Mitigation, Monitoring and Adaptive Management (and some restoration)

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PEOPLE WORKING TOGETHER TO ALIGN, DELIVER & SUSTAIN PLANNING PROGRAM PROJECTS PROCESS
ATLANTA PCoP WORKSHOP 2015

Overview

- Objective – re-fresher on guidance for
  - Formulation of Mitigation, Monitoring and Adaptive Management
  - Monitoring and Adaptive Management for restoration projects
- Important for all levels of environmental planners to be familiar with the guidance

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Guidance

- Implementation Guidance for
  - ▶ WRDA 2007 Section 2036 (mitigation)
  - ▶ WRDA 2007 Section 2039 (Eco. Rest)
  - ▶ *WRRDA 2014 – Section 1040 - forthcoming*

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Mitigation, Monitoring, Adaptive Management and SMART Planning

- When – Depends on what is needed to make a decision
  - Does the mitigation plan affect the TSP decision?
  - Is the mitigation plan controversial?
- How much detail? *Draft Report*
  - Success criteria
  - Responsibilities and cost estimates
- Adaptive Management – risk buy-down

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Mitigation Points to Remember

- Utilize your interagency resources
- Look at all habitat types – not just wetland
- Not all impacts will require mitigation
- Models need to be certified (or for CAP at least ATR'd)

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Mitigation

- Determining the mitigation is only the first step –Must complete the mitigation plan with a monitoring plan and adaptive management plan

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Key Aspects to a Monitoring Plan

- What
- Why
- Success Criteria
- How
- How long (cost share restrictions)
- Cost Estimate
- Who

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Key Aspects of Adaptive Management

- What if success criteria not achieved?
- Is AM possible? Can it assist?
  - Determine risks
  - Determine responses
- Relationship to monitoring
- Don't forget Interagency resources

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Take Home Points

- Read/Follow Policy (Sec 2036 & 2039)
- The rationale and cost of mitigation, monitoring, and AM are part of the decision document
- Planning doc must clearly provide cost estimates and decision points/criteria for M&AM
- "Ecological success" is a central criterion which needs precise definition for each project
- While M&AM are considered for all ER project and mitigation, minimal efforts may be needed for many projects (scale)
- Other authorities may be need if AM cannot assist in achieving ecological success.

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Resources

- ERDC On-line Library
  - http://acwc.sdp.sirsi.net/client/search/
- Ecosystem Restoration Gateway- http://cw-environment.usace.army.mil/tools.cfm?CoP=Restore
- Distribution lists (NRCS, Eco Rest, Professional Organizations, etc.)
- Webinars (NRCS, USGS, EPA, others)
- Regional Scientists
- Local Universities/Colleges
- Google or other search engines

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a. *ensure that any report, submitted to Congress for authorization, shall not select a project alternative unless such report contains*

(1) a specific recommendation with a specific plan to mitigate fish and wildlife losses or

(2) the Secretary determines that the project will have negligible adverse impacts;

b. ensure that other habitat types are mitigated to not less than in-kind condition, to the extent possible;

Implementing Guidance

WRDA 2007 Section 2036(a)

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Determining Mitigation Checklist

1. Build An Interagency Team
2. Determine impact area - Classify, delineate & inventory habitats
3. Determine Model Focus & Select, Modify or Create Model(s)
4. Calculate Baseline Conditions
5. Develop Goals & Objectives / Alternatives
6. Determine W/O Project Conditions
7. Develop With-Project Conditions
8. Perform CE/ICA – choose alternative
9. Record the analysis in the report

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Classify and Delineate

- If available, an interagency team can assist in classifying and delineating
- Ideal to do in the field, however, may have to use GIS or other methods
- First step in determining models
- Look at all habitat types – not just wetland
- Not all impacts will require mitigation

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Model Certification

- Mandatory for **any model or analytic tool** used in the planning process (EC 1105-2-412 Jan 09)
  - Be technically sound and computationally correct.
  - Be based on **validated** (verified) and accepted "state of the art" theory
  - Incorporate Corps' policies and requirements
  - Properly incorporate conceptual theory into computer code
  - Define assumptions inherent in model
- EXEMPT: CAP* projects

*CECW-P 19 Jan 2011 CAP Process Improvements

- *Ecosystem Restoration Gateway Model library*

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Helpful "Hints"

- Based on Functional Equivalent–not ratios or acres
- Baseline is current conditions–used to compare against with and without project
- Determine the scale of mitigation needed – should be close to the functional equivalent
- Many of the models are quantity x quality
- Utilize CE/ICA to get the most for the money – and it is required
- Tell the story – how determined impacts and mitigation
- Avoiding the impact is a form of mitigation

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Examples of Restoration / Mitigation Techniques

