



## NOAA RESTORE Science Program Supporting Restoration and Sustainability in the Gulf of Mexico

### The Gulf Coast: Vital to Our Country's Strength

The Gulf Coast region is essential to our nation and our economy, providing valuable energy resources, abundant seafood, extraordinary beaches and recreational activities, and a rich cultural heritage. More than 22 million Americans live in Gulf coastal counties and parishes, working in crucial U.S. industries like commercial seafood, shipping, tourism, and oil and gas production.

However, the ecological health of the region has been significantly impacted in recent years. The Gulf coast states have experienced loss of critical wetland habitats, erosion of barrier islands, overfished fish stocks, water quality degradation, and significant coastal land loss.

### The Whole Picture: Understanding the Gulf Coast from a New Perspective

The Gulf region spans a vast distance. Yet a key lesson from disasters such as Hurricane Katrina and the Deepwater Horizon oil spill is that the Gulf of Mexico is one large, interconnected network of natural resources. Long-term recovery requires an integrated, holistic understanding of the Gulf of Mexico ecosystem.



Credit: NOAA

### NOAA and the RESTORE Science Program

In an effort to help the region recover, Congress passed the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act of 2012 (RESTORE Act). This law dedicates 80% of certain penalties paid by responsible parties in connection with the Deepwater Horizon oil spill to the Gulf region for ecological and economic recovery efforts. These monies are being deposited into a Gulf Coast Restoration Trust Fund established by the U.S. Treasury Department and are being used to fund programs under the RESTORE Act.

One program is the Gulf Coast Ecosystem Restoration Science, Observation, Monitoring and Technology Program, or NOAA RESTORE Science Program, which the Act directed NOAA to establish in consultation with the U.S. Fish and Wildlife Service (USFWS). NOAA and the USFWS also must consult with the Gulf States Marine Fisheries Commission and Gulf of Mexico Fishery Management Council in carrying out the Program.

The purpose of the NOAA RESTORE Science Program is to carry out research, observation, and monitoring to support the long-term sustainability of the Gulf of Mexico ecosystem, including its fish stocks, fish habitat, and fishing industries.

To ensure the best use of resources, the Program coordinates with existing federal and state science and technology programs, including other activities funded under the RESTORE Act. Per the RESTORE Act, the Program is funded by 2.5% of the Gulf Coast Restoration Trust Fund's principal and 25% of the interest derived from the Trust Fund.

The Program is administered by NOAA's National Ocean Service, National Centers for Coastal Ocean Science (NCCOS). An executive oversight board keeps the Program connected to other research programs within NOAA, the U.S. Fish and Wildlife Service, and the larger science community. The program director is based on the Gulf Coast to keep the Program grounded in the region.

## NOAA RESTORE Science Program Development

To address the broad science categories articulated for the Program in the RESTORE Act (marine and estuarine research; marine and estuarine ecosystem monitoring and ocean observation; data collection and stock assessments; pilot programs for fishery independent data and reduction of exploitation of spawning aggregations; cooperative research), NOAA consulted the numerous documents developed in recent years that identify a wide range of science needs for the Gulf of Mexico. Many of these reports were produced with extensive stakeholder input and in consultation with resource managers throughout the Gulf States. Based on a review of these documents and input gathered from direct engagement with stakeholders, the NOAA RESTORE Science Program developed a Science Plan which identifies a goal, desired outcomes, and long-term research priorities for the program.



### Engaging Key Players in the Region

NOAA solicits input from key partners and constituents, including the Gulf of Mexico Fishery Management Council, Gulf States Marine Fisheries Commission, the Gulf of Mexico Alliance, academic institutions, federal and state agencies, non-governmental organizations, and other entities across the Gulf region. NOAA will continue to engage its partners in the region whose science needs will be the driving force for the Program.

#### Goal

To support the science and coordination necessary for better understanding and management of the Gulf of Mexico ecosystem, leading to:

- healthy, diverse, sustainable, and resilient **estuarine, coastal, and marine habitats and living resources (including wildlife and fisheries);** and
- resilient and adaptive **coastal communities.**

#### Outcomes

- The Gulf of Mexico Ecosystem is understood in an integrative, holistic manner.
- Management of, and restoration activities within, the Gulf of Mexico ecosystem are guided by this ecosystem understanding.

#### Long-Term Research Priorities

- Comprehensive understanding of ecosystem services, resilience, and vulnerabilities of coupled social and ecological systems
- Construct management-ready and accessible ecosystem models
- Improve monitoring, modeling, and forecasting of climate change and weather effects on the sustainability and resiliency of the ecosystem
- Comprehensive understanding of freshwater, sediment, and nutrient flows and impacts on coastal ecology and habitats
- Comprehensive understanding of living coastal and marine resources, food web dynamics, habitat utilization, protected areas, and carbon flow
- Develop long-term trend and variability information on the status and health of the ecosystem, including humans
- Develop, identify, and validate system-wide indicators of environmental and socioeconomic conditions
- Develop decision-support tools to assist resource managers with management decisions planned to sustain habitats, living coastal and marine resources, and wildlife
- Network and integrate existing and planned data and information from monitoring programs
- Develop and implement advanced technologies to improve monitoring

