Lititz Run Water Quality Update

Over the last 12 years the Lititz Run Watershed Alliance with assistance from Warwick High School students and the Lancaster County Conservation District have been monitoring the water quality of Lititz Run and several of its tributary streams. The reason for the on going monitoring effort stems from the Pennsylvania Department of Environmental Protection's listing of Lititz Run on its list of streams that do not meet their intended water quality standards. In other words they found parts of Lititz Run to be polluted. The pollution occurring in Lititz Run comes from various sources; sometimes the pollution is from urban areas sending excess stormwater into the creek, sometimes it comes from agricultural practices that are sending excess sediment and nutrients (e.g. phosphates & nitrates) into the water causing harm to the aquatic life, and still other times it might be coming from a wastewater discharge of an industry directly into the stream. All of these pollution sources can be dealt with to reduce their effects on the stream but one remedy does not fix all of these issues. Over the last 12 years environmental groups such as the Lititz Run Watershed Alliance have been implementing Best Management Practices (BMP's) throughout the watershed to reduce pollutants from getting into Lititz Run. BMP's the group has implemented include; stream restoration efforts, wetland creations, farmland conservation practices, planting trees and shrubs along the creek (riparian buffers), installing fish habitat devices, removing dams so aquatic species can migrate in the stream, and a host of other BMP's. In order to get Lititz Run off the state's polluted list and to see if the BMP's the group has installed are working, ongoing monitoring efforts are needed. Below is a brief review of some of the data that has been collected to date. If you would like to know more about the monitoring efforts please check out all the data located in the Lititz Public Library or contact Matt Kofroth, Watershed Specialist for the Lancaster County Conservation District at (717) 299-5361 ext. 124 or matt.kofroth@pa.nacdnet.net

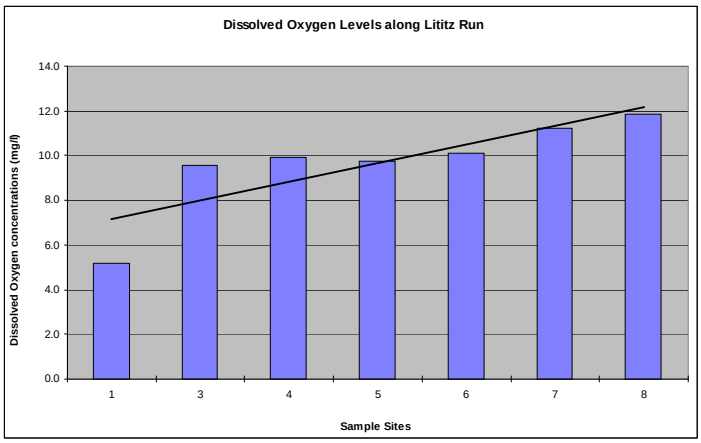

Figure 1: Dissolved Oxygen (DO) levels in Lititz Run have been improving over the last 12 years. The DO level increases as one travels downstream on Lititz Run. A DO reading over 10 milligrams/liter can sustain aquatic life.

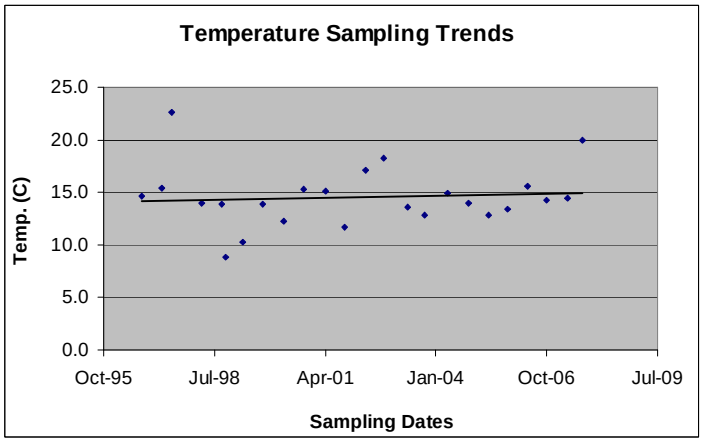

Figure 2: Stream Temperatures in the Lititz Run have been constant over the last 12 years as more trees and shrubs are planted along stream banks creating riparian corridors. These buffer areas shade the stream and decrease water temperatures and increase dissolved oxygen levels because colder water carries more oxygen.

