St. Croix East End Marine Park Sustainable Finance Plan

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Table of Contents

EXECUTIVE SUMMARY 4
INTRODUCTION 6
METHODOLOGY 6
DESCRIPTION OF THE ST CROIX EASTEND MARINE PARK 7
Relevant Legislation 7
Management Structure 8
Territory Wide Protected Area Management 11
NATURAL RESOURCE VALUATION 12
Direct Use Benefits 13
Indirect Use Benefit 16
FINANCIAL ANALYSIS 18
Historical Expenditure and Funding 18
Financial Gap Analysis 18
Expenditure by Functional Area 19
Funding Needs Assessment 20
Financial Gap 21
Projected Financial Analysis 21
FINANCIAL STRATEGY 22
Expenditure Efficiency 22
Identification of Financial Mechanisms 22
Feasibility Analysis of Financial Mechanisms 23
Feasibility and Potential Revenue Projections 24
Future Potential Funding Mechanisms 25
CHALLENGES TO IMPLEMENTATION 29
FIVE YEAR ACTION PLAN 30
CONCLUSION 31
ANNEX I 32
Table I 32
Table II 34
Table III 36
Table IV 37
Bibliography 38

EXECUTIVE SUMMARY

The St. Croix East End Marine Park (STXEEMP) was established in 2002 and is managed within the Department of Planning and Natural Resources' Division of Coastal Zone Management. It currently has a dedicated team of four staff including an Acting Marine Park Coordinator, the Education and Outreach specialist, and two Interpretive Rangers. Users of the park include sailors, snorkelers, kite surfers, fishers, beach goers and hikers. The St. Croix Yacht Club as well as a number of hotels, condominiums, villa rentals and private homes are located adjacent to the marine park boundaries.

Management of the STXEEMP has faced many challenges, including limitations of financial and human resources. One tool to assist in financial and management planning for protected areas is a Sustainable Finance Plan. The Sustainable Finance Plan uses business planning methodology, adapted for protected areas, to address structural questions and lays the foundation for achieving financial sustainability. The plan identifies the operational and investment needs of the STXEEMP, the historical and current funding resources and the financial gap, and proposes a portfolio of financial mechanisms to fund the gap. The plan also highlights the challenges to implementation and provides a five year action plan to use as a guide to implementation.

The cost of managing and conserving the natural resources and ecosystem services of the STXEEMP is significant but the current financial gap is manageable with the support of the residents of and visitors to St. Croix. A partial estimate of the ecosystem services and tourism provided by the coral reef and seagrass beds within STXEEMP can be valued at $41 million per year, making this an important area to conserve for the benefit and enjoyment of future generations.

The average funding for the park amounts to $340,000 per year and comes mainly from Federal funding sources. Much of this funding is for staff positions. The average figure includes two years in which funds totaled almost half that amount due to human resource limitations resulting in challenges in implementing project activities. This caused the STXEEMP to have to return funds to the donor. The recurrent critical needs of the STXEEMP amount to $633,000 and increase to $734,000 at the optimal level. The resulting financial gap is $230,000 and $340,000 respectively. If investment needs are included than the financial gap increases to $318,000 at the critical level and $447,000 at the optimal level. It must be noted that recurrent costs are on an annual basis whereas investment costs would be phased in over several years.

The strategy to fill the financial gap identified a variety of financial mechanisms including tours, mooring fees, concessions, special events and private donations as well as the potential in the future for a territory-wide environmental entrance fee for all tourists. All of the funds raised could pass through a Protected Area Trust, which could also generate funds in a more stable way through its endowment. The implementation of these types of financial mechanisms requires strong political will and community support.

There is some skepticism from stakeholders on the government's ability to effectively manage protected areas and use funds efficiently. The STXEEMP has faced many challenges in hiring

staff due to the complex and lengthy governmental hiring process. These challenges and the public's perception hinder the ability of the park to raise funds. It is recommended that a semi-autonomous body be established to manage the territorial marine and terrestrial parks within a territorial system of protected areas. This entity would have its own expenditure line in the USVI budget and would manage its funds independently of DPNR. It would have its own system of hiring staff. This would increase efficiency, enable a more comprehensive management system and allow for a more balanced distribution of funds raised for conservation throughout the territory.

INTRODUCTION

The St. Croix East End Marine Park (STXEEMP) is located on the East End of St. Croix, the largest of the US Virgin Islands. It was established in 2002 to protect important marine resources such as the *Acropora* spp. corals which are the first corals to be listed on the endangered species list as well as the Hawksbill, Green and Leatherback turtles which nest on the beaches. The area is also an important fishing ground.

After nine years of difficult challenges, the STXEEMP is up and running with a core staff of four dedicated employees. However, it has many needs to adequately meet its goals of conservation. A sustainable finance plan is a tool that can help managers by using business planning methodology adapted for protected areas to lay the foundation for achieving financial sustainability. It is a planning tool but it is also a document that concisely and clearly presents the story of the protected area, what it does, what it needs, and what it plans to do, to achieve its mission and goals. The STXEEMP sustainable finance plan identifies the operational and investment needs of the marine park, the funding history and available resources, and proposes a portfolio of financial mechanisms to fund the needs. The funding will have to come from a variety of sources including government, concessions and private donations as well as larger scale fund raising programs. This will require political will, dedicated local government funding and the support of residents, the private sector and the tourism industry. The cost is considerable but the value of the marine resources that will be better protected is immense as is the importance of the goods and services that will continue to be provided by nature.

METHODOLOGY

The sustainable finance plan is based on a business plan and uses conservation finance planning tools to addresses the following structural and financial questions:

- What is the current legislation and related management structure of the marine park, and is it adequate for the current and proposed protected areas?
- If the legislation and management structures are not adequate, what new legislation and/or management structures need to be developed to meet the needs of the protected area?
- What is the current level and source of protected areas financing?
- What expenditures are being made for the marine park and how efficiently and effectively are funds being used?
- What are the unmet financial needs over the next decade?
- What is the range of options for filling the funding gap and what is the potential of each option to generate revenue for the marine park?

To answer these questions, the plan gives an overview of the current legislative and management structures governing the protected area. A market analysis follows and provides the economic context by presenting information on the goods and services provided by the natural resources and their impact on the economy. The plan then delves into the financial analysis by researching the historical and current funding available, the needs of the park, and the gap between what is needed and what is currently available at both critical and optimal levels. The needs and

available funding are then projected forward to determine the funding gap over the next 10 years to 2019.

The funding gap is followed by an analysis of potential financial strategies. This involves identifying potential financial mechanisms to generate revenue from the goods and services provided by the protected area. These financial mechanisms are then screened for complexity and impact of implementation. A feasibility analysis of the funding options with the most potential is reviewed and revenue projections are estimated. An analysis of funding options that may be pursued in the future concludes the financial analysis.

This funding analysis is followed by an examination of the legislative and administrative challenges, needs and opportunities for financial sustainability of the protected area and the recommendations to overcome these challenges. A five year action plan is developed. Based on this plan, criteria will be developed to guide the implementation process and measure its success.

Information gathered for this report came from individual interviews with staff from the Division of Coastal Zone Management, the Division of Fish and Wildlife, the Division of Environmental Enforcement, The Nature Conservancy, the University of the Virgin Islands, the Virgin Islands Department of Tourism, and the private sector. For a list of participants interviewed, please see Annex I, Table IV. Other data were collected from government and project reports consultancy reports on the marine resources, and policy and legislation documents.

DESCRIPTION OF THE ST CROIX EASTEND MARINE PARK

Relevant Legislation

The St. Croix East End Marine Park was created under Act No. 6572, Bill No. 24-0308 in 2002. It is located in the Virgin Islands Code Title 12, Chapter 1, Sub chapter 7 entitled "Wildlife and Marine Sanctuaries and Game Preserves" Section 98. The Coastal Zone Management Commission is given the authority to implement the act and the power to declare other marine parks. It also authorizes the establishment of a territorial system of marine parks (USVI Code No. 6572, 2003, p. 608).

There is also the legislation regarding Parks and Natural Resources. Title 32, Chapter 2, Section 21 establishes a "Director of Territorial Parks" which is tasked with managing the Division of Parks within the Department of Housing, Parks and Recreation. "It shall be the duty of the Division of Parks to supervise, administer, manage, regulate and control the use and operation of all public parks, lands for public recreation, marine parks, and such others as may be designated by regulations by the Commissioner, including but not limited to beaches within the coastal zone…" (USVI Code No. 5265, 1987, p. 62). In practice, the Parks Division manages terrestrial areas only, which includes beaches.

Act 6634, Section 30 adds to Title 32 of the Virgin Islands Code relating to Parks and Natural Resources a chapter 2A relating to the Territorial Park Trust Fund (USVI Code No. 6634, 2003, p. 138). This legislation establishes a fund for a territory wide system of protected areas that is

separate from the government's general fund and can be financed through the fees established in section 24 of Title 32, Chapter 2 (USVI Code No. 5265, 1987, p. 62).

