

Amesbury, MA

Waterbody Assessment



An Assessment of Amesbury's Lakes, Ponds, and Rivers

Amesbury Lakes and Waterways Commission

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Executive Summary

This document is a source for the City of Amesbury to reference the major bodies of water within the city, to understand their current conditions and to review recommendations for improving and protecting these resources. The Amesbury Lakes and Waterways Commission developed this document with support from the Amesbury Department of Public Works, utilizing the May 19, 2016 Waterbody Assessment document as a starting point.

Purposes

1. To be a comprehensive resource on the city's waterbodies. Each waterbody has been reviewed and includes location, history, uses, current and past concerns, grants, and other relevant content.
2. To be a reference for our water control structures, of which eight are identified.
3. To include further information on studies and documents completed on bodies of water.
4. To include the status of invasive aquatic species within specific bodies of water, if known.
5. To provide information on water quality testing that is done on specific waterbodies and recommend appropriate testing.
6. To provide an understanding of concerns within a watershed that are contributing to the decline in water-body health.
7. To provide recommendations and suggestions for improvements to benefit and improve our waterbodies.

Ten waterbodies were researched and reviewed within this assessment. Four of these waterbodies are included within the City's drinking water supply including: Primary sources: Upper Powow River, Tuxbury Pond, and Meadowbrook and Secondary source: Lake Attitash. Two of the waterbodies are used for swimming, including Lake Gardner, that contains the town beach, and Lake Attitash.

It is our recommendation that the city develop a waterbody management/watershed management program to prioritize, protect, improve, and maintain the desired conditions of each of these bodies of water. One of the first steps will be to develop sufficient data to base decisions on. The city will need to decide what uses of each water body are most important and develop a coherent plan to muster the resources required to keep Amesbury's waterbodies as healthy as they need to be. This master plan should include on-going "in-water-body plans" for invasive aquatic plant control, nuisance plant control, water quality

testing and watershed plans to handle education, phosphorus reduction, land preservation and storm water improvements.

Overview and Background information

The Lakes and Waterways Commission consists of residents appointed to the commission by the mayor, representing one or more bodies of water, a liaison from the conservation commission and a liaison from Amesbury's Department of Public Works. Collectively, it is through their knowledge, research, experience, and contacts within the community that enabled this document to be developed.

Amesbury's Department of Public Works has been very successful applying for and receiving MA Department of Environmental Protection 604b (research grants) and 319 implementation grants to help support some of the challenging problems that we face.

Non-profit organizations have also greatly contributed to the maintenance of the water bodies, including the Lake Attitash Association, Lake Gardner Improvement Association, Clark's Pond Watershed Association, and the Merrimack River Watershed Council, working side by side with the city for funding, guidance, and support.

Unfortunately, we must do more to prevent the further decline of our waterbodies and work to turn-around and improve the conditions that currently exist.

Invasive Aquatic Plants

Invasive aquatic plants threaten many of the town's major lakes and ponds. They are aggressive, can be very difficult to control, decrease the quality of the habitat, and negatively impact the ability to use the water for recreational activities, such as boating and swimming. They fill-in the lake contributing to its decline and can negatively impact property values. We need to understand the extent and nature of this threat.

Water Quality Testing

Amesbury's water quality testing is haphazard, a combination of public and private testing, and the results are not centrally located. The city should determine what data it needs to evaluate the waterbody, gather that data and have it available for managing the waterbody.

Stormwater Runoff

According to the EPA, the major source of non-point pollution in the U. S. is stormwater runoff. Amesbury's waterbodies are all subject to receiving and being affected by such sources. Fertilizers that runoff lawns and farms end up in ponds and lakes feeding algae and bacteria. The salt and sand spread on the roads end up in the streams, rivers and ponds adding salinity and silt. Catch basins in storm drains can be overwhelmed, especially

if they are not cleaned regularly. Retention and detention ponds are useful in reducing harmful elements in the runoff reaching the water, but they must be maintained to be effective. The hilly landscape of Amesbury and the motion of the water combine to create erosion that adds more silt to the water bodies. Dealing with all these threats requires both public expense and action on the part of individual citizens.

Land Conservation

Being proactive and developing land conservation plans to protect our water bodies is becoming more critical as housing and business developments continue to reduce the natural landscape. These developments destroy the natural filtration system and accelerate the decline of the health of the water bodies. Working with and supporting Greenbelt, Essex County's Land Trust, will help with these preservation efforts.

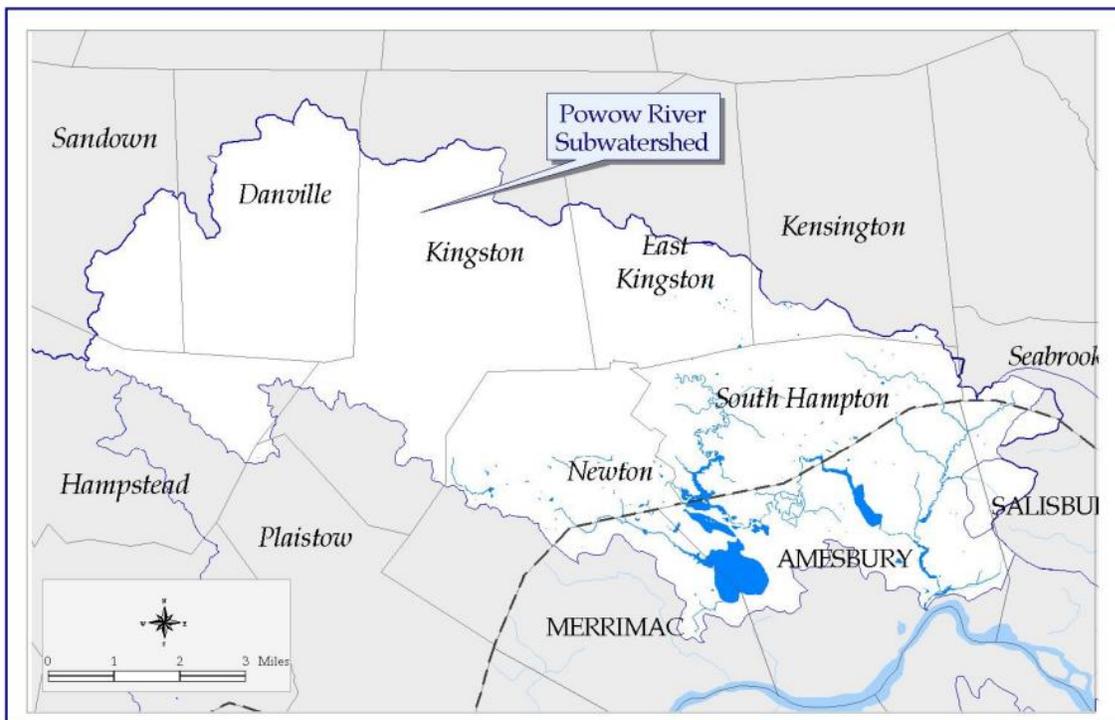
Flooding

As climate change continues to progress, historic flooding will be less able to predict future problems. Some of the lakes, ponds and rivers have experienced significant flooding events that have led to safety concerns, property damage and significant water quality issues already. We must prepare for the future.

