

Integrated Watershed Analysis: Adapting to Changing Times

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Presentation Abstract

Resource managers are increasingly required to conduct integrated analyses of aquatic and terrestrial ecosystems before undertaking any activities. There are a number of research studies on the impacts of management actions on these ecosystems, as well as a growing body of knowledge about ecological processes that affect them, particularly aquatic ecosystems, which are used to guide the analyses. Additionally, new tools are available to assist in the analyses. These developments have advanced the potential to conduct these analyses. However, there are some critical issues that need to be included in an integrated analysis that are not readily recognized or acknowledged at this time. Two of the more important factors are space and dynamics. Watershed and landscape analyses require consideration of a different set of rules for considering context and potential effects of proposed actions than do analyses that are conducted at smaller scales. The failure to recognize these issues can result in a misinterpretation of the analyses and a failure to understand potential impacts. Watershed analysis also focuses on identifying the location of, and accessing the magnitude of, various ecological processes in the watershed. Consideration of the dynamic nature of processes that affect aquatic ecosystems is relatively new, but the implications of these dynamics are not fully recognized by many managers and regulators. In consequence of both these factors, there is a mismatch between the expectations for management of aquatic and terrestrial systems and the way in which these systems actually function that limits our ability to develop and implement new approaches to integrated management.

Keywords: integrated ecosystem analysis, temporal and spatial scale, dynamic systems, management expectations

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