Waterbody Assessment

A comprehensive 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 Amesbury to track the conditions of the numerous lakes and ponds in our city. The Amesbury Lakes and Waterways Commission is developing it with support from the Amesbury Department of Public Works, Lake Attitash Association and Lake Gardner Improvement Association.

Purposes

1. To be a comprehensive resource about the city's water-bodies. Anyone looking for information about a water-body should be able to find that information within this document. This includes geography, history, uses, current and past concerns, grants and other informational documents.
2. To identify the primary use to the city of each body of water-body and determine if they are meeting this best use criteria.
3. To identify threats to each water-body, including the status of invasive aquatic species within each water-body. Additionally, to consider storm water management as it relates to each water-body. (Develop recommendations for each.)
4. Help determine the water quality for swimming in Lake Attitash and Lake Gardner
5. Recommend locations for storm drain improvements, zones to ban the use of fertilizer and develop watershed boundaries.

In total, 10 water-bodies were researched and assessed. Eight significant water control structures were identified within these bodies and they are listed within each section.

Invasive plants threaten the majority of the town's major lakes and ponds.

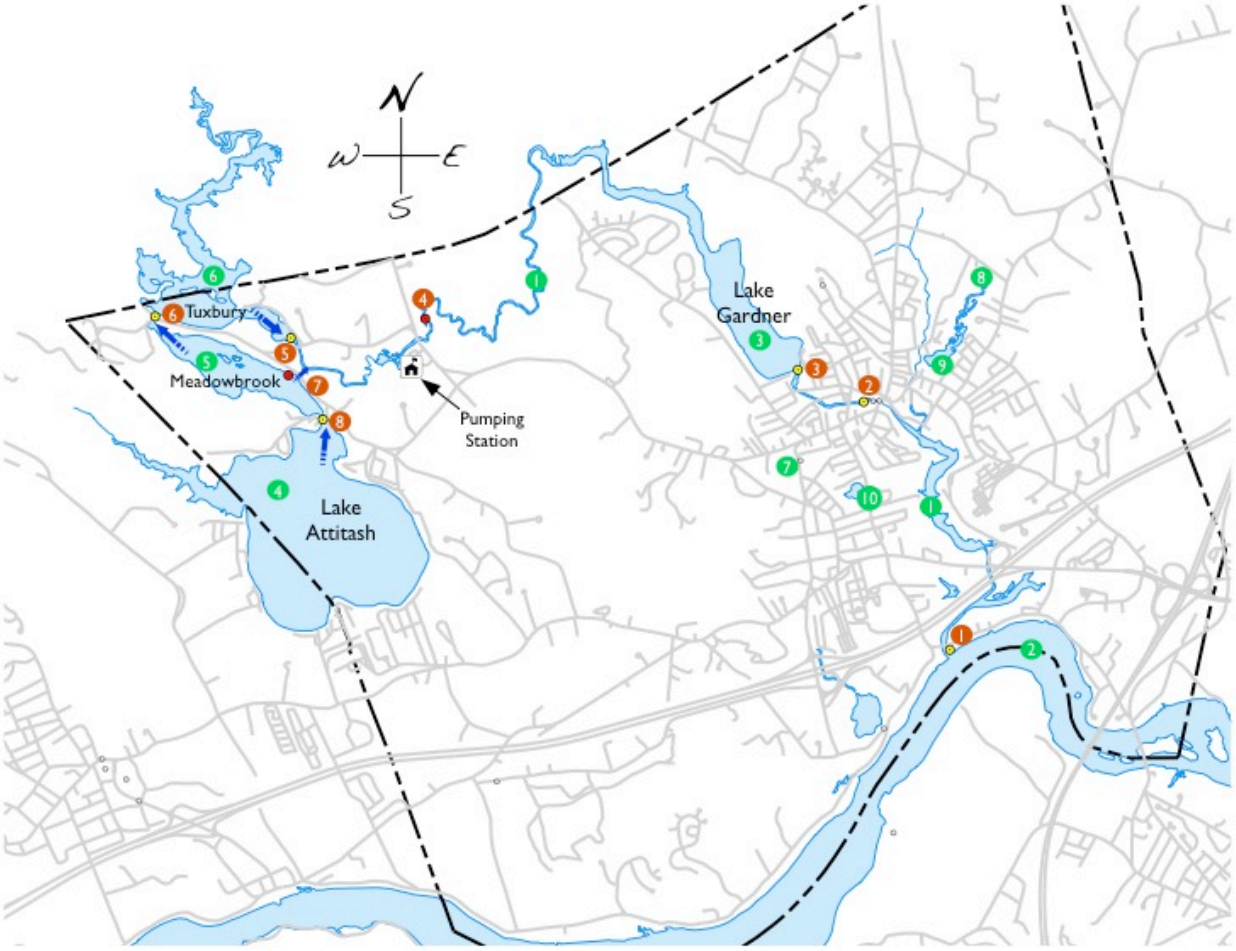
Map

Water Bodies

1. Powow River
2. Merrimack River
3. Lake Gardner
4. Lake Attitash
5. Meadowbrook
6. Tuxbury Pond
7. Park Pond
8. Back River
9. Clarks Pond
10. Pattens Pond

Structures

1. The Mouth of the Powow
2. The Millyard Crib Dam
3. Lake Gardner Dam
4. The Weir
5. Tuxbury Pond Dam
6. Stateline Dam
7. Archbrook Culvert
8. Birches Dam



Lake Gardner

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Phone:

Overview & History

Lake Gardner is a long, narrow lake formed by a dam on the Powow River. It stretches from Amesbury center to the New Hampshire border. The lake has a rich and interesting history, and is currently used for passive recreation.

Geography & Access

Size: The lake surface area is approximately 80 acres.

Location: Lake Gardner is in central Amesbury. Homes line its western shore, and a sandy public swimming beach and major dam is 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, and various points throughout the Powow River Conservation Area.

