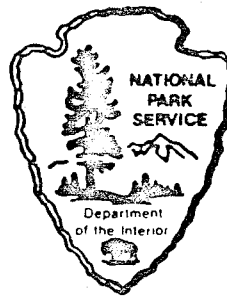


# **ECONOMIC IMPACT ANALYSIS FOR THE VIRGIN ISLANDS NATIONAL PARK**

**Prepared under contract for the  
United States Department of the Interior  
National Park Service  
Southeast Regional Office  
Atlanta, Georgia**



**by the  
Island Resources Foundation  
Red Hook Center  
St. Thomas, U.S. Virgin Islands**

**October, 1981**

# ISLAND RESOURCES FOUNDATION

## FINAL REPORT

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#### *CONTRACT NO:*

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October 1981

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## CHAPTER I: INTRODUCTION

### A. BACKGROUND AND PURPOSE

In October 1980, the U.S. Department of Interior, National Park Service, entered into a contract with Island Resources Foundation to perform an objective evaluation of the special economic impact made by the Virgin Islands National Park (VINP) on the economy of St. Thomas/St. John.<sup>1</sup> This report presents the results of that study.

The study deals only with economic benefits such as visitor expenditures; increases in land values that are attributable to the existence of the VINP; employment opportunities; benefits to local merchants from operations of the national park installation and its concessionaires; and similar items. No attempt is made to quantify benefits such as the preservation of natural scenery; the provision of recreational opportunities; the preservation of historical landmarks; and related esthetic and cultural benefits of the VINP. It is worth noting, however, that the local officials and individuals contacted in the course of the study almost without exception volunteered their awareness and appreciation of these benefits.

The study deals only with the existing economic situation. It can be argued that if the national park on St. John did not exist, private enterprise in cooperation with the Government of the Virgin Islands would have developed the island of St. John in a way that would have provided economic benefits equal or superior to those identified in this study. An approach based on an attempt to construct and quantify such an alternative model was considered. It was discarded because of the degree of uncertainty that would exist with respect to items such as capital requirements of constructing air and sea port facilities, the implications of direct competition between St. Thomas and St. John, and a host of other imponderables that cannot reasonably be dealt with.

The study does attempt to identify all costs associated with the park, including the impact of the VINP on public service facilities of the Government of the Virgin Islands; real estate tax revenues lost to the V.I. Government because of the removal of property from its tax rolls; interest costs on government investments; and similar items.

### B. HISTORY AND SETTING

#### History

During the late 1930's the U.S. National Park Service indicated an interest in the park potentialities of the American Virgin Islands. At that time the Park Service dispatched



