

CERP Adaptive Management Program Implementation

Andrew LoSchiavo¹, Elmar Kurzbach¹, Jim Vearil¹, Matt Harwell², Agnes McLean³, Steve Traxler⁴, Tom St. Clair⁵, Rebecca Burns⁵, Eliza Hines⁵

¹U.S. Army Corps of Engineers (USACE), Jacksonville District, Jacksonville, Florida; ²Everglades Program Team, A.R.M. Loxahatchee National Wildlife Refuge, Boynton Beach, FL

³National Park Service, Everglades National Park, Homestead, FL; ⁴U.S. Fish and Wildlife Service, Vero Beach, FL

⁵Everglades Partners Joint Venture (EPJV), Jacksonville, Florida



What is CERP Adaptive Management?

Adaptive Management is a structured management approach for addressing uncertainties by testing hypotheses, linking science to decision making, and adjusting implementation, as necessary, to improve the probability of restoration success. Adaptive management provides an efficient process to address risk and uncertainty inherent within ecosystem restoration by encouraging flexible plans and designs.

Why CERP Utilizes Adaptive Management

Recognizing there were many uncertainties associated with the Comprehensive Everglades Restoration Plan (CERP), Congress authorized the development of an adaptive management program for CERP in the 2000 Water Resources Development Act. Through adaptive management, uncertainties could be addressed and restoration goals are more likely to be achieved.

