Beaver Lake Improvement Association

2011 Stream Team Update

Stream Condition of the Beaver Lake Watershed

By Dan Cox and the Stream Teams

Purpose of the Project

The project was coordinated by the Beaver Lake Improvement Association in order to educate high school students in the field of biological science and natural resources as well as compare the collected data with previous years. A portion of our goal was to teach the high school students in areas such as data collection, watershed characteristics, and about the indications of erosion.

Also one of our goals was to provide our findings to organizations such as the Beaver Lake Improvement Association, Go Green Derry, and the Derry Conservation Commission. These organizations are focused on helping the community preserve our watershed, and this data can be used to help them make decisions in the future.

The Beaver Lake Watershed

The lake itself, situated off of State Road 102 in Derry, is just the beginning of the watershed that extends into parts of Chester and Auburn. The Watershed begins at Harantis Lake and includes Adam's Pond, as well as many streams that feed into Beaver Lake. Beaver Lake is an urban lake, with a majority of the lake's shore occupied with residential housing. Some of the streams we measured include Manter Brook, Jenny Dickey Brook, and Partridge Stream.

Results of Stream Team Data

Using the New Hampshire Rapid Stream Assessment Technique (NHRSAT), we collected data in the streams in the Beaver Lake watershed. While spending most of our time measuring different sections of Manter Brook, which is the main source for Beaver Lake, we did measure different streams. The NHRSAT takes into consideration visual and physical assessments including macro-invertebrates (mostly insects), erosion, buffer condition, water temperature, and the stream's width and depth. With that information we used the NHRSAT formula to create a score between 1-4, 1 being poor and 4 being excellent. We completed 8 reaches with the average score being 2.8, which is categorized as good according to the NHRSAT.

The highest score occurred at Partridge Stream, right off of Partridge Road in Derry at a score of 3.25. The stream is in the woods with only one residence in view, with mayfly nymphs commonly showing up in the biological survey, it was also one of the only areas where we observed a turtle that was about a foot size. The stream also had a large buffer, and average depth of 4 inches, and occupied 63% of its available width.

The lowest score occurred at Jenny Dickey Brook, deep in the woods at a score of 2.4. We encountered many midge larvae, aquatic worms, and black fly larvae all of which are tolerant to pollution. It also had eroded banks, a relatively stagnant stream flow, it was relatively shallow at an average of 2.7 inches, and the stream occupied on average 42.5% of its available width.

In addition to mathematical results we made observations of the streams. These observations were similar to last year; we found that the buffer condition on the streams was only low in areas next to housing where the owners mowed their lawns right up to the stream's edge. We also found some trash in streams including cans, glass, plastic, and even a rusty shovel. However we found considerably more wildlife than last year including a couple turtles, plenty of fish, and large crayfish.

Significance of the Project

Considering Beaver Lake is in a largely urban area, the streams are in good condition. Although we found trash and eroded banks, the majority of the data we collected was desirable. We found some areas that had large buffers, fast stream flow, and macro-invertebrates that are sensitive to pollution. As always the assessment is only an assessment of this year's stream condition. Long-term results are the only way to make sure that this year's data is not an anomaly. Also differences in weather, and the experience in crewmembers could influence the results.

Suggestions for Improvement

The watershed is not in trouble yet, however homeowners around the lake need to be educated about lawn maintenance as well as the negative impacts of dumping lawn clippings, trash, and other pollutants into the lake and surrounding streams. So far the Beaver Lake Improvement Association, Go Green Derry, and the Derry Conservation Commission have been doing their part in trying to prevent pollution in the watershed and their continued effort will be beneficial to the watershed.

Submitted by: Dan Cox on August 20, 2011