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# INTEGRATING ADAPTIVE LEARNING INTO ADAPTIVE WATER RESOURCES MANAGEMENT

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## Abstract

Adaptive water resources management recognizes the centrality of learning to its effective implementation. However, the literature on learning in Adaptive Management (AM) is disjointed and lacks rigorous treatment. The purpose of this paper is to clarify how learning associated with AM is distinctive and to explain the importance of successfully integrating it into policy design. Because adaptive learning holds a unique position within the adaptive management and assessment process, it should serve as the basis for a systematic redesign of water policy processes. Adaptive environmental assessment and management processes, which highlight the role of adaptive learning, are built upon in this paper. For the purpose of this paper, adaptive learning is defined as "an ongoing process of inquiry that incorporates new knowledge with the aim to continually improve management policies". In order for adaptive learning to live with and profit from nature's dynamism, it is argued that it must be problem-centered, decision relevant, reflective, and inherently transformative. When this kind of learning becomes a fully integrated component of AM, water resource institutions have a greater likelihood of maturing into actual "learning systems". The specific objectives of this paper are to: 1) redefine what adaptive learning is, 2) explain how this particular type of learning is distinctive and 3) outline the role of adaptive learning in policy formation. Regarding policy design, the paramount issue is determining how to respond to the speed, scale, and complexity of the planetary challenges. This paper draws on a number of related areas of research to present propositions for increasing the adaptive capacity of water organizations. These research topics include: demonstrating how adaptive learning should be integrated into policy design; establishing new standards of practice that are based on adaptive learning rather than achieving 'optimal' end-game solutions; using the breakthrough views in order to transform learning into effective action; framing management problems in non-reductionist ways so that nature may serve as an ally and pilot; using shadow networks to inspire innovation, encourage institutional learning, and improve governance rules; and creating a new social reality that is more future-responsive to problems and more hospitable to new ways of thinking about water management.

*Key words:* adaptive management, experimentation learning, policy design, public participation, and water resources management

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