
Applying Landscape Ecology to the Assessment of Nonpoint Source Pollution

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Abstract

Nonpoint source (NPS) pollution caused by human activities is difficult to manage not because of the deficiency of water- or land-treatment technologies, but because the sources of NPS pollutants are diffuse and the landscape across which NPS problems occur are spatially heterogeneous. Landscape ecology, which is concerned with the interaction between landscape structure and spatial processes such as water flow, could provide guidelines for NPS management. This research investigated how landscape ecology and NPS management can be cross-fertilized by reviewing principles for landscape decomposition and examining existing practices in NPS monitoring and modeling. It concludes that, on the one hand, hierarchy theory has suggested useful spatial frameworks for conducting NPS monitoring and modeling. On the other hand, NPS management that deals with diffuse sources from multiple scales could provide practical feedback to the evolving theory of landscape ecology.