Management Structure

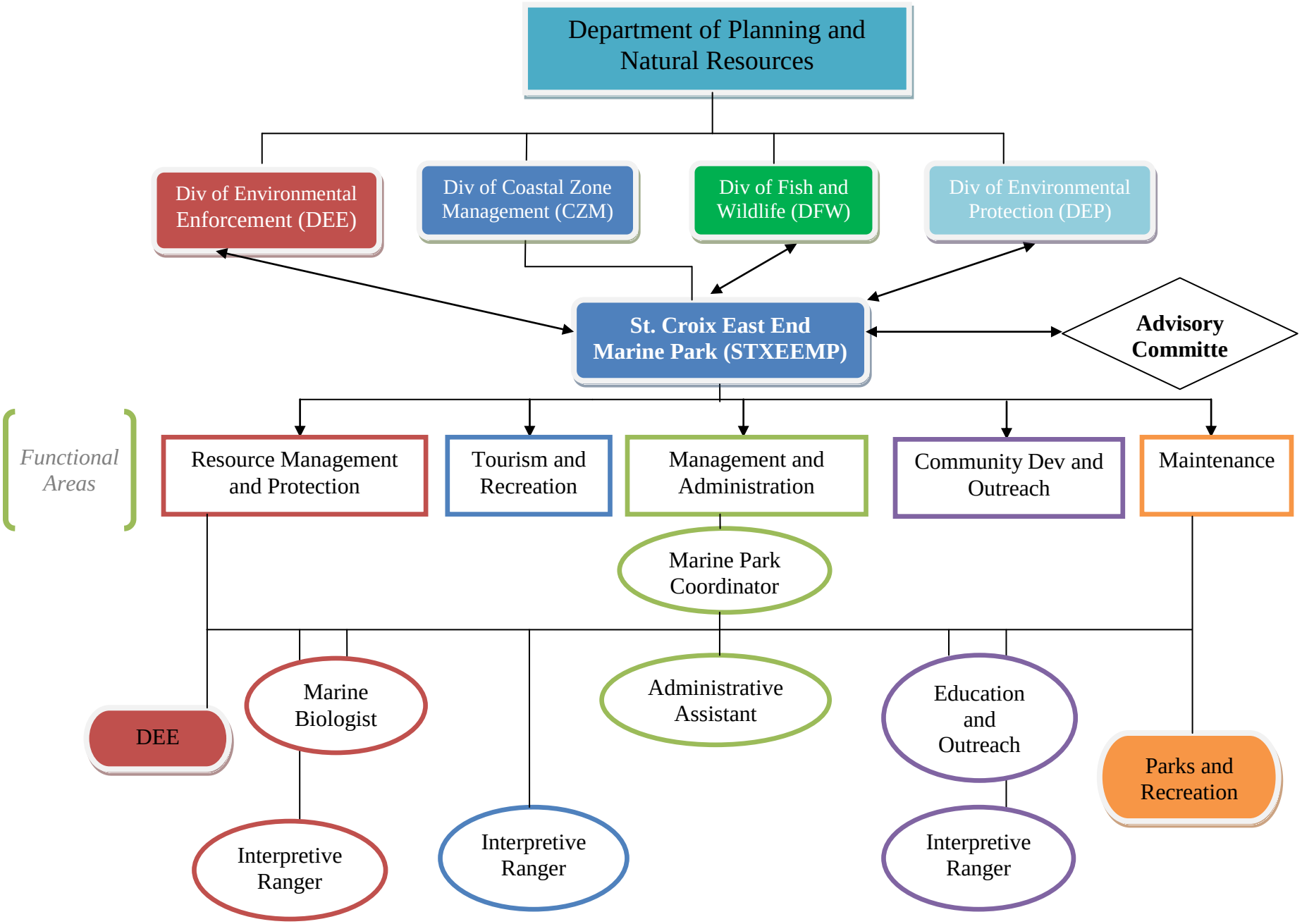
The STXEEMP falls under the Department of Planning and Natural Resources (DPNR) and is managed within the Division of Coastal Zone Management (CZM). Within this department are three other divisions: the Division of Environmental Enforcement (DEE), the Division of Fish and Wildlife (DFW) and the Division of Environmental Protection (DEP) which all contribute to STXEEMP operations but do not have a responsibility for the day to day management of the park. This falls to the STXEEMP staff which consists of the (Acting) Marine Park Coordinator, the Education and Outreach Coordinator and two Interpretive Rangers. The Marine Park Coordinator reports to the CZM Director.

The STXEEMP also has an advisory committee that is composed of various stakeholders from the scientific, tourism, NGO, private sector and fishing communities. This committee was envisioned to meet on a regular basis to give recommendations, evaluate effectiveness, consult on work plans and budgets and more generally provide stakeholder feedback, however this has not occurred for some time.

The park's headquarters building and associated grounds falls under the Department of Parks and Recreation which assists DPNR with the maintenance of the site. In addition, Cramer's Park, which is situated along the STXEEMP marine boundaries, is also under the Department of Parks and Recreation which maintains the bathrooms and other buildings and grounds.

Since the park's inception there have been difficulties in filling the various STXEEMP positions as well as issues related to the role and responsibilities of the advisory committee. Currently, the Acting Marine Park Coordinator and the Marine Biologist positions are filled by the same person who is also the Coral Reef Initiative Coordinator for the entire USVI. In addition, the Education and Outreach Coordinator is also the Administrative Assistant. The Interpretive Ranger positions took a long time to fill due to lack of capacity of the targeted group of fishers, however after some training these positions have been filled. An environmental enforcement officer was to be assigned to the park as the rangers cannot arrest or fine anyone in violation of park regulations. The rules and regulations state that any CZM officer, including rangers, can issue a cease and desist order however in practice the enforcement of such orders or the issuance of a conservation ticket or fine is done by a DEE officer or police officer. An officer had been assigned in the past but due to DEE staffing shortfalls was quickly reassigned. DEE officers patrol the STXEEMP but this is not done on a regular basis and without any coordination with park staff. In general, the STXEEMP has had difficulty filling the vacant positions due to the challenging and lengthy government hiring process and the technical skill requirements. Federal funding has been available for these various positions and at times had to be return due to the difficulties mentioned above to fill vacancies during a federal award period. Another difficulty faced by the STXEEMP management has involved the conflicting views on the role of the advisory board which has created obstacles for effective use of the group.

In various interviews with staff, it was determined that to manage the park at an optimal level all of the vacant positions would have to be filled, an additional interpretive ranger would have to be added and the DEE officer would have to be assigned full time. The following flow chart represents the management structure of the park and the optimal staff needs by functional area. A functional area is an organizational category that has different goals and objectives and distinct programmatic activities. For more information on functional areas please see Table 1, Annex I. It should be noted that all of the various staff do work in other functional areas such as administration, natural resource management and maintenance. The diagram is meant to show the overall number of staff and in which functional area they generally work as well as the overall STXEEMP structure.


Department of Planning and Natural Resources
Div of Environmental Enforcement (DEE)
Div of Coastal Zone Management (CZM)
Div of Fish and Wildlife (DFW)
Div of Environmental Protection (DEP)
St. Croix East End Marine Park (STXEEMP)
Advisory Committe
Functional Areas
Resource Management and Protection
Tourism and Recreation
Management and Administration
Community Dev and Outreach
Maintenance
Marine Park Coordinator
DEE
Marine Biologist
Interpretive Ranger
Interpretive Ranger
Administrative Assistant
Education and Outreach
Interpretive Ranger
Parks and Recreation

Territory Wide Protected Area Management

Since the 1970's various studies, plans and initiatives have been implemented to set up a Territory Wide Parks System. Other initiatives have focused on a marine parks system. In section 98 of the Act establishing the STXEEMP, it is written the "establishment of territorial system of marine parks authorized" (USVI Code Act No. 6572, 2003). There have also been several studies commissioned, such as the "Management Framework for a System of Marine Protected Areas for the U.S. Virgin Islands" (Gardner, 2002) or the "Marine Protected Areas of the USVI: Resource Description Report" (Potter, 2002) which discuss this idea. CZM, which is tasked with identification of potential new marine protected areas, envisions the creation of a territory wide system of marine protected areas. This would in theory increase the efficiency of managing the marine protected areas on St. Croix and St. Thomas as well as any newly designated MPAs. The overall management could be centralized in a semi-autonomous Protected Area Authority (herein "Authority"). This idea of a separate managing entity is mentioned in the STXEEMP Management Plan written in 2002 by the Nature Conservancy (The Nature Conservancy , 2002).

Considering the integrated and interrelated nature of terrestrial and marine conservation it is recommended that a territory wide system of protected areas and the resulting Authority would oversee all territorial and marine protected areas. It would have its own budget line, account and revenue generation capability. Each island would have its park Coordinators, with one Director for the overall Authority.

This consolidation would maximize the efficiency of staff resources and advocacy efforts as well as assist in integrating two groups that should be working closely together. In addition, resources and revenue could be pooled and used in areas that may not generate their own revenue but that are priority conservation areas. A semi-autonomous management entity could ensure that signs and boundary markers are uniform throughout the islands. Rules and regulations could also be streamlined making it easier for the local population and for visitors to know and understand what is allowed and not allowed in various zones. It could more efficiently work with the various DPNR divisions, as well as the Department of Housing, Parks and Recreation, on multiple matters concerning the parks on different islands rather than having separate coordinators competing for time and funding. Monitoring efforts could be better integrated and priority sites identified across islands and terrestrial and marine impacts and linkages could be better studied. This would also help in concentrating efforts for coordinating research and monitoring not only between the territorial terrestrial and marine protected areas but also with the federally managed protected areas on St. John and Buck Island, as well as the Salt River Lagoon and Sandy Point National Wildlife Refuge.

Legislation would be required to create such a system as well as the creation of a semi-autonomous Authority. There is legislation that exists that enables the creation of a park trust fund to generate a stable source of income but this is only for a terrestrial park system and does not include marine parks. Legislation is needed that encompasses a trust fund for both terrestrial and marine protected areas. The Department of Housing, Parks and Recreation can remain the lead managing entity of recreational parks that are not intended for conservation purposes.

According to the Island Resources Foundation Study entitled "USVI Marine Parks Resource Description" the various efforts to create a territorial parks system have been many and have all failed to be implemented. This is due to lack of political will, the government's inability to

implement legislation, lack of resources and the public's lack of support and confidence in the government's ability to effectively manage protected areas (Potter, 2002).

NATURAL RESOURCE VALUATION

The East End Marine Park's natural resources provide many benefits and services to the island of St. Croix. These benefits and services can be categorized as use and non-use values. It is important to link these services to their respective recipients so as to appropriately target financial mechanisms. The following table lists the direct and indirect benefits derived from the ecosystems of the park which include the marine resources as well as the land preserved at Jack and Isaac's Bays. It also lists their respective recipients. This helps to determine the overall value to society. A few of these benefits can be quantified in economic terms but many are immeasurable and yet are vital to the well-being and enrichment of residents and visitors alike who enjoy these benefits and are served by them.

Goods and Services of the STXEEMP	
Use Benefits:	**Recipient**
Direct:	
• Recreation	Tourism industry, visitors, residents, government
• Harvesting of fish,	Fishers, consumers, tourism
• Education	Schools, children, visitors
• Research	Scientists, universities, management agencies
Indirect:	
• Ecosystem services	Residents, flora and fauna
• Watershed protection	Residents, government, water company
• Groundwater recharge	Residents, government, water company
• Coastal protection	Coastal homeowners and businesses, local population, government
• Maintenance of biodiversity	Residents, consumers, pharmaceutical companies, flora and fauna
• Climate regulation	World population, residents
• Nutrient retention	Farmers, fishermen, tourism industry, residents
Non Use Benefits	
• Bequest value	Residents, tourism industry, future generations
• Existence value:	Residents, tourism industry
• Ritual or spiritual values	Residents
• Cultural heritage	Residents
• Aesthetic value	Landowners, residents, tourism industry

To value the natural resources of the park, it is helpful to not only look at their uses but also to determine their economic impact. One of the major revenue sources for St. Croix is tourism which falls into the recreation use category listed in the above table.

