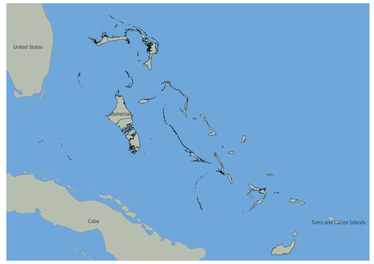
RESTORATION OF VICTORIA POND WETLAND HABITAT IN HISTORIC GEORGE TOWN, GREAT EXUMA FOR SUSTAINABLE MANAGEMENT TO CONTROL POLLUTION AND ENHANCE NEAR SHORE FISH HABITAT (BAHAMAS)

Up-dated in August 2015

Demosite description

Lithology / Geochemistry

A small carbonate sediment island



23°30′ N, 75°46′ W

Courtesy of J.A. Bowleg

Main description:

- Great Exuma is the largest island in the Exuma island chain, with just fewer than 8,000 people living on the island in six major settlements. George Town is the largest and oldest settlement, located at the southwestern shore of Elizabeth Harbour. **Victoria Pond is the largest wetland complex in Elizabeth Harbour.**
- **Ecosystem services are linked to coastal ecology – protection of near-shore environment to support fish production and reduce flooding in George Town – degraded by the destruction of coastal wetlands (mangrove habitats).**
- There is one on-going program involving the restoration of Victoria Pond called **Ramsar Caribbean Wetlands Initiative.**

Conserve Ecohydrological processes in natural ecosystems	Enhance Ecohydrological processes in novel ecosystems	Apply complementary Ecohydrological processes in high impacted systems
✔ YES	✔ YES	✔ YES

Ecohydrology Principles and Solutions

EH IMPLEMENTATION PRINCIPLES

*** Distribution of ecosystems and their relevant processes**

EH SOLUTIONS

***Plantation** of mangroves and coastal plants (**restoration** of plant communities)* — PHYTOTECHNOLOGY

***Model the frequency of occurence of hypoxia events** and the near-shore epifaunal community (monitoring of 187 species of invertebrates, fig.1)* — FAUNATECHNOLOGY

Environmental Sensitivity Index (ESI) mapping — FAUNATECHNOLOGY

Lifezones

Life Zone
Subtropical Dry Forest

PPT (mm/yr)	T (ºC)
570	22

PET ratio: 2,27
Elevation: at sea level
Humidity: sub-humid

Fig.1- A carpent anemone (courtesy of K.S. Sealey)

Major Issues

*** Physical Damage to coastal environments (fig.2)**
*** Over-harvesting of marine species**
*** Abundant occurence of invasive species as *Casuarina equisetifolia***
*** Eutrophication from pollutants, including sewage**
*** Filling of wetland areas with solid waste dumping**

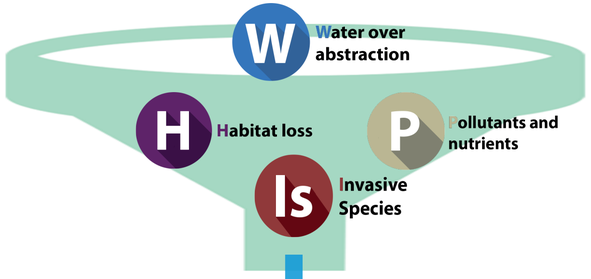


Fig.2- Cutting of mangroves along the shores of Victoria Pond (courtesy of K.S. Sealey ,2009)

Social-Ecohydrological System

Catchment Ecohydrological sub-system

EH Objectives

Water	●●●○○
Biodiversity	●●●●○
Services	●●●●●
Resilience	●●●●●

Are inputs to:

EH Methodology

* Clean-up, excavation and restoration of vegetated coastal buffer zone, and protection of wetland around the pond

Set conditions for:

Catchment Sociological sub-system

Objectives

* Create local mangrove preserve within George Town to protect wetlands
* Help maintaining and financing the preserve

Set conditions for:

Stakeholders

* Residents of George Town
* Visitors and Tourists to Exuma
* Exuma Foundation (NGO)
* Local birdwatchers and conservationists
* Researchers and Marine ecologists
* Government Departments

Participate in:

ACTIVITIES

*** Development of a long-term community outreach and coastal stewardship programmes**
*** Management of septic tanks adjacent to coastal wetlands**
*** Monitoring and documenting measurable improvements in coastal water quality and near-shore fish habitat**

Results

MAIN EXPECTED OUTCOME

Restoration of coastal mangrove wetlands through the local community's actions

LATEST RESULTS

A new strategy was employed in 2012 after severe flooding occurred in George Town. The project team focused on **creating a wetland and elevation map of the entire island of Great Exuma** to evaluate flood risk to property, and identify priority locations for wetland restoration to mitigate flooding risks.

CLICK HERE TO SEE THE REFERENCES

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