Studies & Documents

June 2011
Lake Gardner Bacteriological Study

Ongoing
E. Coli tests at Lake Gardner beach and Glen Devin from Memorial Day through Labor Day

Level of Concern

Least Concern

✓ Threatened

Critical

Structures

Lake Gardner Dam: The dam was constructed in 1860 and rebuilt in 1920's. It was rebuilt again in 1987 when two former powerhouse buildings were starting to coming down. In 1993, the powerhouse buildings were taken down and replaced with a retaining wall.

The lake level was drawn down from 1996-2011 for the project to build the stability berm. The current dam is reinforced concrete. The granite blocks are a facade. A "skilling pool?" below the dam is 2 ft. deep and its purpose is to act like buffer, slowing the water to prevent scour on the concrete structure. The structure of the dam is built on 8 anchors that go 65 ft to bedrock.

Risks & Issues

The lake faces several issues including:

- Invasive aquatic plants
- Beach erosion

The lake is sometimes lowered to prepare for incoming storms. Sluice gates allow DPW to wait until storm hits to adjust gates. However, the lake itself is not even close to large enough to attenuate storms. Lake can fill to end of row of trees before flooding over.

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.)

Elevation changes from 86 ft at dam to 10 ft at DPW garage in Lower Millyard.

Future Plans & Recommendations

Summary recommendations for Bacteriological Study

Other Notes

The Lake Gardner Improvement Association exists to promote the well-being of the Lake.

Meadowbrook

Assignment: Ken Aspeslagh
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Phone:

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.

Studies & Documents

Level of Concern

- Least Concern
- ✓ Threatened
- Critical

Geography & Access

Size: 100 acres

Location: Meadowbrook is in the Northwest corner of town. It is west of Kimball Road and at the state line, adjoining S. Hampton, NH.

Access: There is no public beach. Archbrook culvert is accessible from an access road off of Kimball Rd.

Structures

Archbrook Culvert: The main outlet of Lake Attitash and Meadowbrook, Archbrook is a culvert that allows water from Meadowbrook to flow directly into the Powow River under Kimball Rd. Water could flow through Tuxbury Pond but that's higher.