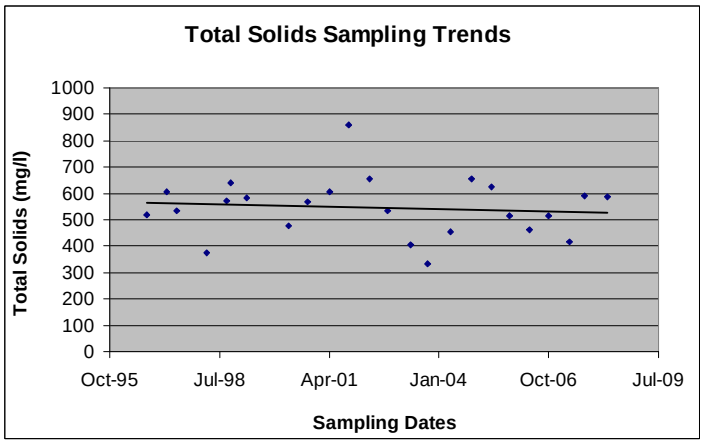

Figure 3: Sediments in a stream can be a major pollutant. Stormwater runoff farm fields, construction sites, and even stream bank erosion transport sediments to our streams. Over the last 12 years through conservation efforts the Lititz Run Watershed Alliance has been able to reduce the amount of sediments getting into Lititz Run. This trend continues today as well.

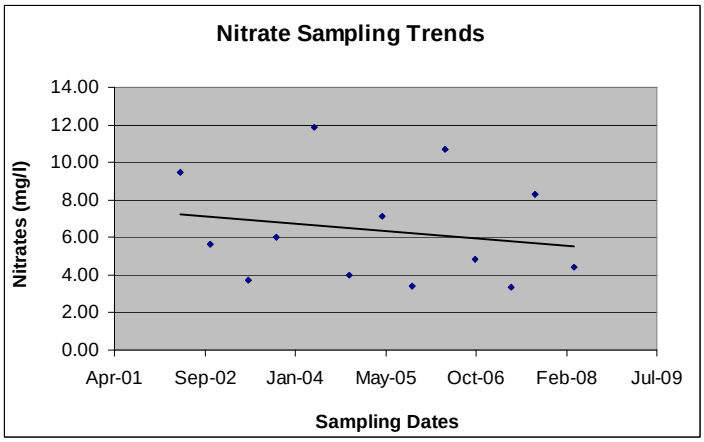

Figure 4: A pollutant found in man-made fertilizers and commercial products is Nitrates. Excess Nitrates in a waterbody produce massive algae growth which in turn uses lots of oxygen. If the oxygen is used up by the algae other aquatic life in the stream is forced to move or die. Once again Nitrate levels in Lititz Run have been dropping due to increased conservation efforts throughout the watershed.

Common Fish of Lititz Run

The Blacknose Dace is a common fish species found in Lititz Run. It can be found close to the headwaters (means where a stream starts) of the stream because it likes cold spring water.

Two other fish species that like cold spring water are the Brown Trout and White Sucker. Both of these fish can be found in Lititz Run around the middle-reaches of the stream where water levels are slightly deeper but there is still enough cold water to go around.

Fish that prefer warmer water can be found closer to the mouth of Lititz Run where it empties into the Conestoga River. Examples of such fish include the common Bluegill and the Tessellated Darter. These fish will migrate between Lititz Run and the Conestoga River throughout the summer depending on the temperature of each stream.

Common Aquatic Insects of Lititz Run

The Lititz Run Watershed Alliance monitors aquatic insects in the stream to determine overall water quality of the watershed. Aquatic insects are excellent water quality indicators because certain aquatic insects live in good water quality where other aquatic insects live in poor water quality. There is also a mix of aquatic insects they can live in good and poor water quality. Ideally you would like to see all good water quality aquatic insects in your streams but sometimes you can find poor critters as well. The key is to have more good bugs then bad bugs in your stream. This means that you also should have less pollution in your stream as well.

Mayflies and Riffle Beetles are indicators of very good water quality. These insects can be found in Lititz Run in the middle to lower reaches of the stream where there is more water to dilute possible pollutants.

Freshwater Shrimp and Aquatic Sowbugs are insects usually found in spring feed streams. These insects are found throughout the stream because of the many spring sources in the watershed. They are an example of those bugs that can live in good or poor water quality.

Finally, aquatic insects that indicate poor water quality include the Midge (common Gnat) and Blackfly Larvae. These species prefer to live in less then desirable water quality and unfortunately are found at several sites along Lititz Run.