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Taking Care of Hammond Pond

By Jennifer Steel, Senior Environmental Planner for the City of Newton

We often think of a pond as, well, a pond – a lovely expanse of water nestled in the landscape. But ponds, like all ecological resources are integrally connected to much larger upland and wetland systems. Hammond Pond, a shallow 22-acre freshwater kettle pond in Chestnut Hill, is no exception. A large wetland system to the north drains to the pond. A piped outlet flows southward to Sawmill Brook and eventually to the Charles River. Hammond Pond, like all ponds here in Massachusetts, is undergoing a slow natural succession. It is progressing from its “birth” from a buried block of glacial

ice through its “youth” as a deep clear water pond, through its “middle age” as a vegetation-rimmed pond, to its “old age” as a shallow marsh, to its ultimate metamorphosis into a wet meadow and woodland.

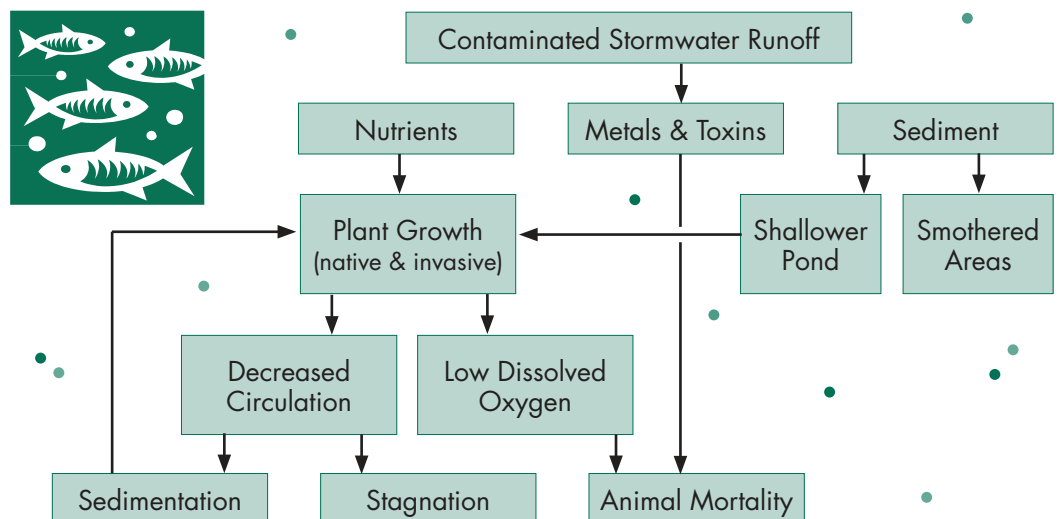
We, the pond’s neighbors, have had a real effect on that natural progression. We have exacerbated and accelerated many of the natural processes. The watershed to Hammond Pond is approximately 167 acres in Brookline and Newton. The pond receives 71% of all of its water from stormwater. Roughly 30% of the watershed is covered in impervious surfaces (rooftops and pavement); most of that is commercial space;



PHOTO: DAN BRODY

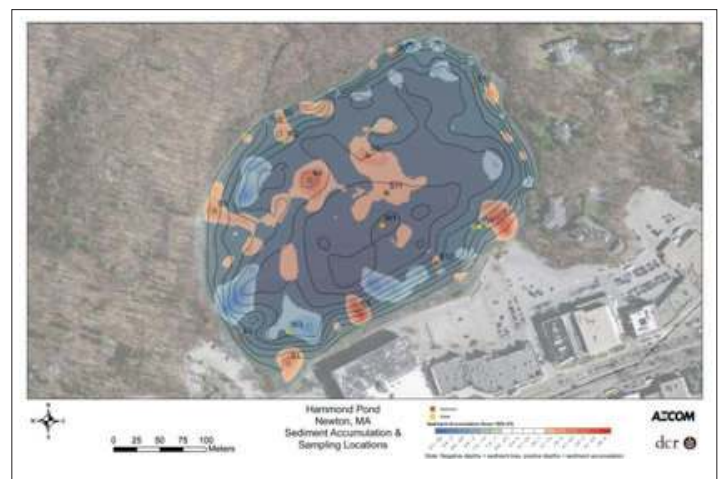
Hammond Pond

The Chain and Cycle of Ecological Problems





Recent Aerial of Hammond Pond Showing Aquatic Weed Cover



Sediment Loss (blue) and Accumulation (red) Since 1954

but from that 30% area, came approximately 55% of the total phosphorus, 51% of the total nitrogen, and 85% of the total suspended solids introduced into Hammond Pond each year.

Because of these land alterations and intensive uses, Hammond Pond has been plagued with several **ecological** health issues over the years. These ecological health issues, of course, first and foremost adversely affect the flora and fauna of the area. They also affect **people's use and appreciation** of the pond. Some people complain about reduced opportunities for fishing and boating because of weed growth. Some are bothered by the sight of dense mats of floating vegetation or the smell of dying vegetation. Some are concerned about sediment filling in the pond.

Ecological processes tend to act as chain reactions and cycles, and Hammond Pond is no exception. Indeed, as a shallow kettle pond, it is particularly susceptible to such chain reactions and cycles.

