

ISLAND RESOURCES FOUNDATION

Caribbean Headquarters

6296 ESTATE NAZARETH NO. 11
ST. THOMAS, VIRGIN ISLANDS 00802
TEL: (809) 775-6225
FAX: (809) 779-2022

Washington, D.C. Office

1718 "P" STREET NW, NO. T-4
WASHINGTON, D.C. 20036
TEL: (202) 265-9712
FAX: (202) 232-0748
E-MAIL: irf@us.net

Caribbean Program Office

Post Office Box 103
St. John's, ANTIGUA
TEL: (809) 460-1740
FAX: (809) 463-7740

Island Resources Foundation Occasional Paper No. 52

From Theory To Practice The Virgin Islands Coastal Zone Management Program's Experiment with "Areas of Particular Concern": A Retrospective View

1994

By

**Edward L. Towle
President
Island Resources Foundation**

and

**Richard Volk
Senior Resource Planner (1992-93)
Island Resources Foundation**

This paper is based on an internal report prepared by R. Volk in October 1993 entitled *U.S. Virgin Islands Areas of Particular Concern: Issues and Opportunities*.

Portions of the paper were presented by Dr. Edward Towle as a Case Study for Inter-American Development Bank's Fifth Consultative Meeting on Environment, "NGOs and the IDB -- A Focus on Participation," Barbados, May 31, 1994.

Opinions expressed in this document are the opinions of the authors and do not necessarily reflect the opinions of the U.S. Government and Virgin Islands Government agencies cited herein.

I. Introduction

Based on a federal initiative launched by the Congress of the United States in the early 1970s, and, after a rather extended and controversial planning period, approved in the U.S. Virgin Islands Territory in June 1979, the Virgin Islands Coastal Zone Management Program (VICZMP) is now in its fifteenth operational year. The VICZMP was designed to manage all development activities in the Virgin Islands coastal zone, which includes the three main islands of St. Thomas, St. Croix, and St. John, and all offshore cays and the territorial sea.

The program focuses on the management of development in the so-called "first tier" (a relatively narrow coastal strip), along with adjacent cays, harbors, lagoons, estuaries and embayments. Management control is exercised through a comprehensive system of major and minor permits and a supporting regime of inspections and standards, all directed at development activities in the coastal zone. Development in the inner or second tier is handled by a spate of programs directed by the territorial Department of Public Works, the most significant of which are an "earth change" permitting system and -- as needed -- environmental assessment reports on intended development initiatives.

First established under the Department of Conservation and Cultural Affairs (DCCA), and after July 1987 under a newly constituted Department of Planning and Natural Resources (DPNR), the basic framework of the coastal zone management program evolves around a fifteen-person Commission (five from each major island) which is empowered to promulgate rules and regulations, to issue major coastal permits, and to set conditions and standards as allowed under the law.

One of the things the enabling coastal zone management legislation specified, even prior to program approval in 1979, was the need for Management Plans for 18 so-called *Areas of Particular Concern* (APCs) within the coastal zone. While very preliminary plans for nearly all the APC sites were sketched out by DCCA/CZM staff shortly after the CZM legislation was enacted, these reports languished in departmental files and remained unfinished for over a decade. A few unauthorized copies circulated, but no official departmental effort to readdress the task was forthcoming. This situation remained static until 1991, when a contract was let by the Department of Planning and Natural Resources to a St. Thomas-based NGO, the Island Resources Foundation, to undertake the task of preparing the required Management Plans as specified in CZM legislation.

By the end of September 1993, the Foundation had completed the 18 draft Management Plans on schedule. Then, following public hearings on each, the draft Management Plans were turned over to DPNR's Division of Coastal Zone Management to initiate a process of revision and submission to the CZM Commission, the Governor, and the Virgin Islands Legislature for final approval.

While the exact process for approval was not formally established, legal counsel for both the U.S. Government's oversight agency (NOAA/OCRM) and the Virgin Islands Government

generally agreed that the Virgin Islands Legislature must approve both the official boundaries of each APC and its accompanying "plan", or similar guideline document.

