Overview

In 1990, the U.S. Congress enacted the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) in response to the growing awareness of Louisiana's land loss crisis. The CWPPRA was the first Federal, statutorily mandated program with a stable source of funds dedicated exclusively to the short- and long-term restoration of the coastal wetlands of Louisiana. Between 1990 and 2008, 77 restoration projects have been constructed through the CWPPRA program. These projects include diversions of freshwater and sediments to improve marsh vegetation; dredged material placement for marsh creation; shoreline protection; sediment and nutrient trapping; hydrologic restoration through outfall, marsh, and delta management; and vegetation planting on barrier islands.

Need for a Monitoring System

The coastal protection and restoration efforts implemented through numerous CWPPRA projects require monitoring and evaluation of project effectiveness. There is also a need to assess the cumulative effects of all projects to achieve a sustainable coastal environment. In 2003, the Louisiana Office of Coastal Protection and Restoration (OCPR) and the U.S. Geological Survey (USGS) received approval from the CWPPRA Task Force to implement the Coastwide Reference Monitoring System (CRMS) (fig. 1) as a mechanism to monitor and evaluate the effectiveness of CWPPRA projects at the project, region, and coastwide levels (fig. 2) (Steyer and others, 2003). The CRMS network is currently funded through CWPPRA and provides data for a variety of user groups, including resource managers, academics, landowners, and researchers.

Approach and Design of the CRMS

The effectiveness of a traditional monitoring approach using paired treatment and reference sites is limited in coastal Louisiana because of difficulty in finding comparable test sites; therefore, a multiple reference approach using aspects of hydrogeomorphic functional assessments and probabilistic sampling was adapted into the CRMS design.

The CRMS approach gathers information from a suite of sites (fig. 3) that encompass a range of ecological conditions.
The CRMS Web Site

Because of the quantity of products and data that will be produced over the lifetime of the CRMS project, a Web site (http://www.lacoast.gov/crms) was designed to be a one-stop shop for CRMS information, products, and data. The ecological data available through the Web site are linked to the official Louisiana OCPR database, which houses all CWPPRA monitoring data, on topics such as the following: hydrology, herbaceous marsh vegetation, forested swamp vegetation, soil properties, soil accretion, and surface elevation. Data provided by the Louisiana OCPR are available for downloading at http://dnr.louisiana.gov/crm/coastres/monitoring.asp and can be selected by project name, CRMS site, or station number.

The basic viewer (under Mapping) on the CRMS Web site provides a user-friendly interface for viewing information on specific sampling sites, including photos, data summaries, and report cards (fig. 4). Analytical teams are developing mechanisms by which individual sampling sites can be assessed in relation to other sites within the same marsh type, hydrologic basin, and CWPPRA project. These multiscale evaluations will be presented on a “Report Card” tab within the basic viewer.

The CRMS program is as dynamic as the coastal habitats it monitors. The program continues to develop new products and analysis tools while providing data for model improvement and scientific research. The CRMS Web site is the current dissemination mechanism for all activities related to the program.

Reference


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