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From: Peter Bergstrom

Subject: Re: Mill Creek restoration decisions (importance of nonpoint source pollution)

To: Vince Wheatley

Cc: Tom Dent , Marjie Campbell , Duane Wilding, cvitale@aacounty.org, rbowen@aacounty.org, Keith Tate, Greg Page , Lori Kemp , Maureen Turner , Pat Strott-Wheatley , Rande Dent , Juliet Page , phipps@aacounty.org, David Kemp , Sally Hornor , Debbie Weller , Bob DeYoung , John Sabol , "Kerchner, George" , Paul Spadaro

Vince, Tom, et al.,

When I first started doing volunteer water monitoring on two Magothy creeks in 1991, and expanded this to cover most of the tidal river in 1992, I had what can be called a "point source mentality." I hoped to find "hot spots" such as those caused by sewage spills, that could be cleaned up, making the river healthier. Clearly, Mill Creek has had more than its share of point source pollution from sewage spills, so it's understandable that this thinking is prevalent among its residents.

However, after continuing that monitoring for 15 years, I have come to see that most of the river's problems are from nonpoint source pollution, from diffuse sources such as air pollution, construction, septic systems, lawn fertilizer, and runoff from impervious surfaces. All of the monitoring I've done has failed to identify a single point source that could be cleaned up, as I had hoped. It has shown that water quality (especially bottom dissolved oxygen and water clarity) is usually worse at sites that are farther upriver (above Henderson Point), farther up a creek (especially a long one with numerous bends and constrictions such as Cattail Creek) and at sites that are deeper (such as the state monitoring site between North & South Ferry Points which is about 5.5 m deep). This basically demonstrates what we already knew in the 1970's, that "dilution is the solution to pollution." This is why the outfall from the Broadneck wastewater plant is 1/2 mile out in the Bay, rather than in the Magothy where I think the outfall was first proposed. We are seeing similar patterns in the Severn River in monitoring started this year by the Severn Riverkeeper, Fred Kelly: of the several creeks they are sampling, the one with the worst bottom dissolved oxygen so far (0.0 mg/l in the last 2 visits, worse than any of the other sites, in about 4 m deep water) is Asquith Creek which has a very narrow entrance, and thus very little water exchange with the river.

The importance of nonpoint source pollution was made much clearer to me when I helped with volunteer "Stream Waders" sampling of nontidal Magothy streams in 2002-2003, along with Sally Hornor and several other volunteers. This program assesses nontidal stream health based on samples of invertebrate animals collected from nontidal streams by volunteers, which are preserved in alcohol and later identified by DNR staff. The animals integrate the effects of water quality over a long time, and also respond to the quality of the physical stream habitat, which is why they are used as an indicator of stream health. My awareness of the nontidal streams was already raised by working on the stream naming project that resulted in the Magothy River map (see <http://www.magothyriver.org/MagothyRiverMap.htm>; I'm not sure they still have any at the Voice, although I have some copies). I also knew that Magothy creeks varied greatly in their amount of developed land, from being involved in the North Cypress Branch restoration project, so I hoped that some of the creeks with less developed watersheds would have fair to good nontidal stream health. When the data came back I was shocked to see that of the 19 sites that we sampled, **only one site was rated "Fair" and the others (including both Mill and Dividing creeks) all rated "Poor."** This included watersheds that varied in their amount of development. The Poor rating means that most of the animals found were from pollution tolerant families, and often the number of families found was very low, another sign of pollution. See: <http://mddnr.chesapeakebay.net/mbss/streamwaders.cfm> and type

"Magothy" in the last box for Watershed name. The one site with a "Fair" rating was the one the farthest up in the watershed, on the nontidal Magothy (called Magothy Branch) well above Lake Waterford, at Obrecht Road. See attached map for its location, at the extreme upper edge of the Magothy watershed (which starts in two places including Elvaton Park off Dogwood Road, marked on the map). This means that there is very little watershed upstream of Obrecht, and thus less nonpoint source pollution affecting it. By the time the river reached our next sampling site at Lake Waterford, not that far downstream, its rating had already dropped to "Poor" (also marked on the map).

What this means to me, in the words of Walt Kelly's cartoon character Pogo, in that "We have met the enemy... and he is us." We all need to take responsibility to our personal contributions to nonpoint source pollution, and try to reduce them. This does not mean that nothing needs to be done to clean up sewage spills in Mill Creek, or to improve a watershed such as North Cypress Branch that is over 60% impervious surface in its upper reaches (due to the huge Severna Park Village, Park Plaza and the Giant/Kohls parking lots) with almost no stormwater management. It means that we are all part of the problem, and we all need to take action to help solve it.

Yours,
peter

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