1) Dam removal
2) Alternatives to dam removal
3) Stream restoration
4) Wetland restoration
5) Beneficial use of dredged material
6) Water control structures
7) Artificially Placed Natural Structure
8) Operational Management of Projects

Fish Passage

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Determining the mitigation is only the first step

– Must complete the mitigation plan with a monitoring plan and adaptive management plan

require mitigation plans comply with the mitigation standards and policies of the regulatory programs administered by the Secretary and require specific mitigation plan components, including;

1) monitoring until successful,

2) criteria for determining ecological success,

3) a description of available lands for mitigation and the basis for the determination of availability,

4) the development of contingency plans (i.e., adaptive management),

5) identification of the entity responsible for monitoring; and

6) establish a consultation process with appropriate Federal and State agencies in determining the success of mitigation.

Implementing Guidance
WRDA 2007 Section 2036(a)

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Monitoring and Adaptive Management

- Definition Of Monitoring
- Definition Of Adaptive Management
- Benefits Of Adaptive Management
- When To Use Adaptive Management
- Concerns Associated With Monitoring and Adaptive Management

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Definition of Project Monitoring

- "...includes the systematic collection and analysis of data that provides information useful for assessing project performance, determining whether **ecological success** has been achieved, or whether adaptive management may be needed to attain project benefits."

USACE CECW-PB, 8/31/09

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The monitoring plan must be described in the decision document and must include

- The rationale for monitoring,
  - including key project specific parameters to be measured and
  - how the parameters relate to achieving the desired outcomes or making a decision about the next phase of the project,
- the intended use(s) of the information obtained and
- the nature of the monitoring
  - including duration and/or periodicity,
  - and the disposition of the information and analysis as well as
  - the cost of the monitoring plan,
  - the party responsible for carrying out the monitoring plan and
  - a project closeout plan.
- Monitoring plans need not be complex but the scope and duration should include the minimum monitoring actions necessary to evaluate success.

General Project Monitoring Objectives

- Determine available data & prioritize needs
  - Understand system(s)
  - Validate conceptual models
- Determine, document, and communicate "ecological success"
- Choose monitoring parameters/sample design
  - Assist in determining success
  - Support adaptive management (AM)
  - Determine analytical needs
- Identify action triggers for AM
- Estimate costs and identify responsible party
- Consult with other agencies

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Definition of Adaptive Management (NRC 2004)

A decision process that promotes **flexible** decision making that can be adjusted **in the face of uncertainties** as outcomes from management actions and other events become better understood.

Careful **monitoring** of these outcomes both advances scientific understanding and assists in the **adjustment of policies and operations** in an **iterative** learning process.

Recognizes the importance of the contribution of **natural variability** to ecological resilience and productivity. It is **not** a **"trial and error"** process, but rather emphasizes "**learning while doing**." Adaptive management does not represent an end in itself, but is instead a means to more effective decisions and enhanced benefits.

The true measure of adaptive management, and its value to USACE, is in how well it **helps meet environmental, social, and economic goals**, increases scientific knowledge, and **reduces tensions** among **stakeholders**.

What are the benefits to AM?

- Improved probability of project/program success - formal science-based approach
- Precautionary approach to act in the face of uncertainty
- Forum for dialogue between scientists and managers
- Forum for interagency collaboration and conflict resolution - consultation required
- Incorporates flexibility and robustness into project/program design, implementation, and operations