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 culvert looks like a metal grate over a hole in the ground with wooden stop-locks which can be adjusted to control the level of Meadowbrook Pond.

Risks & Issues

Meadowbrook suffers from a number of 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 many locations. This end of the pond is also filling in, with new islands mainly composed of matted lily roots and silt appearing randomly every year. 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, this end of the pond resembles a moonscape as it is largely above water.

In mid-summer, up to 95% of the western end of the pond is covered by vegetation. 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.

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.

This pond also represents a component of the water system's backup supply. While its capacity is largely unneeded during periods of normal weather activity, it could be important during periods of extended drought.

Future Plans & Recommendations

Water dredging may not be necessary. Since the western end of the pond is basically dry during the winter draw-down, it would be relatively easy to move heavy equipment across this area in order to excavate several channels perhaps 6' wide and 3-4' deep in order to improve water flow from the Tuxbury inlet to the deeper eastern end of the pond. It is believed such channels would increase flow rates significantly, resulting in natural removal of 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.

The capital plan has a cost for replacement of Archbrook Culvert.

Other Notes

Clarks Pond

Assignment: Jay Knapp
E-Mail:
Phone:

Overview & History

The pond is fed by Back River from the north and the surrounding watershed. A small dam maintains a fixed water surface and allows flow out to the remainder of the Back River, which eventually merges with the Powow River.

Geography & Access

Location: Clarks Pond is located near downtown Amesbury, north of Elm Street and west of Congress Street. Several smaller residential streets surround it.

Access: There is no public access available to Clarks Pond. Although, there is a multi-residential complex off of Cedar Street with a parking lot adjacent to the pond's dam. The pond's watershed is mostly comprised of private lots with single and multi-residential buildings.

Size: ?

Structures

Clark's Pond Dam

Studies & Documents

Level of Concern

Least Concern

✓ Threatened

Critical

Risks & Issues

Clark's Pond has been transformed over the last sixty years. The dam built in the 1950's and approved by the abutters, appeared as highly beneficial to the Merrimac Hat Shop, residents and visitors. In the 1980's, the Pond was thriving with fish and wildlife and used for recreation (boating, fishing and swimming). The MA State Fisheries was even interested in installing a fish ladder at the dam so they could get sea run trout.

With extensive construction in Amesbury and in Southern New Hampshire runoff has been highly detrimental. Silt has filled in the pond. The weeds are so abundant a canoe cannot even be used. Although there is still a significant amount of fish (shiners, pickerel, bass, catfish and sunfish) and wildlife (blue heron, white egrets, Canadian geese, mallard pin tail otter, ospreys, muskrats and beavers) the green algae and weeds in the summer are so thick that fish kills are common and habitats are being destroyed. The pond is now infrequently used for recreational purposes.

Future Plans & Recommendations

Reckless construction that ignored the environment downstream of the construction sites has greatly contributed to the demise of the Pond. At this point, the only solution is to stop the continuing inflow of sediment during heavy rains and dredge the lake. Once this is done, enabling public access would allow Amesbury residents to enjoy the lake once again.

Other Notes

Possible run-off from Grape Hill Gravel pit in Salisbury.

Lake Attitash

Assignment: Alexander Pooler
E-Mail:
Phone:

Overview & History

Lake Attitash is located 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).

Old maps label the lake as Kimball's Pond.

It is normally safe for swimming. Boats are allowed on the lake. This shallow, 360-acre (1.5 km2) enlarged natural great pond has a maximum depth of 30 feet (9.1 m) and an average depth of 11 feet (3.4 m). The shoreline is extensively developed; roads and cottages, two or three rows deep in places, virtually ring the entire lake, as well as a summer boys' camp, and at least two boat docks. There are literally hundreds of boats of all types and sizes on the lake.

Studies & Documents

Level of Concern

Least Concern

✓ Threatened

Critical

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:

Access: 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. The parking lot can accommodate nearly two dozen vehicles. A semi-public beach and boat launch is off of Lake Shore Drive, but membership is required and is limited to deeded homes on Lake Shore Drive, 1st-4th streets, Cross Street and some of Old Country Road.