The draft APC Management Plans were therefore prepared with the following intent regarding legal mandate and jurisdictional authority for plan implement:

The Management Plan is intended to serve as the overall planning and management framework within which the various planning and regulatory entities, both territorial and federal, carry out their respective authorities. For those agencies that issue permits or review and comment on permit applications, the Management Plan does not eliminate or modify the authority of those agencies, but does increase the predictability and timeliness of the permitting process since many of the issues that must be addressed in a specific permit application are already addressed in the Plan. Once adopted and passed by the Legislature and approved by the Governor, the Management Plan will have the force of Law. Any development activity will have to be consistent with and comply with the Management Plan.¹

The purpose of this review is to draw attention to some of the lessons learned as a result of the rather intensive, broad-scoped, and relatively closed APC planning process. In addition, this review will attempt to identify and ascribe relative significance to the various resource attributes, uses, and use conflicts occurring within the 18 APCs. By so doing, it is hoped that interested persons, both inside and outside of government, may have a starting point for discussions on future directions for activities that further the goal of effective resource management of APCs in the U.S. Virgin Islands. It is also hoped that the lessons learned from this analysis will be of use in helping to guide similar planning efforts elsewhere in the insular Caribbean.

II. Background

The 18 APCs (often called "special management areas" in other locations) were identified by the Virgin Islands Government with the adoption of its NOAA-funded Coastal Management Program in 1979.² The federal Coastal Zone Management Act (CZMA, 1972 as amended), while noting the importance of the entire coastal zone, declares that "certain areas are of yet greater significance". As a prerequisite to program approval, the Act requires an inventory and designation of areas of particular concern within the coastal zone [Section 305(b)(3)]. In addition, it is necessary that the management program makes provision for procedures whereby specific areas may be designated for the purpose of preserving or restoring them for their conservation, recreational, ecological, or esthetic values [Section 306(c)(9)].³

1 As excerpted from Section 1.2 of each of the APC Management Plans.

2 The federal (U.S.) agency responsible for administering funds appropriated under the Coastal Zone Management Act is the National Oceanic and Atmospheric Administration/Office of Ocean and Coastal Resources Management (NOAA/OCRM).

3 U.S. Department of Commerce, 1979.

After consideration of the criteria suggested for APC designation by regulations within 15 CFR Part 923, the Virgin Islands Planning Office (the lead agency for initial CZM planning) incorporated those that were relevant to the Virgin Islands and developed the following seven categories to guide the nomination process for Areas of Particular Concern:

1. Significant Natural Areas;
2. Culturally Important Areas;
3. Recreation Areas;
4. Prime Industrial and Commercial Areas;
5. Developed Areas;
6. Hazard Areas; and
7. Mineral Resource Areas.

In addition, certain areas were classified as Areas of Preservation and Restoration (APRs), by virtue of their exceptional conservation, recreational, ecological, or esthetic values. Thus, with the adoption of the Virgin Islands Coastal Management Program in 1979, 18 coastal areas throughout the Territory were nominated for APC status, 10 of which were also nominated as APRs (Figure 1).

Although CZM staff in the Virgin Islands started but never completed very rough draft plans, it was only when the Federal Government's program office at NOAA/OCRM began to exert pressure on DPNR/DCZM in late 1990 to complete Management Plans for the 18 APCs that the bureaucratic machinery began to crank once again, albeit slowly at first. The impetus for completion of the APC planning effort, and thus the constraints inherent in an externally imposed time frame for completion, came from NOAA/OCRM and its implicit warnings that non-performance could affect the future flow of federal program funding.

In late 1990, the Island Resources Foundation had just finished a post-Hurricane Hugo natural areas damage audit under contract to the Department of Planning and Natural Resources. The Foundation was approached by DPNR/DCZM to prepare draft Management Plans for five of the 18 APCs, as a pilot project to examine the scope, content and process involved in such an undertaking. The Eastern Caribbean Center at the University of the Virgin Islands, and its Marine Advisory Service programs on St. Thomas and St. Croix, volunteered to contribute to the effort.

