

Gulf of Mexico Research and Information Needs Survey Results¹

Unedited Comments to the Open Ended Research Priority Statement

Fall 2007

Survey Statement:

“List very high research priorities for the Gulf of Mexico over the next fifteen years that have not been addressed in previous questions.”

Respondents’ Unedited Comments:

- research about the economic impacts of recreational and commercial fishing and management plans based on the benefits for the greatest number of people
- Upstream/headwater impacts on downstream/coastal water quality was included in a round-about way, but this should be given more direct attention.
- Coastal Erosion, Marsh Loss, Marsh and Estuary Production (fish, shrimp, crabs, ducks, alligators, birds,...)
- -Information is needed on stock abundance and distribution of fish resources, resource use, fishing effort/catch/costs. -Anthropogenic impacts on the coastal zone, especially due to the expected spike in human inhabitants within 100 miles of the water.
- - Continue to collect data on hurricane impacts to Gulf fishing communities. - Once the National Offshore Aquaculture Act of 2007 passes Congress, offshore aquaculture will become a high research priority. The NMFS Southeast Regional Office is already gearing up to submit their plan for the Gulf and implement regulations in 2008.
- In depth studies on the human environments and stake holders who use the Gulf of Mexico resources.
- Research on equipment and fishing techniques to minimize bycatch and equipment that is damaging to habitats. Research on ecosystem resilience and the effects of removal of single, targeted commercially popular species from ecosystem. For instance, what is predicted effect of removal of top predators (sharks)? What is predicted effect of removal of large quantities of forage fish, who are also filter feeders (menhaden)?
- Development of habitat friendly/enhancing techniques for shoreline protection, stabilization (i.e. not levees) given sea level rise and increased frequency and strength of tropical events.

¹ Additional survey results are available at: <http://masgc.org/gmrp>

- 1. Aquaculture research: to provide food fish from the Gulf of Mexico. Replace current methods of commercial fish harvesting. Stop commercial fishing as it is done today - implement fish farming. 2. Industrial Waste Dumping - research it's long term effect. 3. Prevention of red tide. 4. Short and long term impact of longlining. 5. Short and long term impact of shrimp net trawling. 6. Creating more fish havens or artificial reefs.
- Coastal restoration
- Anthropogenic impacts Water quality Overfishing
- Impacts of harmful algal blooms.
- Identify unique live forms found only in the Gulf of Mexico and why.
- Implamentation of more marine protected areas.
- Specifically, support research to define and distinguish natural from anthropogenic variation in ecosystem change. This type of research will best guide management efforts across many disciplines and themes.
- -Quality and quantity of freshwater inflow - Fully understanding the link between watersheds and estuarine systems - Addressing coastal population growth with land use scenarios and the natural processes and habitats those scenarios affect
- The impact of the development of Barrier Islands and their impact on Gulf Currents and tidal flow and it's nutrients
- BARRIER ISLANDS AND THEIR CONTRIBUTION????
- Arresting continuing land loss in TX. LA, MS Methods to reduce nutrient pollution from Mississippi and Atchafalaya rivers
- IOOS, HABs, Better ocean management, climate change - atm and ocean interactions, ecosystem based resource management
- Characterization of the Gulf Loop Current and its impacts/effects on tropical and sub-tropical events, including hurricanes. 2. Identification and characterization of harmful algal bloom species and their impacts on coastal tourism and public health. 3. Development of "plug-and-play" sensor technologies to assist with beach health initiatives and shellfish bed management.
- Marine ecosystem governance framework Fisheries ecology, population structure and movements, management Linkages between science and management

- Impacts of different land use patterns on coastal resource health. Research on natural protective features of coastal resources (beaches, dunes, wetlands) to enhance resilience.
- More focus should be paid to the social and economic impacts as well.
- Address the Louisiana coastal land loss problem through restoration projects.
- Changes in flux of materials from watersheds to estuaries and coastal ocean, specifically fresh water, sediments, nutrients and contaminants. Altered biogeochemical budgets, for example reactive nitrogen increase. Humans within the coastal ecosystem as a factor of change and response to alterations resulting from climate change. Biological community changes resulting from climate change and its effects on coastal landscapes.
- Clean Vessel and Barge Operations; Clean Marine Terminal Operations;
- Develop all information and data for use in coastal restoration and to maximize restoration rate while minimizing to the extent potential adverse effects.
- More research done in the western gulf states, specifically Texas.
- N/C
- Evaluate interactions between natural and anthropogenic stressors at the individual and population levels.
- - Better understanding of expected future rates of relative sea level rise and impacts to natural and cultural resources of the western Gulf of Mexico - More-detailed mapping of the bathymetry and offshore geology of the western Gulf of Mexico - Development of seamless bathymetric-topographic datasets for use with coastal inundation/storm surge modeling and prediction - Development of a Gulf-wide coastal sediment database to better identify sediment sources for beach and wetland restoration projects - Development of better sediment transport and sediment budget tools to improve implementation of regional sediment management plans
- Hypoxia, harmful algal blooms, land loss, oil spills, eutrophication in general
- Improved and more monitoring efforts in the near shore estuarine environment to enhance and calibrate existing coastal hydrodynamic models. 2. Improve forecasts of storm surge and wind associated with tropical storms.
- As of this date, most everything has been addressed. But life changes as the world changes within the next fifteen years.

- coastal erosion and accretion 2. barrier island restoration, migration, land use 3. offshore oil and gas resources 4. evidence of subsidence 5. storm surge dynamics
- Sea level change, both eustatic and local. Sediment mobilization, transport and deposition in major storm events.
- -Habitat restoration -Understanding functional values of ecosystems - Opportunities for alternate forms of energy - e.g. wind resources
- How Gulf of Mexico dead zone affects ecosystem.
- Restoraton of wetlands to absorb energy from storms and protect water quality. Mitigation activities for the hypoxia zone.
- Inland responsibility to the functionality of Gulf Coast habitat
- climate change and potential impacts on ocean currents GOM Dead Zone and change in its size, location, duration due to climate change, and inputs from inland sources via rivers
- Maintenance of traditional user groups of common resources eg.commercial fisheries
- Research showing effects of small charterboat operators and other recreational consumers efforts like reef building. Research finding a way that the resource is not given to a select few people/entities for exploitation while other users are banned from the resource.
- none
- -new, near shore bathymetric surveys in the western Gulf of Mexico 2) real time ocean observing infrastructure in the western Gulf of Mexico 3) socio-economic studies & forecasts of the energy industry in the western Gulf of Mexico 4) socio-economic studies of the marine transportation industry in the western Gulf of Mexico 5) socio-economic studies of the fishing industry in the western Gulf of Mexico
- Oceanography (all disciplines) of interactions between the continental shelves and continental slopes. Processes involved (all disciplines) in deep benthic boundary layers around the GOM. Potential implications of a catastrophic diversion of the Mississippi River to the Atchafalaya River. Meteorology of the GOM, including air-sea-coastal interactions and pollutant transport.
- Understanding and mitigating human-induced impacts on ecosystems. Developing strategies for enhanced seafood production through ecosystem enhancement and aquaculture.

