

DRAFT Interim Guidance

Preliminary Observational Data Management Plan

(re: data management)

NOTE:

The Council staff acknowledges that there may need to be exceptions made on specific elements contained in this interim guidance because of the wide range of project types (planning, implementation, ecosystem restoration, infrastructure, etc.). Examples have also been included at the end to help provide clarity. Please contact Alyssa Dausman at Alyssa.Dausman@restorethegulf.gov or Jessica Henkel at Jessica.Henkel@restorethegulf.gov if you have questions about an exception(s) and would like to discuss.

This interim guidance is DRAFT only and will be subsequently updated with programmatic guidance developed by the Council Program Staff in coordination with the Council Monitoring and Assessment Workgroup (CMAWG) in 2016/17. The CMAWG has representatives from all Council Members and will be making recommendations to the Council regarding programmatic minimum monitoring standards, monitoring plan formats, and reporting requirements.

Data Management plans are necessary for RESTORE Council funded projects to facilitate the Council's compliance with the following federal laws and policies: GPRA Modernization Act (P.L. 111-352), OMB guidance (2 C.F.R. § 200.328), the requirements of the RESTORE Act (Section 1603(t)(2)(C)(vii)(VII)(dd)), White House [Office of Science and Technology Policy Memorandum](#) "Increasing Access to the Results of Federally Funded Scientific Research" (22 February 2013), OMB Memorandum "[Open Data Policy - Managing Information as an Asset](#)" (9 May 2013), and Digital Accountability and Transparency Act (S.994; i.e. Data Act of 2014).

Background:

The RESTORE Council (Council) recognizes the importance of managing data at both the project-specific level and the regional level, especially for reporting purposes. Managing and ensuring comparability of these foundational data require consistencies in data collection and management among the projects to enable future assessment and reporting of the Council's activities across the Gulf. Data management constitutes a comprehensive end-to-end process including movement of data and information from field observations to the data users. This process includes the acquisition, quality control, metadata cataloging, validation, reprocessing, storage, retrieval, dissemination, and archiving of data. Data management plans capture this process for projects and, in some cases, for specific observation systems.

As part of the Council's current financial award process, proposals are required to include:

- ***Preliminary Observational Data Management Plan (DMP)*** to ensure observational data and compiled data are *managed and delivered accordingly*; a separate
- ***Observational Data Plan (ODP)*** relevant to *data collection and compilation* is also required to ensure adequate project data collection is planned for and collected properly for data comparison and compatibility (such as for compliance, engineering and design, baseline data, financial award reporting, etc.), as well as to determine whether implemented projects are meeting or exceeding project goals and/or restoration targets.

The DMP (re: data management) is paired with the ODP (re: data collection) and applies to all projects and all data, whether collected as part of compliance, engineering and design (E & D), implementation, or post-implementation. Additionally, these plans will aid the Council in broader data management activities driven in part by Federal policies (Appendix A).

Purpose:

For projects approved through the Council-Selected Restoration Component and the Spill Impact Component, this document provides recipients interim guidance on developing a Preliminary Data Management Plan to ensure the project will meet data management objectives set forth by the Council.

Interim Guidance:

Although projects may not yet be developed to the point where a comprehensive data management plan can be written, all projects will necessitate delivery of a comprehensive data management plan at a later date, when the Council releases a final Comprehensive Data Management Plan outline for recipients. Until such time, all projects must provide a Preliminary Data Management Plan (DMP) containing information on how collected observational data will be managed.

Recipients are responsible for providing all project-related data to the Council in digital, machine-readable, non-proprietary formats; described with appropriate metadata (FGDC or ISO standards compliant documentation providing information about the context and contents of the dataset); and in compliance with all federal laws and policies (*for example, a .pdf is not considered a digital, machine-readable format and is therefore not an acceptable way to manage and deliver data*).

A template for the Preliminary Data Management Plan is provided in Appendix B. Applicants **must** provide the following in their DMP:

- 1) General project information, including:
 - a) Project name
 - b) Sponsoring agency
 - c) Project phase (for example, Planning/Implementation/Post-Implementation)
 - d) Contact information for one or more Data Stewards who will act as primary points of contact for all project-related data management activities
 - e) Estimated data collection period (start and end dates)
 - f) A short description of the project location
 - g) A general description of data collection activities
- 2) Estimated budget for data management including:
 - a) Overall budget for data management
 - b) Indication of where in the Overall Project Budget, Budget Narrative and/or Milestones the data management costs are found. Note: Data Management budgets cannot be their own line item cost in the overall project budget but can be included as a milestone,
- 3) For all observational data, applicants must provide a list of **each** of the data types that will be collected during the project (see Appendix D for examples), and the following information for each data type:

- a) GIS information (point, line, polygon) representing where data collection is to occur including geospatial projection
 - b) Frequency and duration of collection
 - c) Data storage format (e.g. .xls, .csv., geoTIFF)
 - d) Units of measure
 - e) Horizontal/vertical datums (if applicable)
- 4) Finally, describe your organization's data management and metadata capacities, including:
- a) How/if your organization utilizes digital object identifiers (DOI)
 - b) How your organization intends to store data
 - c) How/if your organization intends to archive data (Note: Data archiving is different from data storage),
 - d) How your organization plans to disseminate project data.