Risks & Issues

Cyanobacteria (Blue-Green Algae): Lake Attitash has had a number of recent issues with Cyanobacteria. Blue-green algae blooms occur when algae that are normally present grow exuberantly. Within a few days, a bloom can cause clear water to become cloudy. The blooms usually float to the surface and can be many inches thick, especially near the shoreline. Cyanobacteria blooms can form in warm, slow-moving waters that are rich in nutrients caused by fertilizer, pet waste, and compost and pesticide runoff. Blooms can occur at any time, but most often occur in late summer or early fall.

This Birches Dam: The dam is also a bridge, so if the dam was to flood, there is no other way out for the Birchmeadow Rd. neighborhood.

Milfoil: Milfoil has aggressively invaded the lake. As of 2011 nearly one hundred acres was infested with milfoil. Concern was a significant impact to be able to continue boating, fishing and swimming. An herbicide, flouridone, was has been used to control the problem, results are still pending.

Structures

Archbrook: Archbrook culvert connects Meadowbrook to Powow River. The culvert is 5' x 2' and is 120 ft. in length and made of granite lintel beams on field stones.

Birches Dam: Birches Dam is the outlet of Lake Attitash. The dam dates back 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 96.7 ft.

Future Plans & Recommendations

Increase involvement from the Lake Attitash Association with the Lakes and Waterways commission would be of a great help to both organizations. Continue education of residents along the lake to limit fertilizer run off in to the lake during the spring is key for controlling both the cyanobacteria and milfoil as well as controlling animal waste from entering the lake. May need to monitor the impact boating has had on the lake and increase speed restricting along the shoreline to reduce the impact from the wake created by the boats.

Other Notes

Tuxbury Pond

Assignment: Unassigned
E-Mail:
Phone:

Overview & History

Tuxbury Pond is a reservoir located along the South Hampton/New Hampshire line near Kimball Road. The reservoir is the primary source of Amesbury's water supply. Tuxbury Pond feeds the Powow River on its way to Lake Gardner, which the treatment plant draws from. Lake Attitash and Meadowbrook Pond feed Tuxbury Pond and supplement the city water source seasonally and in times of drought.

Geography & Access

Size: Tuxbury Pond has a length 2.1 miles, a max width of 0.5 miles, and a surface area 119 acres. Surface elevation is 95 feet.

Location: Tuxbury Pond is in the northwest corner of Amesbury along the state line with South Hampton, NH.

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

Studies & Documents

Level of Concern

Least Concern

✓ Threatened

Critical

Structures

Stateline Dam: Stateline Dam is a dam between Meadowbrook Pond and Tuxbury Pond.

Tuxbury Pond Dam: Tuxbury Pond Dam, built in 2002, holds back Tuxbury Pond at 100 ft. The Channel is 10 ft deep. Gates and stop-lock bays can be opened for flood control.

Risks & Issues

Water Quality:

No found documents on water quality on the Amesbury side of Tuxbury Pond, however a storm water EPA assessment done for the State of New Hampshire in 2007 found the following issues on the New Hampshire side of Tuxbury Pond:

Pond is impaired for fish/shellfish consumption by atmospheric deposition of mercury.

Also listed concerns about dissolved oxygen and pH levels.
http://www.epa.gov/region1/npdes/stormwater/nh/305bMaps/SouthHampton_NH.pdf
http://iaspub.epa.gov/tmdl_waters10/attains_waterbody.control?p_list_id=NHLAK700061403-10&p_cycle=2006

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 system and its pump house. The wastewater division of the New Hampshire Department of Environmental Services (DES) found that the campground had overflowing septic tanks, septic systems not built in accordance with what DES showed on file, a pump house showing evidence of animal infestation, and evidence of raw sewage from the campground's septic system escaping into the pond. DES also found that alarms at several septic tank sites meant to give warning of an impending sewage overflow had been intentionally shut off, prompting the organization to take an active role in forcing the campground management into compliance to safeguard public health.

