A Monitoring and Adaptive Management Framework to Support the Restoration of Resources Injured by the *Deepwater Horizon* Oil Spill

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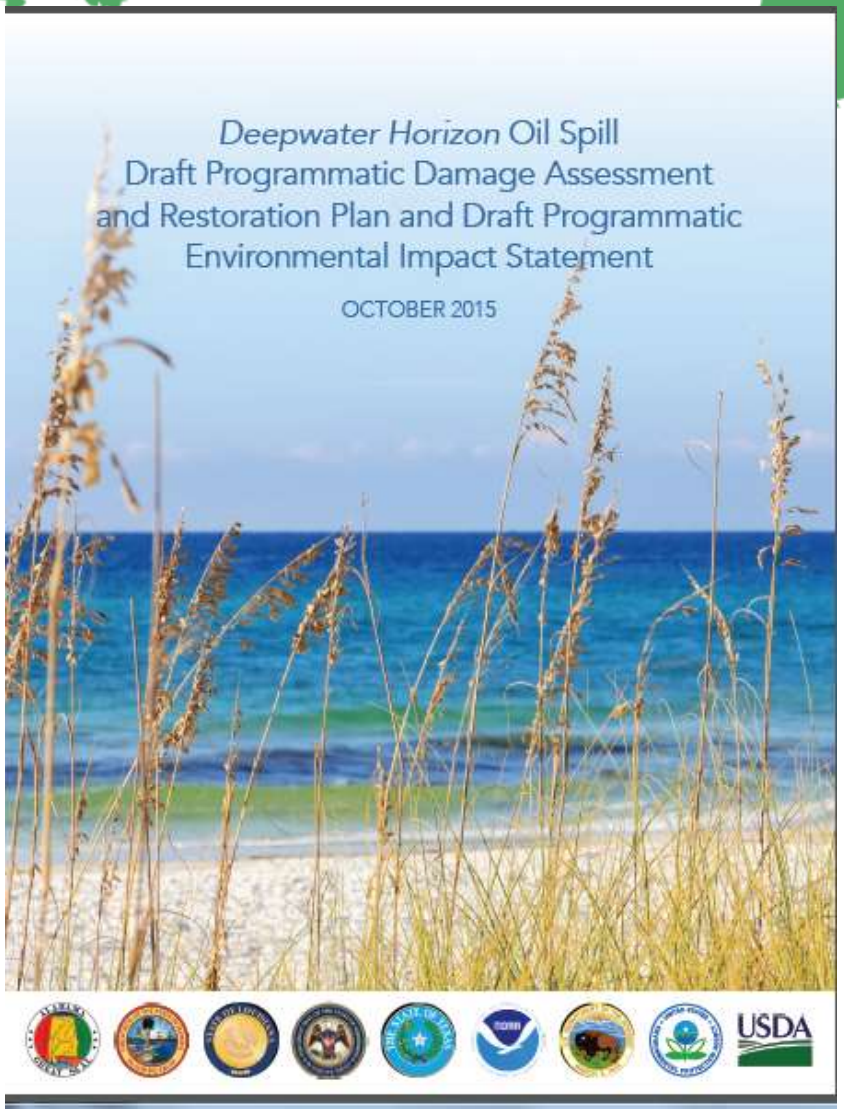
Presentation Overview

- PDARP Monitoring and Adaptive Management (MAM) Framework
- Trustee Council Standard Operating Procedures (SOPs): Building out the Framework
- Cross-TIG Monitoring and Adaptive Management work group

