

# *Executive Summary*

The purpose of this technical guide is to present an operational definition of adaptive management, identify the conditions in which adaptive management should be considered, and describe the process of using adaptive management for managing natural resources. The guide is not an exhaustive discussion of adaptive management, nor does it include detailed specifications for individual projects. However, it should aid U.S. Department of the Interior (DOI) managers and practitioners in determining when and how to apply adaptive management.

Adaptive management is framed within the context of structured decision making, with an emphasis on uncertainty about resource responses to management actions and the value of reducing that uncertainty to improve management. Though learning plays a key role in adaptive management, it is seen here as a means to an end, namely good management, and not an end in itself. The operational definition used in the guide is adopted from the National Research Council, which characterizes adaptive management as an iterative learning process producing improved understanding and improved management over time:

Adaptive management [is a decision process that] promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a ‘trial and error’ process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. Its true measure is in how well it helps meet environmental, social, and economic goals, increases scientific knowledge, and reduces tensions among stakeholders.

Adaptive management as defined here involves ongoing, real-time learning and knowledge creation, both in a substantive sense and in terms of the adaptive process itself. It is described in what follows in a series of 9 steps, as summarized in section 4.1, involving stakeholder involvement, management objectives, management alternatives, predictive models, monitoring plans, decision making, monitoring responses to management, assessment, and adjustment to management actions. An adaptive approach actively engages stakeholders in all phases of a project over its timeframe, facilitating mutual learning and reinforcing the commitment to learning-based management. Adaptive management in DOI is implemented within a legal context that includes statutory authorities such as the National Environmental Policy Act (NEPA), the Endangered Species Act, and the Federal Advisory Committee Act.

For many important problems now facing the resource management community, adaptive management holds great promise in reducing the uncertainties that limit the effective management of natural resource systems. For many conservation and management problems, utilizing management itself in an experimental context may be the only feasible way to gain the system understanding needed to improve management.

Though it is commonly thought that an adaptive approach can produce results quickly at low cost, the opposite is more likely to be true. An initial investment of time and effort will increase the likelihood of better decision making and resource stewardship in the future, but patience, flexibility, and support are needed over the life of an adaptive management project. For these reasons it is important to carefully consider the potential use of an adaptive approach, and to engage in careful planning and evaluation when adaptive management is used.