Combining sun, sand and science in the Bahamas

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Coastal buffer zones and private reserves (especially small wetlands) within the development project are important in protecting the island from the impact of floods and storms and can help meet environmental goals and reduce costly mitigation projects. Credit: University of Miami

It is well known that people from all over the world come to the Bahamas to enjoy the pristine waters, spectacular coral reefs and great fishing. Tourism produces approximately 55 % of the gross domestic product and employs up to 60% of the total workforce in the Bahamas. However, building of hotels and facilities that make it possible for visitors to come and enjoy the natural beauty of the islands can also damage the marine environment they come to take pleasure in.

Consequently, researchers from the University of Miami teamed up with

developers from Discovery Land Company , to establish the first Bahamian project that employed on-site environmental scientists to guide the construction of a sustainable development called the Baker's Bay Golf and Ocean Club, (BBC) located in the Northeastern Bahamas. This project uses BBC as a case study and documents best practices and construction impacts, especially on the marine environment. The findings were published earlier this year in the *Journal of Sustainable Tourism*.

The goal of the project was to establish an Environmental Management Program with realistic environmental goals, explained Kathleen Sullivan-Sealey, associate professor in the Department of Biology at the UM College of Arts and Sciences and principal investigator of the project.

"Working with land-planners, developers and engineers was new and required re-thinking about the important ecological and geological information that this group needed to know for construction on an island," Sullivan-Sealey said. "Information and ideas that ecologists take for granted are not part of the thinking for most developers."

This is an aerial view of the Baker's Bay Golf and Ocean Club, located in the

Northeastern Bahamas. Researchers from the University of Miami teamed up with developers from Discovery Land Company to establish the first Bahamian project that employed on-site environmental scientists to guide the construction of a sustainable development called the Baker's Bay Golf and Ocean Club. Credit: Discovery Land Company

The Bahamas is comprised of 700 low-lying islands and 2,000 small keys, with carbonate limestone banks and limited sources of fresh water. For that reason, reducing the impact of development on water supply was a priority. Other mitigation measures in the project included creating sustainable sewage and waste management, removal and replacement of invasive, non-native vegetation with native vegetation, and the creation of coastal buffer zones and private ecological preserves to lessen the impact of development on the terrestrial and marine environments.

The work involved following the project from the EIA (Environment Impact Assessment) in the planning stages, through the implementation of the Environmental Management Plan during the four years of construction. The study documents the efforts, costs and resources necessary for the project. Some of the important findings are:

- About 15% of the total project budget was necessary for environmental and coastal protection programs- with long-term benefits.

- Tourism development in the Bahamas must look for sustainable alternatives to meet required water demands due to the limited fresh water resources in the islands.

- Coastal buffer zones and private reserves (especially small wetlands) within the development project are important in protecting the island from the impact of floods and storms and can help meet environmental goals and reduce costly mitigation projects.

- Coastal development setbacks are necessary to reduce beach erosion as well as protect vital wildlife habitats.

- Restoring functional landscapes is critical in new developments to maintain minimum population thresholds of local species.

- Land-base sources of pollution must be reduced to maintain the value of near shore marine resources.

"BBC is the first project in the Bahamas to employ Bahamians with college degrees in environmental science and management and it represents a major step forward for the country to create jobs in environmental management," explained Sullivan-Sealey.

"This opens up new and exciting career options for Bahamians and creates job opportunities in the hotel/ hospitality industry that are dependent on marine and environmental resource management," she said.

Source: University of Miami (news : web)