

US Virgin Islands Climate Change Ecosystem-Based Adaptation Promoting Resilient Coastal and Marine Communities

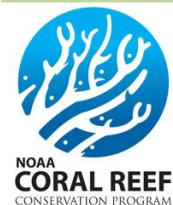


Aurora Justiniano

Steve Schill

Jeanne Brown

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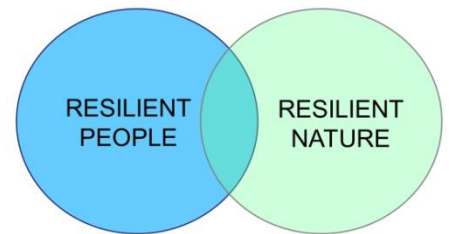


US Virgin Islands Climate Change Ecosystem-Based Adaptation

Introduction

Caribbean nations are particularly vulnerable to the impacts from climate change due to their high coastal population, limited land space, geographic isolation, scarce freshwater supplies, and high dependence on tourism and fisheries. These islands now face significant threats from increasing severe storm events, flooding, coastal erosion, drought, saltwater intrusion of coastal aquifers, and bleaching of coral reefs. In response to these threats, the government of the US Virgin Islands (USVI) seeks to implement ecosystem-based adaptation strategies throughout the territory to help build the resilience of coastal ecosystems and communities. This document summarizes the work carried out by The Nature Conservancy (TNC) to identify potential Ecosystem-Based Adaptation (EBA) sites using a geographic information system (GIS)-based vulnerability modeling exercise.

These coastal and marine sites are areas subject to the effects of sea level rise and increasing storm surge and intensity. It is hoped that TNC's work will help guide the implementation of EBA strategies through the use of planning and decision making tools, including restoration actions. On-going coral nursery, watershed and site-level MPA management projects are already being used as focal points for communication and outreach strategies for raising awareness and garnering community involvement regarding EBA methods in the USVI. Ultimately, this project serves as a platform to educate and build momentum within the USVI to streamline EBA actions and strategies into territorial policy and implementation plans.



Ecosystem-Based Adaptation

There is a growing volume of evidence that suggests in some situations, the most successful and cost-effective actions to protect people from the impacts of climate change is to preserve, enhance and restore natural systems that provide critical protection from the elements, or that provide food, water or work opportunities.

Ecosystem-based adaptation, or nature-based adaptation to climate change, is a holistic response based on the premise and experience that by protecting, maintaining, and restoring natural ecosystems, we can reduce the scale and scope of impacts to human communities and to the natural systems upon which they depend. Ecosystems are the first line of defense against impacts of climate change and EBA is the protection, sustainable management and restoration of ecosystems to help human communities respond to climate change and to adapt to adverse impacts. It is a critical part of a suite of climate adaptation responses, typically involving multiple sectors. A key aspect of this approach is to design and implement solutions to climate change impacts that integrate nature's infrastructure- mangroves, forests, wetlands, coral reefs and beaches – with human infrastructure and socio-economic needs. Examples of EBA include the protection of recharge zones or restoration of floodplains and wetlands to secure water resources; or restoration and protection of natural infrastructure such as barrier beaches, mangroves or coral reefs to lessen storm and wave impacts on human communities.

Ecosystem-Based Adaptation projects should meet three basic criteria:

- 1. Be implemented in a climate change-vulnerable place where biologically significant ecosystems exist and where communities may experience socioeconomic impacts;*
- 2. Address and offer solutions to specific human vulnerabilities to climate change; and*
- 3. Engage key communities, decision-makers, and stakeholders.*



Benefits of Ecosystem-Based Adaptation

- Includes a range of actions for the management, conservation, and restoration of ecosystems that help reduce the vulnerability and increase the resilience of communities in the face of climate change.
- Is a cost-effective and accessible means of adaptation that can help address multiple threats and local priorities
- Is often more accessible to the rural poor than technology or infrastructure solutions.
- EBA efforts are aimed at strengthening the resilience of coastal communities and decreasing levels of vulnerability to and risk posed by climate change.
- Protecting and restoring “green” infrastructure is much less expensive to maintain than built structures such as dykes or sea walls which can degrade the environment.

Limitations of Ecosystem-Based Adaptation

- Variability and likely natural changes in the ecosystem
- Difficulty in differentiating between natural and human-induced changes
- Insufficient information on ecosystem function
- Disagreement on ecosystem sustainability indicators
- Difficulty incorporating socio-economic considerations from multiple economic sectors into a single ecosystem management approach.



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Ecosystem-Based Adaptation in the USVI

As with the rest of the world and Caribbean in particular, the coastal and marine communities of the US Virgin Islands (USVI) are susceptible to the effects of climate change including increasing hazardous coastal conditions and loss of life-sustaining marine, coastal and island resources. Climate change is anticipated to add to the stresses to our coastal environment by altering temperature and precipitation patterns, increasing the likelihood of extreme precipitation events, and accelerating rates of sea level rise. Responding and adapting to such changes requires an understanding of the risks, weighing options for adapting to changing conditions, and instituting a suite of strategies to implement, measure, and fund response actions having the most benefits to the ecosystems and communities that depend on those ecosystems. With support from NOAA's Coral Reef Conservation Program, TNC's Caribbean Program directed a project with the objective of developing decision-support tools and conservation strategies that will advance the implementation of EBA to climate change within the USVI.

This initiative draws on stakeholder and expert knowledge of the territory, including understanding of existing development stresses, in order to identify critical socio-economic and ecosystem vulnerabilities to climate change and to identify feasible options for adaptation. Using input from workshop participants and applying mapping tools available at coastalresilience.org, we identified the ten coastal areas vulnerable to climate change and least likely to respond: Two Brothers, Demarara, Kings Quarter, Honduras, Nadir, East Street, Mount Pleasant and Retreat, Bovoni, and Enighed .

We can then begin to examine some possible solutions:

- Improving coastal protection
- Increasing emergency services



“Strategically integrate data, policy, communications and ecosystems services initiatives to advance climate change adaptation in the US Virgin Islands.”



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