- Sustainability of resources to protect both gulf products and the communities that depend on them. Increased contacts with business concerns, i.e. Chambers of Commerce to help them understand the impact that the health of the Gulf of Mexico will have on their constituents.
- Solving the growing problem of artificial eutrophication and the "dead zone" in the Gulf of Mexico.
- Sea level rise effects on coastal ecosystems
- Restoration of sea grasses and sea life in bays along the Gulf needs to be a focus of more research. Human degradation of those areas must be addressed and policies formulated, enacted, and enforced to improve quality of life in those waters.
- Understanding the potential to use the Gulf for sustainable production of energy, ie: wind, wave energy, et al. (other than gas/oil production).
- coastal erosion
- Most effective and efficient methods for use in coastal restoration or preservation. It falls under the general topics included, but is not specifically stated.
- Preservation of Cultural Groups who are indigent to the Gulf and engage in Commercial Fishing and rely on the Gulf waters for subsistence
- Population decrease of commercial landings. Coastal erosion to our coast line reduces our storm surge protection
- Effect of commercial fishing in the Gulf.
- I can think of none.
- Positive and Negative impacts (e.g., biological, ecological, flooding, droughts, and geophysical) of Tropical Cyclones that enter the Gulf of Mexico. The impact of the Gulf of Mexico to both short, medium and long term Regional, National, and Global climate.
- Salt water intrusion in the B-T estuary region due to continued coastal erosion. Possible redirection/redeposition of sediment at/from the mouth of the river
- Understanding past, present, and future sea-level trends Understanding the effects of future sea-level rise on landscape and ecosystems
- continued study of environmental impacts from Katrina

- Understand the connectiveness at different time and space scales to understand processes that define life on Earth. Evaluate the role of the marginal seas in the human scale, describing gradients that can lead to understand how to achieve sustainability in resources of interest to humankind.
- Somewhere there needs to be research on the effect of commercial fishing on the gulf. Applying limits to sports fishermen only cannot be the only solution.
- What about the impact of rising sea level on both natural and man-made coastal systems?
- in a more direct form, the influence of all watershed on the gulf the desertification of some areas far away from the coast but that have an important influence through the rivers to the gulf
- Climate variability Termohaline circulation Ocean-atmosphere interaction improve global data bases
- understand the link between highlands, lowlands and the ocean by producing hard data regarding their link and the effect of land use change, erosion, water diversion and pesticide input
- I believe that better understanding of the relationships between indigenous microorganisms and human health needs to be promoted. This includes HABs, pathogenic bacteria and viruses, fungi, and parasites.
- land lost
- Sustainable sportsfishing species, spotted seatrout hatcheries.
- Address effects of the shrimping industry destroying the bottom of the Gulf of Mexico and the effects of the commercial shrimping industry as far as by catch is concerned.
- Oceanographic anomalies impact on terrestrial and marine ecosystems
Oceanographic anomalies relation with hurricane trajectories and frequency
Development of environmental impact indicators Hydrologic and biological effects of mangrove modification and deforestation Ecological effects of fishing (trawling) Management tools for coastal zone ecosystems
- Detrimental loss of wetlands habitat to human development.
- nutrient cycling, especially in the terrestrial-coastal interphase

- Oil refinery effects on human health Global warming effects on whales migrations routes Coast profile alteration by hurricanes
- Accurate stock assessments of food fish in the Gulf
- None
- Aquatic Invasive Species - Biofouling - Ballast water - Mariculture
- Impact of oil production facilities and processes
- I would give highest priority to research that focuses on habitat destruction and eutrophication.
- The Air Resources Laboratory is involved in two major issues: 1. Understanding the role of atmospheric mercury in the GOM ecosystem. Primary goal is to collect supporting data to drive models that address atmosphere-surface exchange, transport through air and water, and accumulation in fish. The ultimate goal is to address the threat to human health. 2. Understanding turbulence in a variety of conditions. Under low wind conditions, to assess dry deposition of mercury and oxidized & reduced nitrogen species. Under high wind conditions to address effects of turbulence on building structures.
- Restoration strategies, techniques and impacts. Investigations of the options for restoring marine systems such as coral reefs, oyster reefs, sea grass beds, salt and brackish marshes and the success rates of those techniques. Analysis of freshwater flows. Analysis of the impacts of decreased and restored freshwater flows to tributaries to the GOM to the health of estuarine systems.
- Further research to assess the potential impacts of oil exploration on eastern Gulf of Mexico communities. Enhanced research on fisheries (primarily snappers/groupers) that fall within both state and federal management jurisdictions. Further research and monitoring efforts to move towards effective ecosystem-based management of marine resources.
- Loss of coastal wetlands 2. Beach erosion
- Fisheries resources. Coastal Development.
- n/a
- Hurricanes

- Identify and catalog socioeconomic impacts associated with natural and man-made events. Understand the relationship between natural events and communities. Understand short and long-term demographic changes resulting from hurricanes, oil spills, harmful algal blooms, etc.
- mitigating/eliminating human impact to ocean resources arising from inland waters
- All addressed. Climate change has risen to the top of the list.
- understanding the effects of Gulf ecosystem processes on coastal estuarine systems.
- Basic research on ecosystem structure and function have lagged in the Gulf for decades. More needs to be done to stimulate basic research.
- Effects of endocrine disrupters and human/livestock pathogens (contained in runoff and waste water discharge) on estuaries and near shore environments. Effects of "once through cooling" and "open system" cooling systems associated with active (and proposed) power plants and LNG plants along coastal estuaries and shallow near-shore gulf environments. Potential to use currents in deepo-water ship channels and ports to generate renewable electricity.
- For me, Points 5 and 6 are important priorities in Mexican Gulf of Mexico Research
- Fisheries issues--balancing commercial/recreational catch with sustainable populations and increased understanding of little studied species Habitat restoration
- Sustainable use of resources and respective commercial readjustments relative to predicted supplies and demands
- Increasing productivity via aquaculture.
- Evaluate the potential for fisheries enhancement to restore depleted fisheries. Develop husbandry technologies for declining marine species.
- Diverting silt deposit away from continental shelf and redirecting this silt to the Mississippi Delta.
- Has been covered well
- Detailed resource mapping in GIS.

- Not exactly a research priority, but there is a great need to educate the populace on the significance of issues and research capabilities that are indigenous to marine environments including the Gulf of Mexico. It follows that we need better support capabilities in order to work in the Gulf of Mexico, for instance, fixed platforms and logistical capabilities that researchers can occupy for extended periods to accomplish a broad spectrum of investigations.
- Inventory of conditions, land use, natural resources and habitat.
- N/A
- Storm surge
- n/a
- The GoM falls within the EEZ of three nations. Over the mid-term, there should be a cooperative international effort to map critical habitat and human use patterns to develop comprehensive spatial governance schemes.
- Protection of communities & infrastructure from storm surges
- Complete inventories of existing resources to understand what the extent of the impacts will be. Develop consistent and complete long-term monitoring programs for natural resources of the coastal and marine areas of the Gulf. Increase education directed at dissemination of research activities and results.
- Global Warming, Sea level rise, Sea food safety, Erosion, Coastal Population growth trend
- Understanding hypoxia on the LA and TX coast. 2. Understanding of the mechanisms responsible for the initiation of harmful algal blooms. 3. Understanding in the impact of global climate change of coral reefs in the Gulf of Mexico 4. Integration of ocean biological and physical models with ocean observations.
- coastal zone management, unless we start to look at our coast as being a finite resource we will lose what everyone wants part of, the natural coast lines can not absorb the tremendous input from the population that is moving to them, i.e. change the way we treat sewage go to the best technology available not a modified 1950's design, start to think about fresh water as being limited in the near future, and move to garbage to steam plants to reduce the use of landfills anywhere near the coasts
- Find ways to safely and cleanly increase energy raw materials from the seas.