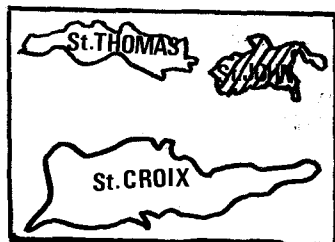
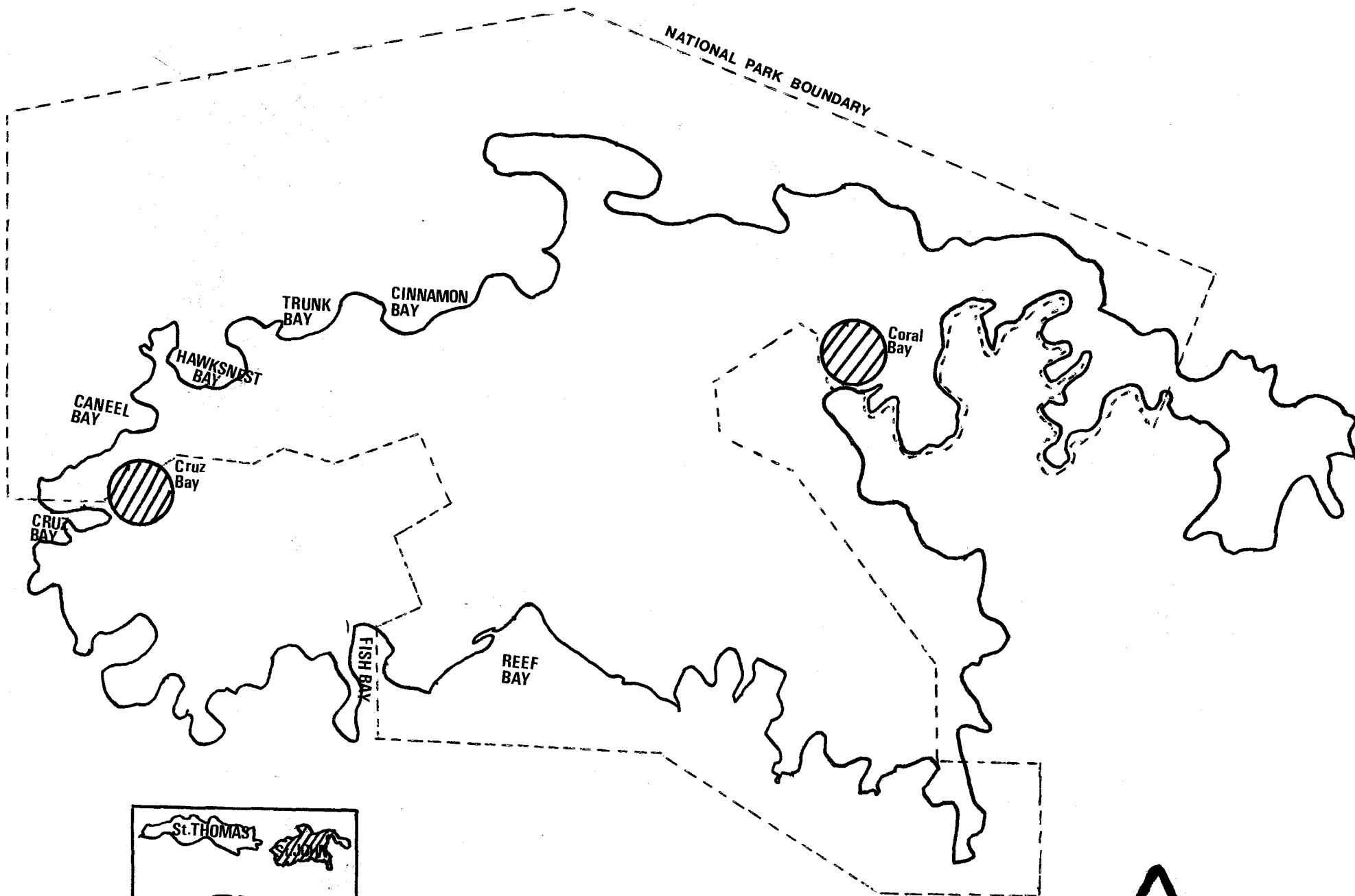
Superintendent Harold Hubler of the San Juan National Historic Site, Puerto Rico, to do a study to determine the feasibility of creating a park in the Virgin Islands. Particular attention was focussed on the island of St. John which is fifty miles east of Puerto Rico. As a result of the outbreak of war in Europe the idea to establish a park in the islands was indefinitely deferred.

In 1954, Mr. Laurance S. Rockefeller, who then owned the Caneel Bay Estate on St. John, became intensely interested in the possibilities of creating a Virgin Islands National Park and brought the matter before the Director of the National Park Service in the form of a proposal. Superintendent Hubler was assigned to return to St. John and make a second study to determine whether the island was suitable for the establishment of a national park. In an article published in 1954, Hubler unconditionally endorsed the idea of creating a national park on St. John stating, "It is a colorful, tropical island under the American flag, rich in historic, scientific, and recreational interests. The proposed park would comprise a major part of the island of St. John omitting the settled areas and arable land and including nearby small islands and cays. Preservation of the Carib Indians stone picture writings, the old forts, the estate ruins and other features of historic and scientific qualities would be accomplished by establishment of the proposed Virgin Islands National Park."<sup>2</sup>

