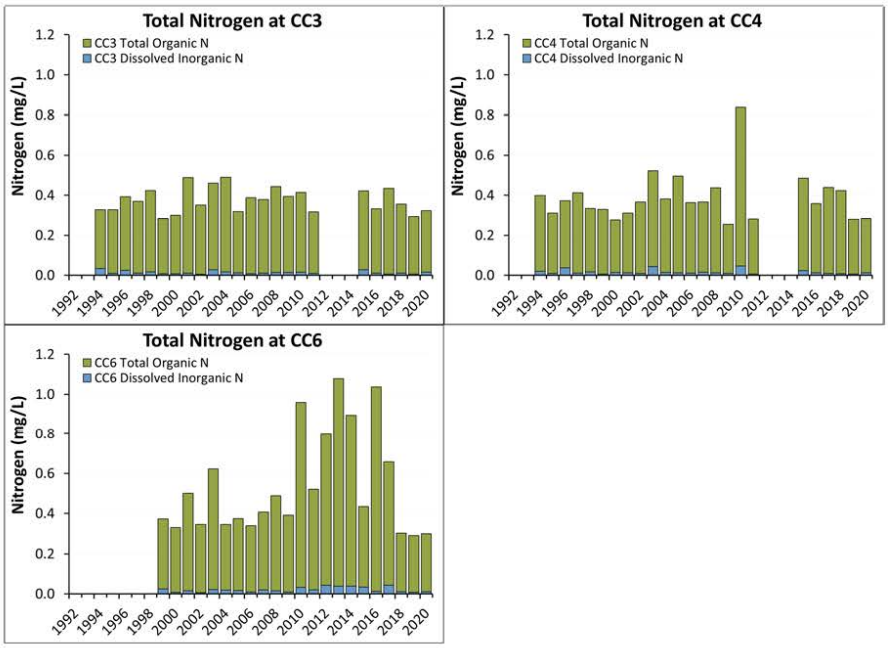


Figure 16. Total Nitrogen in Clarks Cove

Figure 16 exhibits high total nitrogen concentrations in Clarks Cove, in some years reaching as high as 1 mg/L at stations CC1N and CC6 and 0.8 mg/L at stations CC2 and CC4. The incidences of high total nitrogen concentration and high chlorophyll indicate that Clarks Cove fails to attain state water quality standards and must be listed on the 303d list as impaired for total nitrogen.

The combined data above demonstrate that Clarks Cove is suffering from eutrophication due to excess nutrients and must be listed on the Commonwealth of Massachusetts' 303(d) list of Category 5 waters requiring a TMDL for total nitrogen. Dissolved oxygen data at sampling sites CC1A, CC1X, CC2, CC4, and CC5 are in clear violation of surface water quality standards, falling below dissolved oxygen levels of 6 mg/L. Elevated chlorophyll levels that degrade water clarity and aesthetic value, as well as high total nitrogen concentrations are evident at multiple stations.

E. Mattapoisett Harbor Fails to Meet State Water Quality Standards and Must be Listed as Impaired for Total Nitrogen on the 2018/2020 List of Category 5 Waters.

The Coalition supports the addition of Mattapoisett Harbor, in the town of Mattapoisett to the Commonwealth of Massachusetts' 303(d) list of Category 5 waters as impaired for estuarine bioassessments and nutrient/eutrophication biological indicators requiring a TMDL. The

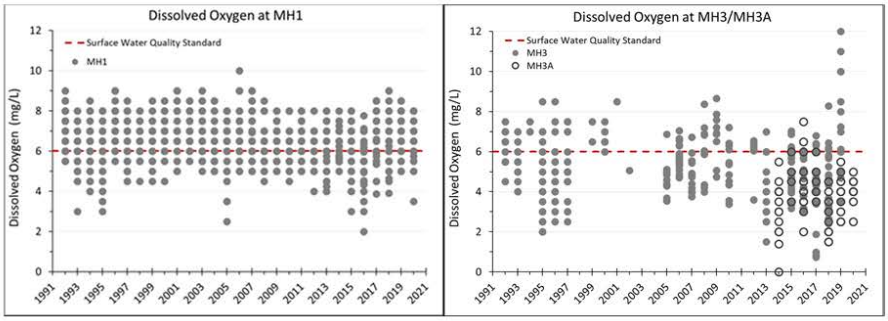
Coalition requests that, in addition, Mattapoisett Harbor be listed as impaired for total nitrogen. The Coalition's water quality monitoring data support its listing.

