



# Coordinated Restoration through Monitoring: Current Efforts for Facilitating a System Response

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Monitoring Community...

# Why is Monitoring and Adaptive Management Foundational to DWH Restoration

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- Dynamic, changing environment
- Unprecedented scale of the impacts, 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

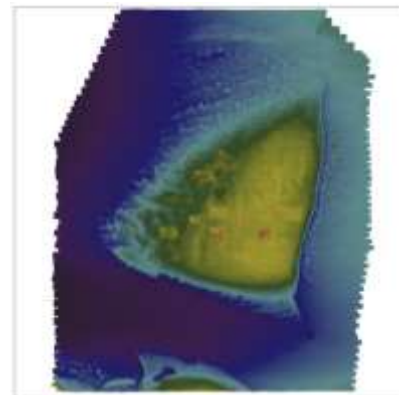


# Background

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Coordinated monitoring identified to support:

- Science-based decision-making
- Measurement of restoration and management outcomes
  - Project scale
  - Basin/watershed scale
  - Regional scale
- Evaluation of progress towards comprehensive ecosystem restoration and injury recovery objectives
- Reporting to stakeholders

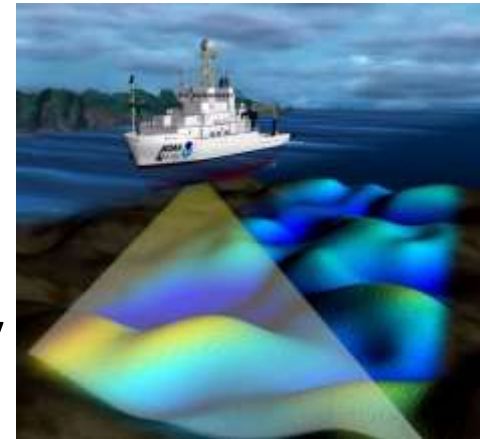


# Approach

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## Use and build on the numerous existing monitoring activities & programs and science in the Gulf

- Identify, catalogue, and understand historic and ongoing monitoring activities and associated data
  - Measurements taken
  - Location
  - Timing
  - Methods/Protocols
- Improve coordination of regional capabilities and capacity
- Develop and ensure consistent methods and protocols
- Develop data quality, management, and accessibility standards
- Monitor at different scales (project, basin, state, Gulf-wide)
- Identify and address information gaps
- Utilize science-based decision support tools and adaptive management applications – design to learn



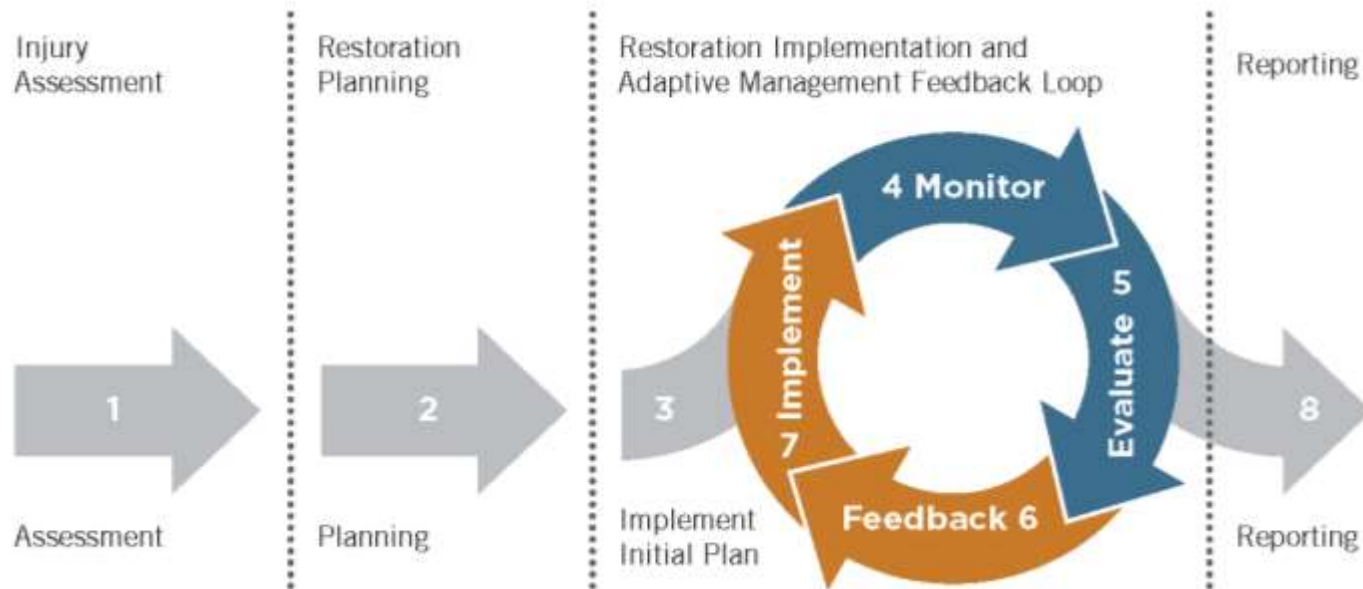
# Build Out Foundational Monitoring Elements



