

Columbia Estuary Ecosystem Restoration Program: An adaptively-managed regional collaboration informed by RME

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Content

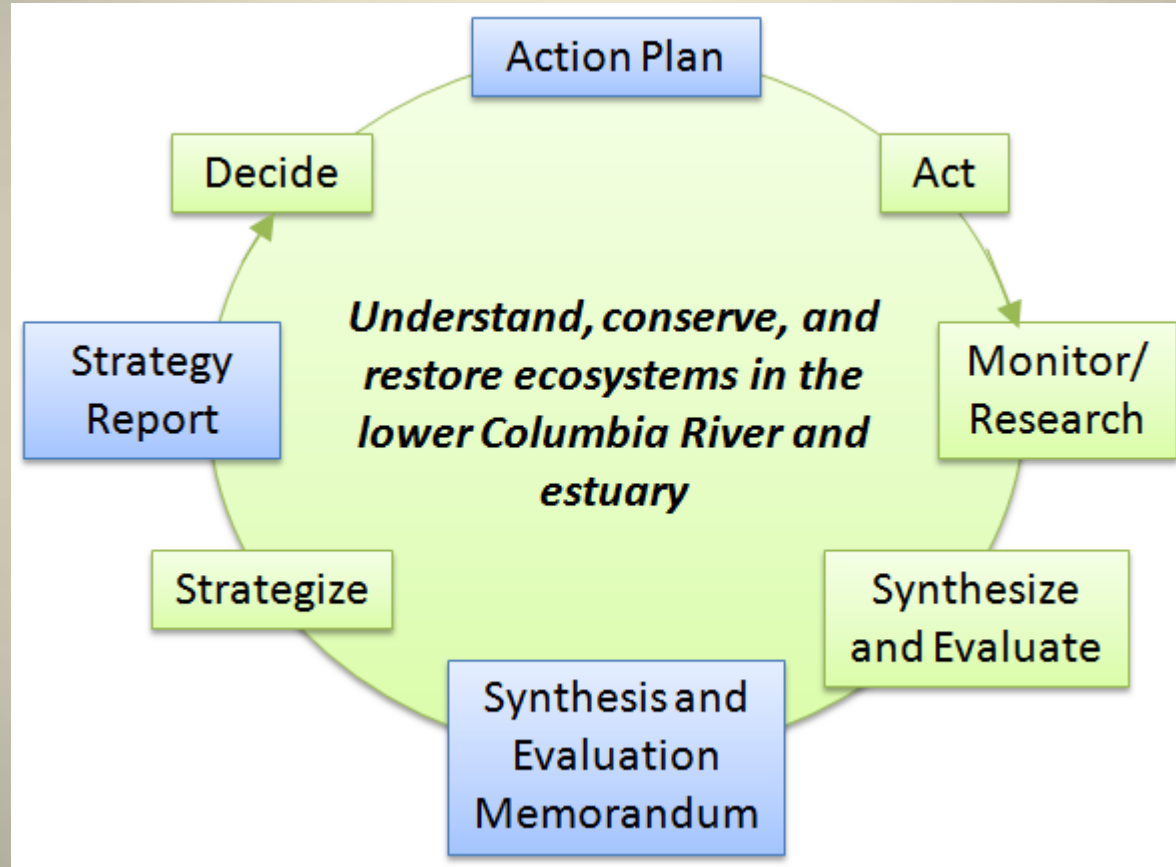
- CEERP goal and objectives
- Program foundation and adaptive management process
- Research areas, tools, and products
- Management questions
- Conclusions



CEERP Goal and Objectives

- Goal: Understand, conserve, and restore ecosystems in the lower Columbia River and estuary (LCRE)
- Objectives:
 - Understand primary stressors affecting ecosystem controlling factors
 - Conserve and restore ecosystem structures, processes, and functions
 - Improve salmonid performance

The CEERP Is Implemented Using an Adaptive Management Framework



Adaptive Management Phases, Teams, and Products

Phase	Responsible Party or Team	Product
Strategize	AAs and Regional Stakeholder Teams, with input from ERTG and others	Strategy Report
Decide	AAs	Action Plan
Act (Implementation)	AAs and Restoration Practitioners	As-Built Report
Monitor/Research	AAs and RME Practitioners	Site Evaluation Cards, Technical Reports
Synthesize and Evaluate	Technical Analysis Team AA/NOAA/NPCC RM&E Workgroup	Synthesis and Evaluation Memorandum

ERTG = Expert Regional Technical Group

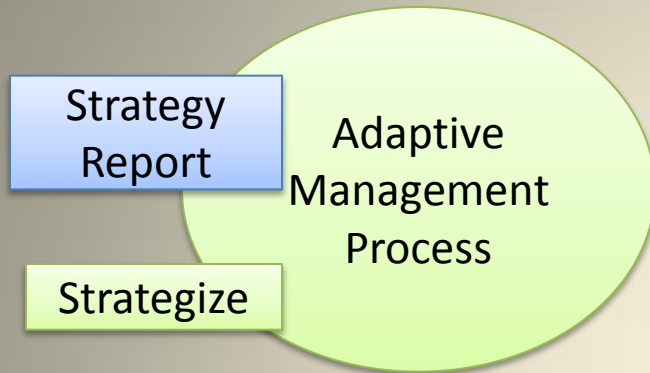
Regional stakeholders include AAs, Cowlitz Tribe, CLT, CREST, LCFRB, LCREP, NMFS, NPCC, ODFW, WDFW, USFWS, among others.

CEERP's Integrated Restoration Project Planning and RME



RME activities are in yellow.