On August 2, 1956, the law authorizing creation of the Virgin Islands National Park was passed by Congress.<sup>3</sup> At that time the National Park Service (NPS) was authorized to acquire not more than 9,485 acres on or around St. John and 15 acres on St. Thomas. Certain offshore waters were added in 1962 which expanded the park's boundaries within the framework of the Act of 1916 which created the National Park Service. In 1956 more than 5,000 acres were donated by Jackson Hole Preserve, a non-profit educational and scientific foundation. These donations provided the first federally owned lands within the boundary delineated by Congress. Since that time, donated and purchased lands added to the park have totaled nearly 1,900 acres.

#### Setting

The Virgin Islands National Park is principally located on the island of St. John, the smallest of the three major islands in the American Virgin Islands group (see Map 1). Its area comprises some 20 square miles, the island being eight to nine miles long at its extremities in its east-west axis and four to five miles in width north to south. From St. John its sister island, St. Thomas, can be seen a mile and three-quarters west across Pillsbury Sound. To the north across Drakes Passage, British Tortola is visible some three miles



ST. JOHN



MAP 1



away, while St. Croix is barely visible 32 miles west of and south of the Anegada Passage.

St. John is a rural-resort type community with no intensive or extensive development and with an environment that is pristine. It occupies 20 square miles of land, or 12,624 acres, 55.2% or 6,968 acres of which are under the supervision of the U.S. National Park Service and in public recreation and beaches. The area covered by the park is perhaps the most valuable scenic and environmentally sensitive area of St. John and is predominantly mountainous with the highest peak being 1,277 feet.

The primary resource of the park is a scenic-sensory product of steep, forested slopes meeting clear waters of the sea, wild blossoms and foliage, quiet coves with white sandy beaches, offshore islands and cays, sea waters that display everchanging hues of blue -- all bathed in an atmosphere of sounds and fragrances of the most pleasant kind.

The heavily indented coastline features numerous bays each at the foot of a steep valley. Each bay is normally divided from the next by prominent headlands that project out into the ocean. The eastern end of the island consists of a narrow hooklike projection that curls to form the north and east shores of Coral Bay, which is thereby protected from the sea.

The clear warm sea, over which all travelers must approach St. John, is host to an extraordinary underwater world. The one-third of the park which is sea, the offshore areas being added to the park in 1962, is the world of the coral reef, the sea grass community, and the open sea.

Ruins of former sugar plantation structures remain on several dozen sites on St. John. Nearly all of the plantation ruins on St. John are within the park boundary. The structures at Annaberg and Reef Bay are in the best condition. Remains at some of the other sites are little more than crumbled walls. Also within the boundaries of the park are eight known pre-Columbian sites, six historic structures, and 39 historic sites. Of the pre-Columbian sites, Reef Bay petroglyphs and the prolonged settlement areas of Caneel, Trunk, Cinnamon and Francis Bay have been classified as worthy of inclusion in the National Register of Historic Places.

St. John has two main urban centers: Cruz Bay, the most urban and developed, in the west, and Coral Bay in the east. Permanent population of the island in 1980 was approximately 2,400.

### C. CONCEPT OF STUDY

#### General

Several studies of the economic impact of national parks and similar areas on their adjacent communities have been made. A fair sampling of such studies was reviewed before the final concept for the VINP economic impact study was adopted. The factors influencing the study concept adopted for the VINP study are explained in this section.

