

Resilient Islands Project: Nature-based Solutions for Coastal Resilience in Jamaica

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Resilient Islands

***Integrating Ecosystem- and
Community-based Approaches to
Enhance Climate Change Adaptation
in the Caribbean***



Supported by:



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

based on a decision of the German Bundestag



The International Climate Initiative (IKI)
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Protecting nature. Preserving life.



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Jamaica



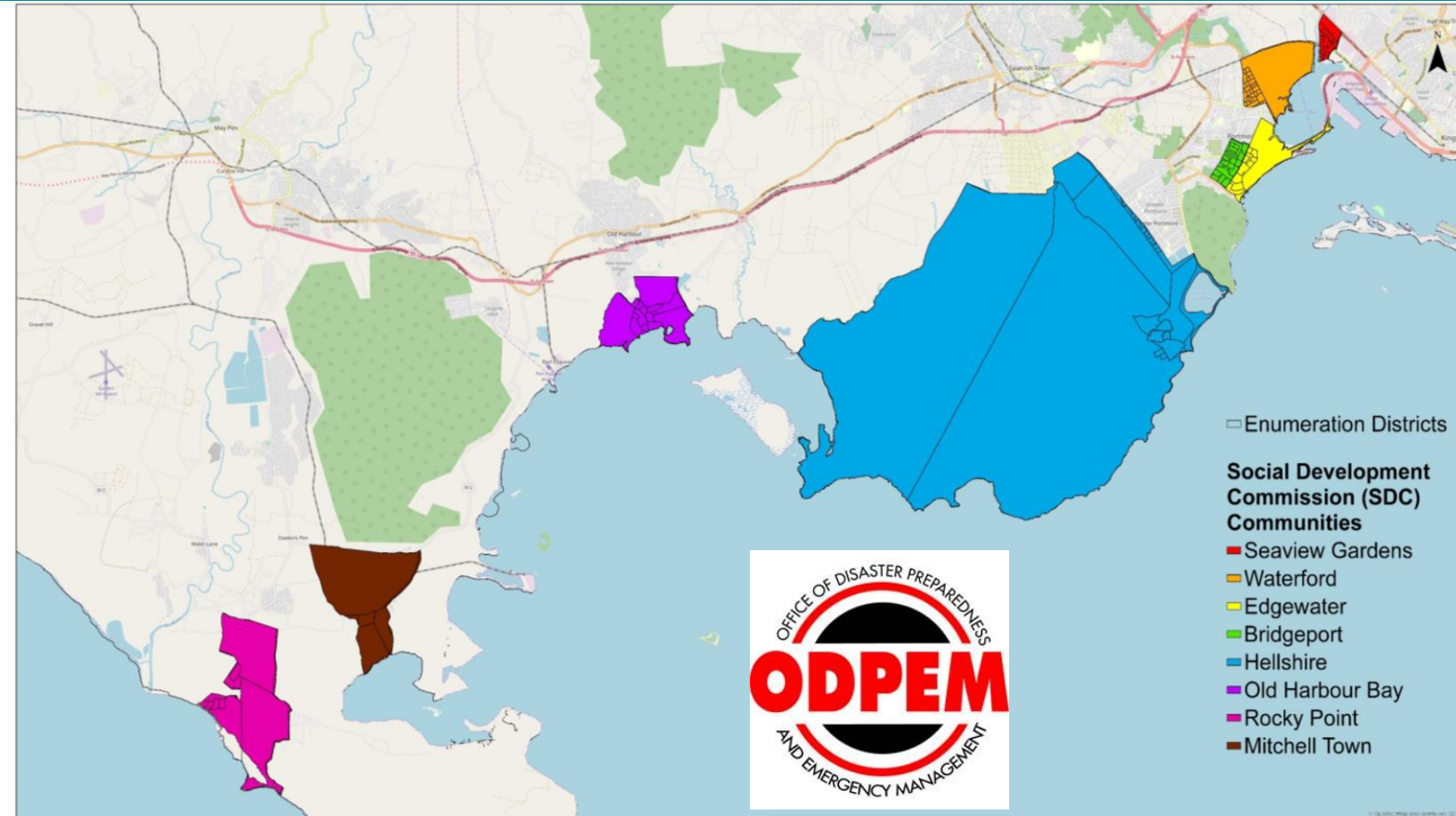
Dominican Republic



Grenada



Selection of Target Community using Modified Vulnerability Ranking Index (Inclusion of Ecosystems)



