



For More Information:

Laurie Rounds  
Gulf of Mexico Landscape  
Conservation Liaison

Phone: 240-753-4471  
Email: Laurie.Rounds@noaa.gov

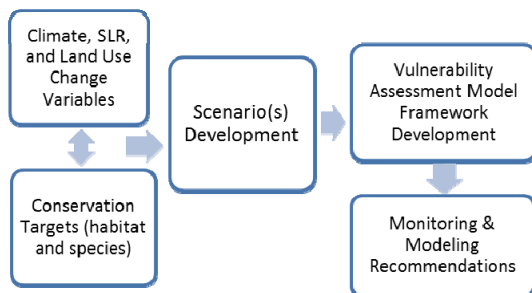
# GULF COAST VULNERABILITY ASSESSMENT

**Project Goal:** Enhance conservation and restoration planning and implementation by providing a better understanding of the effects of climate change, sea level rise, and land use change on Gulf of Mexico coastal ecosystems and their species.

The Gulf of Mexico Alliance, NOAA, Gulf Landscape Conservation Cooperatives, and USGS Climate Science Centers will lead the Gulf Coast Vulnerability Assessment in 2012-2013 to better understand impacts to coastal ecosystems and species from climate change, sea level rise, and land use change. The project will include a regional assessment that lays the foundation for a vulnerability assessment of coastal habitats and species.

## Regional Assessment

The regional assessment will identify sea level and climate variables, ecological processes, and critical stressors such as land use change that are key drivers of change for Gulf Coast ecosystems.



Conceptual models will be used to identify habitats and species that are representative of Gulf Coast ecosystems and how they may respond to changing conditions. Because there is uncertainty in what changes may occur, especially farther into the future, multiple scenarios for changes in climate, sea levels, and land use will be

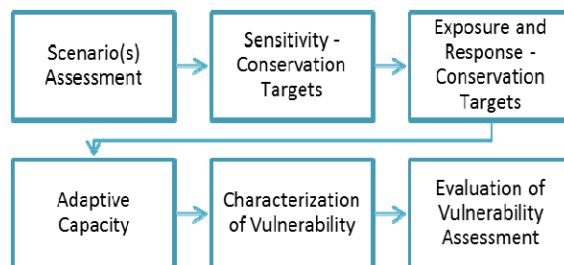
developed. Regional data, research, and models will be assessed and integrated into a framework to assess vulnerability. Recommendations for long-term monitoring and modeling of the impacts of sea level rise and climate change will complete the regional assessment.

## Vulnerability Assessment

The Vulnerability Assessment will apply multiple scenarios to selected habitats and species to assess their vulnerabilities to changes in climate, sea levels, and land use.

Vulnerability can be characterized by sensitivity to projected changes, the magnitude and rate of exposure, ecological responses, and ability of habitats and species to adapt to changes.

An understanding of vulnerability will help coastal resource managers develop strategies to protect and restore Gulf Coast ecosystems in a rapidly changing climate and rising seas.



## **Project Overview**

### **A. Project goal**

Enhance conservation and restoration planning and implementation by providing a better understanding of the effects of climate change, sea level rise, and land use change on Gulf of Mexico coastal ecosystems and their species.

### **B. Project objectives:**

- 1) Build on existing Gulf of Mexico conservation initiatives (e.g. Gulf of Mexico Alliance, Surrogate Species, RESTORE Act, etc.) by identifying existing goals and information to facilitate integration with the Gulf Coast Vulnerability Assessment.
- 2) Identify and assess existing regionally down-scaled data and model projections for climate, sea-level, and land use change for the Gulf of Mexico;
- 3) Develop recommendations for data and research needed to support long-term monitoring and modeling of sea-level rise and climate change impacts on coastal ecosystems and their species.
- 4) Develop recommendations for using regional climate, sea-level rise, and land use change data and projections to conduct vulnerability assessments and adaptive conservation planning and management;
- 5) Integrate research, data, information, and projections into a framework to assess the vulnerability of coastal ecosystems and focal coastal species;
  - Select best available projections of climate change, sea level rise, and land use change.
  - Evaluate existing models and information to characterize sensitivity and likely levels and thresholds of exposure to climate change, sea level rise, and land use change for selected coastal ecosystems and focal species.
  - Develop methods to assess adaptive capacity or resilience of coastal ecosystems and apply those methods to selected Gulf Coast ecosystems.
- 6) Identify conservation and restoration design elements critical to sustain ecosystem services and focal species and to enhance resilience of coastal ecosystems given future scenarios for climate change, sea level rise, and land use change.

### **C. Primary audience**

Gulf of Mexico coastal and estuarine resource managers, state and regional conservation planners, and the conservation partnerships of the Gulf Landscape Conservation Cooperatives.

### **D. Expected project outcome**

Gulf of Mexico resource managers, conservation planners, and conservation partnerships will have improved information about the effects of climate change, sea level rise, and land use change on Gulf coastal ecosystems and species to inform conservation and restoration planning and implementation. Project results will include:

**Phase 1:**

- assessment of the vulnerability of selected coastal habitats and focal species to climate change, sea level rise, and land use change expressed in terms of exposure, sensitivity, and adaptive capacity;
- identification of existing and new priority datasets to inform robust ecosystem modeling efforts to understand the impacts of climate change, sea level rise, and land use change.