Review of Comparable Studies: In a 1976 study made to evaluate the economic impact of the proposed Klondike Gold Rush National Historic Park in Alaska, the authors applied what they called the "economic base theory," which identified those aspects of the existing economy that would be most affected by the introduction of a national park in the local community. Segments of the retail sector involving the tourist -- food services and retail ship trade -- were identified as being the most likely to benefit from increased demands for services. In fact, the study indicated that the transportation sector would be most likely to benefit from the creation of the national park.<sup>4</sup>

A 1977 study by Dryer et. al. evaluated the economic impact of recreationists visiting an Illinois reservoir. Trends in retail sales during the pre- and post-reservoir periods were examined to determine what changes were attributable to the influence of recreationists using the particular water resource. In the absence of information about the actual local expenditures by recreationists, it was necessary to infer these expenditures and their local impact from retail sales tax information.<sup>5</sup>

A draft of a manual on economic methods in park planning contains a chapter on, "The Regional Economic Factor". Included in the chapter is the following statement:

The formulation of a study should begin with questions like: What are the most sensitive economic questions in the case? Are they direct changes in employment? Changes in visitor levels and visitor expenditures? Transportation patterns? Displacement of local industry or potential development, mining, quantity and quality of water and air? Tax losses or gains to local government?<sup>6</sup>

This report goes on to suggest research models based on levels of complexity of the economic areas affected.

An interesting approach aimed primarily at establishing the economic benefits of parks is presented in a 1980 study by Mills et.al. The study establishes the concept of visitors' annual willingness-to-pay as the principal beneficial effect of the park's development. This is measured in terms of approximate average travel costs and use per thousand population from three defined travel zones starting with the area closest to the park and extending out to the rest of the nation.<sup>7</sup>

In a study titled, "Some Data Related to Costs and Benefits of National Parks in Latin America," the author resorts to ratios such as numbers of visitors per park employee; number of hectares per employee; costs per visitor (non-capital and capital costs calculated separately). As the study points out, no other information was available in the countries studied.<sup>8</sup>

A study entitled, "Cost-Benefit Analysis Cape Cod National Seashore," introduces still another concept. The study takes the position that it is not possible to measure the dollar value of the intangible benefits of the national seashore (recreational opportunities primarily) but it is possible to measure the impact which the presence of these benefits has on land values:

....Rather than avoiding double-counting by omitting increase in land value as a benefit, we shall avoid double-counting by only using increase in land value as an index of indirect benefit. Land near the Seashore has become more valuable in part because of the benefits the Seashore offers: a more predictable future, and also a better future, whether for commercial development or summer home owners. The benefits of the Seashore cannot be less than the increased amount persons are willing to pay for land nearby as a result of the Seashore. Private land has been made more 'productive' as a result of the Seashore, in the same way that a highway makes nearby land more productive.<sup>9</sup>

The study cautions that the applicability of the method used is limited, and that comparative cost/benefit analyses using this technique might well be misleading, reflecting more the different extent to which land reflects benefits than the real difference in benefits.<sup>10</sup>

As one of its approaches, the VINP study makes use of the concept used in the Cape Cod National Seashore analysis,

despite the inherent limitations in the methodology. As explained in later sections of this study, the concept is one of the few that can be applied to available data in the Virgin Islands.

Factors Influencing Concepts Used: Factors influencing the concepts adopted and the approaches used in the current study are:

The Major Role of Tourism in The Economy of the Virgin Islands. The "Annual Economic Review 1980," published by the Department of Commerce of the Virgin Islands Government, reveals clearly that tourism is by far the most significant private industry in the Virgin Islands. Direct tourism employment (lodging places, retail shops catering to tourists, eating and drinking places, taxis, boating, etc.) accounts for 25.7% of all Virgin Islands employment (including Government employment), and over 40% of all private employment.<sup>11</sup> The figures are for St. John, St. Thomas, and St. Croix. The percentage of employment engaged in tourism would be considerably higher if St. Croix data were excluded, since that island contains the bulk of non-tourist industrial employment in the Virgin Islands.

Thus, the major consideration in a study of the economic significance of the VINP must be the relationship between the VINP and tourism in St. Thomas and St. John.