OLD HARBOUR BAY COMMUNITY FACT SHEET

Resilient Islands

Old Harbour Bay is home to the largest fishing beach in Jamaica, which provides employment for many of its community members. Located here are also the Jamaica Public Service Company Power Plant and Jamaica Energy Partners Barge, important components of the local infrastructure.

It is a predominantly flat, coastal community, with gullies and rivers which act as a drainage system in times of heavy rainfall.

1894
HOUSEHOLDS/DWELLINGS



PEOPLE AND DEMOGRAPHICS



7388
RESIDENTS

46%
MALES

54%
FEMALES



HIGHEST LEVEL OF EDUCATION OBTAINED:
Tertiary: 3%
Vocational Training: 1%
Secondary: 51%
Primary: 33%



LEVEL OF UNEMPLOYMENT
High, especially among youths (18-29) and those over the age of 60.

ENVIRONMENT



ECOSYSTEMS
Mangroves, beaches, coral reefs, rivers, ponds, salt plain, seagrass, estuary, tidal zone, salt marsh.



THREATS TO THE ECOSYSTEMS
Solid waste management (including plastic pollution), air pollution, water pollution, construction in no-building zones, overfishing, high emission of effluence.



ENVIRONMENTAL ISSUES
Flooding, mosquito infestation, blocked rainwater drainage, mangroves retreating further inland, acid rain.



CLIMATE CHANGE IMPACTS
Coastal erosion, rising temperatures, changing rainfall patterns.



NATURAL HAZARDS
Hurricanes, earthquakes, tsunamis, overland flooding.

Partnerships are critical for NbS Implementation



Patient Local Community and Institutional Engagement is critical



People Centred Assessments

JAMAICA BASELINE STUDY: KNOWLEDGE, ATTITUDES AND PRACTICES (KAP) SURVEY

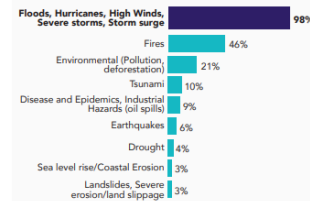


In September 2019, Resilient Islands completed a Knowledge, Attitudes and Practices (KAP) survey in Old Harbour Bay, Jamaica. The KAP survey, which is a tool the Jamaica Red Cross uses for research, was led by staff and volunteers who interviewed people of diverse demographics and in various locations across the community.

DISASTER RISK REDUCTION/PREPAREDNESS

Knowledge

Natural and manmade hazards and the degree to which they impact the community

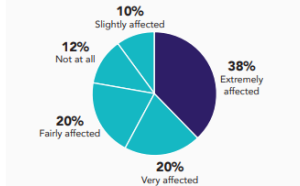


50% are aware of man-made structures in the community that protect against flooding, coastal erosion and storm surge.

What man made structures have been installed to

Attitude

How much they believe their livelihood is being affected by the hazards mentioned:

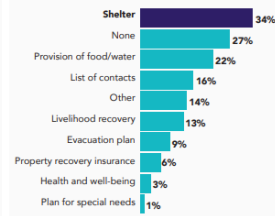


55% thinks that if a disaster occurs, people in their community will help one another regardless of family ties, in an organized manner.

