

# Watershed Moment



**C**ommunities and utilities are beginning to accept the idea that a holistic approach to storm water management can help fix problems in a cost-effective and ecologically friendly way. Instead of dealing with storm water from community to community—thus allowing upstream communities to pass the buck to those further downstream—we are slowly realizing that making storm water someone else's problem is not sustainable, either financially or environmentally.

A new report from two ecologists at the University of Wisconsin-Madison touts this approach to watershed management by analyzing the production and location of 10 different ecosystem services—the various benefits that people obtain from nature—across a landscape. They found clear evidence of what many professionals in our industry have known for years: We are all connected through watersheds, and how we manage those watersheds affects every aspect of our day-to-day lives.

The ecologists, Monica Turner and Jiangxiao Qiu, mapped the production, distribution and interactions of ecosystem services of one Wisconsin watershed in three main categories: provisioning (e.g., providing resources like food or freshwater); cultural (e.g., aesthetics); and regulating (e.g., improving groundwater and surface water quality, handling flood water or preventing erosion). In finding that, unsurprisingly, these main ecosystem services were not independent of each other, they also learned of existing ties that many people may not think of: Flood regulation and freshwater supply are connected, as are forest recreation, soil retention, carbon storage and surface water quality.

Some of the connections seem obvious—for example, higher levels of crop production generally are associated with poorer water quality—but the ecologists did learn something important about this particular connection: Certain areas of a watershed can have a winning combination of ecological factors that could be used to maximize our net gains while minimizing our environmental footprint and financial output. Factors like flat topography, a deep water table, less field runoff, soil that holds water well, adjoining wetlands and proximity to streams with riparian vegetation can contribute to both good crop production and good water quality in one area.

This report charts just one watershed, but the findings are valuable across all watersheds. Research like this can help us learn more about current and future scenarios for agricultural production, industrial applications, water quality, flooding, erosion and other aspects of both the man-made and natural worlds, and can allow us to best manage individual watersheds by seeing them as interconnected with other critical parts of our lives. As our population grows, our economic resources tighten and our infrastructure ages, optimizing our existing resources to their maximum potential through a holistic approach to watershed management will help us minimize the fiscal and environmental consequences of modern life. **SWS**

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