Upon completion and review by NOAA/OCRM of the plans produced during the pilot project, the Foundation was contracted to complete the remaining 13 draft Management Plans within a 15-month time frame. A typical "Table of Contents" is included in this report to provide an idea of the scope and content of the Management Plans, each of which is accompanied by several figures and maps which depict the natural and cultural resources of the area, as well as any conflicts and impacts therein (Figure 2).

III. Lessons Learned

In contrast to the typical set of circumstances which has driven most special area management (SAM) planning efforts in the United States, the APC planning project in the U.S. Virgin Islands was driven largely by the demands of a federal agency. After years of neglect by both the territorial and federal agencies responsible for administering the specific requirements of the CZMA with respect to APC planning, NOAA/OCRM finally imposed a short time frame for completion of draft Management Plans for each of the 18 APCs. This was not a gentle or diplomatic strategy, but it did work.

More typically, SAM/APC planning arises as a response to perceived failures of existing regulatory programs, management measures, and/or institutional arrangements to effectively manage the area(s) in question. Of course, more visionary persons would not wait for management failures to become evident to initiate a coordinated SAM/APC planning process. It is a time-consuming and expensive process, and one that requires much up-front discussion and consensus-building among all parties concerning the process and intended outcome of the planning effort. SAM/APC planning typically emerges in response to conflicting or inadequate regulatory policies, growing conflicts between juxtaposed development/conservation interests, and/or visible degradation of a regionally important resource for which a multiple of potential causes can be identified.⁴

In short, the SAM/APC planning process most typically is a generic process to (Brower and Carol):

1. resolve management conflicts;
2. provide greater predictability and assurance for both conservation and development interests;
3. trade-off development in one part of the area in exchange for long-term preservation of the remaining portion;
4. focus and streamline a set of management strategies; and
5. provide varying outcomes depending on the nature of the special area, the available management tools, and the participants in the process.

Moreover, establishing the need for SAM/APC planning requires that all parties at least recognize the key issues and agree that special actions are needed if policy fragmentation, use conflicts, and *ad hoc* permit decision-making are to be overcome. This of course requires that existing problems and projected growth for a given planning area be well documented and understood.

The APC Planning Effort

It needs to be recognized that the process used for the APC planning project in the U.S. Virgin Islands was fundamentally different than that which is described above for the typical SAM

4 For a good overview of the U.S. experience of the SAM process, see Brower and Carol (eds.): *Managing Land-Use Conflicts: Case-studies in Special Area Management*.

planning effort. The APC project was *goal-driven*, as opposed to *process-driven*. More emphasis was placed on achieving the scheduled completion of the 18 draft Management Plans than was placed on the importance of interagency and public involvement in the planning process. Moreover, the structure of the planning process, from the outset, was lacking in clearly defined goals, procedural standards, and interagency participation or oversight. The project was seen as strictly a "special project" of the implementing agency, DPNR/DCZM, with technical assistance provided by the consultant (Island Resources Foundation). In reality, it became more like a focused "research effort" by a handful of individuals tasked with seeing that the project remained on schedule.

Of course, certain attempts were made to achieve participation by other federal and territorial agencies and the public; but these attempts were under the same time and budgetary constraints and were thus generally poorly conceived, planned, and/or implemented. These efforts included:

1. A questionnaire/survey was mailed to selected landowners or business owners within some (but not all) APCs; the surveys were confusing and not adequately designed for the task at hand, and ultimately provided little useful information for the project.
2. A "public input" meeting was scheduled, one for each APC, to invite interested citizens to provide early input on the issues and key concerns within the APC. These meetings generally (although not always) received poor attendance, often the result of poor scheduling, inadequate or confused public announcement of the meetings, or some other misunderstanding by the public, such as the intended purpose of these meetings.
3. The consultant was additionally tasked with the responsibility of coordinating interagency input for each APC. Because of the time and budgetary constraints already described, in actual practice this resulted in mostly fragmented attempts to acquire information from key technical personnel within the relevant agencies. It did *not* achieve the needed outcome of coordinating sectoral policies, or receiving systematic technical input, understanding and support for the APC project by top management officials within the various agencies.