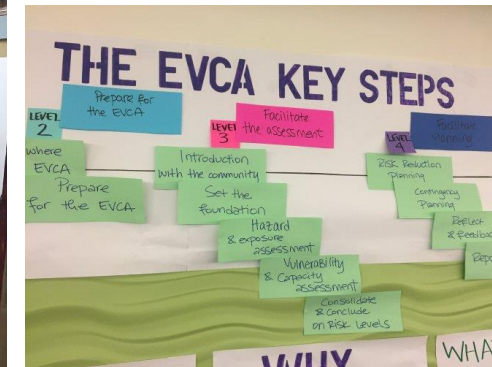
46% is aware of the existence of a disaster management committee or group in the community.

Practice

What kinds of preparation measures for disasters did you discuss with your household?

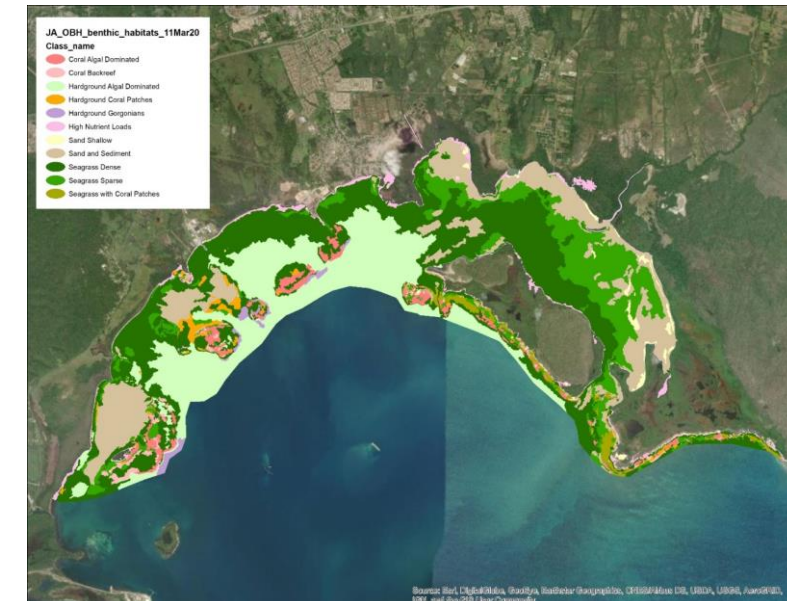


Most common supplies stored for emergencies



Ecosystem/Environmental Centred Assessments

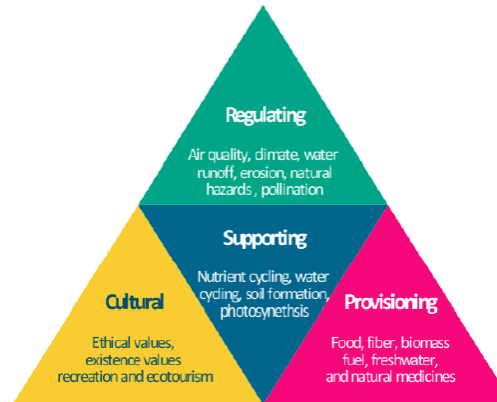
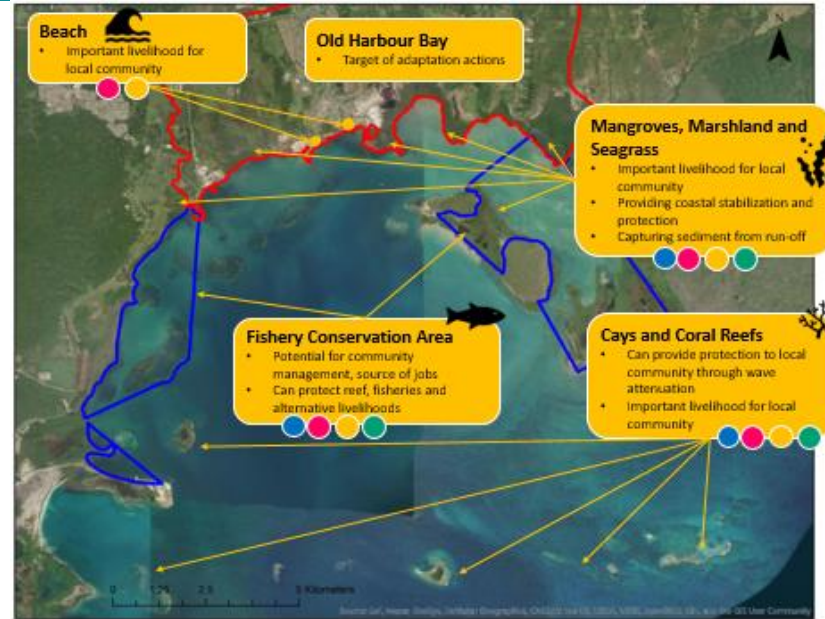
Benthic, Bathymetry & Drone Mapping