- Increased hurricane activity due to changes caused by global warming. Fish migration route changes due to ocean and gulf of mexico temprature changes. Mercury levels and other chemical levels in our seafood that could be a hazard to our health.
- We need to carbon-balance the GOM region: how much carbon is entering through rivers and leaving through air-sea exchange and ocean circulation. This would allow us to answer basic questions like: Is the GOM a regional sink or source of C? What processes control the magnitude of C fluxes within the GOM region? It is unfortunate that GOM region does not have a routine coastal margins monitoring program parallel to the CalCOFI program (California Cooperative Oceanic Fisheries Investigations, www.calcofi.org) run by Scripps. The states bordering the GOM could expect significant economic benefits to result from regular, standardized oceanographic monitoring of the region's fisheries and oceanography. It makes the most sense for TAMU to lead this, with support from US and Mexican universities and funding agencies.
- Coordinated effort to determine the distribution of ocean habitats, fauna and flora that use them, and associated productivity levels.
- Understand the impact of continued and increasing human overpopulation and overdevelopment on the Gulf's physical and biotic environment, and communicate this understanding effectively to the public and to lawmakers.
- Effects of eutrophication and hypoxia on biological resources
- Assessment of fishing pressure, development of the sedimentary environment with respect to organic matter accumulation and oxygen consumption, assess long term trends of pollutant concentrations, e.g. Hg. Assess the impact of coastal development on nutrient budgets, assess the impact of sewage inflow.
- The fate/movement of sediment in near-shore environments. How does sediment transport effect the nearshore environment along the Gulf Coast (and not just within state lines).
- Study of magnitude and implications for groundwater discharge from coastal aquifers to the coastal zone: -- study redox sensitive elements within the sediment mixing zone between groundwater and infiltrated seawater -- study of aquifer response to oceanic forcing due to tides, waves, storms, and biology versus land-based groundwater withdrawal -- study of potential for salt water intrusion as sea level rises and the potential implications for potable water resources
- Sea level rise, pollutiion affecting commercial fisheries, coastal subsidence, forecasting storm impacts.

- Though covered under more general priorities, fisheries-specific priorities will be important and remain at the forefront, both the eyes of the general public (i.e., consumers) and commercial and recreational interests (i.e., economic interests). Particular attention should be paid to ecosystem-based approaches to fisheries research and management.
- Impacts of coastal development from increased population growth Develop smart coastal development at the local and state levels
- An understanding of the ecosystem services that the GOM provides and then valuation of those services.
- Identifying threatened coastal landscapes and habitats, including terrestrial
Protecting threatened landscapes Research concerning future land use development and ecosystem protection
- Nutrient runoff/precision farming to prevent hypoxia. Ocean noise impacts to marine mammals and other fauna and flora.
- Erosion of the coast lines. Habitat for marine life. More Mississippi river siphons to replenish the Delta.
- 1) Rebuilding wetlands and barrier Islands lost due to human intervention, such as levees built on the Mississippi River which have over the YEARS forced the sediment off the continental shelf vs being used to rebuild the wetlands and Barrier Islands. 2) The effect of bridges built over marine estuaries.
- general biosurveys - who is there INVASIVE SPECIES!! - (including introduction and monitoring and prevention) organismal interactions - on individual scale and ecological scale influence of petroleum industry on GoM ecosystems other biotech resources besides medically related
- There is increasing food allergies in the population, and seafood allergies are increasing dramatically. Increasing our ability to test (in forensic ways) fresh seafood should be a priority.
- Dead Zone and anoxic conditions of the Gulf
- Cost-effective coastal restoration technologies. Triage methods to determine which areas can be saved and which will have to be let go. Affects of global warming and sea level rise on coastal areas.
- Fisheries Bycatch problem and associated inefficient fishing gear.

- Implementation of conservation measures, and changes in policy, human behavior, and legislation to utilize conservation research.
- Understanding the causes of coastal erosion and development of strategies and programs to respond to erosional events.
- Mapping deep-sea/cold water coral.
- The relationship between factors considered to contribute to global warming and the effects they have on GOM pH. This is very important!!!
- Hypoxia and the Deadzone - need to have a national perspective to deal with this growing problem - one that seriously impacts your regional priorities concerning ecosystem health, human health and sustainable resource use as well as a host of socio-economic issues.
- They are all covered.
- freshwater inflows
- Role in Hurricane generation and intensification, particularly the Loop Current. Improved hurricane modeling using ocean feedback. Ocean data collection needs to go up by a factor of at least ten...for starters.
- Habitat loss and development pressure. Coastal hazard assessment and mitigation.
- I would like to see an integrated approach to the fundamental problems related to coastal loss. With the recent funding availability, it's time to have a unified approach that will better the Gulf coast and Louisiana instead of seeing the same repetitive inter- and intra department and agency turf battles for funding.
- Ecosystem-based management----develop and implement framework to begin real steps in this direction
- Management of fisheries for sustainability. Historic trends in water quality.
- Bottom sediment mapping and coastal wetland accretion/erosion trends
- Value the benefit received by ecosystems of the Gulf of Mexico so we can communicate its value to citizens (users). Also these estimates can be used in decision-making processes.
- Need to better understand the chemistry and impacts of pollutants at the land-sea interface.

- 1. Are invasive (non resident) species increasing in the Gulf of Mexico (GOM) and is this the result of anthropogenic activities? Have the >4000 oil/gas platforms contributed to this increase? What will the effect of these species be on GOM marine/estuarine communities? 2. What effects other than the 'dead zone' might there be to increased nutrient loading in the GOM? 3. How has increased human population density and habitat modification in the coastal zone affected estuarine habitats and estuarine-dependent species?
- Though likely incorporated in some of the overarching priorities, three issues call for more overt and specific action: 1st, Conservation, Protection & Restoration of threatened and endangered species. 2nd, Wetlands preservation and 3rd, establishing a better understanding of and means of reversing the dead zone(s).
- Investigation of hypoxic area that can cause fish and invertebrate kills harmful to commercial and recreational fishing and to overall ecosystem health. Deep water investigations of methane hydrate bearing geologic structures. particularly ecosystem health and diversity, potential as an energy resource, and potential large scale disassociation of hydrates that could impact continental shelf integrity (e.g. slumps and slides dangerous to deep-water oil exploration) or trigger massive methane releases to the atmosphere.
- The need for a coastal observing system that is both cost effective and operationally viable. Development of nutrient criteria in the Gulf of Mexico and the inclusion of Mexico in these criteria. Emphasis on state and federal regulations and how Gulf of Mexico research will impact and/or shape future legislation. Linking research and development with resource management and regulations.
- Need for detailed bottom mapping to include bottom lithology & geochemistry, sediment type, and associated habitats. This baseline would then be used to assess the responses to upland watershed change dynamics, near-shore and estuary trends, and coastal response to sea-level change.
- National programs should be focused on GOM similar to other ocean basins, e.g. NSF. Gulf has been treated as backyard pond with no significant importance for too long.
- Freshwater resources to bays and estuaries Loss of sediment transport from river impoundments which results in increased erosion and habitat loss.
- Coastal land loss, sediment availability, large-scale coastal restoration, estuarine invasive species, hypoxia in the gulf
- ECOSYSTEM analysis The use of MPA,s (Marine protected areas) sustainable fishing practices

- Understand the dynamics between fisheries trophic levels and fisheries and the environment. Create sustainable fish stocks. Incorporate the air-sea-land interaction when studying effects of climate change. Involve the local community in research where appropriate and beneficial in order to create greater awareness and understanding of these local problems. Education (youth and/or community level) should be incorporated into research where feasible to ensure future practices promote a healthy ocean.
- Determine the number of private boat recreational fishers. Determine the frequency, number, and date of private boat recreational trips. Determine the species targeted, the species caught, the pounds per species harvested, gear type, and the location of harvest of private boat recreational fishers.
- Mercury bioaccumulation in commercial fisheries. Water quality degradation (eutrophication) resulting from watershed runoff.
- Coastal wetland restoration.
- A complete, high resolution bathymetry set, a marine data type that can handle the multidimensional characteristics of the marine/biogeochemical environment, use of a marine data model that can help integrate data and information in differencing formats, measurements, scales, and languages, across the many different disciplines, and a portal for ALL that information.
- The impact of human pressures and global warming on parasite and diseases of commercial resources and its impact on their sustainability.
- I think you have pretty well covered it all unless you want to list some specific priorities such as stormwater runoff. The world has a serious problem with over use of natural resources, over population and the environment and they are all inter connected.
- Human pathogens and harmful substances associated with GOM seafood
- Need for improved coastal mapping and detailed bathymetry Need for adaptive management and monitoring of coastal restoration Need for comprehensive monitoring of ecosystem health through sustained observations, including harmful algal blooms, coastal eutrophication and hypoxia
- Conservation of marine resources, and regulation of fishing industry to allow a sustainable fishery. Conservation, not exploitation.