Direct Use Benefits

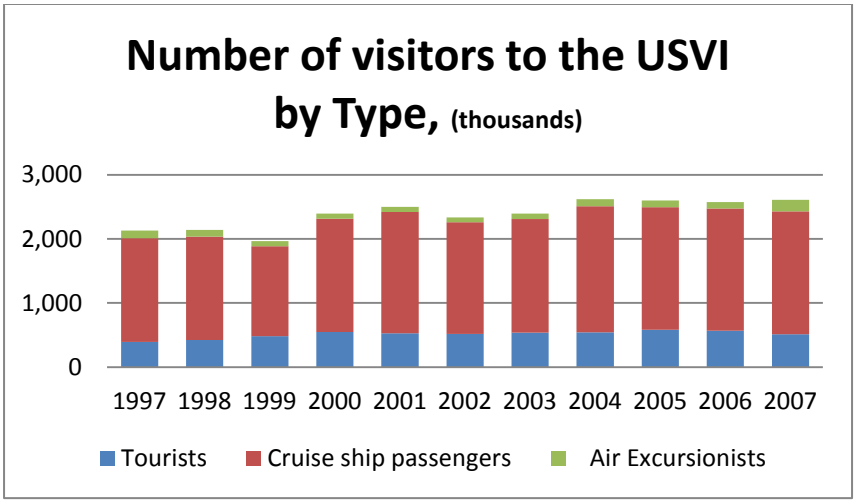
USVI Tourism Market

In 2008, the most recent year data is available, the USVI welcomed 2.4 million visitors. This can be broken down by tourists and excursionists. Excursionists are visitors who stay less than 24 hours in the area, such as cruise ship visitors and day trip passengers arriving by air. According to the U.S. Virgin Islands 2004-2005 Visitor Exit Surveys for Air Visitors and Cruise Visitors, "Tourism is the largest industry in the USVI and the major source of income and employment. The industry generates some $4 billion in total economic impact and accounts for 30% of the workforce. Direct gross expenditure by visitors was $1.5 billion." (Dorsett, 2005, p. xi)

According to the exit surveys, the air visitors' profile is relatively affluent and educated with an average age of 42.5 and most coming from households that earned $100,000 or more. 50% were first time visitors and the other 50% were repeat visitors with 23.4% having visited five or more times before (Dorsett, 2005, p. xii). Air visitors totaled 658,638 in 2004. Tourist expenditure accounted for 58% of total visitor spending and same day air visitors accounted for 2%. Air visitor spending totaled $863.8 million in 2005 with an average expenditure of $1,218 per person per trip (Dorsett, 2005, pp. xi-xiii). Tourists spent money on hotels, condo and villa rentals, food shops and restaurants, car rentals, taxi rides and tours, and gifts as well as on marine activities. 77% of all air visitors said Climate/Beaches were very important in deciding to visit the USVI (Dorsett, 2005, p. 42). 52.2% engaged in water sports, 33% took an island tour, 13.9% went scuba diving and 5.4% went fishing (Dorsett, 2005, p. 47). Tourists pay a hotel tax which goes into the USVI government's general fund. The tax totaled $18.5 million in 2008 (Research) (Research) (Research).

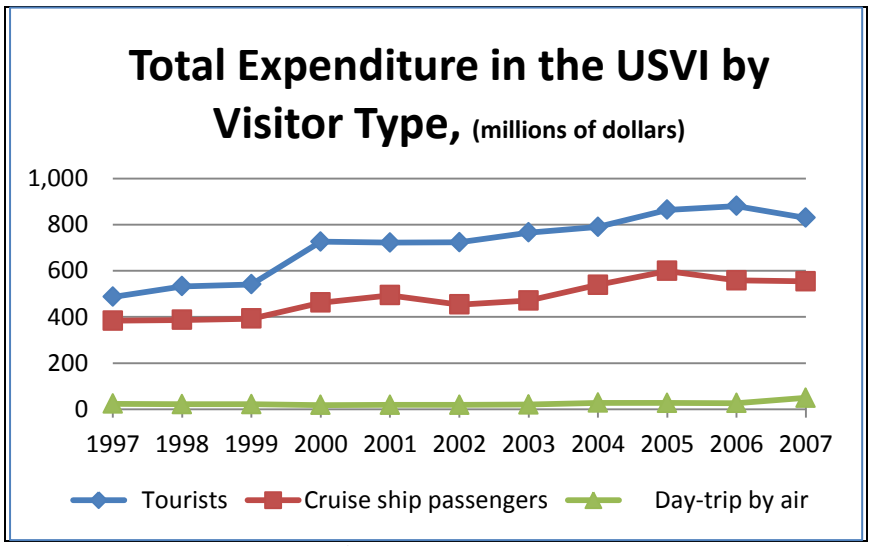
According to the exit survey for cruise visitors, 1.96 million cruise visitors came to the USVI in 2004. The average age of passengers was 49 years and most came from households earning $100,000 or more. More than half came to the USVI for the first time and 16.8% were visiting for the fifth time or more. Their direct expenditure impact was $599.2 million. Cruise ship passengers spent on average $281 in the Territory (Dorsett, 2005, pp. xi-xiii). They spent money on tours and transportation, at restaurants and gift stores as well as on entertainment and recreation. 64.6% of all cruise visitors surveyed said that the Climate/Beaches were a very important factor in deciding to visit the USVI (Dorsett, 2005, p. 33). About 30% went on a ship sponsored excursion, with some going to beaches and others taking an island tour (Dorsett, 2005, pp. 28-29). Cruise ship passengers pay a per passenger head tax of $5.60, which goes to the Port Authority (Virgin Islands Port Authority, 2006) (Virgin Islands Port Authority, 2006). In 2007, this totaled $10.74 million.

The following chart shows the total number of visitors to the USVI by type over a ten year period.



Source: Bureau of Economic Research www.usviber.org

Cruise ship tourism is generally more volatile compared to tourists who stay for a few days or longer. It is also not as beneficial for the economy in terms of the amount of money spent per visitor. The following chart shows the average expenditure per passenger type over a ten year period.

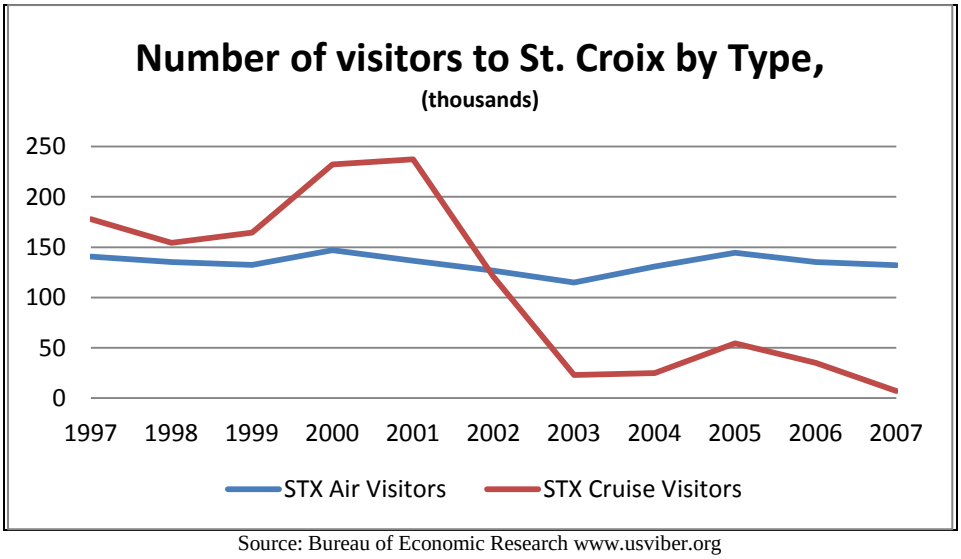


Source: Bureau of Economic Research www.usviber.org

The two charts above show that although three times as many cruise ship passengers visited the USVI than tourists in 2007, the tourists spent about one and half times more. 511,000 tourists came to the USVI compared to 1.9 million cruise ship passengers yet the tourists spent $829 million versus $554 million by cruise ship visitors (Research) (Research) (Research). Both types of visitors have economic benefits to the islands but tourists clearly have a greater economic impact. The large numbers of cruise ship passengers congest the roads, and take a toll on road infrastructure, sewage and waste absorption, as well as the water supply. Both sets of tourists can negatively impact coral reefs while snorkeling and diving.

Tourism Market in St. Croix

In 2008, St. Croix saw 122,000 tourists and excursionists arrive. According to the exit surveys, tourists and same day air visitors totaled 132,238 in 2004 or 20% of total air visitors and they spent $170.3 million. The average expenditure of a tourist in St. Croix was $925 per trip. 49% of all air visitors came to St. Croix for vacation. Air visitors tended to stay eight days (Dorsett, 2005, pp. xi-xiii). During the same year, cruise visitors totaled 25,000 and spent $1.1 million. The Cruise visitor spent on average $44 in St. Croix (Dorsett, 2005, pp. xi-xiii). Only 13.5% went on a ship sponsored excursion (Dorsett, 2005, p. 28). The following chart shows the number of visitors to St. Croix over ten years from 1997 to 2007.



Source: Bureau of Economic Research www.usviber.org

The air visitors (both tourists and day trip arrivals) have remained fairly constant while the cruise ship visitors have varied widely, almost coming to a halt in 2008. Only 2,500 cruise ship visitors came in 2008 on a total of two cruise ships. This was because of a lack of demand according to the cruise visitor exit survey report, but interviews with local stakeholders suggest it was due to a more complex set of issues including a perceived issue of crime in Frederiksted (where all of the cruise ships call), dredging to accommodate larger ships and fees. Recently, cruise ships have started to come back to the island. As of data collected in October 2009, year-to-date figures show that 29 ships have called in St. Croix bringing 66,000 passengers however this is a far cry from the 2001 high of 231,000 visitors (Burea of Economic Research).

The data shows that cruise ship tourism is volatile and can easily decrease drastically when the cruise ship companies decide not to come. St. Croix should be focusing on attracting stay over visitors, especially for the STXEEMP. It is they who are more likely to visit the STXEEMP as they stay on average eight days in St. Croix and are dispersed throughout the islands whereas cruise ships dock in Frederiksted which is on the other side of the island from the STXEEMP and cruise visitors only stay for about a day.