NOTES:

- *The Council acknowledges that data management capacities vary across organizations and requests all applicants indicate if Council data management assistance is needed.*
- *The Council acknowledges that all of the information requested above may not be available at the time of application submission. When appropriate, please indicate that items are To Be Determined (TBD), and provide a timeline for when those TBD items will be updated in a revised DMP.*
- *As part of the grants/IAA and reporting process, digital data will be required to be provided to the Council for review and approval on a yearly basis.*

Questions regarding the preparation of an appropriate Plan may be directed to Alyssa Dausman (Alyssa.Dausman@restorethegulf.gov) or Jessica Henkel (Jessica.Henkel@restorethegulf.gov).

Appendix A. Data Management Drivers

A White House Office of Science and Technology Policy Memorandum (22 February 2013) directed federal agencies to establish policies for providing access to digital data sets and publications resulting from federally funded research. This Memorandum, along with an Office of Management and Budget (OMB) Memorandum on Open Data Policy, directs agencies to manage information as an asset. The OMB Memorandum “requires agencies to collect or create information in a way that supports downstream information processing and dissemination activities. This includes using machine readable and open formats, data standards, and common core and extensible metadata for all new information creation and collection efforts.” To align with these requirements, the RESTORE Council is developing an overall Data Management Plan for data and information collected by Council-funded projects.

RESTORE Council Data Management Framework - TBD

Digital Accountability and Transparency Act (S.994; i.e. Data Act of 2014)

OMB Memorandum “[Open Data Policy - Managing Information as an Asset](#)” (9 May 2013)

White House [Office of Science and Technology Policy Memorandum](#) “Increasing Access to the Results of Federally Funded Scientific Research” (22 February 2013)

Appendix B. Preliminary Data Management Plan Template

Preliminary Data Management Plan

Project Name:

Agency:

Project Phase: Planning Implementation Post-Implementation

Project's Designated Data Steward(s): (name, phone, email)

Expected data collection start date for overall project:

Expected data collection end date for overall project:

Estimated budget for Data Management:

Description of where in the Overall Project Budget, Budget Narrative, and/or Milestones that the data management costs are found:

Brief project description:

Project location:

General description of data collection activities (methods, sampling frequency, etc.):

Do you have in-house data management and metadata capacity? Yes No

If so, describe how this project's data and metadata will:

1) Stored, 2) Archived (e.g. long-term preservation), and 3) made available/provided to the Council; and if it will utilize digital object identifiers (DOI's)? If not, how will you ensure that the project's data and metadata will be stored, archived, and made available/provided to the Council?

Describe how this will be accomplished.

List the Observational Data Types being collected and, if known at this time*, the following information for each:

Data type: _____

GIS Representation: _____

Projection: _____

POC: _____

Frequency of Collection: _____

Duration of Collection: _____

Data Storage Format: _____

Units: _____

Horizontal and Vertical Datum: _____

*For information that is not known at this time, please indicate that they are TBD, and provide a general timeline for when an updated, revised DMP will be provided to Council.

Appendix C. Preliminary Data Management Plan Example

NOTE: The following information is provided as an example using a hypothetical/fictitious project and provides information regarding only three observational data types. The specifics provided below are not factual and do not reflect elements of a real project. The information serves simply as an example.

Complete documentation, including descriptions of all observational data collection elements will be required by recipients for consideration and approval by the Council prior to Plan implementation and award of funds.

Project Name: Golden Island Restoration

Agency: Department of Success

Project Phase (check all that apply): Planning Implementation Post-Implementation

Post-Implementation

Data Steward(s): John Smith, (123) 456-7777, john.smith@dos.gov

Estimated budget for Data Management: \$645,000

Location of Data Management costs in Overall Project Budget, Budget Narrative and/or

Milestones:

Example of how Data Management budget could be described in the Overall budget:

- 1) \$350,000 in Personnel (Salary and Fringe Benefits for GS-7 IT Specialist at 30% staff hours for 10 years) in project budget
- 2) \$13,000 in Equipment (Data Management Server) in project budget
- 3) \$282,000 in Software (Licenses, updates and annual maintenance) in project budget

Example of how Data Management budget could be described in the Milestones budget:

Milestone	Area of Effort	Description	Start Date	Expected Date	Amount	Deliverable
Data Management	Oversight	Data gathering and storage	9/1/2016	9/30/2018	\$645,000	Comprehensive and accessible restoration data set for this project

Milestone 5, September 1, 2016 -

Expected data collection start and end dates for overall project: Pre-implementation monitoring will begin prior to project construction and data collection is anticipated 10 years post-construction. Targeted data collection start is FY16.

Brief project description: The Golden Island Restoration project is composed of both dune and marsh creation tasks. The dune creation phase of the project will extend for 2800m along the Gulf of Mexico shoreline raising the supratidal, intertidal, and subtidal environments to dune and supratidal elevations on Golden Island. The marsh creation phase will elevate subtidal and intertidal areas directly behind the dune to intertidal and supratidal elevations.