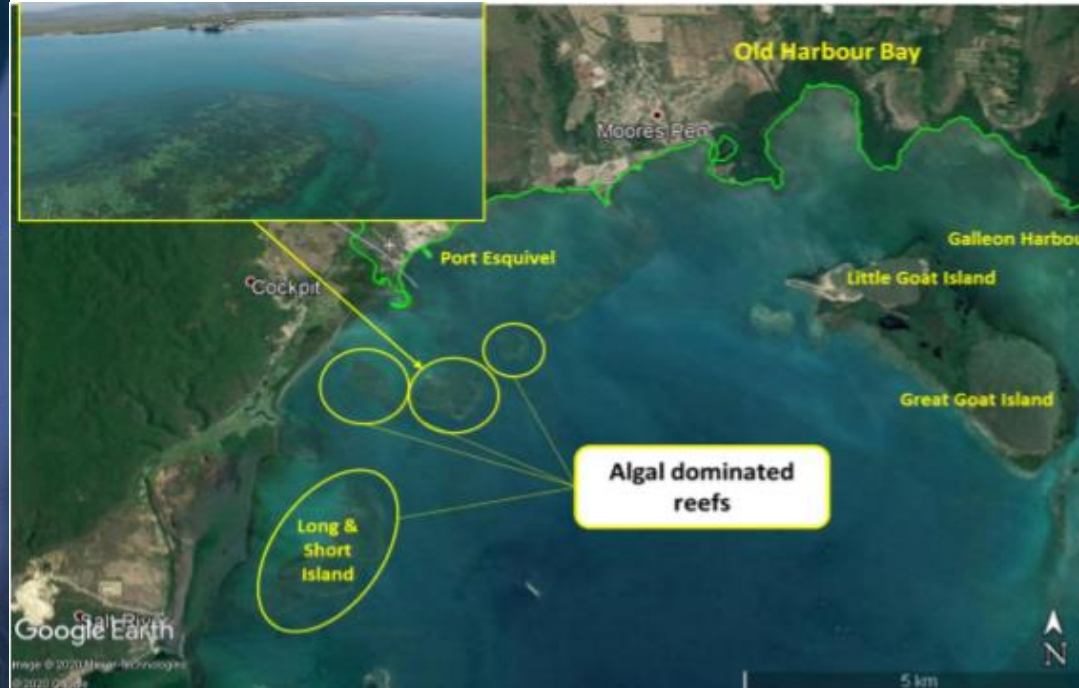
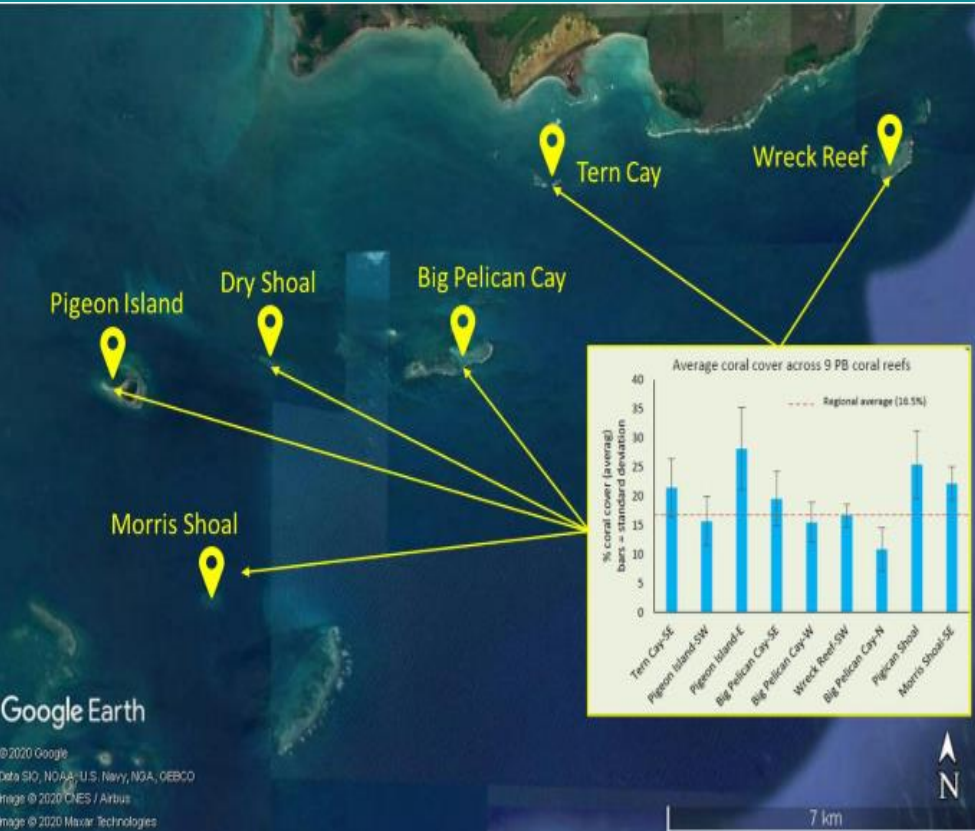
Rapid Ecological Assessment