- mapping inventory reducing recreational overfishing integrating continental zone management (Mississippi)
- E
- Develop sustainable aquaculture to minimize negative impact on receiving streams from aquaculture operations and to reduce fishing process Development of stock enhancement program
- scenic quality protection, non-point source pollution
- dead zone
- Hurricanes
- Defining Essential Habitats Enhancing and promoting sustainable fisheries Habitat restoration and degradation
- None of the priorities listed deal with what is actually happening up in the mountains in the Mexican portion of the Gulf, v.gr. excessive nutrients, rich soils and sediments runoff from accelerated desertification of "Sierra Madre Oriental" mountain range due to deforestation. Lost of mangrove forest in Mexico is accelerated for tourist developments and ever justified by jobs creation and foreign investesment. Campeche State government just recently got aproval from SEMARNAT (? why) to throw down hundreds of hectares of mangroves for a tourist development(golf club and hotels greenlands!). Quintana Roo State...another lost case.
- Establishing and evaluating the benefits of Marine Protected Areas, especially no-take Marine Reserves, with respect to protecting ecosystems, improving fisheries, enhancing non-consumptive activities, and increasing our knowledge and understanding of marine systems. Improving design of MPAs and Marine Reverves and networks of both. Assessing risk of endangerment for vulnerable marine species, including marine fish (e.g. Warsaw grouper and speckled hind) in the Gulf of Mexico.
- Effects of land subsidence (especially in Louisiana. Effects (cost/benefit) of wind farms in the Gulf. International-interstate-interdisciplinary look and development of a management plan of the Gulf.
- * Land-Ocean interface studies at local bays, estuaries, and tidal inlets * Large-scale high-quality multidisciplinary hydrographic surveys (WOCE-style) to better understand the role of GOM in forming of Gulf Stream waters and its response to climate change * International collaboration in various disciplines among the US, Mexico and Cuba.

- Understanding marine and coastal meteorology in the Gulf of Mexico and the Houston-Galveston metropolitan area. Atmospheric and coastal and marine surface exchange of moisture, heat, momentum, and pollutants are of great interest to understand the natural processes involving the ecosystem subject to climate change.
- Need to evaluate the risk of invasive species affecting aquatic animal populations
Need to conduct a comprehensive assessment or risk analysis to determine how society, physical environment and organisms will be affected by climate change along the Gulf Coast (winners, neutrals and losers??) Factor in change in energy use, supply and human demographics. Need to develop ecosystem models to support climate change scenarios and current scenarios. Need to evaluate how wetlands will change with climate change and appropriate restoration strategies for now and into the future.
- use of onsite wastewater treatment systems and their impact on the environment, food chain and drinking water
- Inter-relationships between increased coastal development, eutrophication, HABs, and higher trophic levels (e.g. charismatic megafauna, sea and shore birds, marine reptiles) since all carry high economic benefits to coastal states.
- Nutrient loading from north american rivers and impacts on the Gulf.
- Long-term elimination of hypoxia problems-Root causes and mitigations as a national priority with time lines. Study Ocean oscillations effects on the Gulf coast & eastern sea-board. Land development on coastal areas to prohibit infrastructure installations at tax payers' expense-eg Grand Island. Energy production infrastructures that enhance marine harvesting potential.
- Ecotoxicological modeling of stressed populations due to anthropogenic impacts
Development of ecosystem restoration technologies based upon risk-based assessment tools.
- Mitigation of causes of hypoxic zone
- The effects of sea level rise due to climate change The effects of the reduction of arctic ice and the reduction of glaciers How the reduction of fresh water will effect Ocean environments
- The impact of the ecosystem health of the Gulf of Mexico on groundwater and other freshwater resources.
- OYSTER BEDS

- Mostly has been addressed...but we need a comprehensive vulnerability assessment (esp. in relation to sea level rise) conducted that incorporates conservation strategies of declining habitat types and species.
- Coastal erosion and freshwater diversion inter-relationship and impacts/effects such as dead-zones.
- Effects of coastal erosion on future Gulf of Mexico marine fisheries species.
- Coastal Engineering for Sustainability: Apply knowledge and tools to coastal issues to enhance productivity and sustainability while providing for human needs.
- Marine protected areas, livelihoods of coastal people, conflicts between marine conservation and marine resource dependent communities Open ocean aquaculture and the political economy and ecology of development in the EEZ in light of above comments
- Overfishing
- Resilience and role of coastal salt and freshwater wetlands in ecology and biochemical cycling. Healthy, abundant coastal wetland complexes most likely play a crucial role in mitigating effects of climate change and disturbance. Yet these resources (especially isolated freshwater wetlands) are being destroyed for development at an alarming rate since the Cook County supreme court ruling.
- Studies involved in determining the ecosystem and economic impacts of diverting the main flow of the Mississippi River.
- near-bottom currents in deep water along and outside the Sigsbee Escarpment. nature, stability and origin of mega furrows
- Ascertaining that stocks of wild fish for human consumption are self-sustaining. Understanding the balance between recreational and commercial uses of marine resources.
- Will commercial fishing harm the ecosystem in the coming years?
- Growth of use markets on the bio system of the Gulf of Mexico e.g. recreational impact and subsequent impact on users.
- Eutrophication and ecosystem health, and correlation with increases in coastal populations along the Gulf Coast. Ecosystem and societal impacts of marine debris from coastal storms.

- Improved predictions of wetland loss, especially in the Mississippi River Deltaic Plain, and especially estimates of loss due to sea level rise/climate change
 Improve wetland restoration techniques, especially in the Mississippi River Deltaic Plain- Miss. R diversions, marsh creation, barrier island restoration
 Improved understanding of hypoxia on the Inner Continental Shelf of Louisiana and Texas
 Advancements in science that can help facilitate restoration of water quality on the Inner Continental Shelf of Louisiana and Texas (D.O.)
 Improved understanding of the ecological importance of freshwater inflow to Texas estuaries. Scientific documentation of the ecological importance of non-tidal coastal wetlands in Texas, especially those whose hydrologic connections are not obvious
 Improved understanding of seagrasses in Texas- trends, human impacts, management (role of water quality protection- TSS, nutrients)
 Research on contaminant effects at hotspots (Patrick Bayou, Greens Bayou, San Jacinto River, Lavaca Bay, hotspots in Coastal Bend Bays, etc)and potential restoration techniques
 HABs- Links with human activities (e.g. nutrient loading)-red tide, brown tide, cyanobacteria
 Research on sources of coastal indicator bacteria loadings
- Establish sustainable loading for nutrients to the Gulf of Mexico and recommend policies that could achieve that loading. Identify freshwater needs for Gulf estuaries and recommend policies for maintaining those flows.
- Regulatory policy is becoming more complex and inflexible and is an impediment to sustainability. Intention is resource/habitat protection but there is typically no regional perspective on ecological needs. Consequently regulatory decisions are typically not made in context of regional needs (human, economic, ecological) but rather, primarily, in context of the regulations. One recurring result is the decoupling of economic development activities to ecological improvements (thus not leading to sustainability of either.) That's the thesis.
- View all political, industrial and developmental involvement in the research process with a jaundiced eye. We live in a time when our country is for sale to the highest bidder and support and grants from both government and private sectors are often like the feathers on a fishing lure. They look attractive but their real purpose may be just to hide the hook.
- Impacts of marine debris on navigational safety and fishing grounds. This could be rolled up into one of the larger theme areas presented already.
- We need better, more reliable, information of marine life populations and methods to protect/manage pressured species. We need better information about the effects of an LNG facility in the Gulf of Mexico. When I hear position papers I feel that it is all "spin" written by advocates of that particular "side" of the issue. I wonder if anyone knows the real truth of the issues.