**Phase 2:**

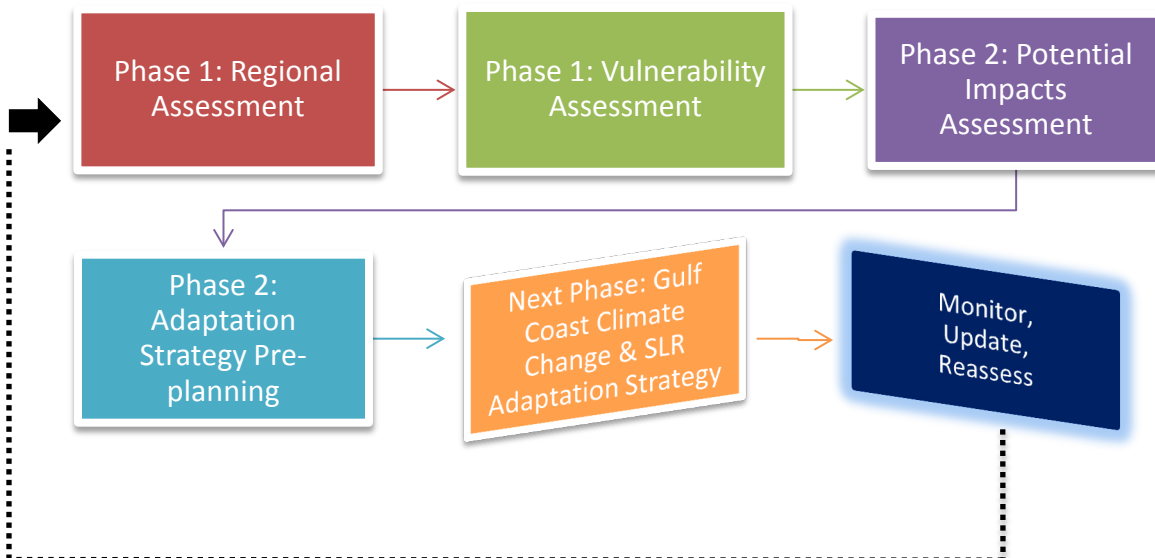
- identification of potential loss and change in habitat types for coastal ecosystems;
- identification of transitional areas that may support coastal habitat migration; and
- development of conservation strategies to enhance landscape viability in the face of climate change, sea level rise, and land use change.

**E. Overall project timeline:** Phase 1: FY13- October 2012 to September 2013; Phase 2: FY14- October 2013 to September 2014.

**F. Contact:** Laurie Rounds, NOAA Gulf of Mexico Regional Liaison, [Laurie.Rounds@noaa.gov](mailto:Laurie.Rounds@noaa.gov)

### Gulf Coast Vulnerability Assessment Modules

The Gulf Coast Vulnerability Assessment will consist of three primary modules: the Regional Assessment, Vulnerability Assessment, and Potential Impacts Assessment. The project will also initiate steps to transition between the vulnerability assessment and the development of a Gulf Coast climate change and sea level rise adaptation strategy. An adaptive approach will also be incorporated into the Gulf Coast Vulnerability Assessment to monitor progress in meeting project goals, update components as new data or models become available, and reassess the vulnerability and potential impacts to coastal ecosystems and species from climate change, sea level rise, and land use change.



## Input Process



### **Project Steering Committee:**

**Purpose:** Provide guidance to achieve project goals and objectives; assist with the input process including the formation of experts teams and stakeholder input; provide expertise and coordination by leading steps, working with experts teams, integrating regional information, recommending best approaches to achieve project objectives; and review draft work products.

### **Project Consultation Team:**

**Purpose:** Provide a broad range of expertise to inform the Gulf Coast Vulnerability Assessment at key points in the process and ensure that final products are tailored to meet partners' needs. The team will advise the Steering Committee on draft products prior to their release for stakeholder comments.

### **Climate Experts Team**

**Purpose:** Work with the Steering Committee to provide data and expertise throughout the project including regional data for priority climate, sea level rise, and other key drivers to inform the development of a vulnerability assessment model framework; to develop vulnerability assessment scenarios; to identify gaps and recommend standards and criteria for additional modeling efforts that may be needed; and to provide input on recommendations and guidelines for future vulnerability assessments.

### **Ecosystems and Species Experts Team**

**Purpose:** Work with the Steering Committee to provide data and expertise to assist with developing conceptual ecosystem models; select conservation targets; assess the vulnerability of conservation targets; and recommend data and research needs to support monitoring and modeling for long-term changes in coastal ecosystems.

### **Stakeholders**

**Purpose:** Stakeholder input will be an important component of the input process and occur at key points during the Gulf Coast Vulnerability Assessment. A broad range of stakeholders will be reached through the Gulf of Mexico Alliance and the Steering Committees and Science Teams for the Gulf LCCs. Additional stakeholders will be included as needed in consultation with the Steering Committee.