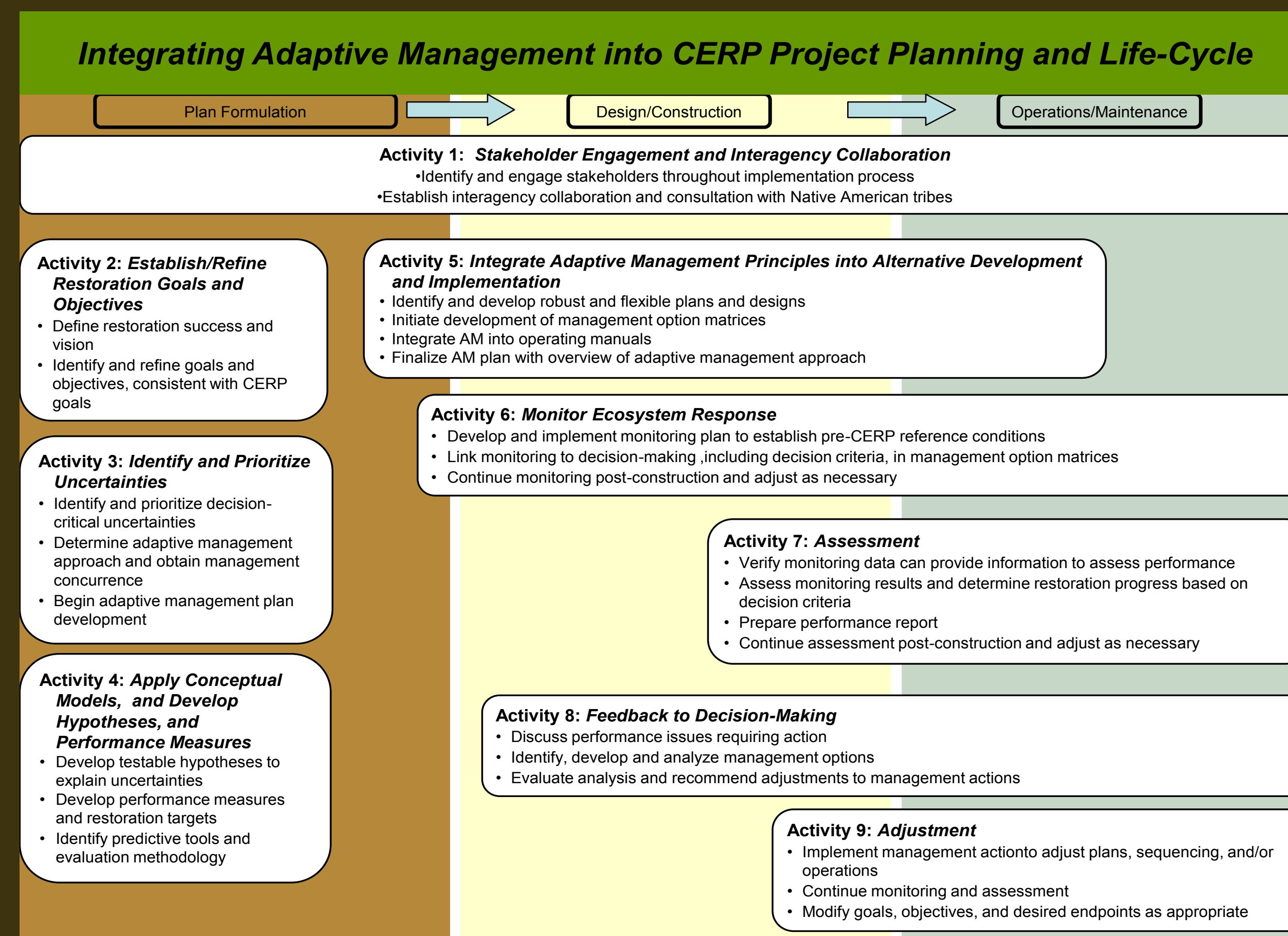


The 2007 Water Resources Development Act requires all CERP ecosystem restoration projects to develop adaptive management plans. The Adaptive Management Integration Guide was developed to help CERP project teams apply adaptive management principles consistently by providing guidance within the context of the USACE Six-Step Planning Process and the project life-cycle.

What are the Principles of CERP Adaptive Management?

- Promoting stakeholder engagement and interagency collaboration
- Employing a formal science-based management approach to address scientific/technical uncertainties that affect goals and objectives
- Incorporating flexibility and robustness into plans and operational designs to allow for adjustments
- Incorporating scientific information into the decision-making process
- Utilizing the most cost-effective approach to maximize ecosystem restoration

How does CERP Adaptive Management Work?



Nine activities have been developed to integrate the adaptive management principles into the USACE Six-Step Planning Process, which governs CERP project planning. These activities supplement the planning process by providing a process to manage risk associated with key uncertainties.

➤ At the CERP program-level, adaptive management principles have been integrated into the Plan, with one example being the Adaptive Assessment and Monitoring Program. Monitoring and assessment are used to address uncertainties, verify hypotheses, and provide information to managers, project teams and stakeholders regarding ecosystem responses to current system operations and CERP implementation. This information is then used to make decisions about whether and how to adjust the Plan.

➤ The scope and scale of each CERP project's adaptive management plan will be based on the scientific, technical, and/or policy aspects of that specific project. Some adaptive management plans may be simple while others will be complex. To date, only the Biscayne Bay Coastal Wetlands and Water Conservation Area 3A Decompartmentalization Projects have developed official adaptive management plans. Several projects, already far along in the planning process, used adaptive management principles and approaches in several ways to address uncertainty, including L-31, C-111 Spreader Canal, and Picayune Strand.

Iteration

Although the nine adaptive management activities are listed in numeric order, they do not have to be implemented in a linear fashion. Instead, implementation should be iterative such that new information is used to inform decision-making at any stage. Planning and implementation in the context of complexity and uncertainty often require an iterative approach to achieve a successful outcome.

What is the Status of the CERP Adaptive Management Program?

✓ **The CERP Adaptive Management Integration Guide (Guide)**, which describes how to integrate adaptive management into the planning process and project life-cycle, has undergone public and expert peer review, and is in the final stages of completion.

✓ **Projects** - several projects have integrated adaptive management principles into their plans to improve their probability of success.