Realizing that the goal of achieving systematic and comprehensive public agency and citizen participation in the planning process was not being met, the consultant conducted a mid-term review/evaluation of the project, and presented the findings to DPNR/DCZM in January 1993. The principal finding of the review was that the draft Management Plans produced up to that time were not, in fact, "Management Plans" *per se*, but perhaps more properly labeled resource analysis or background documents that synthesized a lot of useful information on a broad range of planning and management concerns, and presented management alternatives, but that did not (yet) represent a consistent set of development guidelines of the type that could be supported by law.

The consultant maintained that preparation of the remaining "background documents" should continue, but that a new emphasis should be placed on preparing a brief, concise, policy framework and management plan summary, of roughly 4-7 pages in length, for each APC. These summaries would necessarily be succinct and consistent, and would eventually (upon completion of an established review and approval process), become the "Official Management Plan" for a given APC, and a true policy/management framework that could be sanctioned by law. They would then be distributed as such to the various participating agencies (territorial and federal) as a guidance document for use in future planning and decision-making.

During the mid-project review, the consultant also pointed out that:

the existing documents do not specifically define, for example, the type, density, location, and timing of development to be allowed within each APC. Nor do they speak to the full range of legal and financial mechanisms that can be employed to achieve regulatory control and enhancement of resources. What they do accomplish ... is the necessary first step in any such planning process, namely the identification of issues and a suggested policy framework. There is considerable need, however, for additional legal research and counsel to identify the appropriate (and feasible) legal/incentive mechanisms, and funding opportunities, necessary to achieve enforceable APC policy goals.⁵

More specifically, the consultant provided the following suggested outline for a 4-7 page Management Plan Summary:

1. Executive Summary
2. Highlights of Resource Uses and Management Concerns
3. Description of Management goals and Objectives
4. Description of Additional Research Needed
5. Summary of Administrative Framework, including:
 - a. Role(s) of Participating Agencies and Organizations
 - b. Existing and Needed Legal Support
 - c. Needs for Funding and/or Other Implementation Strategies To Achieve Management Goals (i.e., land banking, land swaps, transfer of development rights, tax incentives, tax assessments, etc.)
6. Clear and Concise Map(s) and Figure(s).

The consultant's recommendations were never acted upon, perhaps because of the project's continuing emphasis on meeting deadlines. Indeed, there was no discussion on the recommendations, and the project continued "according to schedule".

5 Letter dated 25 January 1993; Island Resources Foundation to DPNR/DCZM.

IV. Future Directions

As a result of efforts to date, at least three important conditions of SAM planning have been met in the Virgin Islands' APC planning process:

1. There is now available reasonably good documentation of the existing uses, use conflicts, and resource impacts for each APC.
2. A suggested policy framework has been proposed for each APC.
3. There has been achieved, through public hearings and contact with the media and key community leaders, the first level of public support for more focussed management measures to be effected within each of the 18 APCs.

It is indeed a monumental task to implement new, enforceable policies for any single area; the complexities of *simultaneously* undertaking the same for *eighteen* different areas spread out over the entire U.S. Virgin Islands Territory are staggering. Clearly, the effort must not be seen, nor can it succeed, as a government task alone. Political, business, and community leaders, plus all concerned citizens on all three islands, must feel as if they are "owners" of the Management Plans, and thus stewards of the resources that are found in their collective backyards. Decentralized, self-management (stewardship) of the Territory's land and water resources, coupled with existing/improved project review and permitting institutions, should be seen as the desired direction for effective resource management as the population, and its consequent development pressure, grows during the decades ahead.