Powow River Subwatershed

The City of Amesbury should also understand that it is within the Merrimack River Watershed, which includes 5010 square miles within NH and MA. The Powow River sub-watershed, part of the Merrimack Watershed, is the only source for Amesbury's waterbodies. The source of Amesbury's drinking water and therefore the quality of that water is directly dependent upon what is coming out of New Hampshire.

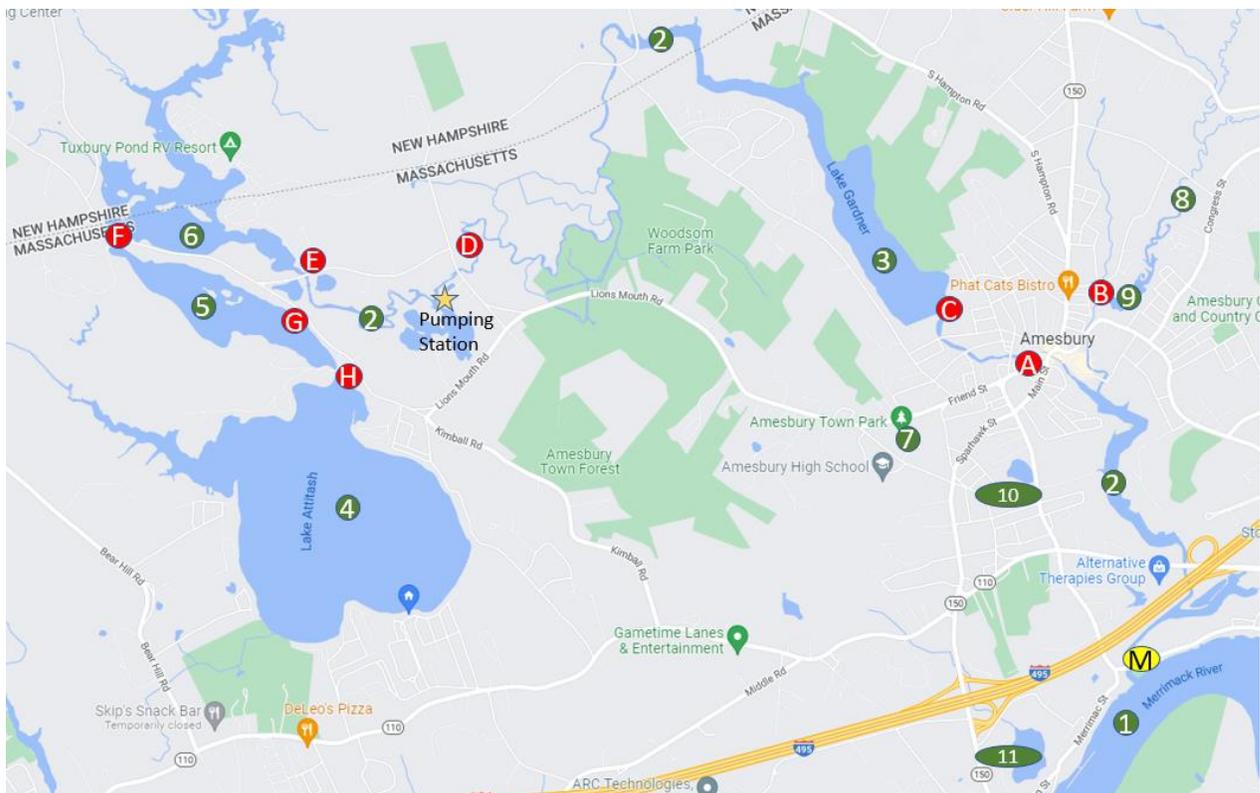
Working with communities north of Amesbury, including South Hampton, NH, Newton, NH and East Kingston NH, and to the west in Merrimac, MA is vital to ensure the highest quality of water and flood control.



Source: Executive Office of Environmental Affairs Merrimack River, a comprehensive watershed assessment report 2001.

Map

Water bodies 	Structures 
<ol style="list-style-type: none"> 1. Merrimac River 2. Powow River (note multiple locations) 3. Lake Gardner 4. Lake Attitash 5. Meadowbrook 6. Tuxbury Pond 7. Park Pond (Town Park) 8. Back River (not assessed) 9. Clarks Pond 10. Pattens Pond 11. Baileys Pond 	<ol style="list-style-type: none"> A. The Millyard Crib Dam B. Clark's Pond Dam C. Lake Gardner Dam D. The Weir E. Tuxbury Pond Dam F. Statline Dam G. Archbrook Culvert H. Birches Dam <p>Mouth of the Powow </p> <p>Pumping Station </p>



Merrimack River

*Classification: Category 4a*¹

Uses: Boating, Fishing, Wildlife, Aesthetics

Overview & History

The Merrimack River is a 117-mile-long river starting in Franklin, NH. It flows southward into Massachusetts, and then flows northeast until it empties into the Atlantic Ocean in Newburyport.

In the early days, the Merrimack River provided an abundance of fish, birds and a transportation route for its inhabitants. An archaeology survey stated that there have been about four or more Native American sites as early as 8,000 years ago until about 350 years ago. The Merrimack River drains a great deal of the southern part of New Hampshire and part of northeastern Massachusetts.

The river is part of the National Wild and Scenic Rivers Systems as set by the National Park Service. This river has been listed as one of the 10 most endangered rivers in the United States.²

Geography & Access

Size: The Merrimack River Watershed encompasses 5010 square miles within NH and MA. It is the 4th largest watershed in New England. The Merrimack River is formed by the confluence of two major rivers, the Pemigewasset and Winnepesaukee in Franklin NH. It then flows 117 miles to the Atlantic Ocean. In Massachusetts, the Merrimack River is designated a Class B (inland) water from the New Hampshire border to Haverhill at Creek Brook, while the 22-mile tidal section from Haverhill to the ocean (Newburyport) is designated a Class SB (coastal and marine) water.

¹ [Final Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle](#)

² [American Rivers, Rivers Connect Us](#)

Location: In Amesbury, a little over 4 miles of the Merrimack is located at the southern edge of the city along Main Street, Merrimack Street and Pleasant Valley Road. Many valuable residences line these roads.

Access: It can be accessed via several privately owned docks and boat slips along the Amesbury shore. Public boat access is next to The Marina at Amesbury Point (formerly Larry's Marina) on Merrimack Street. Most of the access along Main Street, Merrimack Street and Pleasant Valley Road is private. Public access/parking to the river can be found at Alliance Park along Main Street and there is a public ramp available to Amesbury city residents.

Structures

The Army Corps of Engineers added the existing gabions along the eastern side of the mouth of the Powow in the late 1970's or early 1980's as a solution to erosion problems.