Tuxbury Pond is a naturally heavy in iron and manganese.

Future Plans & Recommendations

Considering that Tuxbury Pond is the main source of fresh water for the city of Amesbury, vigorous testing of water quality near the New Hampshire line must be maintained. We need to work with South Hampton and the New Hampshire Department of Environmental Services to monitor water quality at the Tuxbury Pond Campground.

Other Notes

Park Pond

Assignment: Unassigned
E-Mail:
Phone:

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

Size: Approximately 500 feet in length and 120 wide along Greenleaf Street.

Location: Amesbury Town Park near intersection of Greenleaf Street and Friend Street.

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.

Studies & Documents

Level of Concern

Least Concern

✓ Threatened

Critical

Structures

Small overpass approximately 150 feet from the far western shore of the pond and a supported embankment along Greenleaf Street. Future plans call for barrier structures to be erected between the pond and the playground though there is no indication that these barriers will impact the pond.

Risks & Issues

During warmer months waterfowl will make use of the pond and during summer months you can find local residents feeding the ducks. 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 biggest environmental concerns impacting the ducks and posing a risk to humans who enter the pond water to retrieve disk.

The lake faces several issues including: Changing use of Amesbury Town Park could increase number of people using the park. Increase in human impact on the park will have a spill over impact on the health of the pond. Since no residents of the city live

along the shore of the pond the only stake holders who would have a vested interest are those responsible for maintaining the park, working on renovation of the park such as the Park Renovation Committee, and those who frequently use the park.

Future Plans & Recommendations

Park Renovation Committee as part of the Amesbury Improvement Association has a number of 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.

Other Notes

Pattens Pond

Assignment: Unassigned
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Overview & History

Pattens Pond, located near downtown Amesbury off of Main Street, is a small pond that drains into the Powow River. In 1930, the southwest shoreline of the pond was given to the Amesbury Improvement Association as a bird reservation, and other surrounding owners have also given a 25 foot strip around 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. Other surrounding streets include Mechanic 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 sizeable parking lot across the street shared by several businesses, and there are crosswalks near the Post Office.

Structures

There is a drainage structure on the western side of the pond.

Risks & Issues

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. There is a drain outlet on the southeast side that eventually discharges into the Powow River, so if there are any contaminants in the pond, they could drain into the river. Contaminants would likely stem from surface run off and siltation from surrounding properties.

Future Plans & Recommendations

Other Notes

Studies & Documents

Level of Concern

Least Concern

✓ Threatened

Critical

Powow River

Assignment: Alex Pooler
E-Mail:
Phone:

Overview & History

The Powow River is a major tributary of the Merrimack River that enters Amesbury from South Hampton, NH. The river flows through Amesbury via a number of ponds 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. The City of Amesbury has focused on the area along the Powow for downtown redevelopment and future plans for the lower portion.

Studies & Documents

Level of Concern

Least Concern

✓ Threatened

Critical

Geography & Access

Size: 23 miles from its source in New Hampshire to its end at the Merrimack River at Alliance Park. The river flows 0.6 miles from Lake Gardner to the final waterfall below Main Street and runs another 1.5 miles through its tidal phase from the Lower Millyard to the Merrimack River.

Location: The Powow River enters the northern edge of Amesbury at Tuxbury Pond and meanders past the water treatment plant near Woodsom Farm, to Lake Gardner and through the heart of Amesbury past Main Street and on to the Lower Millyard between Elm Street and Main Street and empties in to the Merrimack River at Alliance Park on Main Street.

Through the tidal portion, the river is flanked on its north and northeastern bank by a number of homes, the Riverwalk Apartment complex, and the Amesbury Riverwalk rail-trail from the Lower Millyard to Carriagetown Marketplace. On the opposite shore a number of 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. Portion of 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 Weir:

The weir is a 140 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 level at a minimum height for the treatment plant.

The current weir was constructed in 1976 as an emergency project. It was re- constructed 14" higher, causing flooding for local residents leading to a long costly lawsuit, which the town settled.