Future efforts at APC management must therefore pay close attention to the need for a wider base of political, agency, and community support for coordinated management efforts. The responsible officials at DPNR/DCZM should be encouraged to ensure that participation in the continuing planning process is broadened rather than narrowed, and that the decentralization of at least some regulatory (or performance oversight) functions be considered along the way. Engaging communities to become self-interested in their own resource management needs should be seen as a long-term investment that will pay long-term dividends.

The role of the non-governmental (NGO) sector needs to be strengthened in this regard. Environmental and other resource conservation NGOs in the Territory are currently achieving unprecedented levels of organizational capacity. And while funding support is not exceptionally large or stable, several organizations are becoming more well established each year and have made substantial contributions in the areas of public awareness, advocacy, and permitting oversight. Clearly, future efforts must focus on the question of coordination and how the NGO talent and resource pool can be brought to bear in a concerted fashion on the challenge of effective resource management in the Territory. In this regard, it is useful to ask whether the APC management task serves as a useful starting point.

Experience has shown that public support more often than not galvanizes, and sometimes dramatically accelerates, following a "success story". As mentioned above, the APC planning ef-

fort in the Virgin Islands has to date achieved at least a first level of public support for the APC management project. It stands to reason, therefore, that future activities should give top priority to the goal of achieving a "success story" within at least one APC -- a demonstration, in effect, that coordinated planning and resource management really do make a difference for a community's quality-of-life.

As a first step in doing so, it is necessary to identify *strategic opportunities* for achieving success, and a good starting point is to undertake a systematic assessment of the common resource management issues and challenges for all 18 APCs.

Figures 3-6 are a first attempt to depict some of the issues, common needs, and opportunities inherent in the 18 APCs.

V. Conclusion

This review is intended to provide only a brief look at the APC planning project to date, and to provide the reader with a few ideas as a starting point for future resource planning and management activities.

In the meanwhile, the Virgin Islands APC Management Plans (as comprehensive analytic studies) are available as prototypes for planners and resource managers addressing similar insular coastal issues.

VI. References Cited

- Brower, D.J. and D.S. Carol (eds.), 1987. Managing land-use conflicts: Case studies in Special Area Management. Duke University Press. Durham, NC.
- Nichols, M. and Kuo, A., 1979. Virgin Island Bays: Modeling of water quality and pollution susceptibility. Prepared for the V.I. Government, Department of Conservation and Cultural Affairs by Island Resources Foundation. St. Thomas, USVI.
- U.S. Department of Commerce, 1979. Final environmental impact statement, proposed Coastal Zone Management Program for the Virgin Islands. Prepared by Office of Coastal Zone Management, National Oceanic and Atmospheric Administration. Washington, D.C.
- Wernicke, W., and E.L. Towle, 1983. Vessel waste control plan for the U.S. Virgin Islands. Prepared for the V.I. Government, Department of Conservation and Cultural Affairs, by Island Resources Foundation. St. Thomas, USVI.

Senate OKs designation of sensitive areas

By HAROLD T. NEDD
Daily News Staff

ST. THOMAS — The Senate acted swiftly Wednesday on a bill calling for special management of development-sensitive areas in the territory.

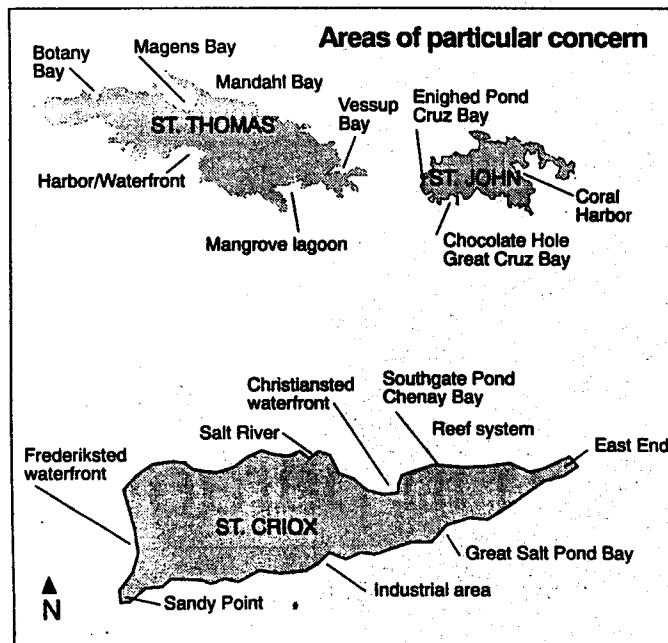
The legislation passed on a 13-0 vote after senators praised it for its contribution to the control of haphazard development.