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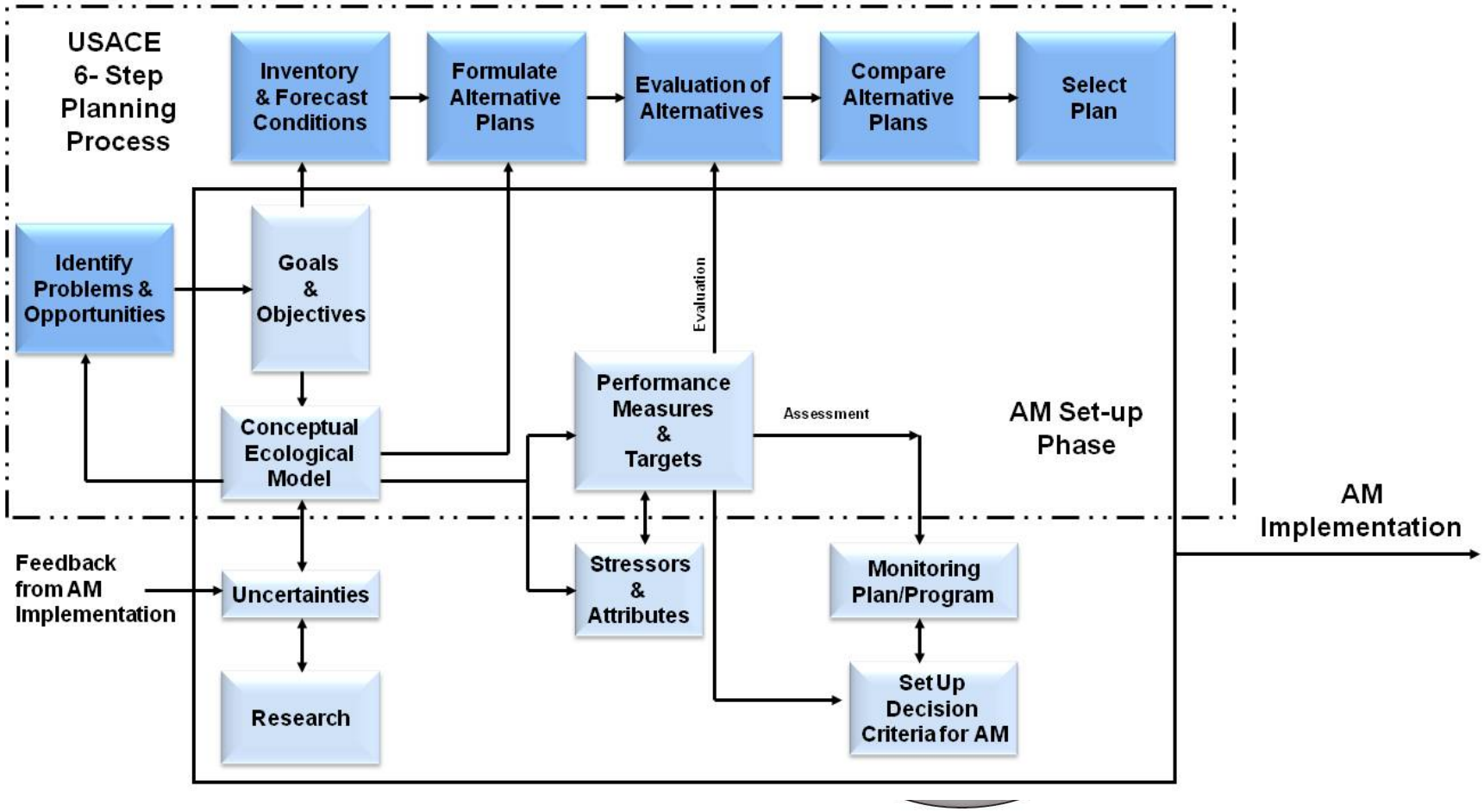
Integration of AM in Planning



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Integration of AM in Planning

Key Tasks

- identification of risks and uncertainties;
- development of clearly defined goals and objectives;
- development of conceptual and assessment models;
- identification of performance metrics and monitoring plans, and
- development of range of alts (including some that lend themselves to AM and others that may not)
- Result in Monitoring and AM Plan