Locate and map the major threats, vulnerabilities and pressures to the ecosystem and biodiversity by the anthropogenic and natural phenomena (including climate change)

This work aims to support decisions for sustainable and community-based approaches for ecosystem-based adaptation and management



OHB- REA Findings



Healthy Corals = Identified as Best Fishing Grounds

Damaged Reefs= Identified as severe reduction in fish catch

Some Results of Assessments



Types of Ecosystems present

- Mangroves
- Coral reefs
- Beaches
- Seagrass

Health of Ecosystems

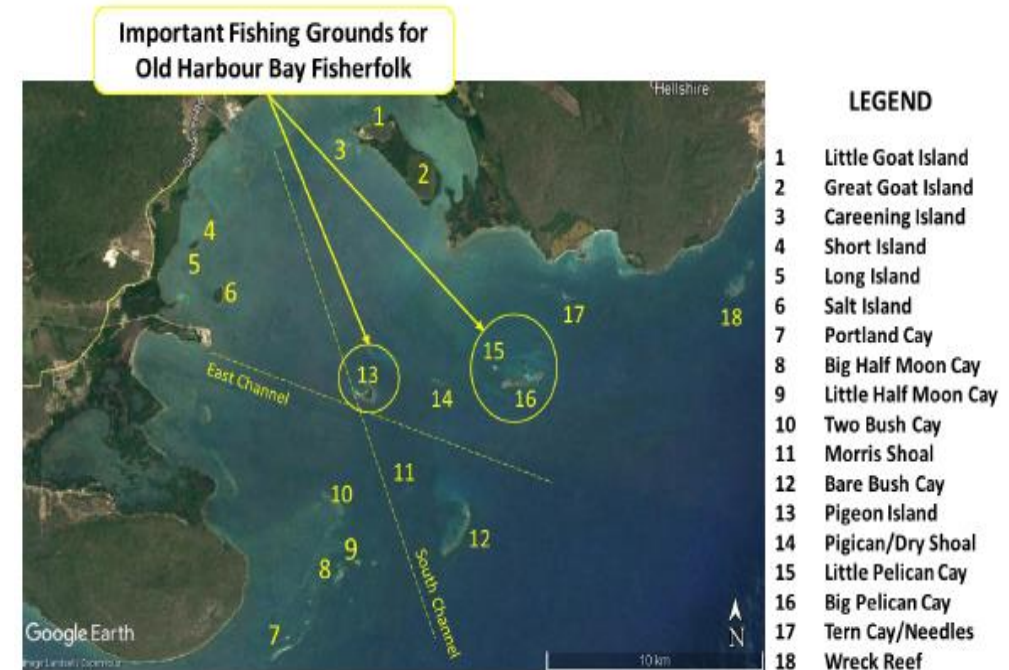
- Richness
- Density
- Location

Threats to Ecosystems

- Anthropogenic
- Climate Change

Degraded Ecosystems = Vulnerability

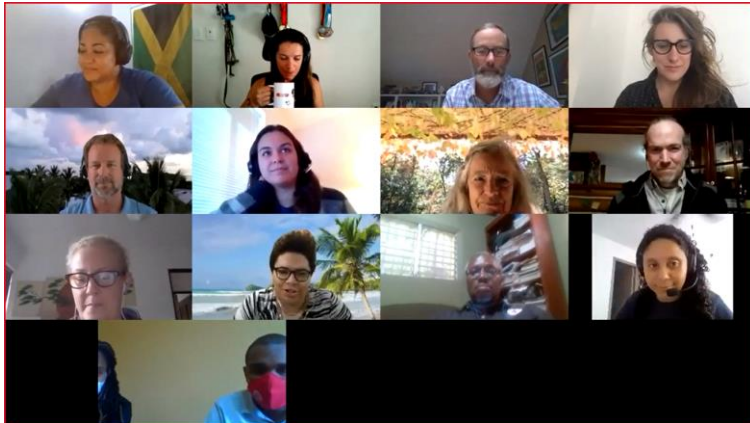
1. Severe damage to Coral Reefs, especially near shore
2. Retreating mangrove stock
3. Erosion & Contamination of beaches