Sen. George Goodwin, Senate Environmental Protection Committee chairman, noted the overwhelming backing the measure has received from environmental groups.

"It's been in the making 15 years and it's time to put it to rest," he said, referring to efforts to enact the measure into law.

The bill designates 18 areas for special management. Each has significant economic, cultural and ecological importance, and management plans are being drafted for each.

The bill also qualifies the territory's coastal zone management program for more than \$700,000 in



Daily News Map by STEVE ROCKSTEIN

federal funds.

"While it's important to continue to move toward economic devel-

opment, it is equally important to preserve our natural areas so generations to come can enjoy them,"



Arturo
Watlington

Sen. Kenneth E. Mapp said in supporting the bill.

Sen. Arturo Watlington Jr. said his only regret is that the bill wasn't introduced two years ago.

He said he would have liked to have seen Lindqvist Beach, St. Thomas, remain in its natural state and would have pushed for it to stay that way.

A building permit has been issued for construction of a 200-room hotel there.

A constant refrain among senators was the need to come up with sound management plans for other areas of the territory equally in need of special care.

"I don't want the island (St. Thomas) to continue looking like a concrete jungle," said Sen. Judy M. Gomez.

"I'm glad to see that some of our natural resources will be protected in the interest of growth."

Senate OKs designation of sensitive areas

By HAROLD T. NEDD
Daily News Staff

ST. THOMAS — The Senate acted swiftly Wednesday on a bill calling for special management of development-sensitive areas in the territory.

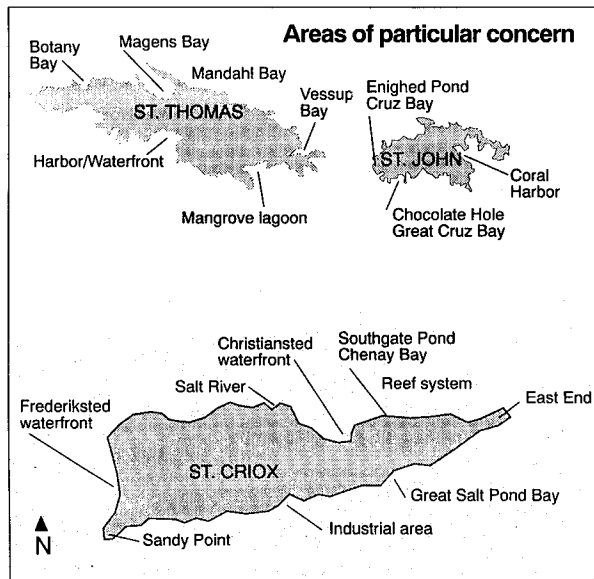
The legislation passed on a 13-0 vote after senators praised it for its contribution to the control of haphazard development.

Sen. George Goodwin, Senate Environmental Protection Committee chairman, noted the overwhelming backing the measure has received from environmental groups.

"It's been in the making 15 years and it's time to put it to rest," he said, referring to efforts to enact the measure into law.

The bill designates 18 areas for special management. Each has significant economic, cultural and ecological importance, and management plans are being drafted for each.

The bill also qualifies the territory's coastal zone management program for more than \$700,000 in



Daily News Map by STEVE ROCKSTEIN

federal funds.

"While it's important to continue to move toward economic devel-

opment, it is equally important to preserve our natural areas so generations to come can enjoy them,"



Arturo
Watlington

Sen. Kenneth E. Mapp said in supporting the bill.