The Importance of Boating to the V.I. Economy. A separate aspect of the tourism influence on St. Thomas/St. John is the extensive recreational boating industry. This industry, in turn, is influenced greatly by the special attractions of the waters around St. John, particularly VINP waters. Fortunately, a separate study of the recreational boating industry was completed recently, and it is therefore possible to deal specifically with the relationships between this industry and the VINP.

The Limited Amount of Available Economic Data. Economic data on the Virgin Islands are limited. There is even less information that provides data on economic growth and the nature of the economy on St. John -- the island influenced primarily by the VINP. The economy of St. John is intermingled with that of St. Thomas to an extent that precludes the possibility of analyzing separately the economic impact of the VINP on St. John.

The study group explored the possibility of finding indicators that might suggest the extent of growth of the economy on St. John before and after the establishment of the VINP. One possibility explored was the amount of gross receipts taxes paid by St. John business establishments.

As might have been expected, this source proved impractical because too many businesses did not distinguish between St. John and St. Thomas branches, and in any event the historical record is quite incomplete.

Given these circumstances, the study group decided that the changes in land values concept adopted for the Cape Cod National Seashore cost-benefit analysis would furnish the best available measure of economic growth attributable to the VINP. A separate section of the current report identifies indirect costs and benefits using a modified form of land value analysis, for which information from V.I. Government sources was obtained.

The Availability of Data from the VINP and VINP Concessionaires. The section of the report dealing with direct costs of all kinds incurred in connection with maintaining the park and providing access and services to visitors is based on fiscal year 1980 data provided by VINP. Separate materials on employment, data on which to estimate taxes paid by VINP employees, the extent of expenditures in the local economy, and related items required in order to assess direct economic benefits attributable to its activities were also received from the VINP.

Information was also secured from the principal tourist-related commercial activities directly connected with the existence of the VINP. This information was necessary for an analysis of the economic impact of their operations on the Virgin Islands economy. These organizations consist of: Caneel Bay Plantation, operated by Rock Resorts on private land as a concessionaire of the VINP; Cinnamon Bay Campground, operated by Rock Resorts for the VINP on VINP property; and Maho Bay Campground, operated privately. Managements of these installations were most cooperative in providing direct information. They also assisted by helping to administer a survey of their guests. These surveys, described in later sections of this report, provided data on the extent to which guests were influenced by the VINP in coming to St. John, as well as other information helpful in the study.

#### D. OUTLINE OF STUDY

The outline of the study is dictated by the above considerations.

Chapter II summarizes the approach used and the conclusions reached based on the study of the economic impact of the VINP on tourism in St. Thomas/St. John. This chapter also explains the original research undertaken to supplement secondary sources concerning the symbiotic relationship between the VINP and visitors to the islands.

Chapter III deals with the boating industry in relation to the VINP, as a separate part of tourism and the VINP. The

chapter is based primarily on secondary sources, including data maintained by the VINP; a separate study of the recreational boating industry in St. Thomas/St. John that provides data on the economic contribution of the boating industry to St. Thomas/St. John; derivation of information on the extent to which St. Thomas/St. John-based boats make use of the VINP waters; a limited number of interviews with boat captains; and, finally, an "order of magnitude" estimate of indirect economic benefits reasonably attributable to the existence of the VINP in connection with the boating industry.

Chapter IV is an analysis of the economic impact of the VINP on land values on St. John, making use of a modified form of the methodology used in the Herr cost-benefit study of the Cape Cod National Seashore, referred to above. The records of the VINP, and of the V.I. Government (Office of the Assessor and of the Recorder of Deeds) provided most of the basic data used in this analysis. From this information it is possible to develop relatively accurate estimates of the value of lands incorporated into the VINP; the value of lands on St. John; the amounts of real property taxes lost to the V.I. Government due to the establishment of the VINP; the increases in land values on St. John since the VINP was created; and, through the use of standard economic indicators, to estimate the extent to which St. John land values increased beyond what could be attributable to the impact of inflation. Also included in this analysis is the amount of Federal Government investment in land purchased for the VINP, which provides a basis for estimating the annual interest cost that can be imputed to this investment.