Not surprisingly, human interests and ecological interests are not always aligned. Aquatic macrophytes can preclude fishers from enjoying their pastime... but they make great habitat for many fish. Feeding geese can bring great pleasure to pond-goers ... but the geese suffer ill-health from bread products and greatly exacerbate the nutrient load in the pond. Mute swans are beautiful creatures, regal in their white plumage and stately demeanor ... but they are aggressive exotic invaders that keep native waterfowl at bay. Sediment deposition changes the nature of ponds ... but ponds naturally evolve along with the native flora and fauna that inhabit them.

So, what should be done, from an ecological perspective?

1. We must continue to undertake efforts to **combat the causative problems**, i.e., we must slow the human-exacerbated rate of sedimentation, eutrophication, and non-native species invasions.

2. We should undertake efforts to **combat the resulting ecological problems** in the chain reaction of effects, i.e., we should do what we can to restore the ecological health (and recreational potential) of the pond in cost-effective, ecologically safe ways.

3. We should be wary of intensive and disruptive management schemes. [Note: Sedimentation is not, in and of itself, an ecological problem for the creatures of the pond (except for those bottom-dwellers smothered by direct deposits of sediment, and the stormwater treatments already installed should stop that). Therefore, dredging is not currently called for. The *Comprehensive Plan for the Management of Morse's Pond in Wellesley* states: "Dredging – removal of sediment would remove plants and their root systems, seed beds and accumulated sediment, effectively setting the pond back in time, but at great cost and with limited control over later regrowth, which is likely to be substantial and could involve undesirable invasive species without continued management by other techniques." Note that the "great costs" are both fiscal (millions of dollars) and environmental (the ecosystem is obliterated in the course of dredging).]

Much has been done recently to address the causative problems. Horsley Witten developed a Stormwater Management Master Plan that identified a series of watershed improvements to address the quality of the stormwater that reaches the pond (the "first flush" of which tends to be the most polluted). These recommendations have all been, or will shortly be, completed.

- **Address Route 9 Storm drain** – a system of stormwater chambers was installed
- **Address storm drain from roof of the upper mall and Hammond Pond Parkway** – a stormwater treatment unit will be installed in the summer of 2014
- **Address sheet runoff from Chestnut Hill Shopping Center Parking lots** – systems of sand filters and rain gardens were installed

- **Enhance public education with particular emphasis on geese deterrents** – a campaign of signs and brochures was conducted

Additional studies could be undertaken on potential causative problems associated with the man-made alterations to the flow regime such as the dam on Hammond Brook (should it be removed?) and the flashboards on the outfall pipe (should they be raised?).

Future in-pond improvement projects could address the secondary ecological problem of excessive plant

growth. Weed harvesting and chemical treatments are the most commonly accepted approaches to dealing with nuisance aquatic vegetation. Together they can restore open-water habitat, remove biomass (and so mitigate low dissolved oxygen conditions), and limit the potential for regrowth. Along with the stormwater treatments already in place, weed harvesting and chemical treatments can effectively improve pond health, with limited disruption to associated ecosystems and habitats. Many ponds are successfully treated with this multi-pronged type of approach. With such careful management, Hammond Pond, too, will continue on the slow road to recovery. ■

Jennifer Steel, Senior Environmental Planner



Jennifer Steel is the Senior Environmental Planner in Newton's Planning Department, where she works to implement the state Wetlands Protection Act permit program, to manage conservation land and other open space in Newton, and to educate and to engage the public in issue of natural resource protection. She took over that position last September, and

if you haven't had a chance to meet her yet, we'd like to introduce her to you.

After graduating from Wesleyan University in Environmental Science, Jennifer Steel began her professional career as a teacher. She got a Master's Degree from Duke University in

Environmental Policy and began working in large, regional coastal research and management programs with the Environmental Protection Agency and the National Oceanic and Atmospheric Administration.

After four years, Jennifer left federal government to take a position as Interim Conservation Agent in her hometown of Wayland. There, where the regulation and education about natural resources and the implementation of laws to protect them converge, she found her niche.

For five years she worked for Mass Audubon's Advocacy Department, then returned to local Conservation work, serving the towns of Maynard, Framingham, Andover, and Uxbridge.

She lives with her husband and two sons in Wayland. ■

MISSION

Newton Conservators, Inc.

The Newton Conservators promotes the protection and preservation of natural areas, including parks, playgrounds, forests and streams, which are open or may be converted to open space for the enjoyment and benefit of the people of Newton. It further aims to disseminate information about these and other environmental matters.

A primary goal is to foster the acquisition of land, buildings and other facilities to be used for the encouragement of scientific, educational, recreational, literary and other public pursuits that will promote good citizenship and the general welfare of the people of our community.

The Newton Conservators was formed as a not-for-profit organization 53 years ago in June 1961.

The Newton Conservators Newsletter® is published four times each year by the Newton Conservators, Inc., in June, September, December, and March. Deadlines for these issues are the first Friday of each month in which an issue is scheduled to be published.

We welcome material related to our mission from any source. Send proposed articles or letters by email in MS Word or rich text format to bethwilkinson@mac.com. Digitized photographs, maps and diagrams are also welcome.

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