4. Damage to Salinas, sea grass beds
5. Low ecosystem knowledge



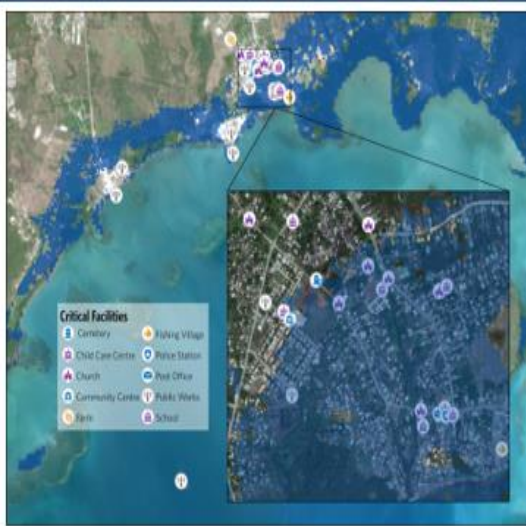
Developing Portfolio/Suite of Nature-based Solutions for Old Harbour Bay, Jamaica



- Assembled a NbS committee with persons from targeted organizations.
- Presented the results of the different assessments undertaken.
- Had a number of sessions where a variety of NbS solutions were proposed.
- Shortlisted the proposed solutions.
- Validated these solutions with the TAG and community members.



Portfolio of Nature-based Solutions for Old Harbour Bay, Jamaica



The Portfolio of Nature-based Solutions (NbS) presents seven projects in Old Harbour Bay (OHB) developed by merging the science-based tools with recommendations from government, community, NGOs and the private sector with the goal of increasing investments in the protection of key ecosystems and overall community resilience.