Chapter V presents the analysis of direct and indirect costs and economic benefits of the VINP and the three major tourist-related commercial activities directly connected with the existence of the VINP. This analysis provides the basis for estimates of annual non-capital and capital costs incurred by the VINP and the local community to provide access and maintain services to visitors. Also included in the section are the direct and indirect benefits accruing to the V.I. economy from persons employed and expenditures made in the V.I. economy by the VINP and those activities directly associated with it.

Chapter VI, Summary and Conclusions, pulls together information from all facets of the study into a consolidated tabulation of estimated direct and indirect costs and benefits. Conversion of outlay information into estimated economic benefits to the V.I. makes use of a range of multipliers used in earlier studies by the Department of Commerce of the V.I. Government. A summary of community views expressed by officials and individuals contacted during the study is included as Appendix D of the study.



FOOTNOTES FOR CHAPTER I

- <sup>1</sup>The analysis does not include consideration of segments of the VINP on the island of St. Croix in the Virgin Islands.
- <sup>2</sup>Harold Hubler, "Proposed Virgin Islands National Park", National Parks Magazine, Sept. 1955 pp.1-6
- <sup>3</sup>Act of August 2, 1956 (16 U.S.C. 398 et. seq.)
- <sup>4</sup>Casavant, Ken, and James Barron. "Economic Impact of Proposed Klondike Gold Rush National Historic Park on Skagway, Alaska," First Conference on Scientific Research in National Parks, New Orleans, LA., 1976.
- <sup>5</sup>Dwyer, John, and Robert Espereth. "Improved Local Planning for Reservoir-Oriented Recreation Opportunities." Water Resources Center, Urbana, Illinois, 1977.
- <sup>6</sup>Nez, George, and Richard Walsh. "R-The Regional Economic Factor," identified as a chapter of the Manual on Economic Methods in Park Planning. Science Section, Branch of Special Programs, Professional Support Division, Denver Service Center, National Park Service, "Draft 8 - 79".
- <sup>7</sup>Mills, Allan S., Joseph G. Massey, and Hans M. Gregersen. "Benefit-Cost Analysis of Voyageurs National Park", Evaluation Review, Vol. 4, No. 6, Dec. 1980.
- <sup>8</sup>Dalfelt, Arne. "Some Data Related to Costs and Benefits of National Parks in Latin America," Centro Agronomico Tropical de Investigacion y Ensenanza Catie, Departamento de Ciencias Forestales, Turrialba, Costa Rica, 1976.
- <sup>9</sup>Phillip B. Herr & Associates. "Cost-Benefit Analysis Cape Cod National Seashore," A Study made for U.S. Dept. of the Interior, National Park Service, Branch of Statistics Analysis, 1968. Mimeographed report. Quotation at p.2.
- <sup>10</sup>Ibid., p.8.
- <sup>11</sup>Govt. of the V.I., Dept. of Commerce, Office of Policy Planning and Research. "Annual Economic Review, 1980," pp. 4ff.

CHAPTER II. ECONOMIC IMPACT OF VINP ON TOURISM  
IN ST. THOMAS/ST. JOHN

A. METHODOLOGY AND RESEARCH

General. The U.S. Virgin Islands is a fragile microstate economy with an open economic structure that differs substantially from the large, essentially independent systems with which it interacts. The structure of the U.S. Virgin Islands needs to be viewed in the context of a unique, small, microstate economy which is the dominant factor or weight in all economic activity.

Within this economy, the movement in recent years has been increasingly toward a reliance on tourism as the single most important industry in the Virgin Islands -- an industry heavily dependent on the United States mainland for its success.

