**Alliance Action:** Produce the Gulf of Mexico Master Mapping Plan (GMMMP), a comprehensive plan to collaboratively acquire data on the physical characteristics of the Gulf region, particularly elevation, shoreline, and surface data.

**Action Steps:**

1. Identify mapping needs and requirements to allow for informed coastal management decisions and data gap analysis.
2. Conduct an inventory of the capabilities and data assets of existing mapping programs and leverage ongoing efforts by the Interagency Working Group on Ocean and Coastal Mapping.
3. Develop a collaborative strategy to acquire the necessary region-wide physical characteristic data.

**Why?**

The Gulf is too large for any one agency to map, thus a collaborative approach is required; one that identifies and fulfills all mapping requirements with ongoing mapping programs. Therefore, by aligning data collection methods and sharing resources, critical mapping information can be collected at a lower cost to the program partners.
What do we mean by “mapping”?

1) Elevation: Topography, Bathymetry, Topo/Bathy, Beach Profiles and Ground Truth
2) Imagery and Basemaps: RGB Orthophotos, Multispectral and Hyperspectral Imagery, Underwater Photos and Video
3) Environment and Conservation: Classification, Landcover, SAV, Coral and Oyster Reefs, Wetlands, Fish Habitat, Bioregions, T/E and Invasive Species, and Restoration and Conservation
4) Geological and Geophysical: Marine Geology
5) Oceans and Coasts: Shoreline
6) Climate Change: Sea Level Rise, Storm Protection and Resiliency
Create a Gulf of Mexico Master Mapping Plan that

1) Captures all the **requirements** for spatial data and information products used by engineers, scientists, resource managers, planners, decision-makers, and emergency responders in the Gulf of Mexico Region

2) Identifies upcoming mapping **activities** by the breadth of federal, state, and local agencies, and academia collecting these types of data or generating these information products

3) Finds the **gaps** and develops a strategy to fill them in a resource-neutral or resource-depleted environment

What are we not doing

1) Collecting any data
2) Inventorying existing data
3) Oceanographic observations
Important components

1) Base data layers
2) Geographic extent
3) Temporal resolution (routine and episodic)
4) Derived products
5) Specifications (spatial resolution and accuracy)
6) Gap analysis
7) Fiscal collaboration mechanisms
8) Capability and capacity for mapping by federal, state, and local agencies and academia
Final products?

1) Gulf of Mexico Master Mapping Plan document
2) A web-based tool that geographically displays:
   a) Mapping requirements
   b) Upcoming mapping activities
Why is it worth the effort?

With visibility of all Gulf of Mexico mapping requirements and mapping activities we can identify opportunities for collaboration and standardization:

1) On data collection
2) On data processing
3) On product generation

For efficient use of our ever-dwindling mapping resources
Last year’s activities

Identified mapping requirements for the Gulf by reviewing

1) Results of prior mapping requirements workshops
2) Existing mapping requirements documents
3) Results of “Gulf GAME” on-line survey collaboration
4) Websites documenting agency/program requirements for mapping
Sources for mapping requirements

Publications:

Websites:
- The Nature Conservancy Oyster Reef Restoration in the American South Program: [http://www.nature.org/initiatives/marine/features/oyster.html](http://www.nature.org/initiatives/marine/features/oyster.html)
- Roadmap for Restoring Ecosystem Resiliency and Sustainability: [http://www.whitehouse.gov/administration/eop/ceq/initiatives/gulfcoast/roadmap](http://www.whitehouse.gov/administration/eop/ceq/initiatives/gulfcoast/roadmap)
- Gulf of Mexico Foundation: [http://webportal.gulfmex.org/Mission.html](http://webportal.gulfmex.org/Mission.html)
- Gulf of Mexico Foundation Community-based Restoration Partnership (CRP): [http://www.gulfmex.org/restoration.htm](http://www.gulfmex.org/restoration.htm)
- Gulf of Mexico Foundation Sea Level Rise 2009 GOMA Project: [http://www.gulfmex.org/goma/02.htm](http://www.gulfmex.org/goma/02.htm)
- Northern Gulf of Mexico (NGOM) Ecosystem Change and Hazard Susceptibility Project: [http://ngom.usgs.gov/overview/goal.html](http://ngom.usgs.gov/overview/goal.html)
- SeaGrant Coastal Resiliency Index: [http://www.seagrant.noaa.gov/focus/documents/HRCC/resiliency_index_7-15-08.pdf](http://www.seagrant.noaa.gov/focus/documents/HRCC/resiliency_index_7-15-08.pdf)