STXEEMP

There is no data on the number of visitors to the STXEEMP specifically but generally tourists and residents go to snorkel, swim, hike, fish and to enjoy the beautiful beaches provided at Cramer's Park, Jack and Isaac's Bays and to enjoy the view at Pt. Udall. Cramer's Park is

heavily used by locals on the weekends but especially at Easter. The East End is also used by kite surfers, windsurfers, kayakers and sailors. The STXEEMP also gives tours and has had approximately 10,000 participants from 2007 to the present. There are also snorkel clinics that take place in different parts of the marine park.

There are several hotels adjacent to the STXEEMP on the North and South coasts of the East End of the island including the Divi Carina Bay Beach Resort and Casino as well as the Tamarind Reef Hotel and Chenay Bay Beach Resort. According to the exit surveys, 14% of air visitors chose these hotels (Dorsett, 2005, p. 33). The St. Croix Yacht Club is located on the East End of the island within the STXEEMP boundaries. According to dive shop owners and divers there is not much diving within the STXEEMP. The Divi Resort has a dive shop but does not dive in the STXEEMP as the water is too rough and there are no dedicated sites or mooring buoys.

The yacht club operates within the STXEEMP and generates revenue for the government in the form of mooring permit fees and boat registration fees as well as in membership dues which support the club. A yacht club membership per family is $800 per year. The moorings at the yacht club provide revenue for the Division of Environmental Enforcement as do the boat permits.

Fishing Industry

Fishing is the main economic activity in the STXEEMP at this time. There is no specific fishing data for the STXEEMP but according to an activities survey currently being conducted, the most common type of fishing that is observed in the Park includes small-scale trap fishing, some shoreline cast net fishing an d spear fishing, and harvest of lobster, whelk and conch either from shore or from small fishing boats entering the inshore reef and bays of the east end. At the island level, according to the "USVI Marine Resources and Fisheries Strategic and Comprehensive Plan", 85% of commercial fishermen surveyed in St. Croix said they targeted reef fish, 37% targeted coastal pelagic, 40% targeted lobster and 39% targeted conch. 70% of fishermen surveyed said they felt fishing was worse than ten years ago, with 40% saying it was due to less fish. Other reasons cited were that there were too many fishers and there was overfishing. (DFW 2005, pg 134).

Saltwater recreational fishing is an important part of the USVI economy. A study conducted in the 1990s found that it generates around $25 million annually (DFW 2005, pg 147). In a more recent survey conducted in 2002, the Eastern Caribbean Center found that 53.3% of respondents of boat based recreational fishermen within the 3 mile limit and generated $5.9 million (DFW 2005, pg. 147).

Currently fishing licenses are managed by the Division of Environmental Enforcement. This generates some revenue. Recreational fishing licenses are not currently required but they are planned for 2011.

Indirect Use Benefits

Coral reefs, mangroves, seagrass beds, and salt ponds provide important habitat for marine and terrestrial wildlife but they also provide important ecosystem services that keeps the waters clean

and clear, protects the coastline against erosion and waves, and offers nursery grounds for fish and other marine life to develop. It is these outcomes that the tourism and fishing industries depend on. The following section outlines these services and the estimates of their economic value in the form of the subsequent tourism and fishing revenue they support, as well as their other functions.

Coral reefs help protect coastlines against wave energy, and provide habitat and food for marine wildlife, such as reef fish, lobsters, turtles etc. They also supply sand for beaches. According to the "Coral Reef Habitat Assessment for U.S. Marine Protected Areas, U.S. Virgin Islands" report, 80 sq km of the STXEEMP is comprised of coral reef/colonized hard bottom (NOAA National Ocean Service, 2007). Seagrass beds also provide food and shelter for small fish, crustaceans, and turtles and they also improve water quality by stabilizing loose sediment and filtering some pollutants out of the water. Reduced sedimentation helps coral reefs survive. Seagrass beds also reduce wave energy on the coastline. According to the above mentioned NOAA report, 14 sq km of the STXEEMP is comprised of seagrass beds (NOAA National Ocean Service, 2007). Salt ponds are an important habitat for fish, birds, and also act as a filtration system by fixing soil runoff and sediment that would otherwise enter the sea. The Great Pond on the East End feeds directly into STXEEMP waters and is an important habitat for birds and fish.

Estimates of the economic value of coral reefs range from $100,000 to $600,000 per sq km and from $200,000 to $900,000 per sq km for mangroves. (Wells, 2006, p. 5). This range depends on how close the reefs and mangroves are to developed centers of tourism, fishing etcetera. The value of seagrass beds are estimated at $350,000 per sq km (Loney, 2009). Data on sq km area for STXEEMP are limited to coral reef/colonized hard bottom and seagrass beds. Using these estimates of coral reef and seagrass cover, the lower bound (partial) value for the STXEEMP totals $41 million per year. The valuation techniques are based on many assumptions and do not include other values that are very hard to quantify such as the aesthetic value of the ocean to residents, the potential pharmaceutical values of coral reefs, the value of biodiversity, and the replacement costs of the ecosystem services. Although there isn't enough data specific to the STXEEMP to accurately value all of its natural resources, the natural marine resources that it protects do contribute significantly to St. Croix's economy and government in the form of the tourism and fishing industry as well as making it an attractive place for people to invest in real estate. The services provided by the marine and terrestrial resources are difficult and expensive to replace and would deter greatly from the natural beauty of the East End. The direct and indirect benefits are much greater than the STXEEMP's costs and more should be spent and invested to protect the natural resources.

FINANCIAL ANALYSIS

Historical Expenditure and Funding

The STXEEMP has received almost all of its funding from the National Oceanic and Atmosphere Agency in the form of grants through the Coral Reef Conservation Program as well as NOAA funds provided in the form of staff time through the NOAA Coral Reef Management Fellowship Program. The territorial Government's investment to date has largely been through in-kind non federal match. It is difficult to determine how much money has been spent annually as these grants are on an 18 month cycle and many projects were either not completed and the money returned or funds were reprogrammed to support another activity in another time period without an easy tracking system in place to monitor the spending. In addition, all expenditures by the park must go through the DPNR financial system which utilizes different budget categories than the grants, making it difficult to reconcile the two budgets. This also takes an inordinate amount of STXEEMP staff time. Lastly, some of the programs funded were for projects that were not solely implemented within the STXEEMP in the form of Local Action Strategies, coral reef ecosystem monitoring, etcetera.

However, based on interviews with the acting Park Coordinator and analysis of the Local Action Strategies Tracker Database and Coral Reef Management Grant documentation, an estimate of average funding has been calculated. From 2005 to 2009, the STXEEMP spent on average $340, 000 per year. Much of the funding was allocated for staff positions. The average figure includes two down years in 2006 and 2007 where the park received about half that amount due to a lack of progress on many activities. It should be noted that due to difficulties in staff hiring, the STXEEMP could not implement projects and had to return unspent funding to NOAA, thus contributing to the 2006-2007 low funding cycles. Matching funds are included in the average and include the STXEEMP headquarters rental cost and the DEE officer's salary

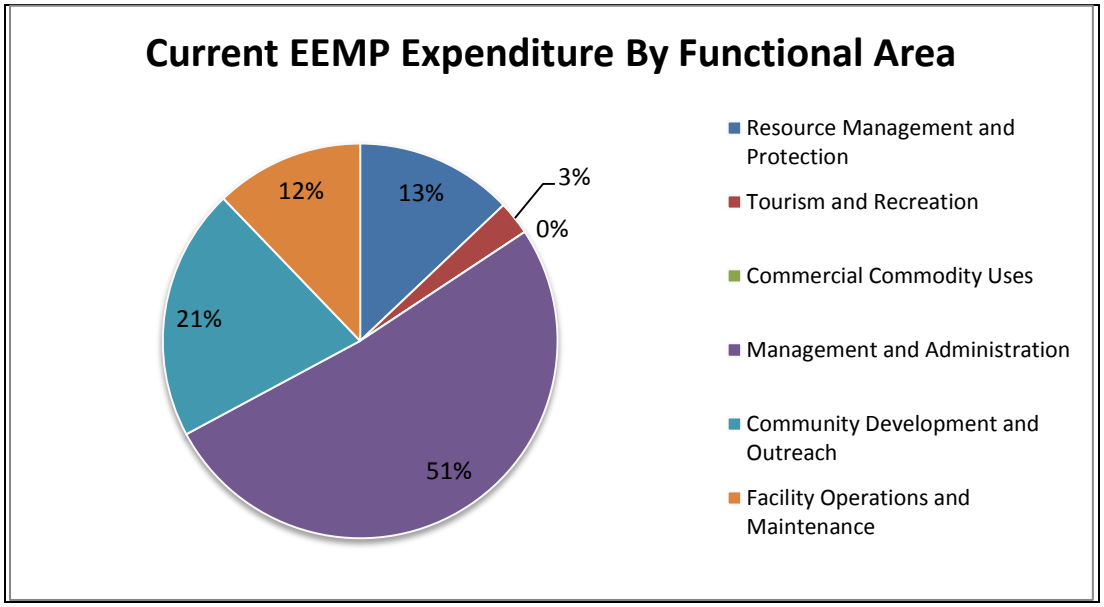
It is recommended that the STXEEMP have its own financial accounting system, with its own line item appropriation to support the park in the territorial budget. It is also recommended that the STXEEMP track its funding received, any revenue generated and expenditure in annual budgets structured using the activity based accounting system which is an accounting method used to determine expenditure by specific activities or program areas rather than along more traditional budgeting structures. This provides a view into how money is spent in the various functions of the management agency. It includes staff and operating expenses (recurrent) as well as investment expenditure organized by functional area. For more information on the various functional areas and related program activities please refer to Annex I, Table I.

Financial Gap Analysis

It is helpful to analyze in depth the current expenditure of the various agencies and compare this to a needs assessment to determine the current financial gap. This gap can then be projected forward to give an indication of the financial needs of the park in the future. This section will analyze the expenditure of the STXEEMP by functional and program area, present the needs assessment at the critical and optimal level and the resulting gap. This is summarized in a Summary Financial Statement in Annex I, Table II.

Expenditure by Functional Area

The STXEEMP annual expenditure was calculated using the activity based costing method based on the 2008 fiscal year. Some minor changes were made to better represent average annual spending with some staff salaries, operating expenses and investment costs taken from 2009. The following chart presents the overall expenditure distribution by functional area.