Monitoring and Adaptive Management Framework

PDARP Chapter 5
Appendix E

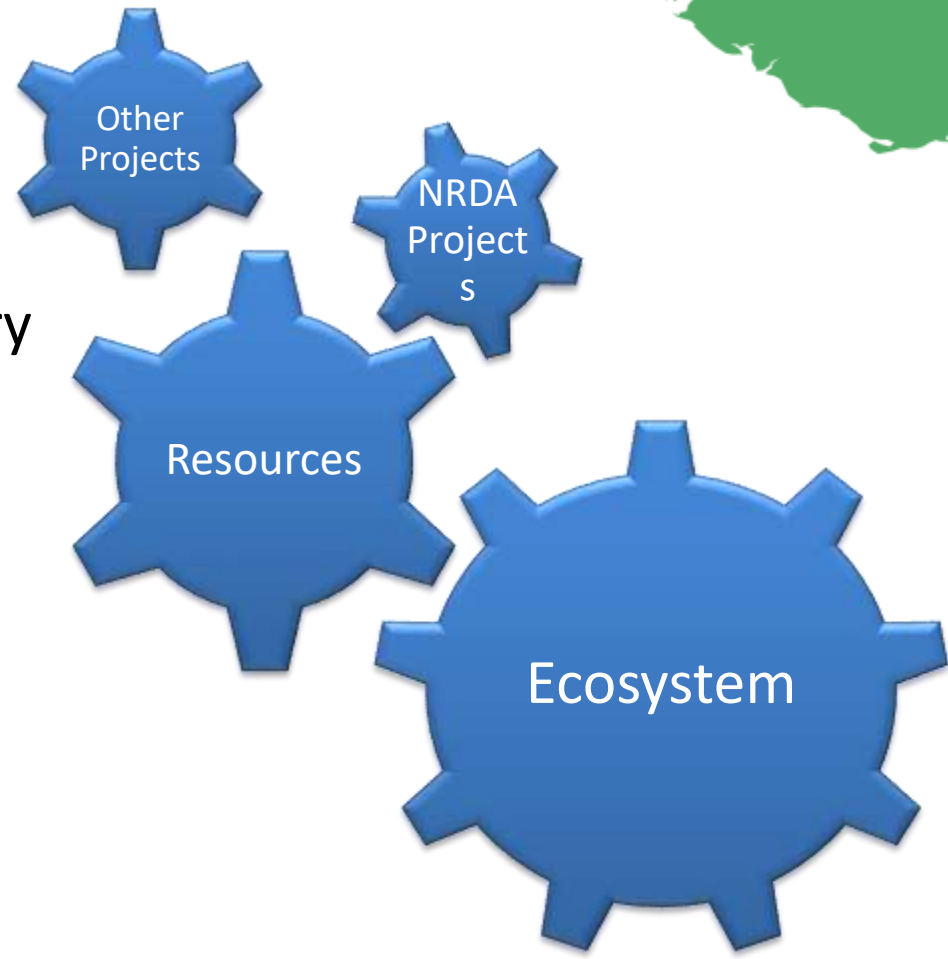


NRDA Restoration Monitoring

- Monitoring plans *must* include:
  - Measurable restoration objectives that relate to the injury
  - Performance criteria that trigger the need for corrective actions if the project is not performing as planned
- Monitoring plans *should* include:
  - Frequency and duration of sampling, sample size, budget

Why is MAM Foundational to Deepwater Horizon Restoration?

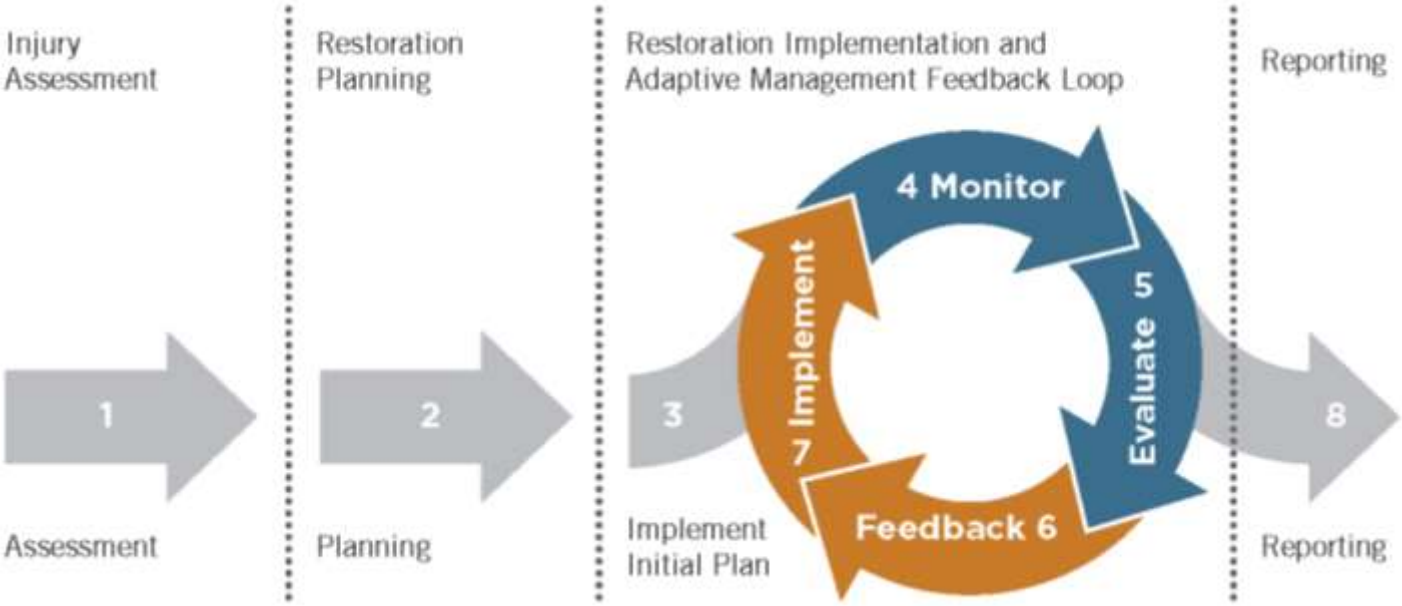
- Dynamic, changing environment
- Unprecedented scale of the injury and required restoration
- Lengthy timeline of restoration implementation
- Matrix of restoration efforts in the Gulf of Mexico
- Currently unknown conditions may influence restoration outcomes



