

Salt Ponds Development Risk Analysis and Baseline Study



Location:
French West Indies, Caribbean

Contracting Party:
Private Investor/Developer

Project Dates:
June 2018 – Present

Services Provided:

- Program and Project Management
- Ecological Assessment
- Geographic Information Systems (GIS) Mapping
- Risk Analysis

Key Outcome:

As part of a restoration and development vision, we carried out a thorough risk and opportunities analysis, facilitated high-level meetings with politicians, in depth water and sediment quality analyses, and a survey of mangrove health.

Project Summary:

This project was part of a larger vision for a proposed salt ponds restoration and development project in the Caribbean's French West Indies. We performed an initial analysis of the site-based risks and opportunities of elements likely to be involved from an environmental and engineering perspective: for example, ecological sensitivity, water flow, water quality management, risk reduction (e.g. from storm surge, etc.), and risk rankings. We also provided an in depth analysis of the regulatory/zoning situation and opportunities. Our findings showed that development opportunities existed, but would be complex, given the severe human impact on the health of the ponds and the existing legal framework.

Once the risk and opportunities and been analyzed, we conducted a baseline study of the environmental health of the salt ponds. First, physical characteristics including depth, surface area and water volume were measured and calculated. Second, water quality samples were taken and analyzed in the lab, including physio-chemical components in the water column (e.g., dissolved oxygen, turbidity, nutrients, ions, and bacteria counts). Third, sediment core samples were taken to examine sediment layers (horizons) and to do a lab analysis of the physio-chemical components (e.g., organic content and nutrients, and pollutant levels of heavy metals, organotins, Polychlorinated biphenyls [PCBs] and Polycyclic aromatic hydrocarbons [PAHs]). Finally, a mangrove survey was conducted based on the percent of living foliage. Results were mapped and analyzed using a Geographic Information System (GIS). We then provided a list of potential restoration actions to improve the health of the salt ponds.