

## How About a Bowl of Leaves for Breakfast?

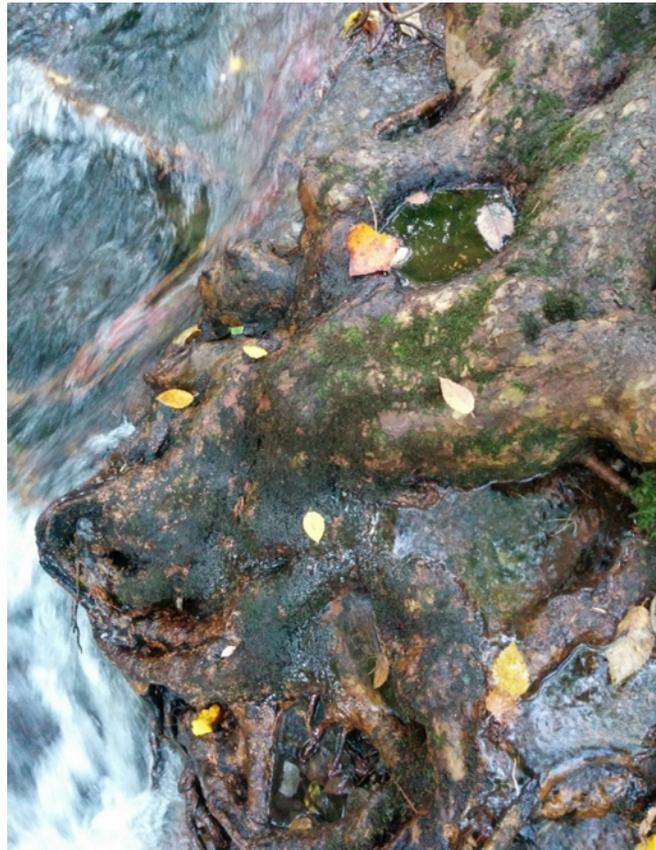
By Kristina Park

Freshwater Biology, Fall-2015, University of Maryland

Most of us would answer this question with a solid “no” but for life forms in some river systems, leaf input is the primary food resource as a result of the close interactions between land, water, and the ecosystem at large.

In many rivers such as Fishing Creek in Frederick County, sunlight is unable to reach the water surface and so, the autumn leaves supply most of the carbon that supports the river ecosystem. As my picture shows, autumn leaves colored in yellow and orange have already begun to fall near the water. Leaves that fall in the river act as coarse particulate organic matter that provides nutrients for organisms in the water. At Fishing Creek, I spent the majority of my time picking up leaves which had been swept up behind logs or twigs. There were components of the freshwater ecosystem and energy flow that I could not see such as microbe colonies on the leaves, but I discovered numerous stoneflies which shred and process the leaves for food. In turn, these invertebrates provide food not just for other predatory insects but also for fish, reptiles, birds, etc. If I went to a portion

Fishing Creek, north of Frederick, on 30-Sep-2015



of the river with a less dense tree canopy and thus more sunlight, I would have observed a different range of macroinvertebrates such as grazers that feed on algae.

In addition to leaf input, the interactions of rivers with the land it occupies influence characteristics such as shape, size, flow, and chemistry. As my picture shows, stems and roots of trees are not clearly separated from the water and instead, create an intricate landscape on which water flows. Roots also function to open up the soil for better water retention and to consume minerals which can later be returned to the water in the form of leaves.

As a senior in college, I constantly want to *stop* time but during my trip to Fishing Creek, I actually found myself appreciating the natural changes that follow the flow of time (i.e. the falling leaves) as well as the interconnectedness of the various components of an ecosystem.