# Adaptive Management Application

where appropriate

- Iterative feedback loop provides opportunities to address uncertainties and adjust restoration implementation as needed
- Applies at multiple scales: Projects, Restoration Types, Programmatic





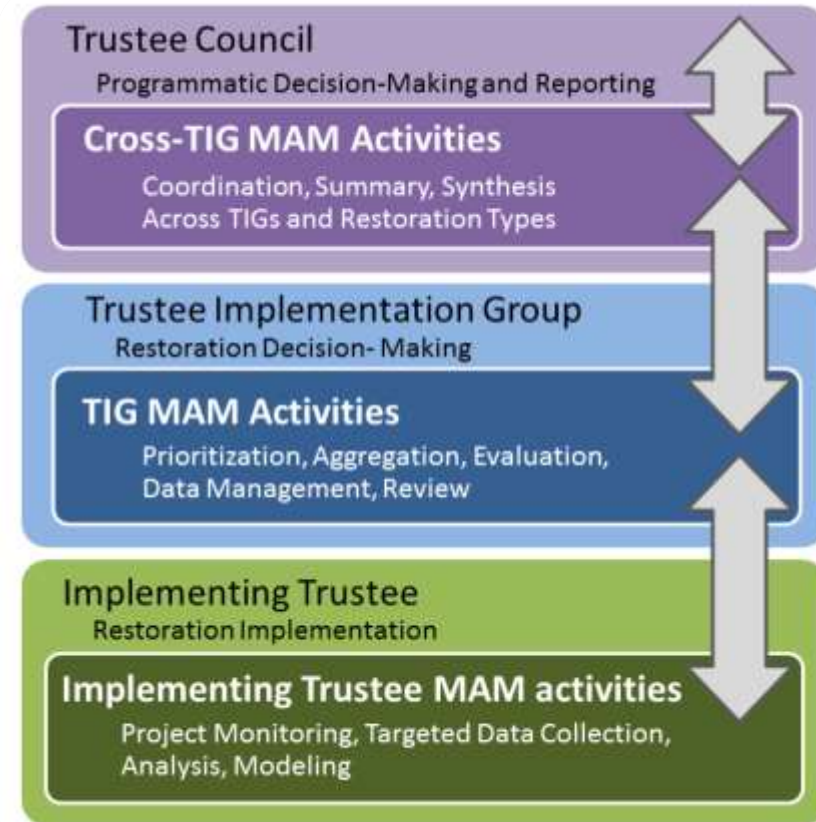


# Internal/External Coordination Structures

## RESTORE

- **Program Advisory Team (PAT)**
  - 4 member team-NOAA, USGS, Council Science Advisor, 1 State
  - Discuss options for accomplishing activities based on existing capabilities and leveraging opportunities
  - Prepare recommendations to present to CMAWG for discussion/comments
  - NOAA and USGS responsible to the Council for program administration and implementation, execution, oversight & accountability
- **Council Monitoring & Assessment Work Group (CMAWG)**
  - 11 representatives – 1 representative per Council member
  - Coordination of and reach-back to available monitoring capacities and information
  - Program Advisory Team leads discussions of implementation activities, approaches, and sharing to generate recommendations to the Council
- **Monitoring Coordination Committee (MCC)**
  - Representatives include Program Management Team, NOAA RESTORE Science, NFWF, NAS, Centers of Excellence, others (
  - Ensures connectivity between other monitoring funding sources in the Gulf region
- **Monitoring Community of Practice (CoP)**
  - Composed of Gulf of Mexico Alliance Priority Issue Teams as directed by Program Advisory Team
  - Lead workshops to provide feedback and input into establishment of Council minimum monitoring standards and protocols and to review existing baseline data and assessments