- The use of the continental shelf as a platform for wind generated electricity is a very viable option for the Gulf coast states as there is a readily available work force and technology capable of off shore construction on a large scale. There should be significant effort put into: 1) selection of locations for wind farms that are most effective for the wind patterns of the area. 2) Couple this information with the existing electrical distribution and use. 3) study the environmental effects on migrating birds and aquatic life. This is an important opportunity for the scientific community to get in front of the industrial applications. It would be pro-active to be a partner in this process and actually help drive it, as an advocate rather than waiting for industrial users to feel the wrath of making choices that may not be what the scientific community feels are correct. Further, whatever decision the industrial community makes, should be based on sound basic research.
- Impact of increasing land development on barrier islands and coastlines. Public use and access issues related to the Gulf. Impact of off-shore drilling and development.
- Mississippi River discharge and sedimentation rates affecting the hypoxic zone and what climatological affects are potentially spawned by such events. Affects of levee systems on floodplains and how to correct past mistakes. Affects of estuaries on GOM stability and recovery from natural disasters and responses to anthropogenic pressures on those estuaries.
- sea level rise, subsidence, wetland loss, beach erosion
- More research is needed on pollution and contamination of nearshore areas, such as bays and estuaries, and how to prevent these man-made pollution problems from happening, either through better enforcement or more regulations. Too many people take for granted that the larger ocean can sustain waste discharges when much of this waste never leaves the nearshore areas.
- Physics of air-sea-land interaction
- Engineering and Restoration
- Improving operational efficiencies on gulf shrimp trawlers to better improve product quality and lesson energy consumption.
- weather events human health
- Recapture of funding from sources of past destructive effects which are now coming to light as a result of human actions.

- determine spectral light quality in relation to seagrass species growth or decline; factors driving changes in spectral light quality
- -Identify marine protected areas for conservation -Better understand trophic transfer in coastal marine systems -Effects of loop current on recruitment of offshore spawning juvenile fish species into estuaries -identify major factors affecting energy transport from estuaries into Gulf -Role of freshwater spring vents in coastal marine environments
- International cooperation and collaboration with other countries around the Gulf to achieve the research goals and priorities. Importance of marine protected areas to long-term conservation of the Gulf and establishment of a network of such reserves.
- -Develop effective strategies for treating or precluding anthropogenic pollution sources (land and airborne)from entering the Gulf, coastal waters and its tributaries. - Develop effective restoration methods and strategies for improving coastal and nearshore habitats - Develop a better understanding of how coastal systems and the open Gulf may respond to changes (increases or decreases)of various anthropogenic stressors, including nutrient or toxic inputs, fishing pressure, changes in freshwater inflow, etc.
- Sea Floor subsidence due to the extracion of oil and gas from the Gulf of Mexico. The effects of removing non operational oil platforms on fish and invertebrate population densities.
- Comprehensive analysis the relationship between estuarine systems and the ocean resources that depend on them.
- Sustainable and low impact recreation activities Access to the Gulf for training of curent & future professionals in marine related fields
- -What are the natural production mechanisms in the coastal zone of the Gulf of Mexico. 2) What are the terms of reference for coastal ecosystem-based management in the Gulf of Mexico. 3) What are the vulnerability of the Gulf coast because of global climate change. 4) What are the terms of reference for integrating Coastal Management with Large Marine Ecosystem management in the Gulf of Mexico
- The cause of the harmful algal blooms must be determined. The blooms have a significant negative economic impact when the blooms occur.
- HURRICANE PROTECTION for the COASTLINE!!!
- Uses for off-shore drilling rigs once they are not in commercial use.

- Development of Integrated Ocean Observing Systems and their related technologies for long range and long term monitoring of the ocean environment as well as quantitatively measuring the impacts of climate change and human interaction.
- The role of climate change on the structure and function of marine communities, including predator-prey interactions.
- (1) Identification of marine resources needed to aid in coastal restoration.
(2) Improved methods of remotely evaluating marine habitats and general bottom characteristics. (3) Improved methods of evaluating the impacts of resource extraction from the marine environment, such as shrimping, on benthic habitats.
(4) Improved methods of evaluating cross-shelf and along-shelf sediment transport under both storm and non-storm conditions so as to better predict sediment impacts on benthic habitats.
- earthquakes
- Most have been well-addressed. However, I think the role of coastal forests in storm amelioration and as habitat for coastal and migratory wildlife is an important part of the Gulf ecosystem. In addition to reducing the loss of coastal marshes (and their associated biota, such as GOM marsh-dependent fishes), the role of coastal watersheds in causing or reducing (e.g., denitrification in the Atchafalaya Basin) pollution is also an area that could be of significant importance in the coming decades.
- Identify land/environmental restoration strategies for Barataria- Terrebonne Estuary system.
- problems, pitfalls, and advantages of desalination plants
- It is imperative that the information on the basic physical dynamics of the marine environment interfaces with the coastline be re-emphasized in the training individuals entering the marine fields. The basics of water molecular movement in the waves and the effects of the wind forces on the development of wave dynamics particularly as it develops in storm surges.
- The restriction of water flow into the marshes by wiers and private owners that hold water inside levee's and keep this contained from people that cannot make a living because of this occurrence. If a fisherman cannot block the movement of seafood in and out of cuts and by-ways what gives the right to a land owner to block the same...seems like this is the same and they should be given a ticket by the LDW&F.
- Development of ecologically sustainable fish farming in the Gulf of Mexico.

- The DEAD ZONE. This situation is not being addressed, yet "environmental concerns" which have limited if any negative effects are being employed to modify and control the development of needed industrial complexes. The possible use of wide spread aeration of much of the DEAD ZONE, as a byproduct of the use of energy generation, has not been effectively evaluated or presented for consideration.
- Fisheries issues, such as ecosystem based management, ending overfishing, predator prey interactions, etc.
- Stop Louisiana coastal erosion, and rebuild barrier islands. If they can build islands with dredges in the Middle East and build cities on them I believe we can start building barrier islands with dredges. Let's quit putting money into studies with a bunch of words for PHD's, buy a couple of dredges, probably save money and dictionaries and start working up and down the coast making land. Hurricanes are going to take while we make so it will be a permanent process.
- Specific erosion studies and action. All I see is talk, talk, talk. I have used the Bayou Lafourche resource for years and I see no conservation efforts, much less their results.
- Real-time monitoring sensor nets of the coastal ocean and marine resources
- Not one word was said in this survey about the place of EDUCATION in this GOM Needs Framework. What good will all this research do if no one can communicate this to the public - both precollege, college and the public at large?
- shrinking coast line, what can be done to minimize the damage
- Effects of non-point source discharge, storm water run-off, nutrient loading and fertilizer use/misuse from the Mississippi river and other rivers on estuaries and the Gulf.
- 1. Land Loss Risk Analysis - Assess and identify potential risk of land loss across the Gulf coastal region. This is important for both coastal residents and coastal restoration programs. 2. Land-Ocean Interaction - Assessment of total freshwater and nutrient inflows to the Gulf of Mexico from all surrounding states (US and Mexico).
- continue to address the cause and elimination of dead zone in the gulf of mexico. also address different causes of by catch death such as use of salt boxes or barrels where water and salt are mixed with sodium bisulfate. My experience has been very little bycatch survive a bath in such water. Also why not use TEDs on all types of shrimp producing nets, such as skimmers, butterfly, as well as now existing trawl requirements and TEDS in all nets also?