Currently, the STXEEMP spends half of its budget on Management and Administration and twenty one percent on Community Outreach and Development which involves mostly formal environmental education and public awareness. Only thirteen percent of the budget is spent on Resource Management and Protection which includes patrolling and enforcement activities as well as scientific monitoring and research and habitat restoration activities. This is due in large part to the fact that the acting Park Coordinator is also the acting Marine Biologist as well as the Coral Reef Initiative Coordinator for the entire territory. It has been very difficult to appoint the STXEEMP Coordinator. Currently, the Coral Reef Initiative Coordinator spends fifty-five percent of her time conducting Park Coordinator duties, fifteen percent of her time doing biological work and the rest working on the Coral Reef Initiative. Thus, it is difficult to coordinate and implement scientific monitoring and research and habitat restoration activities. A similar situation exists for the Education and Outreach and Administrative Assistant positions which are both filled by the same person.

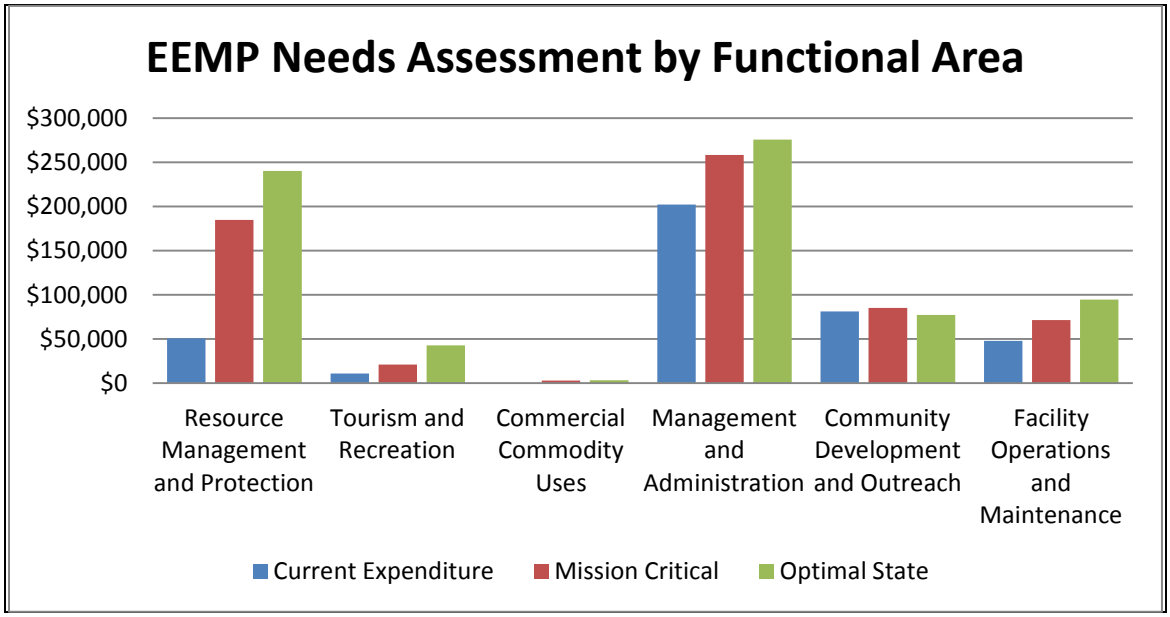
Other challenges to increases in patrolling and enforcement and scientific monitoring activities are that the Division of Environmental Enforcement is supposed to dedicate one of its officers to the STXEEMP for patrolling and enforcement but due to a lack of staff the person was re-assigned. DPNR Enforcement and the U.S. Coast Guard may be able to provide assistance in patrolling from the water however this still does not meet the capacity needs for enforcement of Territory laws as well as STXEEMP Rules and Regulations within the Park.

The interpretive rangers who also play a role in patrolling and enforcement need more support and equipment. For much of the latter half of 2009, the STXEEMP boat was out of use due to vandalism. There is only one car for the entire staff to use, which does not allow for regularly-scheduled surveillance of the Park's activities, let alone for any consistent rapid response to incidents that may arise within the Park. More importantly however is that the rules and regulations, which were promulgated in 2007, are not enforceable until demarcation buoys and signs have been established marking the use zones of the Park. Until this occurs, the rules and regulations cannot be disseminated to the general public and park users, thus hindering park staff enforcement. However, as of early 2010, activities were underway to install buoys and prepare for a public outreach campaign through joint assistance provided by a National Fish and Wildlife Foundation grant to TNC and NOAA's Coral Reef Conservation Program support of STXEEMP activities. The rangers have been concentrating instead on formal environmental education, tours, and general public outreach activities. For a more in depth look at staff and expenditure allocations please refer to the Summary Financial Statement Table in Annex I, Table II.

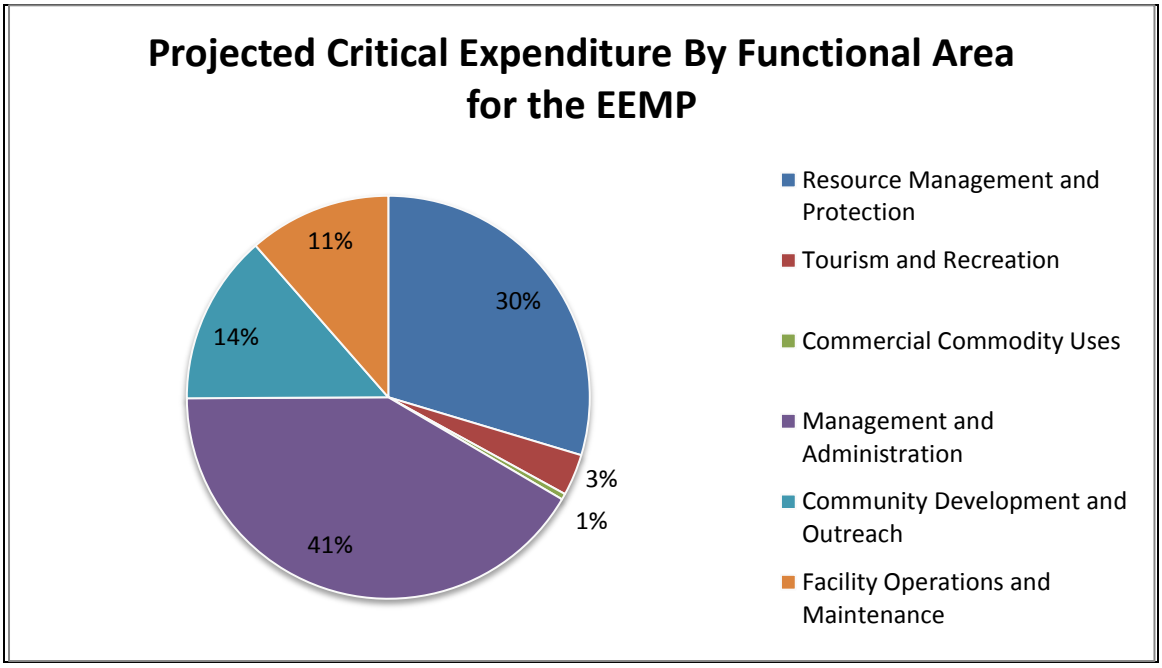
Funding Needs Assessment

Through interviews with staff, stakeholders, and a documents review the needs of the STXEEMP were calculated and organized by functional area. Needs were determined at a critical and optimal level for staff, non-staff recurrent, infrastructure and investment expenditure. Mission critical can be defined as the level of operations and the amount of resources that are necessary to meet the most important of the park's goals and objectives. Mission optimal is defined as the level of operations and the amount of resources that are necessary to fully meet the goals and objectives of the park's program areas.

The following chart presents the needs assessment for recurrent expenditure only. It shows that Resource Management and Protection require the greatest increase in staff and non-staff funding. The total recurrent needs of the STXEEMP at the critical level are $633,000 and $734,000 at the optimal level.



The following chart provides a comparison of the current expenditure by functional area shown in the prior section. In this scenario representing critical needs, the Management and Administration decreases from fifty-one percent to forty-one percent while Resource Management and Protection increases from thirteen percent to thirty percent. This represents a tripling of staff time and non-staff funding in the Resource Management and Protection functional area. Community Outreach and Development decreases from twenty-one percent to fourteen percent. Tourism and Recreation, and Facilities Operation and Maintenance, stay about the same. Commercial Commodity Uses, which includes regulation of fishing and establishing payments for environmental services, increases from zero to one percent.



The Investment needs of the STXEEMP would increase from the current $87,000 to $150,000 at the critical level and $193,000 at the optimal level. Investment needs range from a capital investment in a visitor's center to an increase of vehicles and equipment to increased signage and labeling, as well as training. For detailed information on staff and investment needs please see Annex I, Table III.

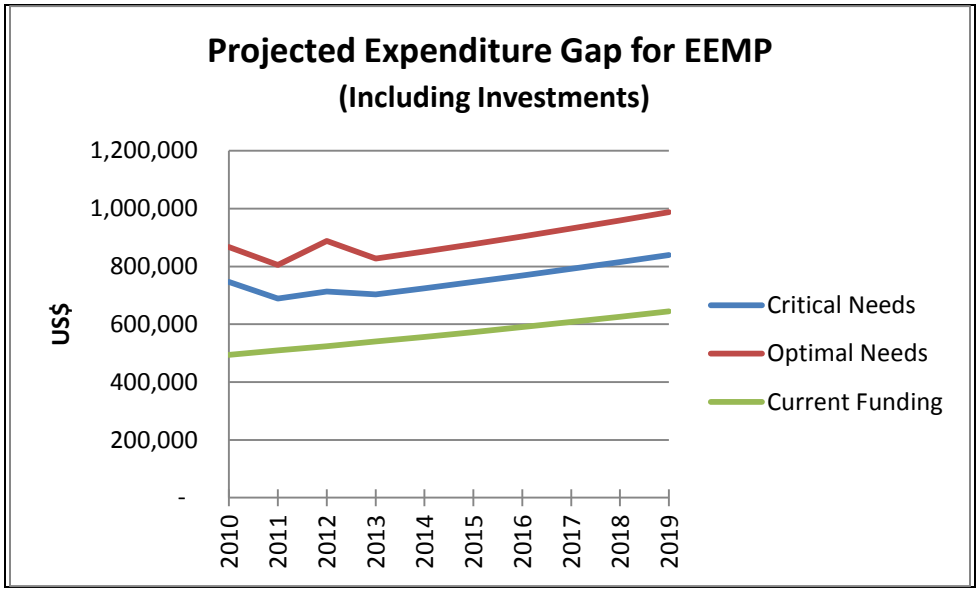
Financial Gap

The financial gap is measured by taking current expenditure and subtracting it from the needs assessment. For the STXEEMP to meet its goals at a critical and optimal level, it needs an additional $230,000 and $340,000 respectively. If investment needs are included than the financial gap increases to $318,000 at the critical level and $447,000 at the optimal level.

