

Adaptive Management for the Ecosystem Restoration Program in the Lower Columbia River and Estuary

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Presentation Outline

- ◆ Purpose
 - ◆ Evolution and status
 - ◆ Description
 - ◆ Use of research
 - ◆ Issues for implementation
 - ◆ Implications to policy-making
 - ◆ Conclusions and recommendations
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- A decorative silhouette of a mountain range in shades of teal, located at the bottom right of the slide.

Purpose

- ◆ What I hope to accomplish with this talk
- ◆ Reiterate Habitat Program goal:
 - Understand, conserve, and restore the estuary ecosystem to improve the performance of listed salmonid populations.

Evolution and Current Status of the AM Plan

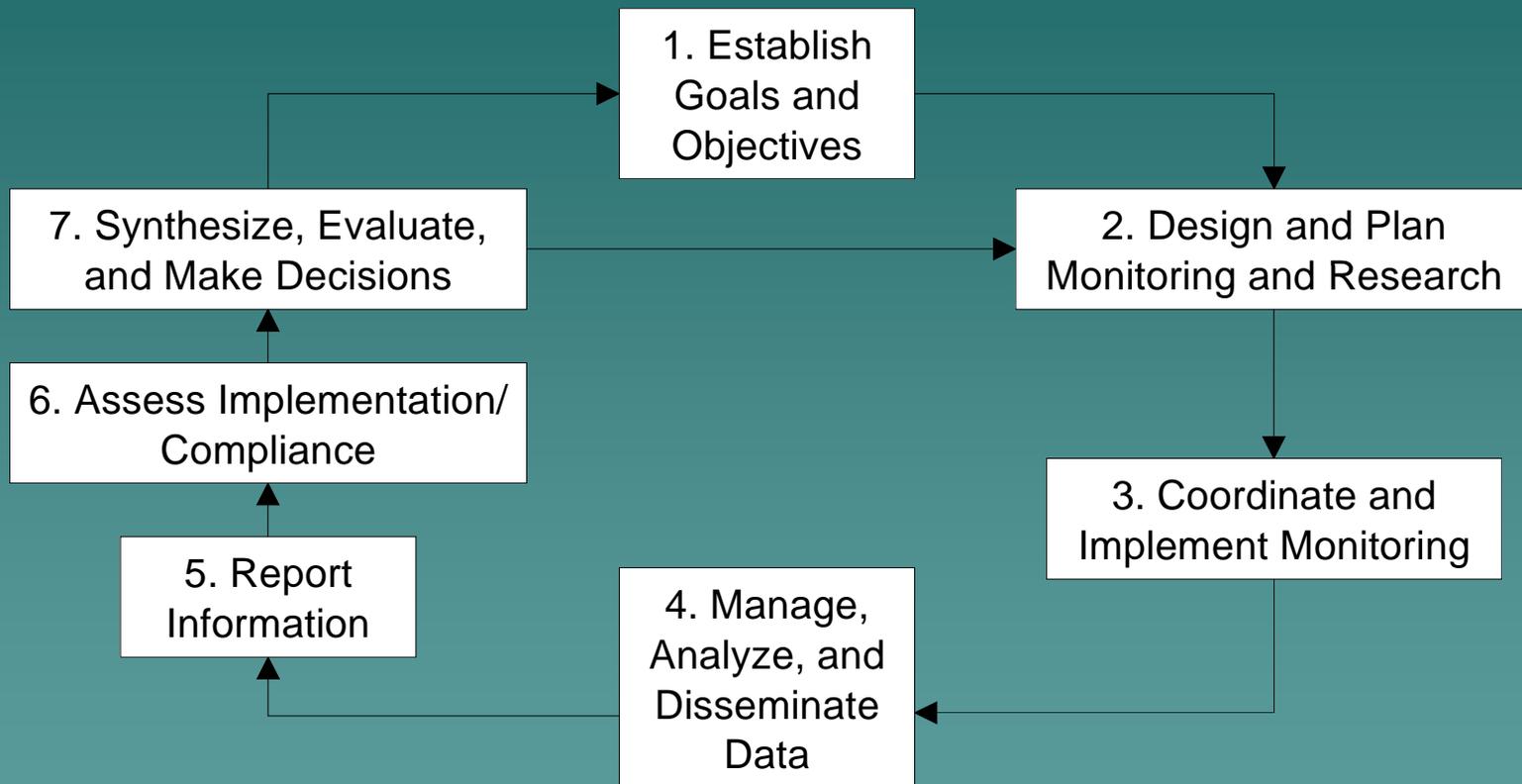
- ◆ We're adaptively managing the AM program!
- ◆ Who's using the plan?
- ◆ Link to Corbett/Sinks talk on the Habitat Program
- ◆ Corps-centric to regional
- ◆ National implications
- ◆ Currently early stages of implementation; previous AM somewhat ad hoc
- ◆ Formalize and institutionalize -- taking the plan and turning it into a Program

