

2019 Water Bodies Assessment and Recommendation Report

Arlington Conservation Commission February 2020

The Arlington Conservation Commission (ACC), through its Water Bodies Working Group (WBWG), continued the assessment of fourteen water bodies in the Town of Arlington, including five lakes and ponds and nine streams. A majority of these are negatively impacted by polluted runoff and stormwater discharges due to the highly urban nature of Arlington and surrounding towns. Most of these water bodies also have excessive aquatic invasive plants that degrade water quality, impede recreational use, and degrade aesthetics. In determining which water bodies could benefit from management measures using Town funding, the WBWG took a triage-based approach:

1. Water bodies that are in generally good shape, do not need much help, or whose issues are being addressed by other agencies or funding sources, e.g., Upper & Lower Mystic Lakes and Mystic River
2. Water bodies with some issues that could benefit from directed intervention, e.g. Spy Pond, Arlington Reservoir, Hills Pond, McClennen Park Detention Ponds (Reeds Brook)
3. Water bodies that are in poor shape with many issues that would need major efforts and additional funding to improve, e.g. Mill Brook and Alewife Brook.

Though the chemical treatments of several main water bodies must continue for the coming year to control aquatic invasives and harmful algal blooms, the WBWG is focused on obtaining the appropriate data to develop comprehensive management plans for Spy Pond, Arlington Reservoir, Hills Pond, and the Upper Mystic Lakes. The WBWG's goal is to develop management plans where chemical use is only one step along with strategies to reduce inputs of nutrients to the water bodies, methods to manually remove aquatic plants, and techniques to prevent further spread and development of aquatic invasives.

The WBWG has summarized the 2019 assessment of several key water bodies and identified specific actions towards development of aquatic management plans for 2020.

Arlington Reservoir – A Town-owned water body in Arlington and Lexington with aquatic invasive water chestnuts that form dense, impenetrable mats at the water's surface, which impair public use and water quality. These plants have been harvested mechanically every summer for many years. For several years, the Mystic River Watershed Association (MyRWA) has been organizing hand harvesting events in the shallower areas. There was also a harmful algal bloom (HAB) in the late summer that resulted in the posting of warning notices. This water body was assessed as part of the Reservoir Master Plan project supported with CPA funding. One recommendation of that report was that the water chestnuts be harvested earlier than they have been in recent years, in early July, in order to reduce seed production. In 2019 the harvesting did not occur until August 15 and controlled only about 3.4 acres as there was insufficient time and funds to complete the work. DPW estimates that 39,000 pounds of material were removed. In 2020 the WBWG plans to issue a request for quotation (RFQ) for a study to evaluate the reservoir and its management practices.



Water Chestnut Hand-Harvesting Event at Reservoir , 2017

Hill's Pond – A small pond in the heavily used Menotomy Rocks Park with water quality and invasive plant problems. Monthly site visits with proactive treatments in 2019 proved successful in reducing invasives, based on the annual report by the vendor, SOLitude. There was also a harmful algal bloom (HAB) in later summer that required additional treatment. For 2020, the WBWG recommends continuing aeration, strictly limiting polluting activities near the pond or in areas that drain into the pond, maintaining a vegetated buffer strip around the pond four to ten feet wide of unmowed grass or natural vegetation, and chemical treatments of no more than half of the pond at a time with aquatic herbicides to control algae and other detrimental water plants.

Mill Brook – The poor water quality of Mill Brook decreased marginally in 2018 from C- down to D (EPA/MyRWA 2018 Water Quality Report: <https://mysticriver.org/epa-grade/>). Mill Brook's poor water quality is primarily due to stormwater runoff; however, there may be illicit discharges to the brook from surrounding properties. The brook and its adjacent shore provide valuable wildlife habitat and opportunities for nature views.

The Mystic River Watershed Association (MyRWA) received CPA funds to improve public access, improve water quality, and reduce floodwaters along Mill Brook near Wellington Park.



The new flood storage, constructed wetland channel in Wellington Park, 2019

In 2019, park construction included building more flood storage capacity and removing invasive terrestrial plants. CPA funds from Phase I were leveraged to get

Municipal Vulnerability Preparedness (MVP) implementation funding from the State's Executive Office of Energy and Environmental Affairs to fund the design and construction of this work in Phase II. In the next

phase of work, Phase III, this project will improve park amenities, remove more invasive terrestrial plants, and create more robust native vegetated buffers along the brook's bank.

The WBWG also has concerns about the section of Mill Brook next to the Reservoir, which suffers from bank erosion and invasive plant issues. For 2020, the WBWG recommends supporting and building on the MVP grant work and Reservoir Master Plan to enhance public access and investigate/mitigate illicit discharges into Mill Brook along with improved flood storage and stormwater management.

McClennen Park Detention Ponds on Reeds Brook – These stormwater detention ponds were created during the capping/closure of the landfill in this area, formerly called “Arlington Summer Street Landfill,” which was officially closed in 2006 with no further monitoring required. The WBWG received a technical report from contractor Brown & Caldwell summarizing sampling and analysis performed 2016-2017, which recommended further ecological investigations. Technical contractor Woods Hole Group (WHG) submitted a memorandum report in 2019 summarizing their evaluation, based on site visits and sampling and analysis of surface water and sediment performed in 2018. WHG concluded that the observed iron flocculation at Reeds Brook does not constitute a condition of “readily apparent harm” (MassDEP terminology) to the environment of the wetland resource area. However, some sediment data exceeded MassDEP sediment screening level benchmarks for arsenic, lead, and zinc and several surface water samples exceeded the National Recommended Water Quality Criteria (NRWQC) for iron. WHG does not know the sources of the contamination, which could be due to stormwater (drainage systems/outfalls feed into the detention ponds), the upstream wetland area and/or the former capped landfill (which was unlined). The WBWG does not have groundwater data for this site. The WHG report will be made public on the ACC website.