Risks & Issues

- **Water Quality:** The Merrimack River between Little River in Haverhill and the Indian River in West Newbury, which includes the entire Amesbury shore line, is listed in the MA Integrated List of Waters (2018/202) as a Category 5 on the EPA 303(d) list of Impaired Waters due to the presence of Enterococcus in the water and PCBs in the fish tissue.
- **Combined Sewer Overflows (CSO):** Because some cities upriver from Amesbury have sewer systems that combine sewage with stormwater, their treatment plants are sometimes overwhelmed by storms and dump raw sewage into the Merrimack River. When this happens there is a spike in bacterial contamination of the river at Amesbury. According to the Merrimack River Watershed Council's 2021 Water Quality Report, 822 million gallons of CSOs were released into the Merrimack River in 2021. That year, 82% of the volume was equally divided between Lowell and Manchester, NH. Our neighbor Haverhill had the largest number of CSOs but contributed only 6% of the volume.

Notifications are available online, but still not through a central source. Typically it is recommended that residents avoid entering the water for 48 hours following a CSO. More information on the CSO issue can be viewed at the website of the Merrimack River Watershed Council: <http://merrimack.org/education/cso/>.

- **Flooding:** Flooding problems in the watershed are more localized than widespread. Major dams and impoundments on the Merrimack River have decreased the frequency and severity of floods along the mainstream. Flooding can still occur on the

river and its tributaries during major storm events and most often occur in the spring when both rainfall and snowmelt overwhelm local waterways. Sections of Pleasant Valley Road are especially at risk of flooding at high tides and the river has flooded the roadway at least a couple times during heavy floods in the past 15 years.

- **Erosion:** The Merrimack River presents erosion problems during floods. Pleasant Valley Road land being private makes it hard to repair erosion on the shoreline. It is expected that erosion will increase with sea level rise. The erosion may impact the roads, and weight loads (e.g., of emergency vehicles) that the road can withstand with high water levels. There is already a section of the road in Merrimac that was closed due to erosion. The eroded area is already cutting in very close to Pleasant Valley Road. If Pleasant Valley Road fails, it would impact access for residents and for emergency vehicles. The problems will worsen as the climate continues to warm.
- **Public Ramp Access:** There is a public ramp near the marina on the Merrimack River; however, the ramp is difficult to launch boats at low tide and thus improvements to the ramp are needed. Further there is no public access to any docking for boats that are launched; thus, it would be beneficial to consider and explore options and opportunity for addition of a public dock for residents that launch boats there. There are a few public parking spaces located behind Hatters Point; however, there is no public water access there.

Plans & Recommendations

- Watershed or groundwater protection district by-laws have been instituted in Amesbury to protect the Back and Powow sub-watersheds that flow into the Merrimack. However, Amesbury must work with other communities along the Merrimack along with state (both MA and NH) federal agencies on how they use the river to protect the health of the river.
- Because the climate is changing, federal floodplain maps may need updating to show where the 100-year flood plain is located. Changes in climate have impacted the shoreline, and roads could become more vulnerable during more frequent flooding. Amesbury needs to plan for the deterioration of Pleasant Valley Road and be aware of other areas that come under threat. If we do not do something soon, we will leave the city with only the option to abandon the road.
- There are several resources available for tracking CSO. Amesbury can consider alerts for residents that combine input from the available resources.
- Reducing the CSOs will require action taken by other cities with support from state and local governments. The City of Manchester committed in 2020 to significant

funds to reduce CSOs into the river. This was part of a settlement with the Dept. of Justice, State of NH, and US Government. Amesbury should monitor, encourage, and participate in federal and state programs that address Merrimack River CSOs.

- Consider how to perform and/or access testing of the Merrimack River in a more consistent and robust fashion, tracking data, and to put data in context with set safety standards.

Powow River

Districts: 1-6

Classification: Category 5³

Use: The upper Powow River, from its outlet at Tuxbury Pond to the weir that maintains the water level for input to the water treatment plant, is the source for Amesbury's potable water; the Powow River between the weir and Lake Gardner supports wildlife and light recreation (canoeing and kayaking); the lower Powow River from the Lake Gardner Dam to Millyard Dam, serves primarily aesthetic purposes, flowing through a residential area; from the Millyard Dam to the tidewater, the river provides a scenic waterfall through the center of downtown; from the tidewater below the falls to the Merrimack, wildlife habitat and challenging light recreation dominate, though there is a marina at its mouth where the Powow meets the Merrimack River.

Overview & History

The Powow River is a major tributary of the Merrimack River that enters Amesbury from Tuxbury Pond, which is partially in South Hampton, NH. The river flows through Lake Gardner before reaching the heart of the city past Pond Street and into the Millyard. Through the Millyard the Powow River goes through a series of falls and rapids to Main Street dropping approximately 90 feet in elevation before reaching the Lower Millyard where it turns tidal. This drop in elevation in the Millyard provided a natural location for the industrial base that powered Amesbury from the 1600's through the mid-20th century. In 1963 the Powow was re-routed for building of Route 495. The City of Amesbury has focused on the area along the Powow for downtown redevelopment and plans for the lower portion.

Geography & Access

Size: 23 miles from its source in New Hampshire to its end at the Merrimack River at Alliance Park. The river drains about 58 square miles of land in New Hampshire and Massachusetts. The river flows 0.6 miles from Lake Gardner to the final waterfall below Main

³ [Final Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle](#)

Street in downtown and runs another 1.5 miles through its tidal phase from the Lower Millyard to the Merrimack River.

Location: The Powow River watershed consists of 64% forests, 26% waterbodies and watershed, 15% urban development and 4% impervious materials. The river enters the northern edge of Amesbury at Tuxbury Pond, meanders past the water treatment plant on Newton Road, returns briefly into New Hampshire to enter Lake Gardner and then below the Lake Gardner Dam it flows through the heart of Amesbury past Main Street and on to the Lower Millyard between Elm Street and Main Street and empties into the Merrimack River at Alliance Park on Main Street.

Through the tidal portion, the river is flanked on its north and northeastern bank by several homes, the Riverwalk Apartment complex, and the Amesbury Riverwalk rail-trail from the Lower Millyard to the Carriagetown Marketplace. On the opposite shore several homes and athletic fields are found near the Lower Millyard. Most of that shore is undeveloped south of Mill Street.

Access: Public access is at Alliance Park on Main Street, along the Amesbury Riverwalk rail-trail, and throughout the Millyard. A portion of the river near Lake Gardner runs through Powow River Conservation District, a 134-acre town-managed natural area that includes Battis Farm, Camp Kent Environmental Center, a portion of Powow Hill and Lake Gardner. There are several points where the public can access the Powow in the Conservation District.

Structures

Millyard Crib Dam: The Crib Dam was restored in 1995. The area was rebuilt in 1985 and again in 2003 or 2004. Granite blocks for the new retaining walls were salvaged from Gloucester. The retaining walls near the upper bridge and near the amphitheater both failed in 2006 and were replaced in 2011 with funding by FEMA. Other river walls are made of various materials but are at risk for failures due to trees and high water. The river runs under buildings downtown, and under two private properties, prior to flowing into the lower millyard.

The Weir: The weir is a 140 square ft wall that keeps the river at the correct height for pumping. It is part metal and a timber section extends beyond the main part of the river. It was originally constructed in 1952 to raise water level for town wells. In 1960's, the town went to surface water intake. The weir keeps water levels at a minimum height for the treatment plant.