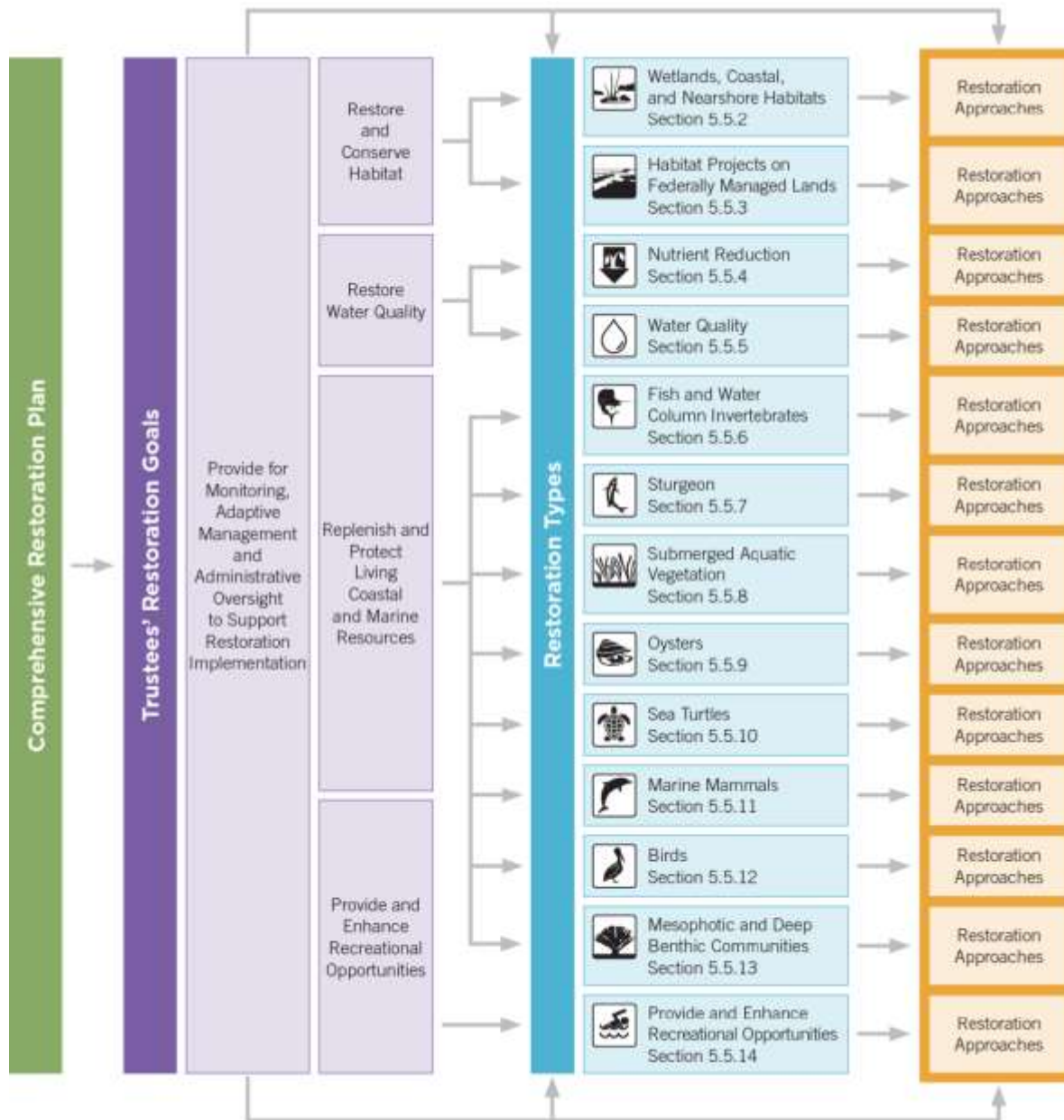
## NRDAR



# Alignment of Restoration Goals/Objectives

Restore Comprehensive Plan Goal	Restore Goal Description	NRDA Restoration Plan Goal	Comments
<b>1. Restore and Conserve Habitat</b>	Restore and conserve the health, diversity, and resilience of key coastal, estuarine, and marine habitats.	1. Restore and Conserve Habitat	Restore and NRDA goals are equivalent at the highest level
<b>2. Restore Water Quality</b>	Restore and protect water quality of the Gulf Coast region's fresh, estuarine, and marine waters.	2. Restore Water Quality	Restore and NRDA goals are equivalent at the highest level
<b>3. Replenish and Protect Living Coastal and Marine Resources</b>	Restore and protect healthy, diverse, and sustainable living coastal and marine resources.	3. Replenish and Protect Living Coastal and Marine Resources	Restore and NRDA goals are equivalent at the highest level
<b>4. Enhance Community Resilience</b>	Build upon and sustain communities with capacity to adapt to short- and long-term changes.	(No equivalent goal)	Enhancing community resilience is likely outside the NRDA regulatory requirement for a nexus between the injury and the restoration
<b>5. Restore and Revitalize the Gulf Economy</b>	Enhance the sustainability and resiliency of the Gulf economy.	4. Provide and Enhance Recreational Opportunities	The NRDA goal is a subset of RESTORE goal and is more narrowly focused to offsetting lost use
<b>(No equivalent goal; however, Objective 7 (Improve science-based decision-making processes) is similar to NRDA Restoration Plan Goal)</b>	Objective 7: Improve science-based decision-making processes used by the Council	5. Provide for Monitoring, Adaptive Management, and Administrative Oversight to Support Restoration Implementation	Restore Objective 7 and NRDA Goal 5 are largely process orientated regarding how other goals will be approached and achieved rather than establishing new goals for environmental change

# Map Objectives across Restoration Types



# Application

## Gulf of Mexico Avian Monitoring Network (GoMAMN)

### Overarching themes:

1. Many existing monitoring efforts....building upon these will improve consistency, efficiency and coordination
2. There are gaps in avian monitoring
3. As a group, offshore species and habitats are monitored to a lesser degree
4. Addressing the currently disjointed monitoring system and moving towards a Gulf-wide ecosystem monitoring network will provide a more efficient, integrated and accessible tool for ecosystem information