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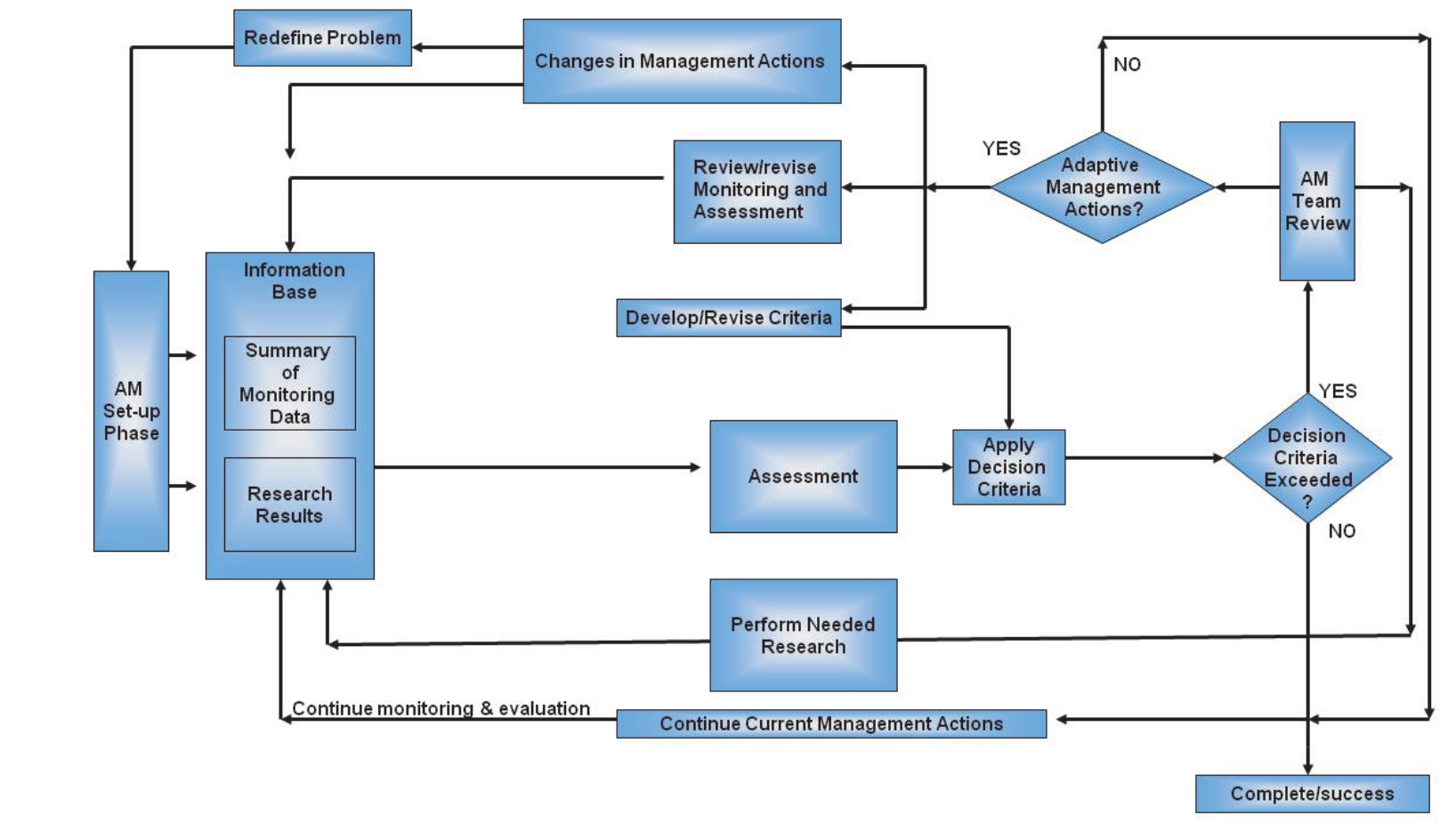
Implementation of Adaptive Management



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Not all decisions can or should be adaptive

- No opportunity to apply learning
- Little uncertainty about what action to choose
- Disagreement about objectives

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Concerns with Monitoring and Adaptive Management

- Should not make up for lack of good planning
- Corps is not a scientific research agency – monitoring must relate to success criteria
- Post const **cost shared** monitoring limited to 5 yrs or justified up to 10 yrs
- Sufficient information must be available for cost estimates – monitoring and adaptive management
- Scalability – Mitigation, monitoring and adaptive management should be properly scaled
- Application to all Mission areas not just ER

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Take Home Points

- Read/Follow Policy (Sec 2036 & 2039)
- An adaptive management plan will be considered for all ER projects and mitigation
- The rationale and cost of mitigation, monitoring, and AM part of the decision document review
- "Ecological success" is a central criterion which needs precise definition for each project
- The profile, use, and importance of monitoring are increasing with project partners potentially playing a bigger role
- Additional guidance on performance standards for ecological success is under development

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Take Home Points

- Changes to the AM plan approved in the decision document must be coordinated with HQUSACE.
- Significant changes needed to achieve ecological success (beyond operational changes or the AM plan) may be examined under other authorities.
- Costly AM plans may lead to re-evaluation of the project.
- While M&AM are considered for all ER project, minimal efforts may be needed for many projects
- Planning doc must clearly provide cost estimates and decision points/criteria for M&AM

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Resources

- Distribution lists (NRCS, Eco Rest, Professional Organizations, etc.)
- Webinars (NRCS, USGS, EPA, others)
- Regional Scientists
- Local Universities/Colleges
- Google or other search engines

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Large Ecosystem Restoration Efforts

Louisiana Coastal Area - http://www.lca.gov/
- Terrebonne Basin - http://www.lca.gov/data/Data1/Volume%20V%20Terrebonne%20Final/appendices/Appendix%20I%20-TBBSR%20Mon%20and%20AM%20plan.pdf
- White Ditch - http://www.lca.gov/data/Data1/Volume%20VI%20White%20Ditch%20Final/appendices/Apndx-I-White%20Ditch%20LCA-Monitoring%20and%20AM%20Plan_092610.pdf

Comprehensive Everglades Restoration Plan - http://141.232.10.32/pm/program_docs/adaptive_mgmt.aspx

Missouri River Recovery Program - http://www.moriverrecovery.org/mrrp/f?p=136:17:1265668070615376

Navigation and Ecosystem Sustainability Program - http://www2.mvr.usace.army.mil/UMRS/NESP/Documents/Water%20Level%20Management%20Report_Final%2028Oct2010.pdf

Columbia River Channel Improvement Program - http://www.nwp.usace.army.mil/Missions/Environment/AdaptiveEnvironmentalManagement.asp