The sheet metal on the dry side of the weir is starting to deteriorate. Timber also rots. In 2003, rocks were added downstream of the weir for stability; to keep it from falling over. There are still unresolved lawsuits related to the weir. The weir is in need of repair. Funding is being pursued for fixing. There are considerations for wetland areas up and down river from the weir. Once funds are in place, repairs can commence. The weir itself is low risk because sheeting is stockpiled and can be replaced in an emergency. But the weir is critical for water supply. In 2021 funding was passed for fixing the weir, with engineering beginning mid-2022.

Risks & Issues

- **Climate Change:** Global Climate change will increase the number and severity of significant storms that could stress the capacity of the river to channel water through the downtown
- **The Weir Condition:** The weir is deteriorating.
- **Industrial Detritus:** A large steam pipe, which likely contains asbestos, runs along the river and under Market Street and is deteriorating creating both an eyesore and a threat.
- **Water Quality and Trash:** Brownfield remediation was completed at 25 and 31 Water Street in the Lower Millyard along the northeastern shore of the Powow River for removal and disposal of low-level iPCBs and metals contaminated soils. Heritage Park in the Lower Millyard has been completed, but the Powow River adjacent to it is full of large debris which is visible at low tide. The water at that point in the river is untested and suspect.
- **Aquatic Plant Growth:** We do not know to what extent future aquatic plant growth will impede recreational use of the upper Powow River.

Plans and Recommendations

- A preliminary analysis of the impact of the flow of the Powow through downtown because of extreme weather events.
- The Powow down river from the weir to Lake Gardner should also be cleaned up and monitored for weed growth.
- The planned repair of the weir should go forward.
- The steam pipe under Main Street and other leftover industrial structures that affect flow and water quality should be removed or stabilized.
- The city should begin to monitor water quality in the lower Powow River and clean the large debris out of the tidal basin to make future redevelopment more attractive to prospective investors and tenants and improve recreational opportunities.

Lake Gardner

Classification: 4c⁴

Use: Swimming, boating, fishing (including ice fishing), wildlife, aesthetics

Overview & History

A dam on the Powow River created the beautiful, shallow 84-acre Lake Gardner, near downtown. Originally created in 1872 for utilitarian purposes—supplying a water reserve for the mills for Salisbury Mills Inc—today, it is the only public swimming beach in Amesbury. Swimmers can enjoy the roped off guarded area or choose to train for long distance swims before and after the lifeguards' duty. The beach, at the southern end of the lake, is a popular area for swim races and triathlons. In addition to swimming, visitors enjoy canoeing, kayaking, paddle-boarding, motor boating (lake residents only), fishing, and bird watching. The Powow River Conservation area borders the eastern shore of the lake and provides hiking trails around the lake. This lake provides a multitude of wonderful outdoor recreational opportunities.

Geography & Access

Size: The lake is long and narrow, and the surface area is approximately 80 acres. The maximum depth is 17 feet; average depth, 10; and transparency, 6 feet. The Powow River water elevation changes from 86.4 ft. at the Lake Gardner Dam to 10 ft. (tidal flow) in the Lower Millyard.

Location: Lake Gardner is in central Amesbury. About 30 close-set, waterfront homes and 180 condominiums line its western shore, and a sandy public swimming beach and major dam are at the southern end. The eastern and northern shores are undeveloped conservation land made up of woods and other open space.

Access: Public access is via Lake Gardner beach at 80 High Street, and various points throughout the Powow River Conservation Area.

⁴ [Final Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle](#)

Structures

Lake Gardner Dam: The dam was constructed in 1872 and rebuilt in the 1920's. It was rebuilt again in 1987 when two former powerhouse buildings were coming down. In 1993, the powerhouse buildings were taken down and replaced with a retaining wall.

The lake level was drawn down from 1996-2001 during which time the existing spillway and earthen embankment portions of the dam were rebuilt with the inclusion of a stability berm along the downstream slope of the embankment.

The current dam is an 830 foot long, 25-foot-high earthen dam. It has a 78.5-foot granite block spillway with a 16-foot wide, 3 bayed gated stop-log controlled sluiceway. The outlet conduit is 24 inches in diameter. A "stilling basin" below the dam is 2 ft. deep and its purpose is to act as a buffer, slowing the water to prevent scour on the concrete base structure. The upstream concrete spillway of the dam is built on 8 anchors that were drilled 65 ft. to the bedrock below the dam. The lake is sometimes lowered to prepare for incoming storms. Sluice gates allow DPW to wait until a storm hits to adjust gates. However, the lake itself is not large enough to attenuate storms.

Beach Retaining Wall: A drainage system was installed at the beach in 2020, which captures water coming out of the beach face at elevation 97. The drainage system is constructed behind a retaining wall, built of the historic granite salvaged from the north pier of the old Whittier Bridge. The Conservation Commission deemed the work a success, in that it performs as expected, dramatically reducing the erosion previously experienced. Additional beach grading and seeding is expected in the spring of 2021 and 2022.

Risks & Issues

- **Dam Hazard Inspection:** Because the Lake Gardner Dam is classified as a High Hazard Dam by the DCR Office of Dam Safety, it must be inspected every two years and the city must have the Emergency Action Plan updated by a consultant as well. The inundation map for dam failure is most of downtown, from the old train station to the town park. (This is the evacuation area if the dam was in danger of failure.)
- **Invasive aquatic plants:** The high nutrient content of the water has resulted in the massive proliferation of both invasive and native aquatic plants. Aquatic vegetation includes bladderwort, water shield, variable milfoil, Eurasian milfoil, pickerelweed, hedge hyssop and purple loose strife. In many areas of the lake, there is 100 percent plant coverage which makes the recreational activities extremely difficult. There have been reports of invasive water chestnuts. The 2015 plant survey showed that vegetation is increasing. No control plan was implemented.

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- **Beach Management:** Though the retaining wall has reduced the erosion of the sandy beach, the damage to the beach needs to be repaired. The city needs to make decisions about the supervision of the beach area that address the impact of high usage, safety including the need for lifeguards, incidents of vandalism, and the presence of geese. These decisions will require the city to balance accessibility, protection of the resource, and economic realities.
 - **Water Quality:** From Memorial weekend through Labor Day weekend the Amesbury Health Department tests the E. coli level at the beach and at Glen Devin Condominiums and reports the results on the city's website. A study conducted by trained residents in 2011, indicated that there is significant non-point pollution resulting in high nutrient content. The city put in several catch basins and two water gardens to help control nutrients running into the lake. Nevertheless, on three separate occasions during the 2021 season, the Lake Gardner Beach was closed because of excessive E. coli bacteria.

Plans & Recommendations

- Make sure that the Beach Management Plan is kept up to date and implemented to protect the beach resource. The current plan calls for various repairs and maintenance, some of which are scheduled to be completed for the 2022 summer season.
- Survey the aquatic plants and determine what control options are available for the invasive plant species and implement the best options.
- Continue the E. coli testing program at the beach. Determine how much of the problem is caused by the large population of Canada geese that feed on the grass at the south end of the lake and develop a plan to deal with them.
- Educate residents not to fertilize within 25 ft of Lake Gardner, and beyond 25 ft soil must be tested before applying phosphorus fertilizer. (MDAR 2012: An Act Relative to the Regulation of Plant Nutrients)
- Educate residents on ways to develop buffers on their properties to reduce storm water run-off and erosion.
- Institute more regular and extensive testing of runoff to permit targeting and reducing run-off pollution.
- Clean the storm drains around the lake by mid-Spring (twice per year) and determine whether additional catch basins and water gardens may be cost beneficial.