AM Status and Future in the Columbia River Estuary

MERGE w/ Previous slide

- ◆ AM Plan developed (Thom et al. 2008).
- ◆ Beginning implementation from the bottom up
- ◆ Regional coordination is underway
- ◆ Progress has been positive, but slow
- ◆ Part of the problem is not enough is known about the effectiveness of habitat restoration
- ◆ AM will be the central theme for the biennial Columbia River Estuary Conference in 2010

The AM Plan -- Content



Use of Research

WORK on this one

- ◆ Research informs decision-making. Examples of how the Corps and partners use research results.
- ◆ Example of site-specific AER work (e.g., Micah's talk on effectiveness monitoring). We use these data to >>>>>>>.
- ◆ Example of ecosystem based AER work (e.g., Ron's talk on CE). We use these data to >>>>>>>. CE is an estuary-wide synthesis of project-specific AER.

Issues for Implementation

- ◆ Funding for effectiveness monitoring
- ◆ Uncertainties about restoration benefits
- ◆ Active regional collaboration and buy-in
- ◆ Data analysis, management, and dissemination
- ◆ Estuary-wide data synthesis
- ◆ Others?

Application to Policy-Making

- ◆ Coordination and integration w/ other regional AM efforts
 - NPCC F&WP AM
 - BiOp AM
 - Estuary Partnership AM
- ◆ Note: Perhaps the Council could use some of the Corps-developed plan in the Council's AM effort.

Conclusions and Recommendations

- ◆ Conclusion: we have a basis for a regional AM program in the estuary.
- ◆ Things necessary to really implement AM -- turn the plan into a program
 - Standardized monitoring protocols
 - Regional ownership
 - Coordination
 - Timely analyses and evaluation
 - Organized data and information dissemination system
 - Funding
 - ◆ The Corps' 1% rule (monitoring cost out of total project cost)

Closing

Really though, adaptive
management is just.....

Common Sense

**GET NEW DONKEY
PICTURE**

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- ◆ State Agencies
- ◆ Portland District COE

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ANNEX



Columbia River Ecosystem Restoration Adaptive Management Needs

- ◆ Corps has many different authorities to develop ecosystem restoration projects
- ◆ Legal mandate to restore juvenile salmon habitat from the Biological Opinion on operation of the Federal Columbia River Power System
- ◆ Multiple entities working on restoration
- ◆ Millions of dollars have been and many more will be spent
- ◆ Present AM Plan is Portland District centric but is applicable regionally and nationally

Examples of Real Uncertainties Affecting Restoration Success in the CRE

- ◆ changes in hydrology and hydrodynamics from river regulation and climate change
 - ◆ potential flooding of adjacent properties
 - ◆ elevation distributions of major tidal wetland plant species
 - ◆ colonization of restored sites by invasive species
 - ◆ changes in land use adjacent to restored sites
 - ◆ juvenile salmon use of a restored wetland sites
 - ◆ salmon resilience
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AM Decision-Making

- ◆ What is the goal for the project?
 - ◆ What are the highest priority projects?
 - ◆ What projects have the biggest impact on the broader ecosystem?
 - ◆ What is the best approach to restore a site to meet its goal?
 - ◆ What should be done if the project is not meeting its goal?
 - ◆ When should the corrective action be implemented?
 - ◆ What is the best way to assess and report effectiveness?
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Restoration Lessons in the CRE

- ◆ Given Corps authorities, potential sites for restoration are limited because of land use practices, accessibility, suitability, etc.
- ◆ Tidal reconnection does not necessarily mean fish will access the site. Site selection is key.
- ◆ Hydrology and vegetation are critical to monitor, because they are primary ecosystem controlling factor and structure, respectively. [FIX]
- ◆ Changes happen rapidly within the first few years following tidal reconnection; however, restored sites take along time to mature. Therefore, sampling should be designed accordingly.
- ◆ Data analysis, management, and dissemination are critical but difficult to implement systematically and thoroughly.
- ◆ Periodic meetings of restoration designers and monitoring practitioners are required to learn and adapt.

Adaptive Management Reality

FIX

- ◆ AM is easier to talk about than affect
- ◆ Sufficient funding for AM is problematic
- ◆ Guidance “from above” could assist
- ◆ Presently, work from the bottom up is the primary way AM is implemented
- ◆ Changes in authorities regarding funding for restoration effectiveness monitoring are necessary
- ◆ Need to take the bull by the horns and “just do it”

How the Pieces Fit Together