Figure 17. Mattapoisett Harbor Site Map

Mattapoisett Harbor demonstrates water quality decline related to excess nutrients. As described above, excessive levels of nitrogen are common in southeastern Massachusetts and result in ecosystem degradation with impacts including loss of eelgrass beds, algae blooms, fish kills and reductions in important marine life. In order to target areas that are suffering from excessive levels nitrogen, like Mattapoisett Harbor, and remove as much nitrogen as possible from these areas, it is imperative that MassDEP list Fiddlers Cove as impaired for total nitrogen, requiring a TMDL for nitrogen.

4. Mattapoisett Harbor Dissolved Oxygen

The Coalition submits multiple years of oxygen data taken from sites MH1, MH3, MH3A, MH4X, and MH5 depicting water quality impairment due to nutrient over-enrichment. The Coalition's dissolved oxygen data show that Mattapoisett Harbor consistently falls below the numeric criteria of 6 mg/L as designated in 314 CMR 4.05(4)(a)(1)(a) and warrants listing on the 303(d) list.



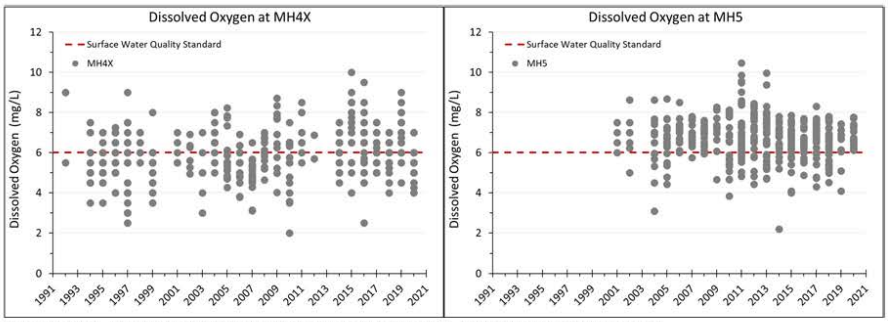
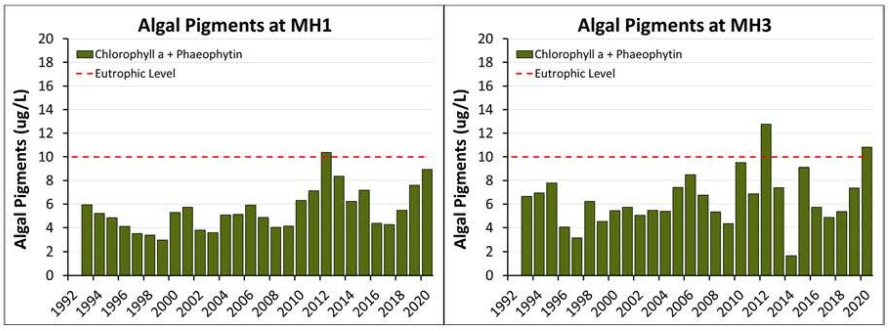


Figure 18. Dissolved Oxygen Concentrations in Mattapoisett Harbor

The dissolved oxygen concentrations in Figure 18 clearly show many samples below the numeric dissolved oxygen criteria established in the Massachusetts Surface Water Quality Standards.

5. Mattapoisett Harbor Chlorophyll Data

The Coalition's chlorophyll data show periodic high chlorophyll values, indicating that Mattapoisett Harbor does not possess the excellent aesthetic values required of SA waters pursuant to 314 CMR 4.05(4)(a), "These waters shall have excellent aesthetic value" and warrants listing on the 303(d) list.