Studies & Documents

2017 Lake Gardner Beach Management Plan

2015 Lake Gardner Weed Survey

2011 Lake Gardner Bacterial Study – 604b

2010 Bacteriological Survey Quality Assurance Project Plan

Lake Attitash

Classification: Category 5⁵

Uses: Secondary drinking water supply (used mainly as backup during droughts), swimming, boating, fishing, and wildlife

Overview

Lake Attitash is a 360-acre kettle pond located in the city of Amesbury (2/3) and the town of Merrimac (1/3). It flows to Meadowbrook Pond, which can then flow either to the Powow River directly through the Archbrook Culvert outlet or through Stateline Dam and Tuxbury Pond. All these sources supply the water treatment plant in Amesbury for its residents. Merrimac manages two wellfields that are adjacent to the lake.

The shoreline is extensively developed; roads and year-round homes, two or three rows deep in places, virtually ring the lake. There is a public boat ramp in Merrimac, a summer boys' camp: Camp Bauercrest, and a private beach, Amesbury Attitash Lake Shore Improvement Association (AALSIA) in Amesbury. There are hundreds of boats of all types and sizes on the lake.

During summer months, the lake supports swimming, motor boating, water skiing, fishing, kayaking, canoeing and paddle boarding. Winter months bring ice fishing, cross-country skiing, ice skating, and ice boating. Jetski's and snowmobiles are not allowed on Lake Attitash.

Geography & Access

Size: Lake Attitash has an area of 360 acres, a mean depth of 14 feet, and a maximum depth of 30 feet and a total volume of 5040 acre-feet.

Location: Lake Attitash is in Amesbury and Merrimac, Massachusetts. It is North of Route 110 (Haverhill Road), East of Bear Hill Road (Merrimac) and West of Kimball Road (Amesbury). Normal pool is 96.75 ft. above mean sea level.

Access:

⁵ [Final Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle](#)

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- Public access for boating has been created by the Massachusetts Office of Fishing and Boating Access (formerly known as the Public Access Board) by constructing a parking lot and launching ramp in Merrimac, MA off Lake Attitash Road. The parking lot can accommodate nearly two dozen vehicles.
 - There is also a small boat launch area adjacent to the Birches Dam (Lake Attitash Dam) at Birchmeadow Road.
 - A private beach and boat launch is off Lake Shore Drive, but membership is required and is limited to deeded homes on Lake Shore Drive, 1st-4th streets, Cross Street, and the northern side of Old Country Road.

Structures

Birches Dam (Lake Attitash Dam): Birches Dam is the outlet of Lake Attitash and dates to the 1970's. The water line over the bridge was replaced in 1996. This dam is also a bridge connecting to the Birchmeadow Road neighborhood. Normal pool is 96.75 feet, with the Birches Dam and road being overtopped at 98.3 feet. If the dam was to flood, there is no other way out for the Birchmeadow Road neighborhood. Controlling the level of Lake Attitash to flow in only one direction has been beneficial to help prevent additional invasive plant infestations.

(Note: In 1712, a dam was constructed on the northeast side of the lake with a purpose of raising the water level approximately three feet to maintain flow for the water-powered mills along the Powow River.)

Gunderboom: In 2003, a Gunderboom was installed in the Back River. This is a floating fabric filter, spread across the width of the Back River in Merrimac, roughly a half-mile from where it feeds into Lake Attitash. The boom, which is 200-foot-long and 5-foot-high, was intended to decrease the amount of nutrients coming into the lake. It was paid for through a demonstration grant from the Department of Environmental Management. It was expected to last 5-10 years, but is still in use in 2021, although it is compromised.

Risks & Issues

- **Cyanobacteria** (Blue-Green Algae): Lake Attitash has had a history of cyanobacteria blooms that have caused "no contact" warnings. In 2019 and 2020 the lake was treated with alum because of a 319 grant, and this has significantly reduced the cyanobacteria blooms, as in-lake phosphorus has been bound to the sediment. This should help reduce the likelihood of blooms for up to 15 years, however, some blooms were seen in 2021. It will be beneficial to continue to research options for

ways to reduce in-lake phosphorus. In addition, examining the watershed and reducing phosphorus and nitrogen from entering the lake as fertilizer run-off through erosion and stormwater run-off will be highly beneficial. All the upstream sampling locations show elevated Total Phosphorus levels above the 50mg/l maximum limit specified by the EPA.

- **Invasive Plant Species:** There are currently four known invasive species in Lake Attitash, including Eurasian Milfoil, Variable Milfoil, Curlyleaf Pondweed, and water chestnuts. Over the past several years, the Lake Attitash Association has tried to control the invasive species through diver-assisted suction harvesting (DASH), hand-pulling (water chestnuts) and herbicides. In 2021, ProcellaCOR was used to control the milfoils and diquat to control the Curlyleaf pondweed. The LAA has an effective weed watcher program and works with Solitude Lake Management for weed surveys and yearly control options. The LAA also has an established boat ramp monitoring program with volunteers from the Amesbury senior tax write-off program.

Plans & Recommendations

- Recommendation is to educate residents not to fertilize within 100 ft of Lake Attitash and beyond 100 ft test soil before applying phosphorus fertilizer. (MDAR 2012: An Act Relative to the Regulation of Plant Nutrients)
- Educate residents on ways to develop buffers on their properties to reduce storm water run-off and erosion.
- Improve signage regarding no snowmobiling and jet-skiing.
- Continue to control invasive aquatic plants using MA DEP approved methods.
- Continue to monitor cyanobacteria conditions and take necessary precautions.
- Continue researching future ways to control and remove phosphorus.
- Determine whether a new Gunderboom (filter) will be beneficial.
- Clean out the storm drains by mid-spring (2x per year) and determine whether the storm drain system might be improved to mitigate phosphorus inflow from high phosphorus areas, including Spindletree detention ponds, bottom of 1st street, and bottom of 4th street.

Studies & Documents

2021 Lake Attitash Annual Report from Solitude

2021-2023 Lake Attitash Long-term Vegetative Management Plan

2016 WRS Development of a Management Plan for Lake Attitash, Amesbury, and Merrimac Massachusetts

2014 Lake Attitash Assessment Report - EPA

2010 Gauging the Health of New England Lakes and Ponds
1999 Camp Dresser & McKee Lake Attitash Watershed Management Plan

Meadowbrook Pond

Classification: Unclassified

Uses: Secondary water supply (used mainly as backup during droughts), recreational usage such as non-motorized boating, fishing and ice skating, and a habitat for wildlife. Landing seaplanes.

Overview & History

Meadowbrook is a small pond in the north of Amesbury and is part of the Powow River's course. This is an historic waterway controlled since the 1700's to assure flowage right for waterpower for Amesbury's textile industry. The water source is Lake Attitash and the Powow River. Water flows into Meadowbrook via the Stateline Dam from Tuxbury Pond and the Birches Dam from Lake Attitash. Water flows out of the Pond through the Archbrook culvert and rejoins the Powow River or via the Stateline Dam into Tuxbury Pond. This water enters the municipal water supply. The watershed overlay district protects the pond.