Project location: An island 30 km south-southwest of Pascagoula, FL in the Gulf of Mexico.

General description of data collection activities (methods, sampling frequency, etc.):

Habitat Composition--

Purpose: Document changes in habitat diversity and acreage of terrestrial and aquatic habitats over time and use these data with supporting datasets (bathymetry, topography, emergent vegetation cover, submerged aquatic vegetation, and shorebird utilization) to develop relationships between emergent habitat types and habitat utilization on Golden Island. This observational data will be used to measure project performance as a success criterion.

Emergent Vegetation--

Purpose: Document establishment of vegetation cover following marsh and dune creation and determine species composition and percent cover within the major habitat types through time. This observational data will be used to measure project performance as a success criterion.

PLEASE SEE CORRESPONDING OBSERVATIONAL DATA PLAN (IN APPENDIX "X") FOR ADDITIONAL DETAILS.

Do you have in-house data management and metadata capacity? Yes No

If so, describe how this project's data and metadata will be stored, archived, and made available.

The project data along with corresponding FGDC-compliant metadata will be stored on a DOS-managed server and backed up regularly to an off-site location. The applicable GIS data layers will be service-enabled and made available for consumption through the Golden Island Restoration Online Mapping Application. The tabular data will also be available for download

through a password-protected web interface. All electronic data and metadata will also be delivered to the RESTORE Council on a yearly basis for review and approval. At the completion of the project, final project data and metadata will be submitted to the National Centers for Environmental Information (NCEI) for archiving.

List the Observational Data Types being collected and, if known at this time, the following information for each:

Data type: Aerial Imagery

GIS Representation: High-resolution digital aerial photography

Projection: NAD83 UTM zone 17

POC: John Smith, (123) 456-7777, john.smith@dos.gov

Frequency of Collection: Data collection will begin with pre-implementation (year 0) and will continue post-implementation (years 1, 2, 5, and 10).

Duration of Collection: 5 discrete acquisitions

Data Storage Format: Digital orthophotographs created from the native aerial imagery that will be service-enabled as a mosaic dataset

Units: meters

Horizontal and Vertical Datum: UTM, NAD83

Data type: Habitat Composition

GIS Representation: GIS raster files (geoTIFF)

Projection: NAD83 UTM zone 17

POC: John Smith, (123) 456-7777, john.smith@dos.gov

Frequency of Collection: 5 total collections (i.e., planning (year 0), annually for 2 years immediately post-implementation (years 1, 2, 5, and 10)).

Duration of Collection: 5 discrete habitat maps

Data Storage Format: geoTIFF

Units: meters

Horizontal and Vertical Datum: UTM, NAD83

Data type: Emergent Vegetation

GIS Representation: 100 selected stations will be represented by lat/long points

Projection: NAD83 UTM zone 17

POC: Jane Smith, (123) 456-7778, jane.smith@dos.gov

Frequency of Collection: Post-implementation vegetation cover will be surveyed late summer/early fall of years 2 and 5.

Duration of Collection: Vegetation cover will be surveyed approximately 90-180 days following completion of construction within the marsh and dune cells.

Data Storage Format: Relational Database and .csv files

Units: % cover

Horizontal and Vertical Datum: UTM, NAD83

Appendix D. Observational Data Examples

The following list of Observational Data types related to the ecosystem should not be considered comprehensive, but rather a guide for those developing Data Management Plans.

- air quality (emissions)
- air temperature
- bathymetry (LiDAR, multibeam, singlebeam, etc.)
- benthic macroinfauna
- birds (species, abundance, age, sex, distribution, etc.)
- conductivity
- contaminants (toxins, concentrations)
- currents (speed, direction)
- dissolved oxygen
- emergent vegetation
- habitat classification
- high-resolution aerial imagery
- mammals (species, abundance, age, sex, distribution, etc.)
- mollusks (species, abundance, age, sex, distribution, etc.)
- nekton (species, abundance, age, sex, distribution, etc.)
- nutrient concentrations (total, nitrate, phosphate, etc.)
- oblique photography
- pH
- phytoplankton
- precipitation
- rectified aerial photography
- reptiles and amphibians (species, abundance, age, sex, distribution, etc.)
- salinity
- sediments (size, type, etc.)
- shoreline profiles
- side-scan sonar
- sub-bottom profiles
- submerged aquatic vegetation (SAV)
- suspended sediments
- tides
- topography
- turbidity
- turtles (species, abundance, age, sex, distribution, etc.)
- water chemistry (analytes, concentrations)
- water level
- water temperature
- waves (height, direction, period)
- winds (speed, direction)
- zooplankton

Examples of other types of data that may be collected (not necessarily ecosystem data), but that still need to be included in a DMP include:

- # of labor hours of full time employees
- # of volunteer hours
- # of participants in a job development program
- % match dollars by a local organization
- # of veterans trained
- # of youth receiving technical skills training
- % of programs contracted out to existing local organizations
- # of anglers using project site/per day