Strategize Phase



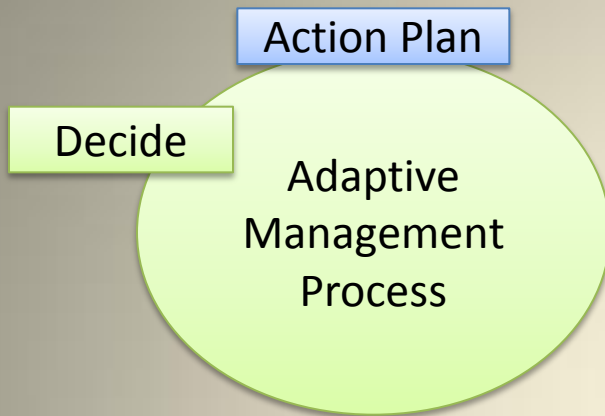
Tools:

- Ecosystem-Based Approach to Restoration (2003)
- LCRE Conceptual Ecosystem Model (2005)
- Lower Columbia River Restoration Prioritization Framework (Tier 1) (2006)
- Habitat Classification System (2011)
- Strategic Restoration of Juvenile Salmon Habitat in the CRE Based on Ecosystem Classification System (In progress)
- Multiple Lines of Evidence to Target Areas for Strategic Ecosystem Restoration (In progress)

Products:

- **Annual Strategy Report**

Decide Phase



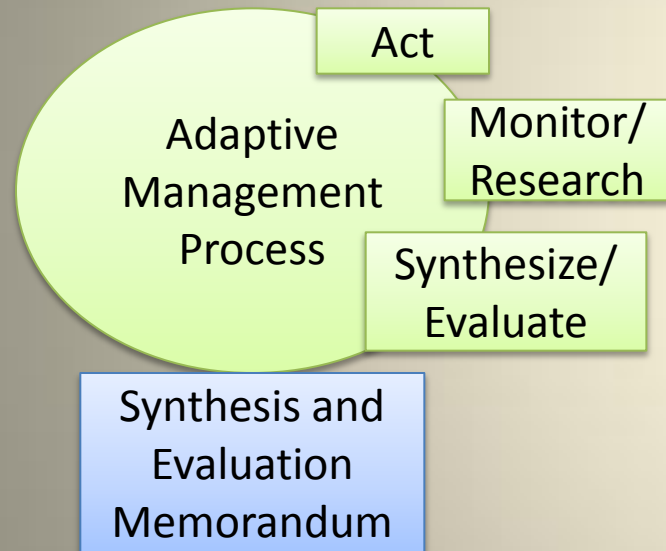
Tools:

- **Adaptive management framework**
- Restoration project inventory and status tracking spreadsheet
- Prioritization results (Tier 2)
- ERTG project template, scoring criteria, and SBU calculator
- Feasibility study process and incremental benefit analysis
- LCREP Science Work Group project evaluations
- AFEP Science Review Work Group rankings (RME projects)

Products:

- Feasibility study reports
- Assigned survival benefit units (project-specific and cumulative)
- **Annual Action Plan**

Act, Monitor/ Research, and Synthesize/ Evaluate Phases



Tools:

- Levels-of-evidence approach for CE (2004)
- Net ecosystem improvement approach (2005)
- Effectiveness monitoring protocols (2006)
- Project and site evaluation card templates (2008?)
- Meta-analysis methodology (2009)
- Habitat connectivity index (2010)
- Early life history diversity index (2010)
- **Geospatial CEERP database (prototype)**

Products:

- Ecosystem monitoring, 2003-2010 (*status and trends*)
- LOE (2011; *action effectiveness*)
- Juvenile salmon ecology in LCRE during 2000-2010 (*critical uncertainties*)
- As-built reports and site evaluation cards (*implementation and compliance*)
- Annual BiOp Progress reports
- Estuary RME Synthesis report (2011/2012; *synthesis and evaluation*)
- **Annual Synthesis & Evaluation Memorandum**

Answers to CEERP Management Questions

1. Are the estuary habitat actions achieving the expected biological and environmental performance? **YES, as reported in the data to date, and will continue being confirmed with future RM&E**
2. Are the habitat actions in the estuary improving juvenile salmonid performance and which actions are most effective at addressing the limiting factors preventing achievement of habitat, fish, or wildlife performance? **YES, in general, floodplain reconnections work.**
3. What are the limiting factors/threats in the estuary and ocean that prevent achieving the desired fish or habitat performance? **Available land for floodplain and shallow water habitat reconnection.**

Summary

- Our purpose today was to summarize the Columbia Estuary Ecosystem Restoration Program (CEERP) and demonstrate the integral role that adaptive management and Cumulative Effects play in it.
- The CEERP Adaptive Management Program is a well thought out program, founded in sound science, that is used to plan and prioritize projects, evaluate restoration successes and failures, and inform CEERP decision making.
- The Adaptive Management process was developed as part of the Cumulative Effects research to assist the Corps and our regional restoration partners.

Conclusions

- The CEERP's early planning documents were critical to the program's successes to date (developed over time).
- A regional adaptive management framework for the CEERP is being implemented, the Cumulative Effects and Levels of Evidence Approach play an integral role in it.
- The AM framework integrates elements from existing activities among multiple collaborators to significantly improve restoration program strategy and decision-making.
- We are developing collaboration with other AM programs within the Columbia River Basin
- CEERP RME indicates floodplain reconnections are beneficial to juvenile salmon and LCRE ecosystems.

Closing

- We have a well-thought out program, founded in sound science, that is used to plan and prioritize projects, evaluate restoration successes and failures, and inform CEERP decision-making.
- The Cumulative Effects project has provided invaluable input and tools into the CEERP Program.
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