

Gulf of Mexico Research Planning Workshop Summary

Prepared for the:

Gulf of Mexico Alliance's Wetland and Coastal Conservation and Restoration Priority Issue Team

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Overview of the Gulf of Mexico Research Planning Effort

The purpose of the Gulf of Mexico Research Plan (GMRP) is to 1) identify regional research and information needs and 2) address these needs through collaboration with agencies and organizations that conduct and use Gulf of Mexico-related research. The GMRP is rooted in stakeholder input, and workshops were one of the primary methods used to collect this input. One workshop was held in each of the five Gulf of Mexico states and approximately 300 participants and facilitators representing over 100 organizations, universities and departments of local, state, and federal agencies participated in the workshops. The top ten research priorities from each workshop were linked to one of the GOMA priority issue team areas. This summary describes the top priorities identified at the workshops that most closely align with the Wetland and Coastal Conservation and Restoration Priority Issue.

Summary

Workshop participants identified numerous research priorities that related to conservation and restoration of wetland and coastal areas (table 1). Research is needed to understand changes in habitat quantity and quality and the impacts of these changes on marine organisms. There is a need to assess the biodiversity (population, genetics, and molecular ecology) of aquatic organisms and the biological and environmental factors that impact the status and trends of living resources including research on trophic relationships. This can support another priority area, which is to develop appropriate ecosystem health indicators to evaluate the status of ecosystems. Another priority is to understand the impacts of climate change, river diversions, dredging, reduced freshwater input, and saltwater intrusion on habitats and ecosystems. Workshop participants identified a need to understand the hydrologic, sediment, nutrient, and freshwater requirements of healthy marsh ecosystems. Effort is also needed to understand the economic aspects of coastal restoration and conservation. This includes identifying the benefits and costs of restoration; developing models to value various habitats to assist with coastal planning efforts; measuring the value of depleted and renewable resources (ecosystem services); examining human use trends and forecasting increases in human populations along the coast; and examining the social and economic drivers that influence how communities decide to use and protect natural resources. Finally, there is a need to develop new models for ecosystem management, which considers fisheries, habitat, threatened and endangered species, and ecosystem processes. A specific research priority is to identify criteria to measure the effectiveness of Marine Protected Areas.

You can find out more about the GMRP at the project's web site at: masgc.org/gmrp or by contacting Steve Sempier, Gulf of Mexico Research Planning Coordinator, at stephen.sempier@usm.edu.

Table 1. Research topics identified at the GMRP workshop that relate to the Wetland and Coastal Conservation and Restoration Priority Issue Team.

Topic	Rank at Workshop	State Workshop
Impacts of temperature/salinity on expanding species range/invasive species/productivity (fisheries)	1	AL
Benefits and costs of restoration (including modeling)	2	LA
Changes in habitat quantity and quality--impacts on fish species, etc. (all marine organisms)	2	MS
Identify appropriate variables needed to develop good indicators of ecosystem health (variables for indices)	2	AL
River diversion / sediment management -Shoaling impacts -Sediment impacts on habitats and species -Identify optimal use and allocation of sediment -Diversion effects on water quality & marshland populations	2	LA
Understand processes, effects, and trade-offs of climate change on coastal and upland areas over time, including -Barrier islands -Elevations -Sea level change -Barriers to marsh migration -Rates of elevation change -Hydrology	2	MS
Marine Protected Areas (MPAs) research -How to measure effectiveness -Role in ecosystem management -Research to support the "Islands in the Stream" proposal in the GOMEX (e.g. larval transport, connectivity between sites)	3	FL
Developing better economic models for the valuation of various habitats (ecosystems) allowing informed decisions on placement / construction / development / expansion of marine facilities and operations	4	TX
Evaluate total potential of Mississippi River for restoration management and inputs from Mississippi basin -Sediment, fresh water volume, nutrients -Optimal distribution of Atchafalaya / Mississippi rivers	4	LA
Shipping, dredging, port facilities impacts on ecosystems (e.g. air pollution, human / animal health, sediment, water quality)	4	TX
Assessment of which biological and environmental factors impact status and trends of resources -Fisheries, water quality, tourism, development/land use impacts	5	AL
Understanding hydrologic requirements of healthy marsh ecosystems -Freshwater influence on flow time -Hydrology of other coastal wetlands	6	LA
Understand habitat change over time - what is / is not sustainable	7	FL

Topic	Rank at Workshop	State Workshop
Hydrological Issues -Reduced inflows due to upstream impoundments -Drought impacts -Impacts and changes in timing, amount, and type of water (ground water versus surface) -Salt-water intrusion effects on biota and resulting shifts in ecosystems -Role of causeways in changing hydrology	7	AL
Accurate assessment of biodiversity -Population, genetics, molecular ecology	8	AL
Ecosystem health indicators -Need to figure out how to measure and more indicators needed -Better define metrics for ecosystem evaluations	8	LA
Human use trends: -Level of human use and effect on resources -Need to change (increase/decrease) protection of resources -Socioeconomic impact of changes (increase/decrease) on users -Models to capture above and gap analysis to couple with existing models -Models to forecast impacts of increasing human populations	8	TX
Measure of valuation of depleted/renewable resources (ecosystem services)	8	MS
Relationship of climate change to fisheries: -Recruitment and distribution -Link between fish ecology and climate change	8	TX
Research on targeted trophic relationships to support EB approach (i.e. fisheries (menhaden, snapper); endangered species; non-indigenous species)	8	TX
Need new models for ecosystem-based management -Considering fisheries, habitat, threatened/endangered species, ecosystem processes -Need to define EBM components to allow comparisons across different areas in the Gulf	10	FL
Placement of fine sediment -Water quality; Marshes; Habitat utilization; Processes	10	LA
Socioeconomic research; social aspects of coastal communities and impacts of environmental change on communities -Includes looking at social and economic drivers that influence whether communities do/don't care about resources; look at why communities make different conservation decisions -Research how to optimize future coastal development to minimize environmental impacts, maximize quality of life, and maintain public access	10	FL

“Topic” was the raw comment that was presented as a priority at the workshop and voted for by workshop participants. “Rank at Workshop” is based on the number of votes the topic received at the workshop. A rank of “1” indicated that the topic received the most votes. “State Workshop” is the workshop where the topic was presented and received votes.