- Place the highest priority on updated information of all types for Louisiana. This should also include the entire estuarine ecosystem, both wetlands and upland habitats.
- Hazardous algal blooms relation to anthropogenic activities such as agriculture 2. Offshore aquaculture
- different species used in seafarming-helpful or harmful to the area? feasibility studies on the use of clean cement debris waste for coastal erosion and barriers? effects of seasonal diversion techniques on the marine and vegetational species?
- Develop a long term strategy of monitoring of biodiversity (along with environmental change)
- Connection between ecosystems and regions (i.e. circulation, gene flow) Alternative management strategies and their impact on Gulf resources (e.g. MPAs, Artificial Reefs) Assessment, mapping, surveying deepwater resources (e.g., Pulley's Ridge)
- Impact of increased corn-based ethanol production on Gulf Hypoxia.
- The number one priority for effective ecosystem-based management would be estimating food web structure and human impacts on it and communities in general. Understanding the physics of the system, as well as characterizing Gulf-wide benthic habitats (via sonar applications followed by groundtruthing of sediments) is critical to that goal.
- Elimination of dead zone(s)
- Mitigate environmental pollution both from ships and oil rigs and from terrestrial (e.g., river outflow) sources
- Specifically, Evaluate potential threats to ecosystem health from oil drilling . Evaluate the causes and effect of the "dead zone" on various levels of marine life in the Gulf.
- Need Federal legislation and monitoring to reduce the Dead Zone. More research into how to accomplish should be done immediately.
- Researching better ways to transport high-value resources to market that will withstand natural storm related damages to existing structures. Better monitoring of the Gulf's temperature variations and circulations to help predict storm movement patterns with more in-place bouy's for temperature measurements and wave velocities and heights.

- Coastal Restoration Strategies and Technologies Effects of Levees and Other Hydrologic Modification Upon Ecosystem Health Sustainable Development in Coastal Areas
- Study of the Dead Zone off LA Coastal Wetland Loss or Shoreline Retreat Hurricane Protection
- Developing combined physical, ecological and socioeconomic modeling capabilities to assess the overall effects of coastal restoration and hurricane protection projects.
- There is a huge discrepancy of knowledge between the Mexican and American part of the Gulf of Mexico. I think that there should be an agenda for Mexico which ensures that basic knowledge will be gathered and that long term monitoring is established.
- Our focus is primarily on research that informs coastal/estuarine ecology and engineering for restoration and maintenance objectives. However, we also place a high value on ongoing efforts involving climate change studies and particularly, regional research that models coastal subsidence and sea level rise.
- development of biotic indicator status
- determine status and trends of populations of protected species (sea turtles, marine mammals, sturgeon, sawfish) in the Gulf of Mexico
- -Mercury Contamination -Open Loop Liquefied Natural Gas Plants and their effect on the fish, water quality, and other living organisms (coral, crustaceans, etc.) -Overfishing of certain gamefish, specifically Yellowfin Tuna. -Red snapper bycatch in shrimp trawls and overfishing of Red Snapper by the commercial fishing fleet.
- Louisiana has paid the highest environmental price of any state to support the national interest in navigation. Navigation from the Great Lakes to the Gulf of Mexico is possible via Louisiana. The tremendous erosion rate of the bird foot delta is directly attributable to dredging at the Head of Passes. However, there seems to be very little research into the responsibility of the navigation industry for these problems, and in fact, the navigation industry resists virtually any effort to minimize impacts or use dredged material beneficially. Research into the cause and effect relationship between past and present navigation practices and current land loss/erosion problems as well as research into methods to minimize impacts and use spoils beneficially would be helpful.
- Stock enhancement Offshore Aquaculture Development of a marine aquaculture industry to relieve pressure/overfishing on the wild fishery.

- None
- What is the biological carbon sequestration potential for restored salt and brackish water marshes?
- Understand the effects of human activity and climate change on shellfish safety. Develop an understanding on factors that affect methane cycling in the hydrocarbon seep zone as bacterial methane consumption essentially serves as a bottom-up food resource and removes methane from seawater. Investigate chemolithotrophic bacterial activity in the Gulf as it serves as a nutritional resource for higher trophic levels.
- How do we get people to move from areas that are no longer sustainable or must constantly be rebuilt? We seem to be moving a large amount of resources to benefit a small number of people.
- Sediment availability in the lower Miss River delta to rebuild the LA coastline. Assessment of salt water intrusion and mitigation alternatives.
- While cultural resources were mentioned, it might be more explicitly stated that prehistoric and historic sites are threatened by rising sea levels and by the destruction of marshlands that previously protected the sites from hurricanes and other destructive weather events. This damage should be mitigated.
- Governance -- much work has already been done and is going on by similar multiagency groups under the leadership of different agencies (eg EPA, NOAA, NASA, FWS, Corps, etc). Build partnerships upstream from the coast, NPS pollution won't be solved by coastal governments, towns or counties.
- The effects of climate change on coastal and marine ecosystems-- with an eye to effects on natural and human communities. The effect of continued anthropogenic changes in the marine environment on the sustainability of marine ecosystems.
- Need more information about the estuary-ocean interface as far as human impacts on coastal areas, mercury contamination, reduced freshwater inflow (due to upstream diversions), etc.
- Marine bioinvasions
- Additional research on mercury levels and how to reduce the level of mercury in the Gulf Of Mexico. Additional work in the area of mitigating climate change.
- Develop a catalog of options for mitigating human development, including costs and anticipated benefits.

- Oceans and human health as this topic relates to the GOM
- Factors contributing to hypoxic zones, red tide events and coastal subsidence. Also, allowing fringing marsh retreat with increasing sea levels.
- Gulf of Mexico Hypoxia
- Interactions among species Long term trends in abundance/recruitment and relation to physical variables
- Develop robust monitoring and assessment programs, considering not only estuaries but also the offshore portion of the coast. Socioeconomic, and human health, aspects must be included. Develop a series of indicators, including biomarkers, of ecosystem structure, function and resilience.
- Streamline the various governmental bodies that operate in this region into a single one (or at least fewer ones) that will be more effective in presenting the priorities (such as those enumerated here) to Congress and state legislatures, etc., and to more effectively get their message out to the general public. Furthermore, to have this streamlined group of bodies actually have authority to do things.
- How do short-term (episodic) forcings of the ocean influence the transport of nutrients, species, and pollutants. How does this repositioning of materials contribute to the climate of the Gulf of Mexico, and how important are the variations in this climate.
- Invasive species, Hypoxia, habitat loss
- research on sustainable fisheries. alternatives to natural fisheries (ie aquaculture)
- -Estimate the value and sustainable use of commercial and recreational fishery resources
- Coastal zone development and impacts on the marine environment
- preservation of coastal area (wetland, delta, etc)
- NOAA is looking at the potential of offshore aquaculture both in context with oil structures and away from such structures. There is a potential for significant research in siting, operating and production of seafood at offshore aquaculture sites and it is important that Sea Grant continue to fund the development of new species and technologies for production and environmental protection in this area. Having a regional planning project for aquaculture and identification of optimum offshore aquaculture sites is a critical component of this work.