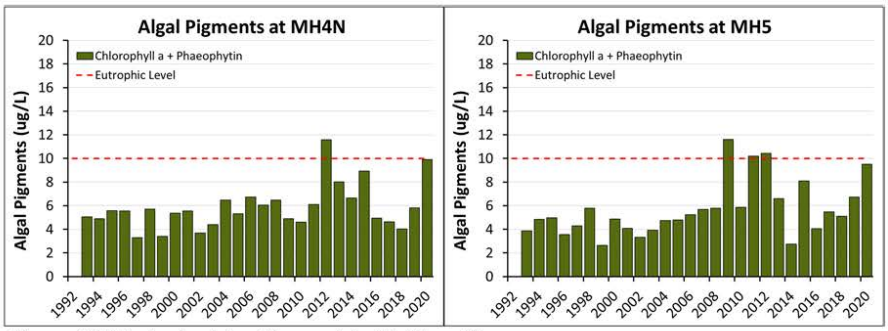
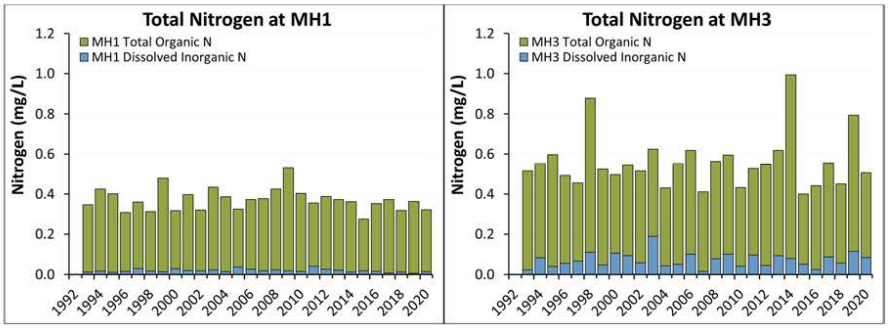


Figure 19. Phytoplankton Pigments in Fiddlers Cove

The phytoplankton pigment data presented in Figure 19 show annual average chlorophyll concentrations that periodically exceed 10 mg/L. The concentrations also appear to be trending higher over time. High concentrations of chlorophyll indicate degraded water clarity in violation of the excellent aesthetic value required in Massachusetts Surface Water Quality Standards.

6. Mattapoisett Harbor Total Nitrogen Data

The Coalition's total nitrogen data for Mattapoisett Harbor (Figure 20) exhibits total nitrogen concentrations that are highest in the inner part of the harbor near the mouth of the Mattapoisett River. The long-term average total nitrogen in inner Mattapoisett Harbor ranges from 0.37 mg/L to 0.56 mg/L, values that are higher than those typically set for TMDLs. Excess nitrogen levels will cause low dissolved oxygen numbers and promote algae growth, results that are illustrated above. The incidences of high total nitrogen concentration and low dissolved oxygen indicate that Mattapoisett Harbor fails to attain state water quality standards and must also be listed on the 303(d) list as impaired for total nitrogen.



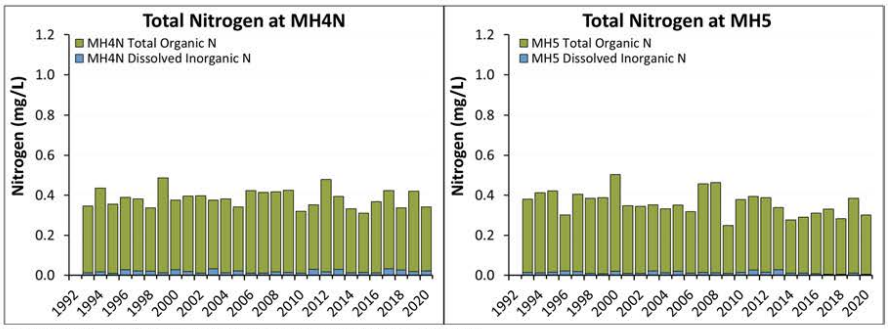


Figure 20. Total Nitrogen in Mattapoisett Harbor

In summary, the dissolved oxygen data are in clear violation of surface water quality standards, falling below dissolved oxygen levels of 6 mg/L. Periodically elevated chlorophyll levels that degrade water clarity and aesthetic value, as well as relatively high total nitrogen concentrations are also evident. **The data above show that Mattapoisett Harbor is suffering from eutrophication due to excess nutrients and must be listed on the Commonwealth of Massachusetts' 303(d) list of Category 5 waters requiring a TMDL for total nitrogen in addition to the impairments for nutrient/eutrophication biological indicators and estuarine bioassessments.**

F. Pocasset River Fails to Meet State Water Quality Standards and Must be Listed on the 2018/2020 List of Category 5 Waters for Total Nitrogen.

The Coalition requests that the Pocasset River be listed as impaired for total nitrogen. The Coalition's water quality monitoring data support its listing.