Projected Financial Analysis

The following table presents the projected funding gap over the next ten years adjusted for inflation and includes investment needs. The implementation of the various investments is

spaced out over the first three years. At an optimal level, the STXEEMP will need almost $900,000 in year 3. By 2019, the funding gap will equal $343,000 assuming current funding levels grow in tandem with inflation. It's clear that current funding does not and will not meet the needs of the STXEEMP. New financial mechanisms must be implemented to enable the park to meet its goals of conservation.



FINANCIAL STRATEGY

Expenditure Efficiency

In developing a sustainable financial strategy one of the first areas to examine is how efficiently the STXEEMP is spending and if cost saving measures can be identified. With several staff members filling two positions simultaneously, the STXEEMP staff is not wasting the funds the STXEEMP receives, however staff shortages have had negative consequences on the amount of federal funding that is given. The STXEEMP has had to return funding when certain positions could not be filled within the term of an award as well as re-assign funding to other areas when projects could not be implemented as a result of human resource limitations. This is an area where the STXEEMP, CZM and DPNR should concentrate efforts on improving as Federal funding decreased significantly for two years in a row due to this issue.

Identification of Financial Mechanisms

The following table identifies potential financial mechanisms and their sources of revenue. In the next section, these financial mechanisms will be analyzed for their feasibility and revenue projections will be estimated.

Possible Funding Sources	Source of Revenue
Government Funding	Federal (NOAA, USFWS, USEPA, NFWF), Local Government
International NGOs	TNC, WWF, CI, Island Resources Foundation
Private Foundations	Macarthur Foundation, Ocean Fund, etc
Payments for Environmental Services	Landowners, Developers
Land Conservation Fund	Land transfers
Park User Fees	Individuals, Tourists, Fishers, Researchers
Special Commercial Uses	Tour operators, private sector, concessionaires
Per Tourist Exit Tax	Stay-over visitors
Environmental Levy	Individuals, Developers
Hotel Occupancy Tax	Hotels, condos, rentals
Cruise Ship Fees	Cruise ship passengers
Fines	Individuals, Corporations
Permits and Licenses	Fishers, Researchers, Filming and Photography
Biodiversity Prospecting	Pharmaceutical Companies
Carbon Sequestration Payments	Corporations, Government
Green Investments	Corporations, Hotels, Cruise ships
PA Trust	NGO's, private, government, fees
Private donations and membership	Individuals, Corporations

Feasibility Analysis of Financial Mechanisms

The feasibility of any potential source of funding is evaluated by examining how difficult it would be to implement, the certainty or volatility of the revenue stream and the potential revenue generation. The cost recovery must not exceed the total revenue generated. Any financial mechanism must also comply with the goals and objectives of the Park.

In analyzing the financial mechanisms in the context of the STXEEMP, ten were identified as having potential. The following table presents the results.

Financial Mechanism	Potential for revenue generation	Certainty of revenue stream	Complexity of implementation	Overall Value
Rating (1 is low, 2 is medium, 3 is high)	*1, 2, 3*	*1, 2, 3*	*-1, -2, -3*	
Fines	1	2	-1	**2**
Government Contribution	3	3	-2	**4**

Membership Dues	2	2	-1	**3**
Park User Fees	2	2	-2	**2**
PA Trust	3	3	-2	**4**
Payments for Environmental Services	1	1	-3	**-1**
Environmental Entrance Fee	3	2	-3	**2**
Concession fees, Permits and Licenses	1	3	-1	**3**
Private donations	2	2	-1	**3**
Special Commercial Uses	1	2	-1	**2**

Feasibility and Potential Revenue Projections

The following describes the financial mechanisms with the greatest potential and estimates of the possible revenue that could be generated. These are in addition to the current Federal funding grants received by the STXEEMP.

Membership Dues and Private Donations

Stakeholders have stated that due to various difficulties in getting the STXEEMP up and running they would be more willing to become members of a "Friends of the STXEEMP" type non-profit organization than be forced to pay annual fees. It is difficult to estimate however how much revenue could be generated from this financial mechanism. Assuming users of the STXEEMP and residents of the East End, including the Yacht Club members, as well as visitors to the area would provide support and receive free access to the area, a reasonable estimate could be made that membership fees of $20 per year could generate $100,000 annually. The same amount could also be raised through private donations by several wealthy individuals. These two mechanisms therefore could raise **$200,000 per year**.

Concession Fees, Licenses and Permits

Once more visitors come to the STXEEMP, concession stands could be set up and tour operators could be given rights to take visitors to the Park and with tours provided by the interpretive rangers. If five operators paid a fee of $50 per month then $3000 could be generated. Adding $100 concession fee per month for hotels, condominium complexes and other private revenue generating companies that operate within or adjacent to the STXEEMP, another $12,000 could be generated in concession fees.

Recreational fishers operating within the STXEEMP, which currently do not have to get a license, could be charged an annual fee of $10. Assuming, 100 fishermen pay to get the license, $1000 could be generated.

Groups wishing to have events within the park boundaries or any filming or photography activities could be charged a $250 permit fee. Assuming 10 such types of permits were sold per year, $2500 could be generated.

The total amount generated by these various fees would be **$18,500**.

Tours

Since 2007, 10,000 visitors came to the STXEEMP and received a tour. As the STXEEMP develops its marketing efforts and becomes a real tourism destination it could start charging for tours. If 5,000 people came per year and paid $5 each, **$25,000** could be generated. Considering that 132,000 stay over visitors came by air in 2007, the estimate of 5000 people coming and paying for a tour is a reasonable estimate.

Fundraising Events

The STXEEMP could host a fishing festival with a fishing tournament or a special music festival with proceeds going to the park. Assuming one of these types of special fundraising events took place with 350 people paying $25 to compete in the fishing tournament or to see a concert, with volunteers putting on the tournament or show and goods and services donated, **$8,750** could be raised.

Mooring Fees

The mooring buoy program has 100 moorings planned to be installed throughout the STXEEMP. Assuming that dive sites could be identified and sailing is encouraged due to the installation of moorings, money could be generated by implementing a user fee for moorings. It is difficult to estimate accurately the revenue that could be generated as currently there is no diving in the park and the park user study has not been completed to provide data on the number of boats sailing or diving in the park annually. A cautious estimate assumes that if 250 boats use the moorings annually and are charged $15 per boat, which is the same fee as in the National Park in St. John, then $3750 could be generated. Considering that the maintenance fee for mooring buoys is $300 per buoy per year, at least 200 people would have to use the moorings to break even. This however does not take into account the cost of collecting the fees which would have to be incorporated into the daily patrols by the rangers or the St. John model could be used where mooring fees are put into collection boxes on a trust system and volunteer house boats are used to inform mooring users about the rules and regulations.

Adding up all of the different funding mechanisms, **$256,000** could be generated annually. This would cover the recurrent expenses gap at the critical level of $230,000 identified in the Financial Needs section but not if investments were added which increase the gap to $318,000. It does not cover the recurrent expenses gap at the optimal level of $340,000. The Territorial Government could provide more than just the matching funds to fill the gap but it has not given any indication that it will increase its financial support of the STXEEMP. Other financial mechanisms will have to be developed in the future to meet optimal funding needs.

Future Potential Funding Mechanisms

The following financial mechanisms are all mechanisms that have potential at a territory wide scale and would work to finance the entire protected area system, thus needing a management

entity that would oversee all locally run parks and coordinate with federally managed protected areas. This territory wide Protected Area system is envisioned in the future by CZM and it is for this reason that the following financial mechanisms are in the future potential funding mechanisms section.

Environmental Entrance Fee for Tourists and Cruise Ship Passengers

An environmental fee of US$5, collected from tourists (visitors who stay longer than 24 hours), could generate **US$2.56 million per year** assuming 2007 overnight visitor rates stay constant. This fee would be collected mainly at the airport but also at ports of entry by sailors. This financial mechanism would require an extensive public awareness campaign at all ports of entry for visitors to understand why this fee is charged and that the funds provide for the conservation of the natural resources and landscapes which visitors have come to enjoy. If implemented this fee would eliminate any entrance or user fees. A willingness to pay survey should be conducted to determine if US$5 is too high.

Cruise ship passengers pay a fee that goes to the Port Authority. None of this money is used to provide financial support for environmental protection or conservation despite the impact that large numbers of cruise ship passengers have on the islands' infrastructure, water supply, waste and sanitation, beaches and coral reefs. If all cruise ship passengers throughout the territory were charged a $1 environmental fee that was put into a Protected Area Trust fund, then **$1.92 million** could be generated annually, assuming 2007 numbers stay constant. It is extremely difficult to negotiate any price increases with cruise ship companies who can always go to other islands. Yet cruise ship companies have invested large amounts of money in St. Thomas and the USVI are a premier cruise ship destination. Cruise ship companies are also trying to promote that they are environmentally friendly companies. Cruise ship passengers generally do not have a lot of discretionary spending as most of the costs of the cruise are paid up front with everything included. A willingness to pay survey would have to be conducted to determine if a $1 fee is feasible.

This fee may be voluntary at first to gauge the number of people who will actually pay to conserve the USVI's natural resources that they have come to see and enjoy. Visitors could receive information about the islands or some other marketing product in return for a donation. This is another financial mechanism that should be instituted when there is a territorial wide system of protected areas so that the entire territory could benefit as most of the cruise ship passengers stop in St. Thomas. This type of fee system is much easier to collect than user fees which take a lot of staff resources to implement and collect. It also spreads out the cost and makes it more affordable for everyone rather than targeting only those people who visit a park. Visitors who come to the USVI are there to enjoy the beaches and beautiful scenery and indirectly benefit from conservation efforts even if they do not visit a marine park.

There is a fear however that charging such a large fee in one lump sum would deter visitors who can go to other islands that don't have such a fee. However, given the results from a recently completed willingness to pay survey in the Bahamas, in which we would expect similar results for the USVI, any significant loss of visitors is unlikely. The Bahamas willingness to pay survey, conducted in the spring of 2008, found that 21 percent of respondents were willing to pay a maximum increase of US$50 in their total costs per person per visit to help protect the natural and cultural environment. This is followed by 18 percent willing to absorb a US$25 increase and 17 percent willing to pay up to US$100. Added together, the study found that 79 percent of

respondents were willing to pay at least US$25 more to protect the environment (Jane, 2008, p. 28). This shows that visitors are willing to pay a significantly higher price than is otherwise assumed to protect the cultural and natural environment of the destination they have paid to visit and enjoy.