- Esquemas de adaptacion a los cambios climaticos globales como son el incremento del nivel medio del mar.
- Developemnt and implementation of educational programs that introduce citizens to marine and coastal issues. These same programs should then provide skills for citizens to become active in the decision making process.
- -Nutrient Influences on Gulf Hypoxia and Harmful Algal Blooms
- Economic indicators of impacts to ocean resources
- We need to continue our research in the areas of fisheries sustainability and improved water quality which may be interwoven within Improving Ecosystem Health and Enhancing Human Health issues.
- Fisheries biology and management (i.e. shark conservation)especially in trophic level research Anoxia in the gulf and impact on marine animals
- Issues with oil and gas infrastructure (aging pipelines, etc.) and oil and gas spill PREVENTION.
- Integration of science and education at ALL levels. Research is great but not when it is not being disseminated to the GENERAL.
- ideas for the mitigation or reversal of dead zones off the mouth of the Mississippi River...better understanding of karenia brevis red tide events in the West Florida Coast....Aggressive funding for COOS efforts in Florida...effects of Climate change on coastal ecosystems and the development of mitigation strategies for the Gulf of Mexico
- Marine transportation of aquatic invasives. Better understanding of the connections between Gulf Ecosystem with that of the coastal zone and the impact continued population growth with have and the potential solutions.
- use of indicator species and/systems as indicators of ecosystem health
- Future development, city planning and their impacts on the coastal ecosystems. We must deal with future issues of human inputs, management etc.
- red tide

- Natural biomass variability within the region (similar to short term climate variability) -- can you separate naturally occurring variability from anthropogenic influences Fringe habitat -- character and importance to overall ecosystem health
- Relationship of large scale upland runoff to Harmful Algae Blooms Effects of pharmaceuticals to non-target species Effects of Gulf warming on pelagic food webs International and Inter-state water pollution carried by Gulf currents to affect down flow systems
- global water-balance (sea-level rise), change in water currents or temperature and the global impact. See the Gulf of Mexico as part of the big system.
- Interaction between Gulf of Mexico and estuaries through physical forcing, nutrients and trophic exchange. Influence of freshwater inflow on GOM estuaries and carbon transport onto the continental shelf.
- Look at the various state priorities to gain an understanding of what would be realistically fundable with state dollars and compatible with adjacent or other GOM state interests so that elements might be sanctioned as regional in interest and perceived need. This would provide a slate of potential collaborations at the regional level. Establish an interdisciplinary observation and sensing capacity for the GOM including observing systems (salinity, dissolved oxygen, water temperature, wind, wave height, etc.) that integrate sensors (sonar, infrared, acoustics) telemetry (radio, satellite, telephone) and biochemical analyses (elemental isotopic, genetic).
- aquaculture
- How do harmful algal blooms affect fisheries and entire food webs?
- Subsidence and loss of critical wetland habitats. Social vulnerability of populations living along the coast. Development of social capital in conjunction with coastal resilience to natural hazards.
- NMFS marine mammal stock assessments for the Gulf of Mexico are woefully out of date. They should be brought up to date, and the threats to these stocks should be more clearly identified and quantified as possible, including threats beyond commercial fishing operations (such as environmental contaminants, recreational fishing gear entanglement and ingestion, boat collisions and disturbance, etc.). Current and emerging threats need to be considered in management plans for these animals, along with changes to their ecosystems. We should work more closely with the other 2 countries that share responsibility for the Gulf (Mexico, Cuba) to assess resources and threats.
- mercury in fish and the coastal environment

- Habitat loss
- Bluefin tuna spawning aggregations, resource governance, deep-sea habitats and exploration
- Communications and behavior change research, especially related to hazard mitigation and development activities.
- Continued and enhanced monitoring of the GOM through coastal ocean observation networks, satellites and increased monitoring of the deeper GOM. It is critical to have high quality long term time series for most of the aforementioned priorities.
- Gulf hypoxia Excess nutrient loading in the Gulf region Remediation of wetland loss Sustainable ecosystem management SMART growth
- Understand how human population growth will affect our nearshore and aquatic environments. Develop tools for planning and develop investment resources for management of above effects. Develop tools and resources for local communities to deal with above issues.
- -Relationship of land borne environmental elements (sediment, freshwater, nutrients) on coastal and ocean processes; 2) Future fate of coastal ecosystems in lieu of sealevel rise and other related climate change elements (focus on coastal and not marine) 3) Effects of human induced changes (overfishing, shoreline hardening, dredging, etc.) on environmental resilience.
- Coastal erosion and hurricane vulnerability in Louisiana Understanding and reducing the annual Dead Zone Economically and biologically sustainable Gulf fisheries Reducing the impact of plastics on ocean life, especially very tiny "microbead" plastics now in use in many cosmetics
- tidal and storm surge modeling updated elevation data (heights/depths) for intertidal coastal areas shoreline maps referenced to multiple vertical datums integrate metadata better coordination between feds and state and local stakeholders on ocean and coastal mapping activities
- To better understand anthropogenic impacts to the Gulf in order to prioritize management activities to ameliorate those impacts
- The land-sea margin and especially the role of tidal rivers in maintaining estuarine and marine productivity should be a very high research priority.
- Remediation of coastal erosion by means other than bulkheads or seawalls

- 1 - Subsidence and sea level rise. 2 - Expansion of hypoxic zones. 3 - "Over-population" of stressed coastal ecosystems. 4 - Coastal "protection" efforts and their role in further isolating valuable wetlands and taking them out of "fisheries production".
- Human environmental impact reversal
- Research on mitigation and the effects of known mitigated sites on the Gulf of Mexico
- The impacts of mariculture in shallow warm waters Importance of Ecosystem Management--showing the importance of the land to the ocean as well as the ocean to the land
- Many of the questions touch upon the connection between patterns of land development and coastal ecological health, but none focus in on quantifying the nexus between land development, land use, and ocean/water impacts. Another piece that is not mentioned is research regarding innovations in financial markets and financial products and the environment. (I'm going out on a limb here, but something to think about). There are innovations in financial products, such as catastrophe bonds, weather derivatives, futures etc - that create money flows and investments in areas that relate to Gulf of Mexico issues. This is not something that is never discussed in meetings of academics and policy people - is this something worth exploring?
- 1) Need improved wind field measurements and expansion of HF radar technologies to drive numerical models for ocean circulation and improve weather forecasts; Not including FL in oil industry reparation contracts shows gross lack of understanding of Gulf circulation; 2)Need to identify causes of severe anoxic events-evaluate timing of wastewater/other discharge to coastal waters; 3) Mitigation plans for oil spills, wastewater and anthropogenic and natural hazards need to be updated/incorporate real-time COOS information Growth and development come at a high cost-we can talk about 'monitoring' all we want, but until the real problems are addressed (too many people tapping into limited resources, not living green, seriously undereducated citizens)environmental quality will continue to deteriorate. EDUCATION is needed-not disparate programs piggy-backed on other projects, but a serious, dedicated effort targeting formal and informal audiences. Inter-agency, multi-institution efforts need to be linked, consistent, science-based information needs to be disseminated, taught in schools, practiced in life...these need to be funded adequately so competition does not handicap the effort but rather enhances and promotes synergy.
- useful and meaningful restoration, ecosystem-integrated approaches

- Do the research needed to better understand the life history info needed for more effective fisheries management in the long term. For example, the lack of knowledge for some of our more important species ... red snapper ... is pathetic.
- The highest priority should be sustainable fisheries in a changing global climate.
- The importance of the health and overfishing of the the estuaries, inland bays and waterways that feed the Gulf of Mexico, and how they inturn impact the entire Gulf system.
- Forecast the landfall intensity of hurricanes Understanding the factors that impact community resiliency against natural hazards, developing measurable indicators of resiliency
- Assesment of ocean literacy among the public users and establish methods to obtain a certain level of literacy among all Gulf Communities
- Coastal Public Access
- -Monitoring the changes in water temperature of the gulf and its impact on the impact on the ecosystem biodiversity. 2) Monitoring the rising of water in the ocean as the results of global climatic changes and it is impact on the costal areas. 3) Studies on the fragile ecosystems of costal zones. 4) Studies on invasive species that may appear as the result of warming water of Gulf
- Understanding Biological processes on the Ecosystem level
- Prevention, management, and impact of invasive species
- The two main priorities should be eutrophication and habitat loss.
- As a charterboat operator for over 30yrs.,it would be nice if the fed. gov. would use some of the info. scientists other than nmfs had to offer, before they made decisions based on politics rather than what real data supported.
- Critical need to address languishing observing systems Sustainability of and maintenance of observing systems Ensuring adequate cross-pollination of research communities within the NGI and Gulf of Mexico study groups, including GOMA, OOS's, etc.
- Research should be addressed to the cumulative affects of numerous off shore LNG processing terminals.