The Adaptive Management Process

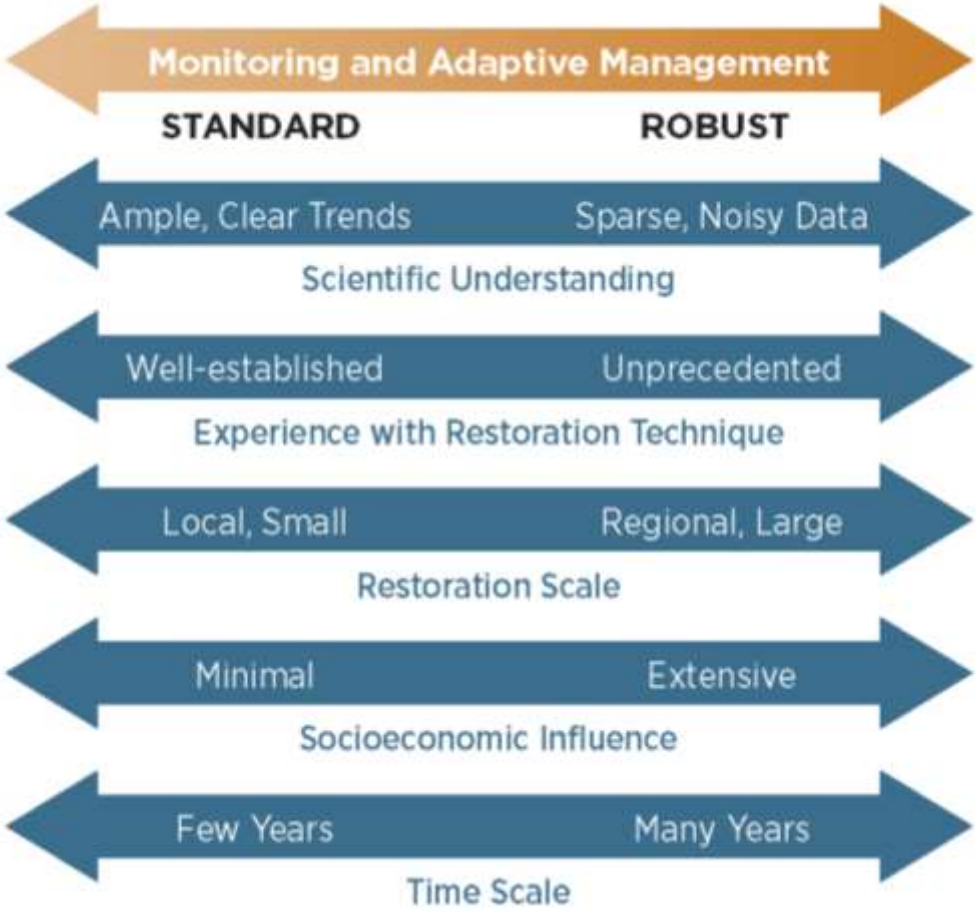
Applies at multiple scales:

projects, Restoration Types, programmatic



Monitoring, Adaptive Management and Uncertainty

The degree of monitoring and adaptive management needed depends on the level of uncertainty originating from several sources



