

DEVELOPING A CORAL REEF WATER QUALITY PROGRAM FOR PUERTO RICO

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The Puerto Rico Coral Reef Water Quality Program is a sustainable archipelago-wide program that monitors long-term water quality conditions and trends in shallow coral reefs in Puerto Rico. It integrates the use of diverse water quality datasets and tools, including traditional and state-of-the-art satellite-derived methods, and provides recommendations for implementation. The program addresses the coral reef areas lacking monitoring efforts after a compilation of water quality efforts in Puerto Rico and stakeholder suggestions from meetings, including a survey, by proposing monitoring sites sampled *in situ*, and/or virtual, i.e., remotely sensed. The data from the surveys, water quality, and satellite remote sensing were compiled in ArcGIS to develop maps that include data gaps and suggested monitoring areas, as well as a Storymap of the program to visualize them. As monitoring water quality depends on factors such as time, equipment availability, financial resources, and logistics, we suggested primary and secondary parameters for coral reef health monitoring. The program also provides recommendations for water quality monitoring under emergencies such as sea surface temperature anomalies, extreme precipitation events, and for using low-cost instrumentation to support monitoring efforts. Finally, the program supports the development of novel trigger values designed to protect coral reefs and indicate when water quality conditions require management attention.