

## Monitoring Coastal Restoration Projects

### Restoring Critical Coastal Habitats

Coastal habitats provide ecological, cultural, and economic value. Thousands of species use coastal areas as a source of shelter, spawning grounds, and food. Human communities depend on coastal habitats for flood and storm surge protection, as well as a source of recreational opportunities. Coastal areas also support diverse aspects of local and regional economies, including fisheries, tourism, and transportation. Despite their importance, coastal habitats are declining in many areas. While the reasons for decline are as varied as the systems themselves, human impacts are consistently a primary or contributing factor. Resource managers seeking to stem declines or replace function in valuable ecosystem services provided by these habitats need sound ways to measure whether their restoration efforts are succeeding. Showing the effectiveness of restoration efforts, and sharing lessons learned, has often been difficult and done in a piecemeal approach.

*Readers, from laypeople to coastal managers, learn the process of developing and implementing science-based monitoring for coastal habitat restoration projects.*

### Meeting Restoration Goals

But how do those managing or funding restoration projects know if the projects are achieving the desired goals and objectives? How do managers reasonably determine when and where midcourse corrections in their approaches may be necessary? What “lessons learned” can project managers in one region share with their counterparts in others, and how can they best share those lessons?



*Habitat restoration projects are being conducted from smaller community-based levels to larger coastal ocean ecosystems.*

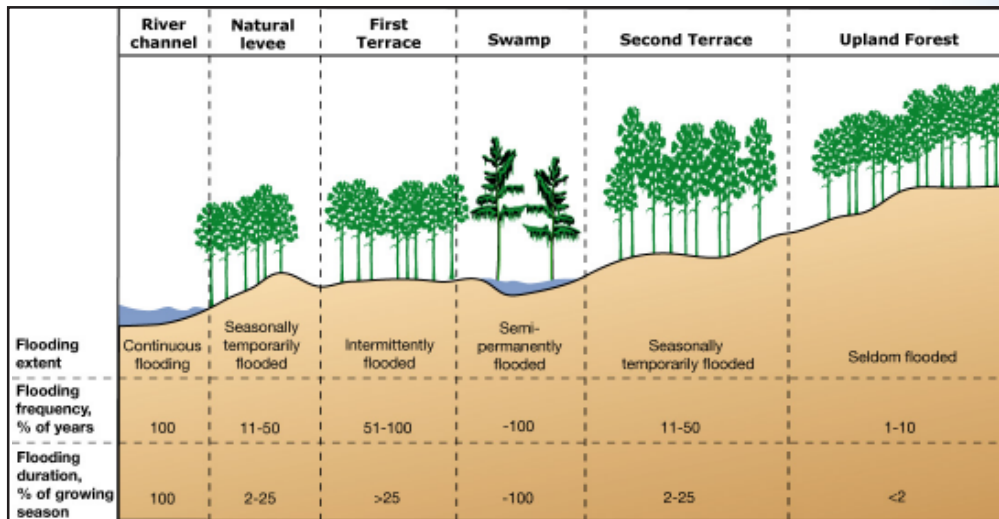
Congress considered those and other issues in passing the Estuary Restoration Act (ERA), Title I of the Estuaries and Clean Water Act of 2000. The law directs NOAA to provide guidance for development and implementation of monitoring for projects funded under the Act.

### Comprehensive “How-To” Manual

Working with scientists and managers from Federal and State agencies, universities, private industry, and non-governmental organizations, NOAA has compiled for the first time a comprehensive manual on how to plan and conduct the monitoring of coastal habitat restoration projects. The newly released “*Science-Based Monitoring of Coastal Habitats, Volume One: A Framework for Monitoring Plans Under the Estuaries and Clean Waters Act of 2000*” provides a means to detect early warnings that the restoration is not ‘on track,’ to gauge how well a resto-

ration site is functioning, to evaluate ecological status both before and after project completion, and to coordinate projects and efforts for consistent successful restoration. The manual discusses in detail thirteen coastal habitats and, while written for the coastal United States and its protectorates, is applicable to coastal areas worldwide.

Volume 1 has been made available free of cost both on a well-advertised web page and in hard copy. Within just three months of its being made available, more than 15,000 print and electronic copies of the manual have been provided. Requests have been made by local, regional, national and international agencies, organizations, and individuals. Volume 1 is currently being recommended by NGOs, federal and state agencies as a document to use in developing restoration monitoring plans and in selecting metrics to measure in evaluating success of habitat restoration projects.



User-friendly graphics in *Science-Based Restoration Monitoring of Coastal Habitats* assist the reader with determining how to design a monitoring plan given the goals of individual projects.

*Volume Two: Tools for Monitoring Coastal Habitats*, will be available to the general public fall of 2004. Volume 2 will detail the ecology of each habitat and structural and functional characteristics that dominate each. Annotated bibliographies of restoration projects, relevant ecological literature, technical reference manuals, and QA/QC documents are provided to direct readers to even greater detail. Lists of NCCOS scientists and other experts who have provided input to this document and are willing to answer detailed questions about each habitat will also be included. Information on the selection of reference conditions, a review of socioeconomic factors associated with restoration monitoring, a sample list of costs, a review of monitoring programs throughout the United States, and a review of restoration related legislation is also included in Volume 2.

**Copies of *Science-Based Restoration Monitoring of Coastal Habitats Volume One: A Framework for Monitoring Plans Under the Estuaries and Clean Waters Act of 2000 (Public Law 160-457)*, can be downloaded at:** [http://coastalscience.noaa.gov/ecosystems/estuaries/restoration\\_monitoring.html](http://coastalscience.noaa.gov/ecosystems/estuaries/restoration_monitoring.html)



### National Centers for Coastal Ocean Science

1305 East West Highway, Room 8221 Silver Spring, MD 20910 Phone: (301) 713-3020 FAX: (301) 713-4353  
Website: <http://www.nccos.noaa.gov/>

*Science Serving Coastal Communities*

