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Rethinking Stream Restoration and Stormwater Management

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Abstract:

Traditional methods of stormwater management have caused the headwaters of many stream systems to be impounded or buried in pipes, which when combined with the increase in impervious surface of the watershed, causes a larger discharge at the outfall. The change in the discharge at the outfall causes increased erosion, degradation of the stream channel, and failure of the structures themselves. The cycle perpetuates downstream, causing further degradation of the stream system. We have found that constructing a regenerative system consisting of pools and riffle/weir grade control structures results in a positive spiraling effect on the whole stream system; creating low energy discharge, increasing groundwater-surface water interactions, enhancing riparian and wetland habitat, and improving water quality. This restoration approach has numerous applications, from stormwater conveyance to stream and wetland ecosystem restoration, and has been implemented in both settings.

Impact Statement:

Please see abstract text.

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