Geography & Access

Size: 100 acres but decreasing in size due to invasive growth around shoreline. Much of the pond is less than 1' with deepest points not exceeding 4'. At normal pool the pond is 96.4 ft. above mean sea level.

Location: Meadowbrook is in the Northwest corner of town. It is west of Kimball Road and at the state line, adjoining S. Hampton, NH. The western side of Meadowbrook is developed with residential properties. Most were built in the early 2000's and are part of a homeowner's association. The eastern side of the pond has less development with mostly forest occupying 1/2 the shoreline. Less than 30 homes sit directly on the pond with 1/3 of the shoreline undeveloped.

Access: There is no public beach. Archbrook culvert is accessible from an access road off Kimball Rd. Stateline dam is accessible from pull-offs on Kimball and Meadowbrook Road. The public uses the access road, as well as the area around the Stateline dam to fish and launch canoes and kayaks. Many residents living on Meadowbrook have small docks and access points through the Kimball Homeowners Association.

Structures

Archbrook Culvert: As the main outlet of Lake Attitash and Meadowbrook Pond, Archbrook is a culvert that allows water from Meadowbrook to flow directly into the Powow

River under Kimball Rd. During times with drought conditions and low flows, water may be routed to flow through to Tuxbury Pond, but for normal watershed operating procedures this isn't typically the case. The 5' x 2' culvert is 120 ft in length and made of granite lintel beams on field stones. It was created in 1750 to drain an area for hay harvesting and worked on at various times and in the 1980's. The existing intake structure is constructed with a concrete drop inlet and a steel trash rack with wooden stop logs which are adjusted to control the level of Meadowbrook Pond.

Risks & Issues

- **Eutrophication:** Meadowbrook suffers from several long-term problems, including a recent bloom of surface plants, such as lilies whose root systems have decreased the depth of the pond to less than 1' in most locations. A large portion of the Pond will fill in throughout the summer months. The filling process is composed of several factors, including (a) the volume of plant matter deposited annually by trees and shrubs on the shoreline, (b) restricted water flow caused by surface plants resulting in additional silt deposition, and (c) the expanding root systems of various species of plants filling nearly all available underwater spaces. During the winter draw down period, the western end of the pond and along most of the shoreline resembles a moonscape as it is largely above water.

While the pond provides only a small fraction of the drinking water under normal conditions, the extra catchment capacity it provides assists in flood control operations during large storms, the spring thaw, and other extreme events. Loss of this extra capacity would place additional stress on the Tuxbury dam, as the water flow would be more difficult to control without the availability of Meadowbrook as a buffer space in which to store excess water. The western end of the pond is presently so shallow that significant overflow into adjacent properties (including Kimball Road) has occurred several times since 2008.

- **Aquatic Plants:** In mid-summer, up to 95% of both ends of the pond are completely covered by vegetation. Most of the vegetation joins to form large masses that appear throughout much of the pond. This renders navigation by kayak and other small boats difficult and impedes the operation of float planes from the adjacent private airport. Even sections of the deeper (3-5') eastern end are exhibiting similar characteristics, with patches of lilies and at least one newly emerged island of lily mats approximately 40'x40' in size. A small strip of unimpeded water flows across the middle-back area of the pond at its deepest. This is the only visible area of moving water in the entire waterbody during the summer months, the rest is occluded.

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- **Archbrook Culvert Structure:** The culvert is 250 years old. It needs significant repair and a critical hazard with flooding implications if not addressed. The capital plan has a cost for replacement of Archbrook Culvert. The cost for this repair was \$2.1 million as of a 2020 estimate and continues to increase annually as the structure deteriorates and needs additional work.

Plans and Recommendations

- There have been no measures to combat invasive species besides annual water draw-down so vegetation has flourished and spread. An aquatic plant inventory should be performed and then decisions made about what action should be taken. Even if Meadowbrook were allowed to become a wetland, non-native species will not support the wildlife that lives here.
- Recommendation is to educate residents not to fertilize within 100 ft of Meadowbrook Pond and beyond 100 ft test soil before applying phosphorus fertilizer. (MDAR 2012: An Act Relative to the Regulation of Plant Nutrients)
- Educate residents on ways to develop buffers on their properties to reduce storm water run-off and erosion.
- The eutrophication may be partly remediated without dredging standing water. During the winter draw-down, the western end of the pond is basically dry, so that during this period, heavy equipment could excavate several channels, perhaps 6' wide and 3-4' deep, to improve water flow from the Tuxbury inlet to the deeper eastern end of the pond. Such channels could increase flow rates, naturally removing additional silt and other material over time. This would help to restore the pond's capacity and allow it to retain its historical role in the Amesbury water supply.

Tuxbury Pond

Classification: Powow River outlet is Tuxbury Pond – Category 5⁶

Uses: Drinking water supply, fishing, light recreation (kayak and canoeing) and wildlife

Overview & History

Tuxbury Pond is a reservoir located along the South Hampton/New Hampshire line and east of Kimball Road. The reservoir and the river are the primary source of Amesbury's water supply. Tuxbury Pond impounds the Powow River, which flows to the treatment plant where water is drawn from the river on its way to Lake Gardner. Lake Attitash and Meadowbrook Pond feed the Powow River through Archbrook Culvert and supplement the city water source seasonally and in times of drought.

Geography & Access

Size: Length 2.1 miles, a max width of 0.5 miles, and a normal pool surface area of 91 acres. Normal pool surface elevation is 96.56 feet. The city can regulate the level down to 95.0 feet. Normal Pool storage capacity is 318 acre-ft; maximum is 500 acre-ft. Average depth is 2.5 feet. Drainage area for Tuxbury Pond is about 42 square miles and extends northwest of the dam through Merrimac, Massachusetts; and up into New Hampshire. The area is composed of 45% forest land and 47% sand and gravel deposits.

Location: Tuxbury Pond Dam is approximately 2.6 miles west of the Amesbury downtown. On the shore around the pond is primarily wooded but there are 31 residences. On the shore of the pond in New Hampshire is also the Tuxbury Pond RV Resort in South Hampton, a 70-acre facility with enough sites to support about a hundred RVs.

Access: The only public access to Tuxbury Pond in Amesbury is at a small park at the Tuxbury Pond Dam along Newton Road near the intersection with Kimball Road.

Structures

Stateline Dam: Stateline Dam is used to regulate flow and water levels between Meadowbrook Pond and Tuxbury Pond. The dam is a 35-foot-long embankment with a concrete

⁶ [Final Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle](#)

spillway near its center; its maximum structural height is about 6.5 feet. A 10.75-foot concrete control structure, located near the center of the structure, is comprised of a stoplog-regulated, 2 ft. diameter orifice leading to a 4.5-wide and a uncontrolled overflow weir. The round opening is 2-feet in diameter.

