

ASSESSING THE CUMULATIVE EFFECTS OF RESTORATION ACTIVITIES ON IMPROVING WATER QUALITY IN TAMPA BAY, FLORIDA

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Habitat and water quality restoration projects are commonly used to enhance coastal resources or mitigate negative impacts of water quality stressors. Significant resources have been expended for restoration projects, yet much less attention has focused on evaluating broad regional outcomes beyond site-specific assessments. The development of an empirical framework to evaluate multiple datasets in Tampa Bay (Florida, USA) will be discussed. The framework was used to identify: 1) the types of restoration projects that have produced the greatest improvements in water quality over a >40-year time period, and 2) the approximate time frames over which different projects may produce water quality benefits. Information on the location and date of completion of 887 restoration projects from 1971 to 2017 were spatially and temporally matched with water quality records at each of 45 long-term monitoring stations in Tampa Bay. The underlying assumption was that the developed framework could identify differences in water quality changes between restoration project types based on aggregate estimates of chlorophyll-a concentrations before and after the completion of one to many projects. Water infrastructure projects to control point source nutrient loading into the bay were associated with the highest likelihood of chlorophyll-a reduction, particularly for projects occurring earlier in the record (pre-1995). Habitat restoration projects were also associated with reductions in chlorophyll-a, although the likelihood of reductions from the cumulative implementation of these projects were less than reductions estimated from implementing infrastructure improvements alone. The framework is sufficiently flexible for application to different spatio-temporal contexts and could be used to develop reasonable expectations for implementation of future water quality restoration activities throughout the Gulf of Mexico.

PRESENTER BIO: Mr. Sherwood is the Executive Director of the Tampa Bay Estuary Program and has 18 years of coastal and estuarine research and management experience. He is responsible for continuing the region's science-based, community-focused restoration and recovery strategies through implementation of the TBEP's [Comprehensive Conservation and Management Plan](#).