

Moving Toward National Ecological Protection

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The trend in environmental protection over the last 2 decades has evolved from reliance on technology-based controls that are applied on a national scale to risk-based approaches that use ecosystem health as an endpoint. In coastal areas, this evolution has resulted in management programs designed to address bays, harbors, and estuaries that are experiencing significant threats. These watersheds are targeted for action by applying the combined authorities of federal, state, and local agencies in an integrated fashion to preserve, restore, and protect the valued resources and uses of the nation's coasts. This risk-based approach to coastal management is firmly grounded in the need to link science and policy in developing solutions to environmental problems. For example, the policy decision of which coastal watersheds to target for action is dependent on scientific information concerning the relative threats each watershed is experiencing. Once a watershed is targeted for action, good science is critical for establishing management priorities among the valued resources and uses of that bay, harbor, or estuary. These priorities then drive the allocation of resource protection efforts. Finally, once management actions are implemented, good science, in the form of monitoring information, provides a measure of ecosystem health and, therefore, the effectiveness of the management program.

Several solid examples exist at the federal level of linking science and policy in managing coastal areas. The U.S. Environmental Protection Agency (EPA) initiated the Environmental Monitoring and Assessment Program in 1990 to assess and periodically document the status and conditions of the nation's ecosystems, develop innovative methods for anticipating emerging problems before they reach crisis proportions, and help answer questions concerning the long-term effectiveness of regulatory programs. The National Estuarine Research Reserves Program of the National Oceanic and Atmospheric Administration (NOAA) focuses on the collection of basic research and assessment information that is critical for effective estuarine management, while NOAA's Coastal Ocean Program seeks to improve predictions of fish stocks, coastal ocean pollution, and coastal hazards. Finally, EPA's National Estuary Program exemplifies the linkage between science and policy through a consensus-based process that integrates scientific information, management authority, and public will. These three programs are on the leading edge of ecological protection efforts in coastal areas.