Tuxbury Pond Dam: The Tuxbury Pond Dam was originally built in 1929; spillway reconstructed in 2002. It is an earthen embankment dam 125 feet long. Its structural height is 10 feet; hydraulic height, 7 feet. Spillway way is 78.5 feet long with 11-bay gated overflow--8 weir gates, 2 stoplog bays, and 1 sluice gate. It is classified as an Intermediate size dam by the state, and its Hazard Classification is Significant (Class II).

Risks & Issues

- **Water Quality:** Because it is the main source of the city's water, the water that flows out of Tuxbury Pond is heavily tested at the water treatment plant to ensure that the treatment is appropriate, but there is no testing recorded on the Amesbury side of the pond. However, a stormwater EPA assessment done for the State of New Hampshire in 2007 found on the New Hampshire side of Tuxbury Pond that it is impaired for fish/shellfish consumption by atmospheric deposition of mercury. In addition, there are concerns about dissolved oxygen and pH levels. Tuxbury Pond is naturally heavy in iron and manganese.
- **Development:** The easterly edge of Tuxbury Pond is home to Tuxbury Pond RV Resort in South Hampton on Whitehall Rd. Plans to expand the 70-acre campground by 211 campsites were put on hold because of problems discovered in the campground's wastewater treatment systems and its pump house. The problems with the systems have since been addressed and should be monitored on an ongoing basis. While future expansion of the campground is still a possibility, the plans that went to the South Hampton Planning Board for expansion were withdrawn by the applicant.

Plans & Recommendations

- Determine whether the current level of testing for the water at the water treatment plant is sufficient to monitor the health of Tuxbury Pond.
- Coordinate with South Hampton and the New Hampshire Department of Environmental Services to monitor water quality and activity at the Tuxbury Pond Campground.
- Determine how important Tuxbury Pond's flood control, recreational, wildlife, and aesthetic values are and develop sufficient data to make decisions.

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- Recommendation is to educate residents not to fertilize within 100 ft of Tuxbury Pond and beyond 100 ft test soil before applying phosphorus fertilizer. (MDAR 2012: An Act Relative to the Regulation of Plant Nutrients)
 - Educate residents on ways to develop buffers on their properties to reduce storm water run-off and erosion.

Park Pond

Classification: unclassified

Uses: wildlife

Overview & History

Amesbury Improvement Association (AIA), in the early 1900's, bought and presented to Amesbury, a tract of land then known as Brown's Grove. Additional land was added to the tract of land that became Amesbury Town Park where the pond is located.

Geography & Access

Amesbury's Park Pond is located WSW of downtown near Amesbury High School. The park can be accessed via Friend Street and Highland.

Size: Park Pond consists of two ponds with an overflow spillway in the middle separating the first pond from the second, and a concrete spillway outlet structure west of Greenleaf Street. There is a 3' by 5' box culvert attached to the outlet structure that transports the flow below Greenleaf Street to the wetlands just upstream of Sparhawk Street. The Ponds together are approximately 500 feet in length and 120 feet wide along Greenleaf Street.

Location: At the east end of the Amesbury Town Park near the intersection of Greenleaf Street and Friend Street. South and elevated above the pond is a predominantly coniferous woods, which contains a disk golf course. One of the stations is close to the pond and frisbees and players sometimes end up in the pond.

Access: Amesbury Town Park has public parking along Friend Street and Highland. Address is 28 Highland St. Amesbury. Parking spaces are very limited, so expect a short hike from your car. Also, the park can become quite crowded during "peak hours," such as in the evenings during baseball season.

Structures

There are two structures at the park pond, a small bridge overpass and spillway approximately 150 feet from the far western shore of the pond and a supported embankment with concrete spillway outlet structure along Greenleaf Street. A stone wall barrier structure was erected over 100 feet from the pond to separate the playground equipment from the slope down to the pond.

Risks & Issues

- During warmer months waterfowl will make use of the pond and during summer months you can find residents feeding the ducks. Such feeding runs the risk of attracting more ducks than the pond can sustain and raising the production of aquatic plants and bacteria.
- Most human contact with the pond is to retrieve lost disks from the Amesbury Pines Disk Golf Course located along the southern shore of the pond.
- Runoff from residue on nearby roads and litter in the park itself are the primary environmental concerns impacting water quality. The pond is often covered with Duck Weed and/or cyanobacteria during the summer months as well, which is aesthetically unpleasant and dangerous for high traffic areas.

Plans & Recommendations

- A regular procedure for testing for cyanobacteria during the summer months should be established, and if appropriate, mitigation, such as a fountain for aeration, should be implemented.
- The city expects to perform maintenance and repairs on the upstream structures that direct water down to the pond including the drain feeding the pond. The Park Renovation Committee as part of the Amesbury Improvement Association has several ongoing projects and future considerations for Amesbury Town Park.
- Lakes and Waterways Commission should be a part of any discussion about changes in current design and use of the park as it relates to the pond on the property.

Clarks Pond

Classification: Unclassified, however the river on both sides of the pond are classified as Category 5⁷

Use: Wildlife, fishing

Overview & History

The pond is fed by the Back River from the north and the surrounding watershed and has existed in one form or another since 1828. The original dam was built to power a bark mill in the Clarks Tannery. The current dam was constructed in the 1950s to supply fresh water for the Merrimac Hat Company. A small dam maintains a fixed water surface and allows flow out to the remainder of the Back River, which eventually merges with the tidewater portion of the Powow River at the Lower Millyard.

Geography & Access

Location: Clarks Pond is located near downtown Amesbury, north of Elm Street, southeast of Cedar Street, and west of Congress Street. Several smaller residential streets surround it. Its watershed is approximately 6.6 square miles and extends 3.6 miles to the northwest with the upper half of the drainage area in New Hampshire. The Back River leading up to the pond is wooded, and there are no areas of dense development in the watershed. There are no other regulated dams in Clarks Pond's watershed in Massachusetts and no named water impoundments in New Hampshire.

Access: Public access to Clarks Pond is available at the ends of Cushing and Maplewood Avenues. In addition, there is public access to the dam across the lawn of The Lofts at Clarks Pond between the pavilion and the pond. The pond's immediate watershed is primarily comprised of private lots with single and multi-residential buildings.

Size: Currently the pond is about seven acres, but in 1945 a newspaper article described it as "an elongated pond of water Its overall area is nearly 20 acres." The siltation dis-

⁷ [Final Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle](#)

cussed under “Risks & Issues” has filled in some of what used to be pond, creating the islands and inlets and coves that splay the Back River as it flows into the pond. Normal pool is 97.5 feet± and the downstream channel is at 94.6 feet ±.

Structures

Clarks Pond Dam: It is an uncontrolled arched concrete weir composed of two 40-foot spillway sections radiating from a ten-foot cubic, low-level outlet structure, controlled by a bay of 73-inch-wide stop-logs. According to DCR standards, the Clarks Pond Dam is a small structure with Low (Class III) hazard potential. The latest evaluation of the dam recommends that it be considered non-jurisdictional and not subject to state inspection.

Risks & Issues

Invasive Aquatic Plants: Until recently, in July and August seventy-five percent of the pond was covered with invasive water chestnuts so abundant that the pond is impassible, and sunlight could not penetrate to the bottom. Although there are still fish (shiners, pickerel, bass, catfish, and sunfish) and wildlife (blue herons, green herons, great egrets, Canada geese, mallards, pin tails, wood ducks, mergansers, otters, muskrats, beavers, and an occasional osprey) living in and around the pond, the green algae and weeds in the summer are so thick that fish kills have occurred, and habitats are being destroyed.

