

North Hampton's Little River Continues to Deteriorate at Accelerated levels

Over the last three decades, the Little River in North Hampton has undergone a number of contamination incidents that, over time has led to the continued deterioration of one of the region's most significant and historic water resources. The DES classifies the Little River as an "impaired water resource" and steps were taken over the years to remediate the continued deterioration of the river. Nonetheless, the lack of enforcement, shortages of manpower resources and continued urban development of areas bordering the river have contributed to its poor water quality. Moreover, the Little River watershed wetlands have served to protect groundwater through natural soils filtration of contaminants, but continued encroachment of these important wetlands may be contributing to the contamination of groundwater and their concomitant drinking water well supplies. The chief causes of the pollution of the river continue to be increasing surface water runoff from impervious surfaces such as roofs, driveways and other paved areas and septic systems failures. This did not all happen overnight; rather it escalated over decades of neglect.

Early Testing of Water Quality: The Coakley Landfill Contamination of Drinking Water and the Little River headwaters

Contamination in the Little River was first highlighted in 1986, subsequent to the closure of the Coakley Landfill, bordering Rye and Greenland along Route 1 at Breakfast Hill Road. The Coakley landfill was declared a superfund site by the USEPA and water quality testing was conducted as part of the closure process. In a letter dated January 23, 1986, from State Water Supply and Pollution Control Commission to the Town Board of Selectmen, the Commission indicated that "substantial groundwater recharge was occurring at the south and southwestern portions of the Coakley Landfill as well as the overland flow of landfill leachate to the headwaters and tributaries of the Little River. The Commission detected low levels of 1,1 dichloroethane in a well on Birch Road. It added that "1,1 dichloroethane is the predominant contaminant found in the overburden water supply in wells in North Hampton, most of which were found on the west side of Route 1 off North Road. The Commission concluded that "This fact, combined with the contamination found in the groundwater, surface waters and the Little River tributaries near the Birch Road area, leads us to conclude that Birch Road is a high risk area for contamination of private water supply wells." While levels of dichloroethane appear to have diminished, continued contamination of the Little River headwaters is manifesting itself from septic system failures with increasing levels of e-coli bacteria.

Septic System problems in the 1990's

The following was excerpted from internal Conservation Commission records dated September, 1999.

“The Little River provides the drainage for a significant portion of the central part of the Town and the North Brook, with its headwaters southwest of the former Coakley Landfill, then draining in a generally southeasterly direction into the Little River Marsh.

Mill Pond, dammed in the late 1600’s by the residents of Hampton for a grain mill, was, by the late 1970’s commencing to show the results of the landfill operations upstream, particularly along Route 1. The water was turning brackish; the flow was slowing; the fish (the State used to stock the Pond each spring) were disappearing; the annual visitation of Canada Geese had stopped; the trees along its banks were slowly dying; algae was becoming more prevalent and was invading further into the center of the Pond. But most significantly, there was the constant odor emanating from it from spring until late summer. A study conducted in 1995 by the UNH Natural Resources Senior Project confirmed the continuing degradation of this water body.

In 1988, the Pond appeared to be in the worst condition ever. The Building Inspector was contacted and he referred the matter to the Department of Environmental Services (DES) in Concord for assistance. The DES decided that it was imperative that water quality testing be started, which was conducted in April and May of 1988.

Part of the contamination was discovered in a pond near the corner of Atlantic Ave and Route 1, just north of the Irving gas facility. The pond is drained by a ditch that flows westerly into a culvert on the south boundary of the shopping center on the southeast corner of Route 1 and Atlantic Ave.; thence underground through a storm water system in the center’s parking area; under Atlantic Ave. under the southwest corner of the Irving Station, then to the Route 1 right-of-way to a culvert that opens in the swale north of Irving; under Glendale, under the property now occupied by the North Hampton Animal Hospital, then into an open ditch which empties into the Hobbs marsh. This marsh is a significant wetland of the Little River. Further, a holding tank was installed on the southeast corner of the shopping center property, into which the effluent from a laundromat flowed and was to be maintained on a regularly scheduled basis. There was an overflow pipe from the holding tank installed and connected to the storm water system at the drain on the southwest corner of the property.

It was confirmed that the entire system was interconnected and that the coliform count was coming from some property or properties within the framework of the storm water system. It was then determined that there was a drainage pipe from the property northwest of the intersection under Route 1 to a catch basin on the southwest side of the now Irving property. The Board of Selectmen subsequently authorized a Municipal Sewerage System Feasibility Study prepared by Underwood Engineers, Inc. of Portsmouth, and which was submitted to the Town in July 1991. This report was extremely thorough in its analysis of the Town and its ability to support waste disposal through the use of only septic systems. The problems that existed at the intersection of Route 1 and Atlantic Ave., brought into sharp focus the need for the Town to do better planning about the future load that waste disposal places upon our indigenous soils. Only a very small percentage of the land area of the Town was classified as either

"Very High" or "High" soil suitability for the installation of septic systems. If nothing else, the problems that exist[ed] at the intersection of Route 1 and Atlantic Ave., brought into sharp focus the need for the Town to do better planning about the future load that waste disposal places upon the soils we have." Within the last five years, continued contamination from the vicinity of the intersection of Route 1 and Atlantic Avenue was found from water tests. Further, e-coli bacteria were detected in surface water in a swale behind the North Hampton Mall Shopping Center about one-half mile south of Atlantic Avenue."

