

Reality of recovery: Bangor's Birch Stream

The condition of Birch Stream near the [Bangor International Airport](#) has been the focus of media coverage since last spring when residents of Griffin Park complained about odors and human health concerns. Solving problems requires defining the problem, collecting data and testing the data to evaluate conclusions. The evolution of the response to the Birch Stream problem illustrates how this process worked, and how it didn't always work. It also illustrates that although everyone adhered to regulations, there have been unintended consequences downstream.

Development by Birch Stream started more than 50 years ago with the construction of the former Dow Field, back when small streams were not highly valued. Much of the stream bed was buried or ditched. The first shopping mall in Maine, the Airport Mall, was built directly over the stream.

Development on Union Street near the airport has accelerated in the past few years, exacerbating the potential for pollution. Now more than 30 percent of the 1.5-square-mile Birch Stream watershed is covered by pavement and buildings, creating runoff directly into the stream. The stream has suffered much abuse for the cumulative impact of development and its use as a neighborhood dumping ground.

A recent study at the [University of Maine](#) (Chandler Morse, 2001; summary published by the George Mitchell Center) determined that the adverse ecological effects of development can be seen when only 10 percent of a watershed becomes impervious. Birch Stream was part of this study completed in 1999, and even then it didn't look good.

There is agreement that runoff from BIA and the Air National Guard has contributed to the degradation of Birch Stream. However, it is also true that they had the appropriate approval to use deicing chemicals on the tarmac which drained into Birch Stream. Like most airports around the country, they even switched to nontoxic propylene glycol in the mid-1990s to reduce environmental impact. Nevertheless, the combination of a cold winter and increased air traffic led to a dramatic increase in de-icing. All parties knew from laboratory tests that propylene glycol breaks down rapidly and essentially disappears, but the real world experience of Birch Stream showed us otherwise.

A small drainage such as Birch Stream lacks the natural carrying capacity to handle the intense use. The most obvious evidence of this was the strong sweet smell resulting from the primary ingredient of the de-icer chemical, propylene glycol, which used up oxygen in the water and allowed algae and bacteria to grow on the stream surface. This created an environment that could not support a healthy aquatic ecosystem beneath the surface. De-icers and other runoff from roads and parking lots became mixed in the stream and carried down past Griffin Park.

As reported in the Bangor Daily News on Oct. 28, BIA has just finished building a runoff collection system, diverting deicing chemicals to the Bangor Waste Water Treatment Plant. The Air National Guard is also working on a separate runoff containment system,

scheduled for completion by December. These changes are reason to expect improvement in the stream and the start of a healthier environment for Griffin Park. However, the many nonpoint sources of pollution between the airport and Griffin Park are undiminished, and some of the buildup of pollutants in the stream may still be there.

Communities frequently give up urban streams as lost causes. Birch Stream presents an opportunity to demonstrate how we can improve the quality of urban streams. The airport, Air National Guard, and the [Maine Department of Environmental Protection](#) plan to monitor the stream to gain a better understanding of what happens during different seasons and during storm events. By working together, the various government agencies, private entities and residents in the Birch Stream watershed may be able to restore the stream to a higher level of ecological health. This is also an opportunity for the community to become a benchmark for Maine's relatively new stormwater program known as the Municipal Separate Storm Sewer System (MS4) led by David Ladd of the Maine DEP.

The Senator George J. Mitchell Center at the University of Maine is ready to use its resources and knowledge base to assist the watershed community in its effort to improve Birch Stream. The first step is to help pull the watershed community together and empower them to establish and achieve short and long term goals. As Thomas Edison once said, "Restlessness and discontent are the first necessities of progress."

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