In conclusion, the WBWG completed its goal in 2019 to investigate potential harm to the resource area of the iron flocculation at these detention ponds. Based on the findings, the WBWG concludes that there is no readily apparent harm to the resource area. However, given the findings of several metal concentrations that exceed screening levels, the WBWG has been transparent and reported these findings to the MassDEP Office of Solid Waste (OSW). The WBWG has requested guidance or recommendations on further actions the Town might take, if any, given these findings.



Reeds Brook culvert to detention pond showing iron flocculation, Spring 2018

The WBWG expects guidance from OSW in early 2020.

Spy Pond – One of Arlington's most heavily used open spaces for recreation. Spy Pond has an invasive plant problem within and around the pond. The surrounding managed landscape contributes to nutrient loading and low oxygen levels. Left untreated, invasive plants impair recreational use. Furthermore, there is erosion along portions of the shoreline from wind, wave, and recreational activity. In 2016, the Conservation Commission recommended assessing, designing, and implementing strategies for shoreline erosion control. These efforts received CPA funding for the shoreline erosion assessment and evaluation of design options. These designs were implemented in a project sponsored by the Conservation Commission and Parks & Recreation Commission, funded by CPA , CDBG, state grants, and private donations. Construction for erosion control, slope stabilization, pathway resurfacing, and invasive species removal was completed in 2019.

Treatments that were applied to Spy Pond in 2019 include an herbicide treatment for leafy vegetation and two algaecide treatments that were necessary due to an atypical algal bloom (HAB) in later summer.

The WBWG and the Spy Pond Committee met in December 2019 to discuss future management of Spy Pond. The WBWG recommends proactive pond management in 2020, similar to the strategy used for Hill's Pond to reduce invasives. This will hopefully reduce the reliance on chemical controls for invasive species in the pond, taking into account the recreational uses of the pond.

Mystic River – Though this water body has a good EPA/MyRWA water quality rating of A- as of 2018, it was directly impacted by an oil spill in 2013, making it eligible for grant funding for restoration. The ACC and the Town of Arlington was awarded a MassDEP Natural Resource Damages Assessment (NRDA) grant of \$47,325 for the restoration of an outfall area impacted during the 2013 Mystic River oil spill. The Restoration project created a native riverbank (riparian) habitat and improved stormwater quality. It is located along the Mystic River at the end of Park Street.

Work began in October of 2017 and continued through 2018 to stabilize the slope along the riverbank, remove a broken concrete headwall at the stormwater outfall, repair the drainage pipe, create a swale for flood storage to percolate stormwater runoff, and move the dirt footpath around this newly created riparian habitat. In 2018 and 2019, native plantings were installed to create a riparian habitat. The final phase of the restoration was completed in 2019 with a successful community planting event (with Thompson Elementary School students) to supplement the habitat with additional native vegetation, installation of educational signage, and a celebration event with representatives from MassDEP, DCR, Arlington DPW, and the Arlington Conservation Commission.



Deb Berger, DCR; Susan Chapnick, ACC; Cathy Kiley, MassDEP; Emily Sullivan, ACC; Bill Copithorne, Arlington DPW with installed signage at the Mystic Riverfront Restoration Project, November 2019

In conjunction with this project, the Town has installed a new pretreatment system on Park Street for the storm drain pipe that leads to the outfall at this location. This separate but linked project managed by DPW will reduce contamination and sedimentation from reaching the Mystic River. Visual observance of improved clarity of the water at the outfall location is evident in the Fall of 2019, as seen in the photo to the right. No additional work is anticipated in 2020, other than to monitor for the health of the riparian habitat planted last year.



Improved water quality near the restored outfall along the Mystic River, October 2019

Alewife Brook – The brook's poor water quality decreased marginally in 2018 from D+ down to D (EPA/MyRWA 2018 Water Quality Report: <https://mysticriver.org/epa-grade/>). The poor water quality of this brook is caused by polluted stormwater runoff and combined sewer overflows (CSOs) in neighboring communities. In 2020, the Town of Arlington and MyRWA, with funding from the Massachusetts Office of Coastal Zone Management, will construct two rain gardens and 20 infiltration trenches in east Arlington to filter stormwater and reduce the amount of pollution entering Alewife Brook to improve water quality.



Green Infrastructure: Bioretention Basin construction at Egerton Rd/Herbert Rd, Arlington, September 2018. Two similar rain gardens will be constructed in East Arlington in 2020.

The WBWG has compiled the information presented in this report. The Conservation Commission recommends that other locations that have not been identified above as a priority for current Town Water Bodies funding should continue to be monitored, and recommendations for actions and funding should be reviewed on an annual basis.

Respectfully Submitted by the Water Bodies Working Group of the Arlington Conservation Commission:
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Approved by the Conservation Commission February 6, 2020