There is some risk with an environmental fee. The first is that most of the revenue generated for the protected areas would depend on tourism which can be volatile, as seen in the cruise ship visitor numbers in St. Croix. Another risk is that the funds generated would be placed into the general account of the government and funneled into non protected area expenditure. However both of these risks could be addressed by having these funds flow directly through a Protected Area Trust which would decrease the variability of revenue flows and put the control of the funds in a non-governmental board.

Protected Area Trust

In order to leverage revenue generated and make it sustainable in the long term a conservation trust fund could be established. A trust fund is a mechanism which mitigates the variability of revenue flows from other financial mechanisms to ensure that selected management activities receive stable and continuous funding. A conservation trust fund is an independent non-governmental source of funding for a specific environmental issue or cause. In this case, it would be a protected areas trust fund with an endowment component initially capitalized by an environmental fee and/or through vigorous private fundraising. The trust would also have a revolving fund and would act as a pass through entity for revenue generated by the park. This would ensure that all income from the park is re-invested into conservation activities. This type of trust allows for any excess revenue, for which perhaps the system cannot absorb right away, to be placed in the trust adding to the endowment and available to be used later.

A board of trustees would be established which would develop an investment management plan, oversee the financial management of the trust and decide how to distribute the annual disbursement of money from the interest and dividends generated annually. This board would consist of individuals from both the public and private sector who work in or know about finance and investment as well as environmental, conservation and protected area issues. The board would administer the funds in such a way as to meet certain criteria that are in line with the trust's mission and goals. Transparency and financial reporting would be built into the structure of the trust fund by contracting an independent auditor to review accounting and financial statements. As an independent body from the government, a fund avoids the bureaucratic inefficiencies of government and can respond more quickly and more flexibly to the changing needs of the protected area system. A conservation trust fund also gives donors more confidence that their money is being directly spent on conservation. Donors traditionally have been very supportive of the creation of protected area trusts.

Trust fund management costs can be high necessitating that the PA trust would have to be for the entire territory and all its protected areas, furthering the need for a territory wide system of protected areas. It may be beneficial for federally managed protected areas to also be a part of the fund and share the management costs through the establishment of a collective trust where each individual fund or park is a shareholder. Funds with larger endowments have had higher returns at a lower cost. Not only are fees proportionally lower but administrative time is also reduced. It is hoped that a financial services firm would be willing to manage the fund at a lower cost.

If a protected area trust was established and capitalized to have US$3 million in principal, averaged a ten percent annual return and had a five percent annual disbursement amount from the principal, it could generate **US$150,000** per year. Raising the money would take time however and a dedicated fundraising staff person would have to be hired.

The following table summarizes the potential revenue projections and compares the projections to the critical and optimal funding gap.

Funding Mechanisms	**Fee $**	**No.**	**Total**
Membership Dues	20	5,000	100,000
Private Donations	1000, 10,000	50, 5	100,000
Licenses	10	100	1,000
Permits for scientific research, photography, filming and special events	250	10	2,500
Concessions: Tours, Vending at Cramer's Park, Yacht Club	600	5	3,000
Concessions: Hotels, Condo Complexes, Rentals Co's	1,200	10	12,000
Tours	5	5,000	25,000
Mooring Fees (Divers, Sailors)	15	250	3,750
Fishing Festival	25	350	8,750
Total			**256,000**
Future Potential Funding Mechanisms			
Cruise Ship Environmental Fee	1	1,918,000	1,918,000
Air Tourism Environmental Fee	5	511,000	2,555,000
Protected Area Trust			150,000
Total			**4,623,000**
Critical Gap of STXEEMP			**230,000**
Optimal Gap of STXEEMP			**341,000**

CHALLENGES TO IMPLEMENTATION

One of the main challenges to implementation is the negative view local stakeholders have of the management of the STXEEMP by the government. It may be difficult to raise money from local residents for the park, which many feel has not been well managed by CZM. The problems related to staffing, the lack of rules and regulations, the lack of enforcement and visible management impacts have contributed to this negative perception. Some stakeholders have suggested taking the management of the STXEEMP out of the hands of government however this would result in the loss of non-competitive Coral Reef Management grant funds to the USVI Territorial Government. These grants currently finance almost all of the programs and activities of the park. A semi-autonomous body that can still access these grants may be the best option as well as the implementation of a Protected Area Trust which would ensure that money raised for the park goes towards conservation efforts. In addition, a new strategy should be implemented for stakeholder involvement. The STXEEMP advisory committee should be re-invigorated with clear roles and responsibilities.

The establishment of a semi-autonomous body to manage all territory wide protected areas under local government control could streamline conservation efforts but new legislation would have to be passed to create the agency as well as to create a Protected Area Trust for marine as well as terrestrial protected areas. This could be a long process, especially if there is resistance from local government bodies. In addition, a semi-autonomous body would have to generate its own revenue and this too would require strong government support and cooperation as well as an investment of time and resources to get the financial mechanisms implemented.

Regarding the management of the STXEEMP itself, a big challenge has been hiring staff. The process is long and laborious and many qualified applicants cannot wait such a long time to be hired. If a semi-autonomous body were created, perhaps they could implement a different hiring procedure which improves upon the government hiring process. In addition, applicants for the Interpretive Ranger positions were supposed to be fishermen and other users of the area but often times they do not have the academic qualifications. More training needs to be available for fishermen to be able to qualify for conservation type jobs.

FIVE YEAR ACTION PLAN

Year 1

- Hire a full time Marine Park Coordinator;
- Hire a full time Administrative Assistant;
- Work with stakeholders to determine the roles and responsibilities of the Advisory Committee and hold meetings quarterly.
- Begin advertising and implementing the STXEEMP Rules and Regulations;
- Conduct a visitor survey of the STXEEMP including boat use, kite surfing, kayaking, hiking etc.
- Implement the Navigation and Mooring Buoy Program with stakeholder input for potential dive sites and sailing areas;
- Work with DEE to get a dedicated officer patrolling and enforcing within the STXEEMP;
- Create the "Friends of the STXEEMP" non-profit organization;
- Create marketing material to send out for a membership drive;
- Host the fishermen festival and fishing tournament to raise money for the park;
- Work with legislators to determine the feasibility of a Protected Area System and start work on getting legislation to create a PA Trust for marine and terrestrial protected areas;
- Identify private donors and determine the feasibility of setting up a Protected Area Trust;
- Write grant for a visitor center;
- Conduct willingness to pay (WTP) surveys for tourists and cruise ship passengers;

Year 2

- Hire a third Interpretive Ranger;
- Hire a full time Marine Biologist;
- Implement the voluntary cruise ship and tourist environmental entrance fee;
- Implement biological monitoring program;
- Create a volunteer network to assist in monitoring and enforcement;
- Invest in a truck for patrolling and enforcement;
- Continue working on legislation for the PA Trust and the PAS.
- Begin raising funds for the PA Trust;
- Build the visitor center;
- Work with hotels, dive shops, tour operators and concession stands to determine how to better market the STXEEMP and develop mooring sites and tours visitors would be willing to pay for;
- Work with government to determine feasibility of an Environmental Entrance Fee based on results from voluntary donations and WTP surveys;

Year 3

- Pass legislation and capitalize the PA Trust;
- Establish the Board of the PA Trust and the laws governing how funds are invested and spent;
- Begin offering paid tours and charging concession and mooring fees;
- Continue working on establishing a PAS;

Year 4

- Pass legislation and create the territory wide Protected Area Management Authority;
- Implement the Environmental Entrance Fee for all tourists and cruise ship passengers;

Year 5

- Develop a sustainable finance plan for the Protected Area System and review the STXEEMP Sustainable Finance Component;
- Continue fundraising and increasing the PA Trust endowment;
- Conduct another visitor use survey and compare with the earlier survey to see if financial mechanisms have had an impact on number of visitors to the park.

CONCLUSION

Tourism data shows that visitors to the USVI as well as residents, who come from the mainland US, come to enjoy the natural beauty and pristine beaches that St. Croix offers as well as the recreational marine sports including fishing, sailing, and snorkeling. The richness of the island's natural resources supports the tourism industry, the fishing industry, and much of the real estate industry which in turn provide the basis for the island's economy as well as much of the revenue for local government. The enormous economic value provided by the natural resources and conserved in part in the marine park does not translate into financial support by the local government or by visitors or residents. The STXEEMP receives almost all of its funding from federal grants and programs. This is not a sustainable source of funding nor is it enough for the STXEEMP to achieve its goals of conservation even at a critical level. Other financial mechanisms must be implemented to fill the financial gap such as the creation of a non-profit organization, the establishment of concession fees for businesses operating within or adjacent to the Park, and the creation of a PA Trust.

The STXEEMP is but one of several protected areas in the USVI. There are other protected areas with no dedicated resources, a semi-autonomous body managing other areas and federally managed protected areas. This diversity of protected areas needs coordination and a more streamlined local management authority covering the entire territory. A territory wide system of protected areas is envisioned and has been discussed for some time. Strong leadership and cooperation will be needed for this to become a reality and achieve better conservation results. Active stakeholder participation is indispensable. There are many threats to the natural resources that much of the tourism and fishing industries are dependent on. Protected areas seek to preserve these resources for the benefit of local residents, visitors, businesses and for the enjoyment of generations to come. The overall value of the STXEEMP and its conservation efforts must be recognized and supported.

ANNEX I

Table I

The activities based costing method organizes the programs and activities of the park into functional areas. These areas require separate management and have different goals and objectives. The functional areas are also designed to be applied to any and all protected areas enabling cross referencing at the territorial or even national level. This activities based accounting is a general structural framework and the following programs and associated activities may not all take place in the STXEEMP. The following table summarizes the six functional areas and the programs and the possible activities that are or will be implemented in the future.