Other Events in the Continued Contamination of the Little River

On July 12, 2010 the Conservation Commission convened a meeting with DES, Beach program concerning Impaired Waterway status of the Little River. The DES completed recent additional water quality testing of the Little River that indicated high levels of e-coli in several test point locations along the river. The DES pointed out that the primary causes of the higher levels of contamination are stormwater runoff and septic system leaching and/or failures. Particular areas of interest were the "hot spots" where high levels of contamination were cited, including the outflow into the Little River headwaters near the Shel-Al mobile home park; the Mill Pond, the salt marsh surrounding the Appledore neighborhood and the area near the fish houses.

The recent May/June test data showed extraordinarily high levels of e-coli contamination, around double the NH recreational standard of 104 cts/100 ml, at the intersection of Mill Road and the Little River, just below the Mill Pond Dam. This test data suggest that continued increases in storm water runoff from lawns and driveways, as well as septic system leaching, can only exacerbate an already problematic issue at the Mill Pond area of the Little River, among others.

The Conservation Commission concluded that it would be contrary to the public interest to continue to develop properties in the close proximity of the Little River that would increase runoff and potential septic leachate into the river. The Commission decided to continue to work with the DES to protect the water quality of the Little River and to curtail continued pollution of the Little River, including the areas in the vicinity of Mill Pond.

Subsequently, in August, 2010 the Conservation Commission added:

July, 2010 tests data indicated:

- The levels of e-coli bacteria in the Little River and Mill Pond have increased since the first tests conducted in October, 2009.
- The levels of e-coli bacteria have increased significantly at the test point BCHSTBNHMLRMR, at the Little River intersection of Mill Road, just below the Mill Pond dam. The levels in July were 250 cts/100ml, well in excess of the NH Recreational exposure standard of 104 cts/100ml. The levels of e-coli have increased progressively and significantly, as shown in the test results taken in October, 2009 and May, June and July, 2010.

- Further, the presence of algae in the Mill Pond is an indicator of increased levels of nitrogen-bearing runoff primarily from lawn fertilizers, along the river and shores of the pond.
- The overall quality of the Little River continues to deteriorate, primarily as a result of increased stormwater runoff and levels of e-coli, which suggests the presence of septic releases.

The Conservation Commission concluded that “the increases in development and the concomitant stormwater runoff from impervious surfaces surrounding the Mill Pond are contributing to the degradation of the water quality of the pond itself. Any additional discharges of runoff from increased impervious surface development in the proximity of the pond will likely exacerbate an already problematic pollution problem in the pond and the river itself. Finally, it added that the protection of the Little River and Mill Pond and the mitigation of increased pollution into these valuable water resources are clearly in the public interest.

DES Testing Leads to Discovery of a Septic Failure

In correspondence on September 23, 2010 from Sally Soule, NH DES -- Watershed Assistance Section, she noted that a field investigation resulted in finding “a problem at the Shell-Al mobile home park. A catch basin at the northeastern most end of Seebreeze Road was filled with sewage. Additionally, sewage was observed flowing from the catch basin’s outfall (BCH 18 sampling station). The situation was referred to the DES subsurface and waste management bureaus. Also, Subsurface staff contacted the North Hampton Health Officer. It is my understanding DES will issue a Letter of Deficiency to the owners of the trailer park.”

Subsequently, correspondence from Rob Livingstone, DES Watershed Assistance Program investigator, indicated that “I just talked to North Hampton Health Officer regarding Shel Al. The septic system pumps failed and alarm failed and all pumps and alarms were replaced and are functioning. Catch basins nearby will be replaced, follow up sampling will be conducted after catch basins are replaced and at least two rounds of sampling will be done before winter freeze up.

This is but a first step in the very long and difficult challenges to be overcome to restore the Little River back to its original, pristine condition not seen in North Hampton in over 40 years.

Recent Events

Recently, routine testing of water quality at the North Hampton Beach indicated that e-coli levels exceeded the standard of 104 counts per 100 ml, which is the maximum level considered safe for recreational use. There were two occurrences in June-July, 2011 when DES closed the beach as a result of high e-coli levels. As could be expected, these events created public concern, since residents were denied the use of the beach for recreational enjoyment. At its June, 2011 meeting, the Select Board directed the Town Health Officer, with support from the Conservation Commission, to explore further testing of the

river and areas near the Beach in an attempt to identify point sources of the e-coli. This effort is beginning.

The increased levels of the Little River and subsequently the Beach may become precursors to an even more problematic issue, namely the contamination of private drinking water wells. The combination of surface water runoff from development of impervious surfaces near wetlands, coupled with the continuing encroachment of wetlands buffers and wetlands themselves can only lead to the inevitable result of increased contamination of our rivers, ponds, beaches and drinking water.