Compartmental Analysis of Nutrient Processing in Streams

Background
Previous work under this project focused on developing a screening-level model of nitrate attenuation in streams. The work was based on the premise that stakeholders often are not concerned about nitrate transport and reaction; instead, stakeholders were focused on the total amount of retention or attenuation that a particular hydrologic compartment can produce (Faulkner and Campana 2007). This modeling approach has been brought into a Bayesian framework with potential application for adaptive management of nutrient total maximum daily loads (Faulkner 2008). In a relatively empirical way, these modeling approaches have treated ground water surface water interactions (hyporheic flow) with transient storage in dead zones.

We have done work to develop methods for quantifying the actual hyporheic component (Faulkner, et al. 2005). The hyporheic component is known to be important in the retention of nutrients. Current work under this project is linked to another project examining denitrification potential in the Willamette River floodplain. That work is focused on using numerical ground water flow modeling to develop conceptual models of ground water-surface water interactions in the Willamette River Floodplain, Oregon.

Products


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