Sen. Arturo Watlington Jr. said his only regret is that the bill wasn't introduced two years ago.

He said he would have liked to have seen Lindqvist Beach, St. Thomas, remain in its natural state and would have pushed for it to stay that way.

A building permit has been issued for construction of a 200-room hotel there.

A constant refrain among senators was the need to come up with sound management plans for other areas of the territory equally in need of special care.

"I don't want the island (St. Thomas) to continue looking like a concrete jungle," said Sen. Judy M. Gomez.

"I'm glad to see that some of our natural resources will be protected in the interest of growth."

**CHRISTIANSTED WATERFRONT
APC DRAFT MANAGEMENT PLAN**

TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1	General	1
1.2	Relationship to Other Plans and Regulations	2
1.3	Historical Perspective and Overview	2
1.4	Other Classifications	4
2.	DESCRIPTION OF THE SITE	5
2.1	APC Boundary	5
2.2	Ownership Summary	5
2.3	Physical Environment	7
2.3.1	Climate	7
2.3.2	Geological Setting	7
2.3.3	Hydrological Setting	8
2.3.4	Coastal Environment	9
2.4	Biological Environment	10
2.4.1	Terrestrial	10
2.4.2	Marine	11
2.4.3	Endangered Species	11
2.5	Cultural Resources	12
2.5.1	Prehistoric	12
2.5.2	Historic	13
2.6	Built Environment	14
2.6.1	Roads and Ports	14
2.6.2	Water Systems	14
2.6.3	Wastewater Systems	15
2.6.4	Energy Systems	15
2.6.5	Solid Waste Disposal Systems	16
3.	RESOURCE USE, USE CONFLICTS, AND ADVERSE IMPACTS	16
3.1	Resource Use	16
3.2	Use Conflicts	18
3.3	Adverse Impacts	20
3.3.1	Water Quality	20
3.3.2	Air Quality	24
3.3.3	Noise Pollution	25
3.3.4	Impacts to Biological Resources	25
3.3.5	Impacts to Cultural Resources	26
4.	MANAGEMENT RECOMMENDATIONS	26
4.1	Policy Framework	26
4.2	Planning and Permitting	31
4.3	Legislative Change	45
4.4	Institutional Development	46
5.	CONCLUSION	46

Figure 3.

Analysis of Virgin Islands Areas of Particular Concern by Resource Attributes

Area of Particular Concern:	Cays and Islets	Coral	Seagrass	Fish Spawning/ Nursery	Turtle Nesting	Mangrove	Freshwater Shrimp	Salt Pond	Flood Plain	Shoreline Configuration			Estuarine Interaction
										Enclosed	Semi-enclosed	Open	
St. John													
Coral Bay	●	●	●	●	●	●		●	●	●	●	●	
Chocolate Hole		●	●		●			●	●	●			
Cruz Bay/Enighed Pond		●				●		●	●	●	●		
St. Thomas													
St. Thomas Harbor	●	●	●					●	●				
Botany Bay	●	●	●			●		●	●			●	
Magens Bay		●				●		●	●	●			
Mandahl Bay		●			●	●		●	●	●	●		
Vessup Bay/Red Hook		●	●			●		●	●		●		
Mangrove Lagoon	●	●	●	●		●	●	●	●	●		●	●
St. Croix													
Sandy Point					●	●		●	●			●	
Frederiksted		●			●				●			●	
Salt River		●	●	●	●	●		●	●	●			●
Christiansted	●	●	●	●	●	●			●			●	
Southgate Pond	●	●	●		●	●		●	●			●	
East End		●	●									●	
Great Pond Bay		●	●			●		●	●			●	●
South Shore Industrial	●	●	●			●		●	●			●	
St. Croix Coral Reef	●	●	●	●	●	●							●

Figure 4.