Other Documents:
- Scientific Benefits from Bottom Mapping
- Mississippi Coastal Improvements Plan - The Comprehensive Barrier Island Restoration Plan Long-term Monitoring and Adaptive Management Plan
- USACE Specifications for NCMP Survey Activities
Sources for mapping requirements

Publications:


Websites:

- The Nature Conservancy Oyster Reef Restoration in the American South Program: [http://www.nature.org/iniatives/marine/features/oyster.html](http://www.nature.org/iniatives/marine/features/oyster.html)
- Gulf of Mexico Foundation: [http://webportal.gulfmex.org/Mission.html](http://webportal.gulfmex.org/Mission.html)
- Gulf of Mexico Foundation Sea Level Rise 2009 Project: [http://www.gulfmex.org/goma/02.htm](http://www.gulfmex.org/goma/02.htm)
- Northern Gulf of Mexico (NGOM) Ecosystem Change and Hazard Susceptibility Project: [http://ngom.usgs.gov/overview/goal.html](http://ngom.usgs.gov/overview/goal.html)
- SeaGrant Coastal Resiliency Index: [http://www.seagrant.noaa.gov/focus/documents/HRCC/resiliency_index_7-15-08.pdf](http://www.seagrant.noaa.gov/focus/documents/HRCC/resiliency_index_7-15-08.pdf)

Other Documents:

- Scientific Benefits from Booming Mapping Mississippi Coastal Improvements Plan - The Comprehensive Barrier Island Restoration Plan Long-term Monitoring and Adaptive Management Plan
- USACE Specifications for NCMP Survey Activities

II. Bathymetry

A. Specifications

1. 5 m postings, 30 cm RMSE
2. 10 m postings, 25 cm RMSE
3. 20 m postings, 50 cm RMSE

B. Geographic areas

1. Along shoreline to depth of closure
2. GOM Estuaries
3. Coastal areas
4. MS Barrier island restoration project
5. Tortugas Ecological Reserve
6. Dry Tortugas National Park
7. Florida Bay
8. Florida Keys National Marine Sanctuary
9. Continental shelf and slope from MS-FL
10. 0-40 m depth
11. 40-200 m depth

C. Time interval

1. Yearly
2. Event-driven
3. Pre- and 1, 5, 10-year post-restoration

D. Potential derived products

1. DEMs
2. Depth change maps
3. 1-m contours
4. Slope images
5. Aspect images
6. Bottom reflectance
7. Acoustic backscatter
8. Predicted manatee habitat
9. Probable seagrass distribution
10. Coral reef mapping, 40-100 m

III. Aerial photography

A. Specifications

1. Stereo overlap
2. 35 cm ground sampling distance

B. Geographic areas

1. 1 mile wide swath along shoreline (500 m onshore, 1000 m offshore)
2. Florida Keys/Dry Tortugas, FL region—MMU 0.4 hectare
3. Charlotte Harbor, FL region—1:12,000 scale
4. West FL shelf—satellite

C. Time interval
Geospatial One-Stop categories

- Administrative and Political
- Agriculture and Farming
- Atmosphere and Climate
- Biology and Ecology
- Business and Economic
- Cadastral
- Cultural, Society and Demographic
- Elevation and Derived Products
- Environment and Conservation
- Geological and Geophysical
- Human Health and Disease
- Imagery and Basemaps
- Inland Water Resources
- Locations and Geodetic Networks
- Oceans and Coasts
- Transportation Networks
- Utilities and Communication
- Climate Change
- Oil Spill
This year’s activities

1) Identify planned mapping activities over the next 10 years, through
   a) NSGIC, other coordinating bodies
   b) State partners within EIA team
   c) Mine GOS and other metadata warehouses
   d) Integrate identified plans in Harte Research Institute web-based mapping collaboration tool

2) Identify specifications for base data layers
Relationship to the national plan

The Ocean and Coastal Mapping Integration Act calls for development of a coordinated and comprehensive Federal ocean and coastal mapping plan.

The Gulf of Mexico Master Mapping Plan will be one avenue for Gulf states to provide input to the national plan.
Discussion

2009 - 2010 Gulf of Mexico
Coastal Mapping and Charting Activities

gomamapping@usace.army.mil