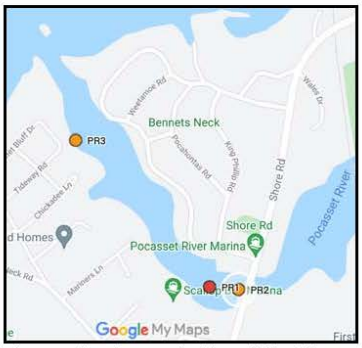


Figure 21. Pocasset River Site Map

Pocasset River demonstrates water quality decline related to excess nutrients. As described above, excessive levels of nitrogen are common in southeastern Massachusetts and result in ecosystem degradation with impacts including loss of eelgrass beds, algae blooms, fish kills and

reductions in important marine life. In order to target areas suffering from excessive levels of nitrogen, like the Pocasset River, and remove as much nitrogen as possible from these areas, it is imperative that MassDEP list Pocasset River as impaired for total nitrogen, requiring a TMDL for nitrogen.

7. Pocasset River Dissolved Oxygen

The Coalition submits oxygen data from multiple years from stations PR1 and PR3 depicting water quality impairment due to nutrient over-enrichment. The Coalition's dissolved oxygen data show that Pocasset River consistently falls below the numeric criteria of 6 mg/L as designated in 314 CMR 4.05(4)(a)(1)(a) and warrants listing on the 303(d) list.

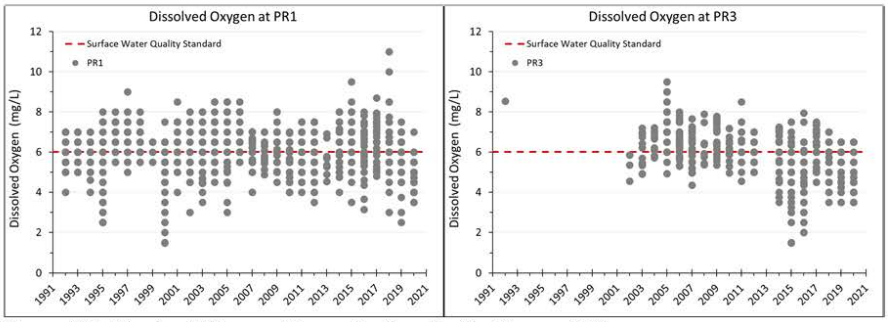


Figure 22. Dissolved Oxygen Concentrations in the Pocasset River

The dissolved oxygen concentrations in Figure 18 clearly show many samples below the numeric dissolved oxygen criteria established in the Massachusetts Surface Water Quality Standards.

8. Chlorophyll Data

The Coalition's chlorophyll data show that the Pocasset River does not always possess the excellent aesthetic values required of SA waters pursuant to 314 CMR 4.05(4)(a), "These waters shall have excellent aesthetic value" and warrants listing on the 303(d) list.

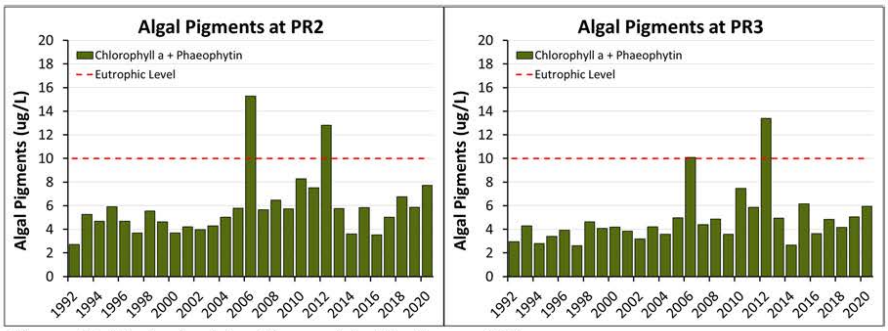


Figure 23. Phytoplankton Pigments in the Pocasset River

The data presented in Figure 23 show levels of algal pigments at sampling stations PR2 and PR3 that are periodically greater than 10 mg/L. High concentrations of chlorophyll indicate degraded water clarity in violation of the excellent aesthetic value required in Massachusetts Surface Water Quality Standards.

9. Pocasset River Total Nitrogen Data

The Coalition's total nitrogen data for Pocasset River suggests that the nitrogen levels are leading to the low dissolved oxygen numbers and promoting the algae growth depicted above.