Risks & Issues

Water Quality:

The Powow River below Lake Gardner flows through the old industrial heart of the city. Water quality is not monitored through the Millyard or below the Lower Millyard. At low tide, a great amount of debris is visible in the river mud flats. Along the northeastern shore line old vestiges of the city's industrial past can be found right along the shore Increase in weed growth - some of the shallower areas are almost impassable on the New Hampshire side of the river. This is a known issues in several bodies of water in Amesbury fed by the Powow River.

Amesbury Warf at 31 Water Street in the Lower Millyard along the northeastern shore of the Powow River is a EPA designated Brownfields site.

Structures:

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 also high water.

If one of the buildings that the river flows under were to collapse, it could block the river. Not much is holding up those buildings.

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.

It is still the subject of lawsuits that are unresolved. The weir could be moved, but wetlands would be altered which is difficult legally and puts the town in legal jeopardy.

The weir is low risk, but critical for water supply. Sheeting could be stockpiled and replaced in an emergency.

Future Plans & Recommendations

The proposed plan for the weir is to build another weir in front of it and fill the void with concrete to create a concrete structure.

A new canoe and kayak launch is in the works for the Lower Millyard. It is recommended that the city begin to monitor water quality in the lower Powow River.

With the impending move of the DPW out of the Lower Millyard, major redevelopment of the northeastern shore of the lower Powow River has been proposed. It is recommended that a concerted effort be made to clean the tidal basin of large debris to make future redevelopment more attractive to prospective investors and tenants.

Other Notes

Merrimack River

Assignment: Alexander Pooler
E-Mail:
Phone:

Studies & Documents

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 at 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 covers about 4,700 square miles and drains a great deal of the southern part of New Hampshire and part of northeastern Massachusetts.

Level of Concern

- ✓ Least Concern
- Threatened
- Critical

The river is part of the National Wild and Scenic Rivers Systems as set by the National Park Service.

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 Winnipesaukee 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.

Location: In Amesbury, it is located along Main Street, Merrimack Street and Pleasant Valley Road.

Access: Accessed via number of privately owned docks and boat slips along the Amesbury shore. Public boat access is next to Larry's Marina on Merrimack Street. The majority 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 Core 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

The Merrimack River between Amesbury and Newburyport is on the 303(d) list for pathogens. The MA Division of Marine Fisheries has monitored the kk River estuary for several years to assess the health of shellfish areas and recommend and monitor closures. The only parameter that DMF monitors is fecal coliform bacteria in both the water column and shellfish.

In 1999, sampling by DMF showed acceptable bacteria levels on most days. (MA DMF Merrimack River Data). There were violations on a few occasions with the highest reading of 2500 colonies/ml. Compared to DMF data from 1980 when bacteria levels were more frequently in the thousands, there has been an overall improvement in the Merrimack River estuary. However, the data must be interpreted with some caution as sampling took place only two months of the year during the late winter with an average of 4-6 collection days. Furthermore, on the sampling days when shellfish tissue was also evaluated for bacteria, levels were always higher in shellfish than in water. So, while the estuary meets standards for primary and secondary contact recreation, current bacteria levels still adversely affect the shellfish population.

Haverhill, Lawrence and other Merrimack cities suffer from Combined Sewer Overflow, polluting the downstream Merrimac during weather events.

The Merrimack River presents erosion problems during floods. Pleasant Valley Rd. land being private makes it hard to repair erosion on the shoreline.

Future Plans & Recommendations

Watershed or groundwater protection district by-laws have been instituted in Amesbury to protect the Back and Powow sub-watersheds that flow in to the Merrimack. However, Amesbury must work with all communities along the Merrimack on how they use the river in order to protect the health of the river.

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 snow melt overwhelm local waterways.

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 be at risk during a flood. All residents along the shore need to be updated to any changes to the flood plain map.

The town is pursuing a grant with federal highway to try to protect roads affected by erosion. A problem on River Rd. in Merrimac, MA resulted in the road being abandoned.

Other Notes