Functional Areas	Programs	Activities
Resource Management and Protection	Patrolling and Enforcement	Monitoring of resources through patrolling and the prevention of illegal activities in the park, as well as the issuance of fines or tickets for violating a rule or regulation.
	Monitoring & Research	Technical monitoring of the health of the marine ecosystem: the coral reef, the seagrass beds, the mangroves, and the animals and plants that live within these areas. Any research and data collection conducted by park wardens as well as outside research studies.
	Habitat Restoration & Wildlife Management	Re-vegetation, control and mitigation of invasive species, and restoration of threatened and endangered species.
	Zoning & Boundaries (incl Mooring Buoys)	The use of GIS and spatial analysis for planning and zoning. The marking of different multi-use zones as well as the boundaries of the Park. Studying the capacity and use of the different mooring locations and rotating them as necessary. Monitoring the buoys on a regular basis to identify those that may need to be replaced.
Tourism and Recreation	Fee Collection	Collection and management of recreational fees including but not limited to mooring fees, diving and snorkeling fees, entrance fees, and camping fees. Reporting, auditing and analyzing fee system.
	Concessions & Recreational Special Uses	Negotiating contract services with nature guides and eco-tourism companies, and vendors. Uses such as special events;
	Visitor Safety and Protection	Search and rescue, emergency medical services, boat safety and patrol;
Commercial and Commodity Uses	Fishing and Marine Resources	Licensing or permitting or issuance of ID cards. Managing fishing activities, fish farming, and harvesting and sale of marine resources in the park.
	Timber and Forest Products	Managing use of live and salvage trees including mangroves, sale of firewood or coal, production, harvesting and sale of non-timber forest products

	Special Commercial Uses	Any agricultural uses, water diversions, sanitary systems, surface use, research facilities, still photography and motion pictures, transportation uses, and trails.
	Environmental Services	Valuation of natural resources and negotiating contracts for payments for environmental services.
Management and Administration	General Management and Administration	Staff development activities to increase capacity and environmental leadership through staff education. General administrative activities including hiring staff, procurement, contracting, filing, maintenance of park lost and found items, information technology.
	Financial Management	Business planning, budgeting, accounting, analysis of expenditures and revenue generation, reporting requirements, grant writing and fundraising.
	Planning and Emergency Preparedness	Structural and programmatic development, environmental impact analyses and approval of development plans within and around Park boundaries. Creation and implementation of an emergency preparedness strategy.
	Partnership Relations	Coordinating inter-agency management and planning. Management of donor relationships.
	Advertising and Marketing	Website creation and management. Creation of park brand, posters, brochures, radio and TV spots, and a DVD.
Community Outreach and Development	Formal Environmental Education	Visits to schools and preparation of lesson plans on marine ecosystems, conservation, and protection of natural resources. Environmental training.
	Public Outreach and Awareness	Outreach activities to community members and park users to increase education and awareness.
	Stakeholder Engagement	Workshops and meetings to maintain and increase support for the Park through communication and education of stakeholders.
	Alternative Livelihoods	Training local citizens to employ them in jobs which reduce unsustainable practices and or distribute economic benefits to the community through job creation.
Facility Operations and Maintenance	Buildings, Grounds & Utilities	Cleaning, stocking supplies, and caring for buildings
	Roads & Trails	Maintenance of signs, and trails
	Navigational Markers and Mooring Buoys	Cleaning and replacement of buoys
	Docking, Transportation & Fleet	Gas, replacement of equipment and parts and general maintenance of a vehicle and a boat
	Campgrounds and Picnic Facilities	Cleaning and upkeep of camping grounds and picnic facilities

Table II

SUMMARY FINANCIAL STATEMENT										
East End Marine Park (figures in US dollars)	Current		REQUIRED				GAP			
			Mission Critical		Optimal State		Mission Critical		Optimal State	
	TOTAL									
FUNCTIONAL AREAS & PROGRAMS	FTE	Funds	FTE	Funds	FTE	Funds	FTE	Funds	FTE	Funds
RESOURCE MANAGEMENT & PROTECTION										
Patrolling and Enforcement	0.35	15,708	1.48	82,318	1.83	100,006	(1.13)	(66,610)	(1.48)	(84,298)
Scientific Monitoring and Research	0.39	24,492	0.65	57,934	0.85	75,564	(0.26)	(33,442)	(0.46)	(51,072)
Wildlife Management and Habitat Restoration	0.09	8,330	0.45	33,256	0.75	51,624	(0.36)	(24,926)	(0.66)	(43,294)
Cultural Resource Management	-	-	-	-	-	-	0.00	-	-	-
Zoning and Boundaries	0.05	2,244	0.05	11,144	0.05	12,944	0.00	(8,900)	-	(10,700)
Subtotal	0.88	50,774	2.63	184,652	3.48	240,138	(1.75)	(133,878)	(2.60)	(189,364)
TOURISM & RECREATION										
Visitor Safety and Protection	0.03	1,122	0.05	5,447	0.05	6,497	(0.03)	(4,325)	(0.03)	(5,375)
Recreation Fee Collection	0.00	-	-	-	0.10	4,488	0.00	-	(0.10)	(4,488)
Visitor Education and Interpretation	0.15	9,732	0.10	14,488	0.40	30,952	0.05	(4,756)	(0.25)	(21,220)
Concession and Recreation Special Uses	-	-	0.01	850	0.01	850	(0.01)	(850)	(0.01)	(850)
Subtotal	0.18	10,854	0.16	20,785	0.56	42,787	0.01	(9,931)	(0.39)	(31,933)
COMMERCIAL & COMMODITY USES										
Fishing (Marine Resources)	-	-	0.03	2,122	0.03	2,422	(0.03)	(2,122)	(0.03)	(2,422)
Timber and Forest Products	-	-	-	-	-	-	0.00	-	-	-
Environmental Services	-	-	-	-	-	-	0.00	-	-	-
Special Commercial Uses	-	-	0.013	850	0.01	850	(0.01)	(850)	(0.01)	(850)
Subtotal	-	-	0.04	2,972	0.04	3,272	(0.04)	(2,972)	(0.04)	(3,272)
MANAGEMENT & ADMINISTRATION										
General Management and Administration	0.55	181,392	1.25	211,824	1.40	229,318	(0.70)	(30,432)	(0.85)	(47,926)

Financial Management and Administration	0.21	14,076	0.85	41,344	0.85	41,344	(0.65)	(27,268)	(0.65)	(27,268)
Partnership Relations	0.07	6,664	0.05	3,400	0.05	3,400	0.02	3,264	0.02	3,264
Marketing	0.00	-	0.03	1,700	0.03	1,700	(0.03)	(1,700)	(0.02)	(1,700)
Subtotal	0.83	202,132	2.18	258,268	2.33	275,762	(1.35)	(56,136)	(1.50)	(73,630)
COMMUNITY DEVELOPMENT & OUTREACH										
Formal Environmental Education	1.38	63,558	0.90	47,276	0.75	42,344	0.48	16,282	0.63	21,214
Public Outreach and Information	0.35	17,596	0.30	25,668	0.45	22,896	0.05	(8,072)	(0.10)	(5,300)
Stakeholder Engagement	0.00	-	0.10	12,012	0.10	12,012	(0.10)	(12,012)	(0.10)	(12,012)
Sustainable Livelihoods & Training	0.00	-	-	-	-	-	0.00	-	-	-
Subtotal	1.73	81,154	1.30	84,956	1.30	77,252	0.43	(3,802)	0.43	3,902
FACILITY OPERATIONS & MAINTENANCE										
Buildings, Grounds, and Utilities	0.00	15,000	-	15,000	0.05	19,844	0.00	-	(0.05)	(4,844)
Roads	0.00	-	-	-	-	-	0.00	-	-	-
Trails	0.00	-	-	-	0.05	3,744	0.00	-	(0.05)	(3,744)
Docking Facilities (Marine)	0.05	17,996	0.05	24,944	0.05	29,204	0.00	(6,948)	-	(11,208)
Mooring Buoys and Navigation Markers	0.00	-	0.10	10,488	0.10	14,988	(0.10)	(10,488)	(0.10)	(14,988)
Transportation and Fleet	0.05	14,844	0.05	20,844	0.05	26,844	0.00	(6,000)	-	(12,000)
Campgrounds and Picnic Facilities	0.00	-	-	-	-	-	0.00	-	-	-
Subtotal	0.10	47,840	0.20	71,276	0.30	94,624	(0.10)	(23,436)	(0.20)	(46,784)
Grand Total	**3.70**	**392,754**	**6.50**	**622,909**	**8.00**	**733,835**	**(2.80)**	**(230,155)**	**(4.30)**	**(341,081)**
Total Investments		86,732		174,866		192,866		(88,134)		(106,134)
Grand Total incl Investments				797,775		926,701		(318,289)		(447,215)

Table III

Investments Needed for STXEEMP					
Item	Critical	Optimal	Year Planned	Functional Area	
Truck	20,000	20,000	1	RMP	PE
Training DEE officers	10,000	13,000	1	RMP	PE
Develop Monitoring Protocol	45,000	45,000	1	RMP	SMR
Economic Valuation Study	10,000	10,000	1	RMP	SMR
Field Equipment	12,500	12,500	1	RMP	SMR
Stakeholder Meetings	5,000	10,000	1	CDO	SE
Marine Park Monitoring Database	10,000	10,000	2	RMP	SMR
Dive Gear	5,000	5,000	2	RMP	SMR
Office Equipment	10,500	10,500	2	MA	GMA
Truck		20,000	3	RMP	SMR
Visitor Center	30,000	60,000	3	TR	VEI
Snorkel Trail		5,000	3	FOM	T
Total	158,000	221,000			

Table IV

EEMP Stakeholders Interviewed		
	Name	**Affiliation**
1	JP Oriole	Acting Assistant Director, Division of Coastal Zone Management
2	Austin Callwood	Director, Division of Environmental Enforcement
3	Roberto Tapia	Assistant Director, Division of Environmental Enforcement
4	Allegra Kean Moorehead	Communications Director, Department of Tourism
5	Olasee Davis	Extension Specialist, University of the Virgin Islands
6	Christine Settar	Virgin Islands Marine Advisory Service, University of the Virgin Islands
7	Nick Drayton	Program Coordinator, VI EPSCoR, University of the Virgin Islands
8	Paige Rothenberger	Acting Park Coordinator, STXEEMP
9	Migdalia Roach	Education and Outreach Officer, STXEEMP
10	Jose Sanchez	Interpretive Ranger, STXEEMP
11	John Farchette	Interpretive Ranger, STXEEMP
12	Julie San Martin	2001, 2002 Commodore, St. Croix Yacht Club
13	Michelle Pugh	Owner, Dive Experience, St. Croix
14	Melanie Feltmate	Environmental Educator , St. George Botanical Gardens
15	Hubert Brumant	Managing Director, Magen's Bay Authority
16	Rafe Boulon	National Park Service
17	Senator Donastorg	USVI Legislature
18	Jeanne Brown	VI Coastal Program Director, The Nature Conservancy
19	Richard Gideon	Land Steward, The Nature Conservancy

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