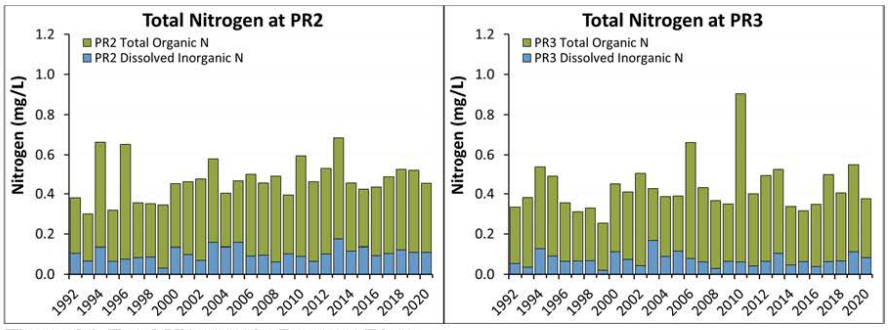


Figure 24. Total Nitrogen in Pocasset River

Figure 24 exhibits total nitrogen concentrations in the Pocasset River, frequently above 0.4 mg/L at both stations and reaching as high 0.9 mg/L in one year at station PR3. In addition, the proportion of total nitrogen as inorganic nitrogen is relatively high at both stations. The incidences of high total nitrogen concentration and high chlorophyll indicate that the Pocasset River fails to attain state water quality standards and must be listed on the 303d list as impaired for total nitrogen.

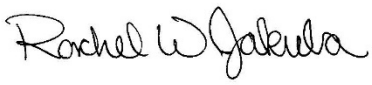
The combined data above demonstrate that the Pocasset River is suffering from eutrophication due to excess nutrients and must be listed on the Commonwealth of Massachusetts' 303(d) list of Category 5 waters requiring a TMDL for total nitrogen. Dissolved oxygen data at sampling sites PR1 and PR3 are in clear violation of surface water quality standards, falling below dissolved oxygen levels of 6 mg/L. Sampling sites PR2 and PR3 also have high total nitrogen concentrations.

Summary

It is critical that impaired water bodies are appropriately identified so that resources are appropriately focused on areas in need of water quality restoration. **Sufficient data exists demonstrating degraded water quality in the above identified waterbodies.** The Coalition's data illustrate impaired health, requiring immediate action on the part of MassDEP. We respectfully request that these waters be listed as Category 5 waters on the 2018/2020 list of impaired waters for nitrogen, nutrients and habitat alterations requiring a TMDL.

Thank you for this opportunity to submit this request.

Sincerely,



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David Janik, MA Office of Coastal Zone Management

Senator Mark Montigny
Senator Susan Moran
Senator Marc Pacheco

Representative Antonio Cabral
Representative Christopher Markey
Representative William Straus
Representative David Vieira

Mayor Jon Mitchell, City of New Bedford
Bourne Board of Selectmen
Dartmouth Select Board
Marion Select Board
Mattapoisett Board of Selectmen

MassDEP response: MassDEP acknowledges recent receipt of supporting data and information from BBC with their comments that are relevant to potential impairments of the aquatic life use due to excess nitrogen for the six waterbodies. MassDEP assessments and listings for the aquatic life use for Buzzards Bay assessment units last occurred for the 2016 Integrated Report (IR). Because the 2018/2020 IR was limited to the assessment of the aquatic life use for the nineteen watersheds that were not completed for the 2016 IR, we plan to specifically include the six waterbodies identified by BBC as AUs to be updated as part of the 2022 IR reporting cycle.

Appendix

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

Notice of Availability for Comment:

DRAFT Massachusetts 2018/2020 Integrated List of Waters

MassDEP has available for public review and comment the ***DRAFT Massachusetts combined 2018/2020 Integrated List of Waters*** ("Integrated Report"), 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). EPA has approved states combining IR cycle submissions, and MassDEP coordinated with EPA-Region 1 to seek approval for combining the 2018 and 2020 reporting cycles into one submittal.

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 2018/2020 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 2018/2020 Integrated Report should be submitted no later than **5:00 PM on May 28, 2021** 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 2018/2020 Integrated Report, quality-controlled data submitted to DEP prior to the pre-established deadline of 11/1/2019 were considered, relative to the 18 watersheds assessed. Data submitted after the 11/1/2019 deadline will not be considered for the 2018/2020 Integrated Report but will be reviewed and considered in a subsequent cycle, dependent on the workloads planned for future assessment cycles.

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

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REVISED on 5/12/2021
(originally issued on 4/28/21; revisions highlighted in red)

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