✓ **Decomp Physical Model**, an active adaptive management field test, will address decision-critical uncertainties related to best designs for achieving desired sheetflow rates and patterns.

✓ **Scientific Knowledge Gained**, a compilation of new scientific information since CERP was authorized, is undergoing public review. This document constitutes the first phase of the **2010 Shared Definition of Everglades Restoration** effort, the goal of which is to use new information to better define the functional attributes of a restored Everglades ecosystem.

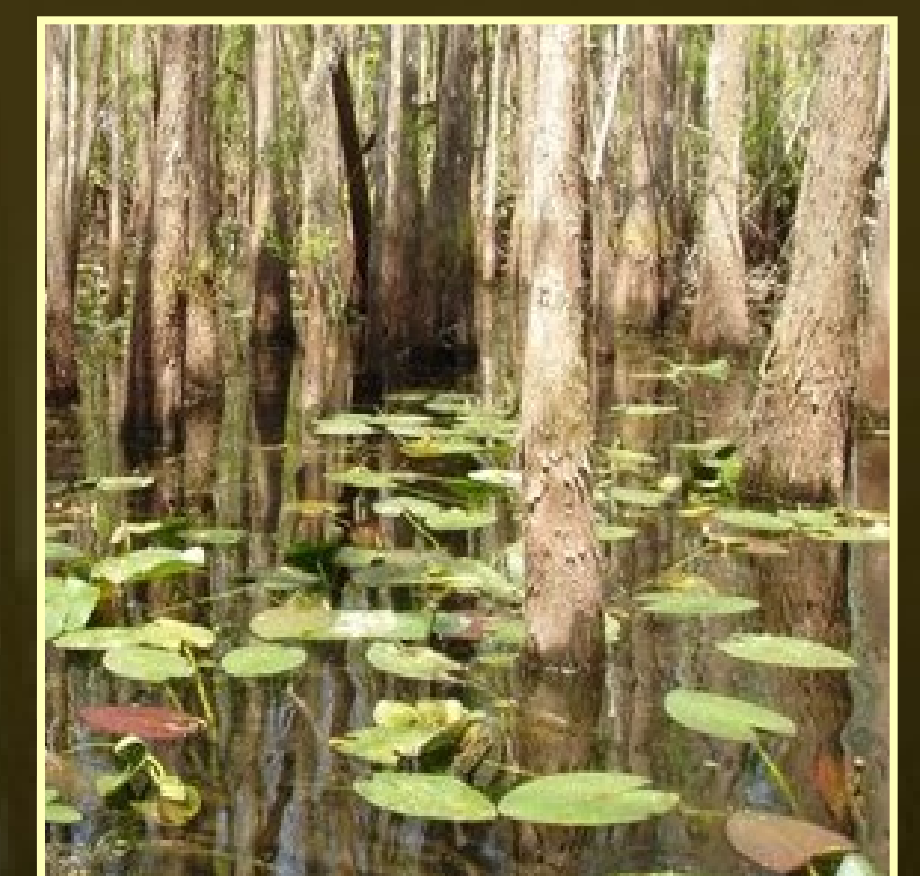
✓ **CERP Guidance Memorandum 56: Integrating Adaptive Management into CERP Project Implementation Reports** is being prepared to complement the Guide and provide detailed guidance for project planning.

✓ **The 2009 System Status Report**, an assessment of system-wide monitoring data that reaffirms CERP hypotheses, is in the final stages of completion.

✓ A **workshop with managers and stakeholders** was held to discuss the information feedback to decision making process for CERP.

Key Points

➤ Until recently CERP projects have used adaptive management in various ways. Adaptive management guidance for CERP will help project teams apply this tool consistently, while tailoring to the specific scientific, technical, and/or policy aspects of the project.



➤ CERP is transitioning from planning to implementation and adaptive management provides a structured approach to gather new information and identify success or performance issues. A formal process for incorporating that information into decision making is necessary, and is evolving as CERP progresses.