- Complete and aggressive biodiversity inventories in the open Gulf, deep Gulf, and marginal estuaries and lagoons. This is critical if the rate of change in the Gulf reflects the rate of anthropogenic change on the Gulf coast.
- Dead Zone decrease: Use of riparian buffers, decrease in fertilizer use, and "french Drains" with denitrifying bacteria to decrease nitrate.
- Value of coastal rivers and their discharge of fresh water to estuaries and near shore waters. Study alterations already in place (dams) and project what proposed dams and alterations can do to tailwater sections of river including the coastal reaches of rivers. Look at cumulative impacts where dams exist and more dams are proposed esp. for economic development and flood control. Mississippi's Pearl River drainage is one such stream.
- invasive species
- Understanding how ecological processes and human impacts propagate across spatial and temporal scales, and incorporating that into predictive spatially explicit models.
- Needed are major improvements in hurricane intensity forecasts. Needed are studies to better assess the impacts of rivers on the Gulf so that management decisions can be made.
- storm risk and its relation to climate change change in drought/flood incidents re the Mississippi R. gulf hypoxia and its impacts fisheries impacts from ecosystem collapse in Louisiana subsidence rates, causes and projections along the northern gulf coast projections of population change along the northern gulf coast implications of global petroleum production peaking (Hubbert's Peak)
- Socioeconomics of coastal resource restoration and management
- 1) The development of long term ecological monitoring in the coastal zone to support development of complex ecosystem models. 2) Research in the various priority areas conducted at multiple spatial scales to improve our understanding of how issues such as ecosystem health are linked locally and regionally. Increase and encourage collaborative projects between Sea Grant programs. 3) Strong support for the development of ecosystem-based modeling tools for management.
- effects of invasives on native ecosystems
- Seafood contamination & seafood safety
- specifically hypoxia, invasive species, emerging contaminants, and HABs - probably subsumed under more general topics

- With the ever-increasing intense pressure of development and mitigation of our natural eco-systems....I feel that much more serious emphasis needs to be placed on the enhancement, preservation and restoration of natural estuarine habitats. If we maintain the development/mitigation mind-set with only regard to the bottom-line...then I sense we will loose these amazingly productive area of our coastal regions...resulting in a significant diminishing of the web of life that so many depend on for their livelihood and enjoyment. No wetland...no seafood? There should also be greater emphasis placed on seeking out alternative methods of waste treatment that is more eco-friendly. I would like to see major effort placed on research to convert algae and other seafood by-product into bio-diesel fuels, omega-3 fatty acids and organic fertilizers. The dead-zone in our gulf is a stark reminder of the negative impact of 'status-quo' agricultural practices. That's enough for now.
- gas hydrates and oil / gas seeps and their impact on ecosystems and atmosphere
- Probable effects of climate-change induced changes in the rate of sea level rise on coastal development in general and public infrastructure in particular. (2) Cost-effective adaptive strategies for contending with #1. (3) Vulnerability data needed to accomplish #1, especially topographic elevation data at intervals of no more than 1 ft.
- Favoritism of the commercial fishing sector over recreational fishing when setting catch quota and size limits. Unbiased research on economic valuation of commercial vs. recreation fishing impacts. Unbiased research on impact on resources by commercial fishing vs. recreational fishing. Unbiased research on impacts of other commercial marine enterprizes on marine resources. ie. LNG plants, petro exploration and transport, dredging activites, etc.
- Microbiological symbiotic interactions, improvement of fisheries especially of rare or declining populations.
- Impacts of marine debris to fisheries, habitat, and navigation.
- The use of visualization technology as an end user tool.
- Nothing specific, except that near-term research questions should be prioritized in the context of Gulf of Mexico Alliance priorities and implementation objectives.
- real-time environmental data collection, analysis, model building youth education and outreach for coastal studies and issues
- Ecosystem management not species management.
- none

- Though covered indirectly, I think that increase water temperature and changes in rainfall coupled land use and human population growth will put more stress on the benthic and epibenthic inshore and near shore faunal communities. The resulting BODs and CODs may precipitate a decrease in standing crop of both bionomically (e.g., the zooplankton, mysids, amphipods that serve as major food sources for juvenile fishes) and economically (e.g., oysters, penaeid shrimps, blue crabs) important organisms resulting in significant negative ecological and economic effects. If during the next 15 years there a more immediate sea level rise caused by sooner than anticipated by shifts and sloughing of the ice sheet in western Antarctica, there would be very serious impacts on the barrier islands (e.g., Horn Island, MS would cease to exist), tidal marshes (diking would curtail reestablishment of tidal marshes into the lower flood plains adjacent to the mouths of rivers, etc.
- Although we wish to believe in the concept of sustainable use of all coastal resources-this is a myth that could have catastrophic consequences for the future. Actions should be taken to to identify, label, prioritize and develop improved regulatory contingencies for these limited and threatened Coastal Resources.
- Have a method to test and evaluate new and innovative products produced as a result of independent research and development by private companies.
- Impact of land use patterns on ecology of the Gulf and the development of mitigation techniques How to improve quality of life for human coastal residences first and the nation second
- Understanding the hypoxic dead zone
- did you cover the influence of 38 states and the impact to Hypoxia - maybe that question is too specific.
- Integrated Ocean observing systems that can be available for public, industry and academic use.
- Interaction with groundwater from coastal states
- Impact of predicted climate change on coastal communities and ecosystems (maybe included in previous in different words).
- To determine the major sources of contaminants contributing to hypoxia in the Gulf of Mexico and seeks solutions to the control and elimination of these sources of contaminants before it progressively and negatively impacts more of the coastal ecosystem.

- ecosystem based management of natural resources combine with human intervention and disruption
- Data collection: parameters monitoring water quality, hydrodynamics, hydrology.
- Hypoxic/Red tide effects on marine fauna and human health
- Establishment of construction codes and practices that can withstand future hurricanes and storms. 2. Establish Gulf Oysterbeds as a mechanism to control HAB's and the associated toxins 3. Develop standards and practices for low CO2 emission to slow the progress of climate change
- Improvements to fishery assessments. Habitat and water quality improvements.
- Status and trends related to storm water runoff and its impacts on the living resources and habitats of the Gulf under current rates of development and current building practices
- Development of high resolution coastal physical and ecosystem models that can address natural variability, extreme events and climatic changes and support long term observational monitoring networks for model validation
- Much of what was asked require much basic knowledge of local and regional biodiversity and functionality of various estuarine/marine systems in order to model future impacts. Much of this basic data and not in the literature and are needed.
- Altering human behaviors that are currently known threats to ecosystem health. Getting known research results, models, programs, and tools to the hands of people that need it. Spend more efforts translating this information to those that need it.
- Fishing stock repletion Establishment of barriers to buffet storm impacts
Removal of high priced real estate further inland to avoid direct hurricane impact
- Capability to use interactive modeling to assess impacts (natural and man-made) on coastal system behavior/conditions.
- Determine the effects of watershed use and water diversions on interactions in the GOM. Explore the potential for sustainable low impact energy production (wave or wind) from the GOM.
- Understanding how land use change within river basins associated with the Gulf affect the biological integrity and climatic roles of the Gulf.

- 1)Improved characterization of risks to human health from different bacteria sources (human vs. livestock/wildlife) in coastal recreational water environments.
2)Improved bacterial indicators whose occurrence correlates with the risks identified in (1) above.
- The linking of scientific and technological information and discoveries to the decisions of policy makers and the public related to economic and social behaviors, policy choices, planning and resource allocation.
- Individual stewardship responsibility of people.
- Increased utilization of potential human food resources from marine environments. Development and application of current and novel technologies to increase value of seafoods, including underutilized species and by-catch from current fisheries.
- Integration and real time display of monitoring data
- stock identification for fish populations Effects of bycatch on recruitment and cohort strength.

Send questions about the survey results or Gulf of Mexico Research Planning Effort to:
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