Analysis of Virgin Islands Areas of Particular Concern by Resource Use

Area of Particular Concern:	Fishing	Water Contact Sports	Anchorage	Live-aboards	Marinas	Commercial Port	Tourist Port	Water Intake	Sewage Outfall	Desalinization	Power Plant	Municipal Landfill	Point Discharge	Non Point Source	Recreation Beach	Shore Protection	Dredge Activity	Scientific Use	Educational Use
St. John																			
Coral Bay	●	●	●	●	●									●	●			●	●
Chocolate Hole	●	●	●	●						●				●	●		●	●	●
Cruz Bay/Enighed Pond		●	●	●	●	●	●		●				●	●	●	●	●		
St. Thomas																			
St. Thomas Harbor			●	●	●	●	●	●	●	●	●		●	●		●	●	●	●
Botany Bay		●													●			●	●
Magens Bay		●												●	●				●
Mandahl Bay		●	●											●	●	●	●		●
Vessup Bay/Red Hook			●	●	●	●	●		●				●	●	●				
Mangrove Lagoon	●								●			●	●	●				●	●
St. Croix																			
Sandy Point	●	●													●			●	●
Frederiksted	●	●	●	●		●	●	●	●	●			●	●	●	●			●
Salt River	●	●	●	●	●		●							●	●		●	●	●
Christiansted	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●		●
Southgate Pond		●		●	●								●	●	●		●	●	●
East End		●												●	●			●	●
Great Pond Bay														●				●	●
South Shore Industrial	●					●		●	●		●	●	●	●		●	●	●	●
St. Croix Coral Reef	●	●	●	●	●	●	●		●	●			●	●				●	●

Figure 5.

Analysis of Virgin Islands Areas of Particular Concern by Other Classifications

Area of Particular Concern:	Coastal Barrier Resource System	Significant Natural Area (proposed)	Territorial Park System (proposed)	National Park System	Territorial Wildlife Refuge	National Wildlife Refuge	Territorial Marine Reserve (proposed)	National Marine Sanctuary (proposed)	National Natural Landmark	Critical Habitat
St. John										
Coral Bay	●	●	●	●	●		●		●	
Chocolate Hole		●								
Cruz Bay/Enighed Pond			●				●			
St. Thomas										
St. Thomas Harbor	●	●		●			●			
Botany Bay		●	●		●		●		●	
Magens Bay	●	●	●				●			
Mandahl Bay	●		●							
Vessup Bay/Red Hook	●									
Mangrove Lagoon	●	●			●		●	●		
St. Croix										
Sandy Point	●	●	●			●			●	●
Frederiksted										
Salt River	●	●	●	●		*		●	●	●
Christiansted	●	●	●							●
Southgate Pond	●	●	●			●				
East End		●	●					●		
Great Pond Bay	●	●	●							
South Shore Industrial	●	●			●					●
St. Croix Coral Reef	●	●	●	●	●			●		●

* Proposed

Figure 6.

Analysis of Virgin Islands Areas of Particular Concern by Use Conflict and Environmental Impact

Area of Particular Concern:	Fishing	Public Access	Recreation	Ground Water Contamination	Surface Water Contamination	Coastal Water Contamination	Ground Water Discharge	Surface Hydrology Modification	Coastal Hydrology Modification	Air Quality Degraded	Anchor Damage	Dredging	Fish Kills	Overfishing	Visitor Impacts
St. John															
Coral Bay	•	•				•		•			•				•
Chocolate Hole		•	•		•	•		•			•	•			
Cruz Bay/Enighed Pond			•			•									
St. Thomas															
St. Thomas Harbor		•	•			•		•	•	•		•			•
Botany Bay		•													
Magens Bay															•
Mandahl Bay		•	•					•	•			•			
Vessup Bay/Red Hook						•									
Mangrove Lagoon		•	•	•	•	•		•			•	•	•		
St. Croix															
Sandy Point			•					•					•		•
Frederiksted						•					•				•
Salt River	•		•					•			•	•			•
Christiansted			•			•			•	•	•	•		•	•
Southgate Pond			•										•		
East End			•												
Great Pond Bay													•		
South Shore Industrial	•	•		•		•	•	•	•	•		•	•		
St. Croix Coral Reef	•					•					•			•	•