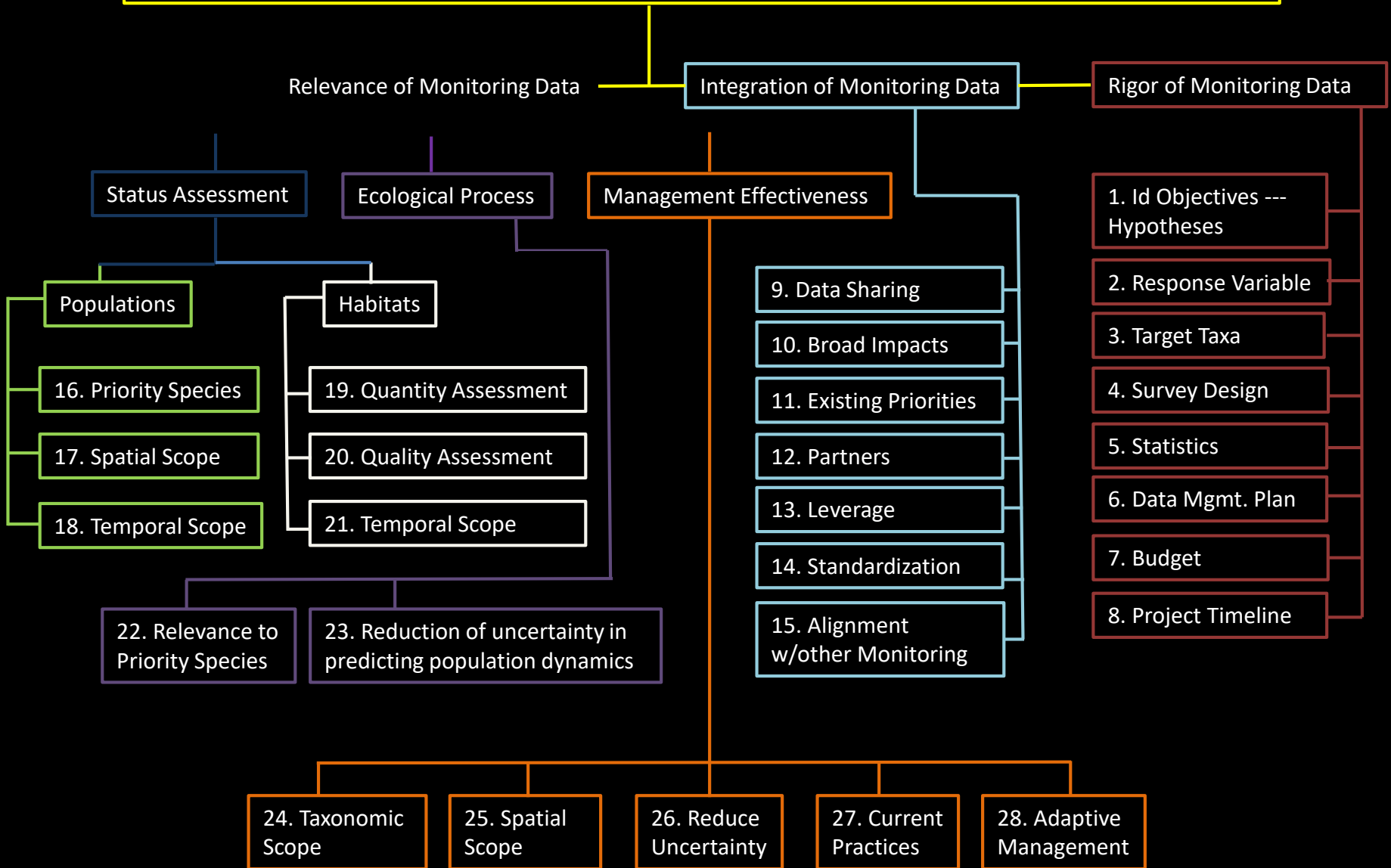
Report released 1 Dec. 2015

# Bird Monitoring Objectives for GOM

Goal: *Maximize Usefulness of Bird Monitoring Data to Inform Bird Conservation in the Northern Gulf of Mexico*

- ❖ **Fundamental Objective:** *Maximize Integration of Monitoring Projects*
- ❖ **Fundamental Objective:** *Maximize Scientific Rigor of Monitoring Projects*
- ❖ **Fundamental Objective:** *Maximize Relevance of Monitoring Projects*
  - ✓ **Objective:** *Maximize Understanding of Population and Habitat Status Assessments (i.e., baseline information)*
  - ✓ **Objective:** *Maximize Understanding of Management Actions and their Respective Impacts on Avian Populations and their Habitat*
  - ✓ **Objective:** *Maximize Understanding of Ecological Processes and their Respective Impacts on Avian Populations and their Habitat*

# Objective Hierarchy to Maximize Usefulness of Bird Monitoring Data for Conservation



# Community of Practice

## Federal Agencies

- USFWS
- USGS
- NPS
- BOEM

## State Agencies

- FWCC
- ALDCNR
- MDWFP
- MS-DEQ
- LDWF
- TXP&W

## Non-Governmental

- Audubon
- ABC
- TNC
- Ocean Conservancy
- GCBO
- Smithsonian
- Biodiversity Research Institute
- BTNEP
- Manomet

## Partnerships

- GCJV
- EGCPJV
- GCPO-LCC
- GCP-LCC

## Universities

- UF
- UGA
- MSU
- NC State
- LSU
- Tulane
- Univ. W. FL



## *Gulf of Mexico Avian Monitoring Network*

### Coordination Committee

Marshbird Working Group

Landbird Working Group

Wading Bird Working Group

Raptor Working Group

Shorebird Working Group

Seabird Working Group

Waterfowl Working Group

SDM Working Group

# Biggest Challenges

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- Communicating and coordinating across programs
- Delineating responsibilities
- Adoption of common standards
- Enforcement of minimum monitoring standards & requirements
- Linking data acquisition for monitoring and modeling for tool development
- Data management and availability for integration
- Monitoring design for holistic ecosystem restoration –scaling
- Governance across programs



# Solutions to Challenges

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- Effective partnerships, based on shared goals and resources, facilitate robust evaluations
  - Coordinated and standardized designs
  - Leveraged resources
  - Multiple pools of expertise (mini communities of practice)
  - Expanded geography
- Crosswalk DWH monitoring science commitments
- Reduced burden on any single entity
- Open source access to all data
- Elevating the monitoring capacities of all partners
- Shared vision

Big Challenges...but Achievable

# Questions?

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