The costs and benefits of each project have been estimated by assuming:

- (1) directly or indirectly, all the OHB residents are beneficiaries of the projects
- (2) sea level rise and storm surge during storm/hurricane events, could lead to flooding of 3m or more
- (3) costs and timeline for each project are estimated

Number of beneficiaries:

- 45,974 people in Old Harbour Bay

Avoided damages to infrastructure:

- All homes within 3m floodplain
- US\$102,432,102

critical facilities impacted:

- 17 facilities within 3m floodplain

Suite of NbS Developed

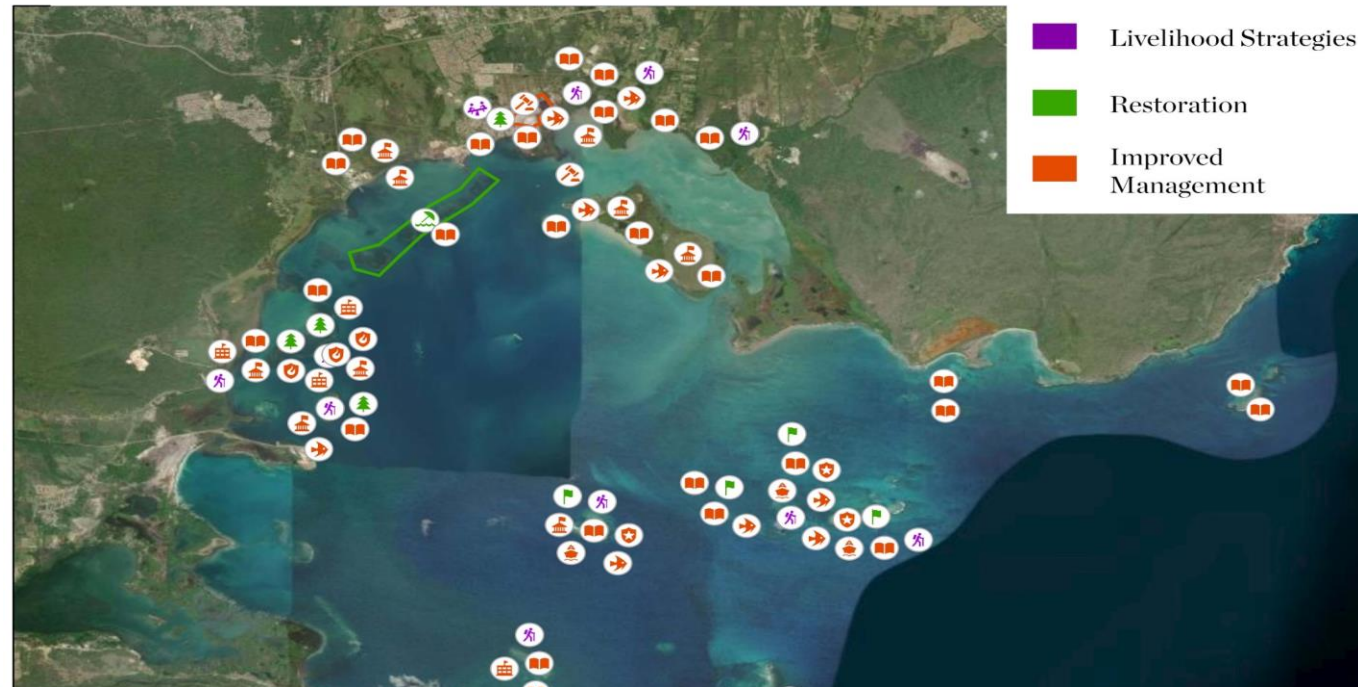
Proposed Actions

- After-school sustainability programs
- Community-based ecotourism
- Coral Nursery

- Living breakwater
- Mangrove and seagrass replanting
- Install moorings
- Install physical barriers and signage

- Invasive species management
- Long-term monitoring
- Mitigate threats
- Seasonal closures / Restricted entry

- Special protection zone
- Install containment booms & require tertiary treatment for all new developments



- Livelihood Strategies
- Restoration
- Improved Management

Implementation of NbS - Testing



SUSTAINABILITY

The work done by the RI Project creates a foundation for sustainability, which has already attracted commitments and attention from other projects and organizations to continue NbS efforts for resilience building in Old Harbour Bay



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also care for humanity

