

WATER QUALITY: The Good, The Bad, The Silty

When astronomers look for signs of life on other planets, they search for evidence of water that might support civilization of some kind. When scientists look for signs of *intelligent* life on our planet, they look at how a community maintains the quality of its water.

This is why ECO, the Environmental and Conservation Organization, has been testing 33 sites in six different watersheds in Henderson County for the past 14 years using chemical analyses and biological testing. ECO's just released annual water quality report is our community's report card on how well we have protected our most important natural resource besides the air we breathe.

So how did we do?

The Good:

Mills River All sites are rated "excellent", overall bio-monitoring is "good" – forested, with small sections of agriculture and development.

Green River/Broad River Watershed: All sites in Green River were rated "excellent", no significant chemical water quality problems in past 3 years, although the Rock Creek site rated only "fair" for bio-monitoring and has been declining in recent years, and Green River sites show pH, conductivity and nutrient levels increasing over time as well as an increase in sedimentation.

The Bad:

Etowah/Horseshoe A high percentage of agriculture and development in this area and a lot more coming. Gash Creek site is "below average", Mill Pond is "average" and all others are "good". Ammonia-nitrogen concentrations in Gash Creek are improving but still more than double the regional average. The Mill Pond site is affected by groundwater flow from the county landfill causing extremely high conductivity, as well as high nutrient and heavy metals. Urban runoff and wastewater effluent from package treatment plants could also be impacting the water quality.

The Silty:

Mud Creek Watershed: Chemical ratings range from "good" to "poor," and bio-monitoring ratings are "fair." This is the most developed watershed analyzed in the county. Some sites have high ratings of nitrate/nitrite-nitrogen, but they are improving over time. The Erkwood Road site has a significant amount of sediment during storms and is no longer included in the bio-monitoring program due to sediment in the stream bed. The sites on Clear Creek are exposed to heavy agriculture and development, causing a decline in water quality due to surface runoff, turbidity, sedimentation and high nutrient concentrations. The Mud Creek site at North Rugby Road is one of two sites that is rated "poor" due to sedimentation and nutrient concentrations caused by agriculture, development, and the waste water treatment plant.

(Because of limited space, I have included only a few highlights of the recent report. The full report can be found on ECO's website soon at www.eco-wnc.org)

Like most things in the environmental realm, man is a leading cause of stream damage, but we are also in the best position to make our waterways healthier. We often look to large developments as a major cause of waterway damage, and rightly so, because the process of developing land often results in large amounts of sedimentation and erosion which can kill organisms in nearby streams. The removal of nature's filtration system, natural woody buffers, and the addition of landscaping pesticide runoff wreaks havoc on stream life. Once a development is in place, golf courses that use literally tons of chemicals create massive amounts of toxin runoff, while leaking septic tanks and package plant effluence put harmful nutrients and chemicals into our streams.

But few of us realize that individual homeowners are the leading cause of storm water runoff and there are many things individuals can do, both in the building and remodeling phase as well as in day to day living, to mitigate stream damage.

- 1) Create a woody buffer around stream banks. Woody riparian buffers (trees and shrubs) are one of the best tools for protecting streams from all of the harms that impact water quality and for enhancing aquatic habitat. Buffers provide filtration of sediment, nutrients and toxics, they stabilize stream banks, they provide flood control, they denitrify by removing excess nitrogen from groundwater, they offer shade which is a temperature control for fish, they provide organic matter which is critical for natural habitats and the basis of the food chain and they offer a terrestrial habitat and travel corridors for land animals.
- 2) Don't use our waterways to wash your car. No one would think to drive their car into the French Broad River to get a car wash, but that's essentially what we do when we get out a bucket and a hose and wash our cars in the driveway. Runoff from car washing gets into creeks without being cleaned and adversely effects stream health. Instead take your car to a car-wash bay where soapy, dirty run-off goes down a drain that is connected to the water treatment plant, so all that dirt and soap can get removed.
- 3) When building or remodeling your home, consider reducing impervious surfaces. Impervious surfaces such as paved driveways have replaced forest cover and farmland at an enormous pace. What once were thousands of acres of land that absorbed rainfall have been replaced by paved roads, parking lots, rooftops, driveways and sidewalks. Our urban/suburban landscape is constructed to gather rainwater off of surfaces in gutters and storm drains, and direct that water to nearby streams. This results in thousands of gallons of water being added to streams, rather than recharging groundwater supplies. This is especially important given our current drought conditions. Using woodchips, gravel, and permeable pavement are better alternatives and help to protect our streams.

Finally, ECO would like to give special thanks Mary and Larry Winn for their contributions to our biomonitoring work over the past year. As ECO's water quality work expands, we are looking for volunteers willing to take a leading role in water quality. Contact ECO today about how you can help.

Editor's Note: ECO Notes is provided by the Environmental and Conservation Organization, a nonprofit organization dedicated to clean air, clean water, recreation, and the conservation and preservation of the natural heritage and resources of the mountain region. ECO can be reached at (828) 692-0385 or on-line at www.eco-wnc.org.