

# Stream Studies

## Community Update

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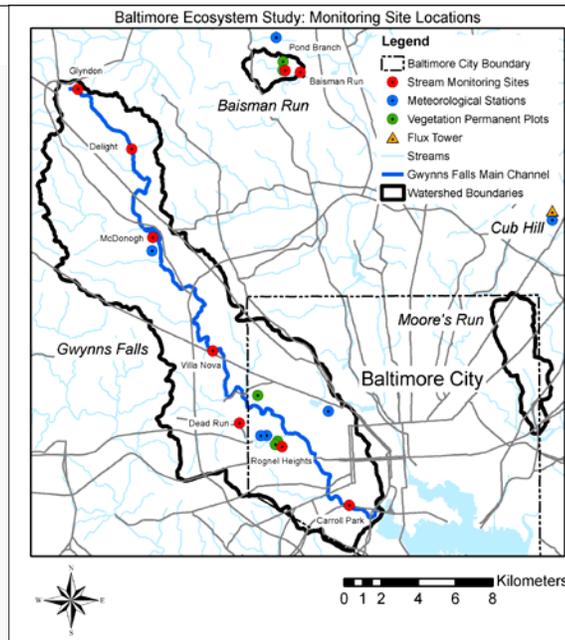
Baltimore Ecosystem Study: BES

### THE WATERSHED APPROACH

Every piece of land is part of a watershed (the land water travels through to reach a particular stream or other waterbody). The watershed approach (monitoring watershed inputs and outputs of nutrients and other chemicals) is like urinalysis, where doctors monitor chemicals in the urine to assess patient health. In BES, we are conducting long-term watershed studies of nutrients like nitrogen and phosphorus to help understand how urban watersheds respond to changes like new sewage systems and climate change. Studies of riparian (stream-side) zones are an important part of these studies, because their position in the watershed allows them to function as buffer zones that can prevent pollutants from washing into streams, and into the Chesapeake Bay.

### HOW?

Every week, BES and USFS scientists sample a network of streams that flow through different types of land - agricultural, forest, rural/ suburban, new suburban, even right in the core of the city. We also have a network of riparian sites, to determine if these areas are functioning as buffer zones in our urban watersheds.



### What does it mean for you?

The watershed approach helps to bridge the gap between basic and applied science, by providing data that helps city and county officials make good land management decisions - just as urinalysis helps a doctor make good decisions to manage patient health. The watershed approach gives us important information on how pollutants get into our waters, on how natural water flows respond to changes in the built system or the environment, and how different land use practices contribute to stream pollutant outputs. Our long-term monitoring will provide useful data as the City makes major improvements to its sanitary sewer system over the next few years.

Our riparian studies will tell us if these areas function as buffer zones in urban watersheds, as they have been found to in agricultural and forested watersheds. Our results will provide guidance for preserving, managing and restoring these areas to help prevent pollutants, especially nitrate (a by-product of fertilizer, sewage and fossil fuel combustion), from getting into the Chesapeake Bay.



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