

A Decision Framework to Protect Coral Reefs in Guánica Bay, Puerto Rico

William S. Fisher¹, John F. Carriger¹ and Patricia Bradley²

¹U.S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL, USA

²U.S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Atlantic Ecology Division, Narragansett, RI, USA

A Watershed Management Plan (WMP) for Guánica Bay, Puerto Rico, was introduced in 2008 by a nonprofit organization, the Center for Watershed Protection, with the intent of protecting coral reefs from damage related to watershed discharges. The plan was initially generated with the collaboration of federal agencies in the Coral Reef Task Force. The National Oceanic and Atmospheric Administration (NOAA) and U.S. Department of Agriculture (USDA) took lead roles for the project in collaboration with Puerto Rico Department of Natural Resources and the Environmental Quality Board. They were joined by the National Fish and Wildlife Foundation (NFWF), U.S. Fish and Wildlife Service and the U.S. Environmental Protection Agency (EPA) in a comprehensive effort to reduce sediment and nutrient efflux to coral reefs from the Guánica Bay watershed.

Among the contributions of EPA is a decision framework that captures the objectives and means of the original plan as well as additional objectives and means that have evolved from additional partners and stakeholder perspectives. A Decision Workshop, which was held to elicit comments and insights to the proposed actions of the WMP, resulted in a broader perspective and recognition of greater value throughout the watershed from environmental conservation efforts. It also identified multiple objectives and decision options of partners and stakeholders. Ultimately, the management initiatives proposed by the WMP for Guánica Bay were expanded by the explicit identification of a set of fundamental objectives that represent diverse concerns. Means-ends networks were also created to demonstrate the interactions of the fundamental (end) objectives and possible means of achieving them through interactions of different partners. The decision analysis clarified the trade-offs that must be considered by managers in the region and the measures that must be defined in order to evaluate management success. With clearly defined objectives, policymakers and stakeholders can more easily predict, monitor, and communicate the benefits from management decisions throughout the Guánica Bay Watershed.

Contact Information: William S. Fisher, U.S. Environmental Protection Agency, Gulf Ecology Division, 1 Sabine Island Drive, Gulf Breeze FL 32561, Phone: 850 934-9394, Email: fisher.william@epa.gov