Monitoring and Adaptive Management Responsibilities

Trustee Council: Summarize and Report

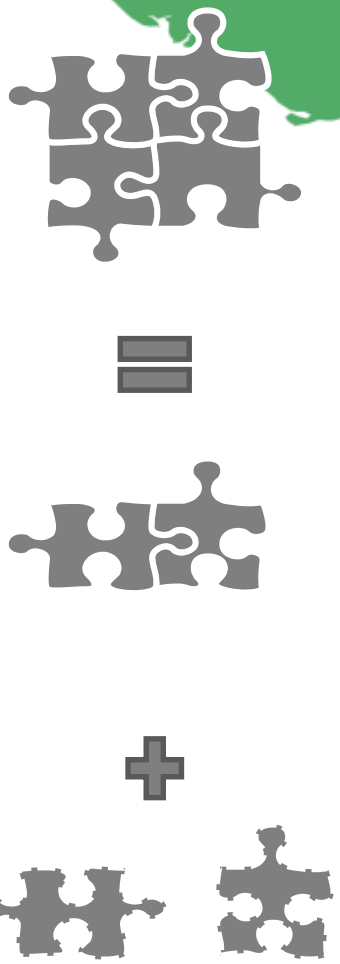
- Internal and external coordination
- Aggregate and synthesize MAM data and information
- Identify emerging unknown conditions

Trustee Implementation Groups: Aggregate

- Identify TIG MAM Priorities
- Provide review, and ensure consistency of MAM Plans
- Provide aggregated MAM data to Cross-TIG work group

Individual Trustee Agencies: Conduct

- Develop MAM Plans, conduct monitoring, evaluate projects
- Provide MAM data and other information to Restoration Management Portal



Monitoring and Adaptive Management SOP

Trustee Council SOP

Chapter 10

Trustee Council Standard Operating Procedures
for
Implementation of the
Natural Resource Restoration
for the
Deepwater Horizon (DWH) Oil Spill

May 4, 2016

Cross-TIG MAM work group

- Purpose:
  - Help Trustee Council meet MAM responsibilities
  - Forum to collectively address MAM topics relevant to multiple TIGs
  - Support for the TIGs and Implementing Trustees
- Membership:
  - One primary and one alternate from each Trustee Council member
  - NOAA and DOI serve as co-leads and external coordination POCs

MAM Procedures and Guidelines Manual

- Project Monitoring and Adaptive Management
  - MAM plan template*
  - Monitoring standards
  - Data standards; including data management protocols and metadata standards
- Data QA/QC, Clearance, and Release*
- MAM activity reporting and tracking
- MAM data aggregation and analysis
- Monitoring report templates*
- Programmatic evaluation and adaptive management
- Identification of potential “unknown conditions”

*developed during Early Restoration

Data Management and Reporting

- DIVER Deepwater Horizon NRDA Restoration Management Portal:
  - Project Tracking Database
  - Restoration Monitoring Database
- Portal should provide data summaries and basic reports
- TIGs will aggregate monitoring data annually and provide updates as part of the Annual Trustee Council meeting
- Programmatic reviews approximately every 5 years

Cross-TIG MAM work group – First Year

- Draft the MAM Manual (Version 1.0)
- External coordination with other Gulf restoration programs on MAM issues
- DIVER database structure for restoration monitoring data
- Identify and compile assessment data relevant to restoration monitoring and adaptive management
- Assist TIGs, as requested, in meeting their MAM responsibilities

MAM Manual Version 1.0

- Project Monitoring Guidelines, including:
  - MAM Plan template
  - Monitoring standards for a subset of restoration approaches/techniques:
    - Coastal wetlands
    - Beaches and dunes
    - Water quality
    - Recreational Use
- Data Standards and Data Management
- Guidance/process for identification of MAM priorities

External Coordination

- NOAA and DOI - External Coordination POCs
  - Gulf Restoration Science Coordination Forum, led by the RESTORE Act Science Program
  - RESTORE Monitoring Coordination Committee
- State representation on RESTORE MCC – currently Alabama
- Coordinate with other GoM restoration and science programs on monitoring products developed by the MAM work group

Other Progress

- DIVER
  - Database structure for restoration monitoring
  - Cross-TIG MAM work group data management working group (early 2017)
- Assessment data
  - NOAA and DOI compiling information on assessment datasets for each Restoration Type
- MAM support to the TIGs
  - Reviewed Mississippi draft MAM plans, providing feedback on content, use of the new MAM plan template

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Questions?