Eutrophication: With extensive construction in Amesbury and in Southern New Hampshire, runoff has been highly detrimental. Silt has filled in the pond so that depth is irregular and very shallow in many places, encouraging the growth of invasive aquatic plants. The aquatic weed growth and silt build up are interrelated: the shallowness of the pond encourages excessive weed growth; excessive weed growth slows the flow and produces more nutrients to increase silt and muck.

Dam Repairs: According to the 2021 Department of Conservation and Recreation Office of Dam Safety Phase 1 Inspection Report completed by Pare Corporation, the dam is in Fair Condition and could use some repairs and studies. Missing stop logs in the outlet structure were replaced in 2019.

Flooding Potential: The Back River below the Clarks Pond Dam flows under R Street, Mill 77, and Elm Street. In an extreme weather event, flood water could cover Elm Street, cutting in a major artery in and out of the city.

Plans & Recommendations

Dredging: If the pond were dredged, however, both plants and fill would be reduced, and the eutrophication process reset. Dredging is a difficult, expensive, and traumatic activity,

as much a problem as a solution. To determine whether dredging is appropriate, and then, if so, to build a case for it, we will need a great deal of data that we do not have. The gathering of data to clarify the murky situation is essential. Though dredging the pond would be the ultimate solution, funding for that option will be challenging to raise.

Aquatic Plant Management: Residents around the pond and the Back River to Clinton Street formed in 2015 the Clarks Pond Watershed Association to monitor the state of the pond, maintain it, and seek out services and funding to reverse the pond's decline. Annual weed pulls have significantly reduced the impact of the water chestnuts (*trapa natans*). A census of aquatic plants is needed to determine how to manage the pond in its current condition.

Dam Repair and Redesign: We could leverage Clarks Pond's unique situation as Amesbury's only fresh-water body with access to the ocean to obtain funding for data gathering that might enable us to build a case for some dredging of the pond and repairs to the dam that might include a fish ladder designed to enable anadromous fish migration.

Studies & Documents

Clarks Pond Dam Phase I Inspection and Evaluation Report: Pare Corp. 8/23/2011

Clarks Pond Dam Phase I Inspection and Evaluation Report: Pare Corp. 9/10/2021

Pattens Pond

Classification: unclassified

Use: wildlife, aesthetics

Overview & History

Pattens Pond, located near downtown Amesbury on Main Street across from the Post Office, is a small pond that drains through outlet pipes down Noel Street into the Powow River. In 1930, the southwest shoreline of the pond was given to the Amesbury Improvement Association (AIA) as a bird reservation, and other surrounding owners have also given a 25-foot strip around the pond to the AIA. The pond is not typically used for recreational purposes, except for ice-skating during exceptionally cold winters.

Geography & Access

Size: Pattens Pond has about 3 acres of surface area.

Location: The pond is located across from the Post Office on Main Street. A section of the shoreline runs along Main Street, and the pond is surrounded by 22 private residences on Main Street, Mechanics Row, Carpenter Street, and Whittier Street.

Access: Public access to the pond is on Main Street. While there is no street parking on the pond side of the street, there is a sizable parking lot across the street shared by several businesses, and there are crosswalks near the Post Office.

Structures

There is a drainage inlet on the western side of the pond and a drain outlet structure on the southeast side of the pond that runs underground to eventually discharge into the Powow River. The water flows into Pattens Pond from Park Pond through a culvert that is below Sparhawk Street and outlets just upstream of the pond at Mechanics Row.

Risks & Issues

Aquatic Plants: The pond is often covered with Duck Weed during the summer months, which is aesthetically unpleasant for a high traffic area close to downtown Amesbury. Contaminants would likely stem from surface run off and siltation from surrounding properties.

Plans & Recommendations

- A regular procedure for testing for cyanobacteria during the summer months should be established, and if appropriate, mitigation, such as a fountain for aeration, should be implemented.
- If the aesthetic value is important, the city should survey the aquatic plants and determine what control options are available for the invasive plant species and implement the best options.
- Encourage the AIA, with the proper permitting, to manage the plantings around the pond to maintain bird habitat.

Bailey Pond

Classification: Category 3⁸

Uses: Wildlife, aesthetics

Overview & History

Bailey Pond was dammed around 1860 and a small mill was built for the Merrimac Hat Company. At its peak in the 1950s, the Merrimac Hat Company was the largest hat maker in the United States. Part of the hat manufacturing process used mercury nitrate, and vapors from the process were likely vented and deposited in and around Bailey Pond, leading to the high levels of mercury still detectable around the pond.

After many years of proposed development for the area surrounding Bailey Pond, work began in 2018 on the Village at Bailey's Pond, a residential development of 100 units in 38 buildings. The buildings are required to be 50 feet from the pond.

Bailey Pond is privately owned.

Geography & Access

Size: Bailey Pond is approximately 13 acres in size.

Location: Bailey Pond is situated above Hatter's Point on the Merrimac River at about 30 feet of elevation. The pond is fed by a stream to the northwest that drains the Great Swamp in the Amesbury Town Forest. The area surrounding the pond is enclosed by Summit Avenue to the northwest, Swett's Hill to the northeast, Merrimac Street and Beacon Street to the southeast, and Pond View Avenue (Rt. 150) to the southwest. Bailey Pond is bordered by a small, forested parcel on the northeastern side, by older residential lots and the Hatter's Point Marina parking lot on the southeastern side, and by the new development on the western side.

⁸ [Final Massachusetts Integrated List of Waters for the Clean Water Act 2018/2020 Reporting Cycle](#)

Access: The City of Amesbury has an access easement through the parking lot of the Hatter's Point Marina on Merrimac Street, as well as the right to use several spaces in the parking lot. There will also be walking trails along the lakeshore in the Village at Bailey's Pond, outside of a 25-foot buffer zone.

Structures

The current Bailey Pond dam, privately owned, was constructed in 1912 and is a 180-foot-long earth embankment with concrete walls forming a portion of the upstream face of the dam and the approach channel to the spillway. The height of the dam is 15 feet, which is the height of the inlet chamber below the spillway. The inlet chamber leads to a conduit that discharges water into the Merrimack River. An Army Corps of Engineers report from a 1979 inspection assessed the dam and spillway to be in fair condition.

Risks & Issues

Mercury Contamination: The pond suffers from mercury contamination, but the mercury is located at the bottom of the pond and does not pose a problem unless disturbed. Mercury and other contaminants in the surrounding soils could become problematic if disturbed during construction.

Dam Condition: The current condition of the dam and outlet piping has become a concern and the DCR Office of Dam Safety has issued an Order to Repair to the reported property owner. The ownership of the dam and the outlet piping were in question since the original Hat Factory Development Project in the late 90's early 2000's. Recently the issue has been settled and the City does not own the dam. The condition of the dam sometimes causes road flooding.

Plans & Recommendations

Monitor the dam reconstruction to ensure the protection of the surrounding roadways.