Effective monitoring to evaluate ecological restoration in the Gulf of Mexico: new report

July 26 2016

To improve and ensure the efficacy of restoration efforts in the Gulf of Mexico following Deepwater Horizon - the largest oil spill in U.S. history - a new report from the National Academies of Sciences, Engineering, and Medicine recommends a set of best practices for monitoring and evaluating ecological restoration activities.

The Natural Resource Damage Assessment (NRDA) Trustee Council, the Gulf Coast Ecosystem Restoration Council (RESTORE Council), and the National Fish and Wildlife Foundation (NFWF) are the largest restoration programs working toward the Gulf's recovery after the 2010 offshore oil spill that led to a 20 percent reduction in commercial fisheries and damaged about 1,100 miles of coastal salt marsh wetlands. These programs administer a majority of the $16 billion available in restoration funds, supporting projects that range from coastal and offshore habitat restoration to recovery of certain species, water quality improvement, and land acquisition.

The report finds that the majority of past U.S. restoration efforts have not been adequately monitored to assess or improve restoration efficacy. To date, monitoring activities have been dramatically underfunded, and very few programs monitor environmental and social results. To ensure that progress of the efforts can be evaluated, the committee that conducted the study and wrote the report recommended that all restoration activities funded by these programs define specific, measurable objectives and adopt a rigorous statistical monitoring effort and a well-designed data management plan.

"Integrating a monitoring plan as part of the broader restoration program is important to assure the funders and public that restoration funds are being spent effectively," said committee chair Frank Davis, director of the National Center for Ecological Analysis and Synthesis at University of California, Santa Barbara. "Given the similarities in the strategic goals of Gulf restoration programs, the objectives and monitoring approaches need to be considered holistically to maximize compatibility of efforts and the lasting value of the data and information being collected."

Monitoring is essential to ensure projects are implemented and functioning as designed, to assess whether goals are met, to improve the design of future restoration efforts, and to identify critical uncertainties that might prevent the success of a project, the committee said. The report suggests funding agencies work together to ensure that monitoring data are as consistent and comparable as possible across the Gulf, and also that data are publicly available by establishing clear policies for data archiving and sharing.

The report also provides more specific restoration monitoring guidelines for six habitats and species groups in the Gulf: oyster reefs, tidal wetlands, seagrasses, birds, sea turtles, and marine mammals. For example, when corrals are constructed to protect sea turtle eggs, their monitoring might entail measuring the amount of beach protected after construction, the location of the corrals relative to the high tide line, and the density of vegetation in the corrals to ensure the project's success.

The study was sponsored by the Academies' Gulf Research Program, which was established at the request of the U.S. government as part of legal settlements in the aftermath of the Deepwater Horizon oil spill. The National Academies of Sciences, Engineering, and Medicine are private, nonprofit institutions that provide independent, objective analysis and advice to the nation to solve complex problems and inform public policy decisions related to science, technology, and medicine. They operate

under an 1863 congressional charter to the National Academy of Sciences, signed by President Lincoln. For more information, visit http://national-academies.org.

More information: www.nap.edu/catalog/23476/effe … n-the-gulf-of-mexico

Provided by National Academies of Sciences, Engineering, and Medicine