

Gulf of Mexico Ecosystem Service Logic Models and Socio-Economic Indicators (GEMS)

Billions of dollars will be spent on large-scale restoration of Gulf ecosystems over the coming decades, but there is no shared platform to guide assessment and reporting of restoration progress and effectiveness for the broad set of environmental, social, and economic goals shared by the many institutions working in the Gulf of Mexico. The diversity of these goals—including habitat restoration, water quality improvement, marine resource protection, community resilience, and economic revitalization—means a variety of metrics are needed to fully evaluate the effectiveness of restoration projects. A set of common restoration models and metrics relevant across projects, programs, and locations can facilitate effective project planning, evaluation, and measurement of success at different scales.

With support from the National Academies' Gulf Research Program, Duke University's Nicholas Institute for Environmental Policy Solutions, The Harte Research Institute, and The Nature Conservancy are leading a project to advance standardized metrics of restoration success by developing ecosystem service logic models with stakeholders from the five Gulf states, relevant federal agencies, and technical experts. Ecosystem service logic models trace the effects of restoration actions as they influence ecological and social systems to create important outcomes that matter to people; these models are a recommended tool for comparing across restoration approaches and locations to match likely restoration outcomes with stakeholder goals. In addition, evidence that accompanies these models can be used to clarify uncertainties that need to be considered and to identify critical research gaps.

By the end of this project we will have:

1

Identified socio-economic measures that capture broadly relevant outcomes and engaged with monitoring groups across the Gulf to incorporate these measures into existing monitoring programs

2

Developed regional ecosystem service logic models for popular restoration approaches, and established buy-in with Gulf leadership groups so that these models can be used for prioritizing restoration planning and funding across the Gulf

3

Performed outreach and engagement with important Gulf leaders who are fostering the development of additional logic models and socio-economic metrics for other frequently implemented restoration approaches

To learn more about the project, visit nicholasinstitute.duke.edu/gems

With local stakeholders and experts in estuaries in each of the five Gulf of Mexico states, we will develop site-specific ecosystem service logic models for restoration approaches commonly implemented across the Gulf. These will then be integrated into regional unified logic models that reflect the priorities of the local models. Using these regional models, priority metrics that effectively capture the outcomes of these restoration approaches will be identified. We will also assess the extent to which these metrics are already being monitored in the Gulf and where gaps in monitoring exist.

The project will improve understanding of restoration effectiveness across scales (project, state, and region) and goals (economic, environmental, and social). We aim to simplify comprehensive reporting on restoration progress, provide useful tools for funders and decision makers, and align our efforts with existing gulf networks and communities of practice. We believe that this project comes at a critical juncture for the Gulf and can help to inform investments in restoration so they will have the greatest possible positive impact on the Gulf economy, it's people, and it's ecosystems.

Products:

1

Regional Agreed to Ecosystem Service Logic Models for Restoration Approaches that include:

- Evidence summaries
- Selected common indicators
- Five estuary-specific examples (one for each Gulf state)

2

How to Guides on:

- Building new ecosystem service logic models
- Identifying indicators

3

A Use Strategy

How ecosystem services logic models and indicators can be integrated and used for planning, funding, decisions, monitoring, and reporting.