The initial premise of this portion of the study is that the existence of VINP is part of the total attraction that brings tourists to the Virgin Islands. The VINP has no monopoly on the weather, beaches, scenery, and water-related activities that justify the advertising claim of the Virgin Islands as the "American Paradise". At the same time, it seems reasonable to believe that the existence of a "National Park" constitutes a kind of "seal of approval" by the United States and contributes to the reasons why tourists would want to see for themselves what the Virgin Islands have to offer.

The study premise is supported by readily ascertainable facts: (1) a considerable portion of the advertising of the Virgin Islands points up the existence of the national park; (2) a very substantial number of visitors to the Virgin Islands visit the VINP, either as a part of their trips to St. Thomas/St. John, or by staying at facilities on St. John that largely depend on the VINP.

To establish a reasonable estimate of the economic impact of the VINP on tourism, the study needed to ascertain some additional facts:

- What is the profile of the visitors to St. John, where the VINP is located?
- How many tourists visit the VINP?
- To what extent (if at all) are tourists who visit St. John and the VINP influenced by the existence of the VINP in connection with their visits?
- What are the expenditures of the tourists who visit the VINP?

Some of the answers to the above questions are available either in whole or in part from secondary sources: the VINP provides complete data on number of visitors to the park. In 1976, 1977, and 1980, the Virgin Islands Department of Commerce conducted extensive surveys of cruise ship passenger and tourist air arrival spending preferences. This survey data has provided the basis for estimating total tourist expenditures in the U.S. Virgin Islands.<sup>1</sup>

Not available from existing sources was information concerning the profile of visitors to St. John, the extent to which visitors to St. John were influenced by the existence of the VINP, and any data that might suggest that visitors to St. John (and the VINP) spent amounts more or less than other tourists to the Virgin Islands. To develop answers to these questions the current study developed and administered surveys explained in more detail below and in Appendices A and B to this report.

Promotion of VINP. The VINP is promoted to potential visitors in several ways: The Tourism Office of the Department of Commerce of the Virgin Islands Government refers specifically to the VINP in some 50,000 to 60,000 brochures and pamphlets that are printed and distributed through travel agencies and six mainland offices. Personnel from the Visitor's Bureau report that many of their personal and written inquiries deal with the VINP.

The waters within the VINP boundary have been a preferred location for the shooting of major motion pictures, as well as commercial advertisements.

Several travel writers visit the islands annually with a special interest in writing about St. John and the VINP.

The VINP is highly publicized in two publications that are widely distributed to residents and visitors: Beyond the Blue Horizon, a brochure that deals largely with rates charged on all three Virgin Islands; and St. Thomas This Week, a local advertisement and shopper's guide.

In recent years, the VINP has been mentioned prominently in such national publications as the National Geographic, Skin Diver magazine, and in numerous articles written for newspapers and magazines that direct some of their articles to potential vacationers.

The VINP is featured prominently in colorfully packaged and printed brochures distributed by the three major resort areas associated with the Park: Caneel Bay Plantation; Cinnamon Bay Campground; and Maho Bay Campground.

At least eleven cruise ships which call at the port of St. Thomas weekly all promote excursions to the VINP as part of their itineraries for passengers. According to several cruise ship directors of activities, some 10 to 15% of passengers take advantage

of outings to the VINP.

The National Park Service and the VINP directly promote the VINP. The NPS circular on the Virgin Islands is a colorful and attractive document. The Virgin Islands National Park office has an extensive inquiry file on vacationing, traveling, and sightseeing within the park, indicating the interest of potential tourists in the VINP.

The net effect of all the above supports the premise that the VINP is an important part of the reason why tourists visit the Virgin Islands.

## B. SUMMARY OF FINDINGS

Methodology and Research Findings. Despite the fact that there would inevitably be some overlaps, the study undertook three separate analyses dealing with the economic impact of VINP on tourism:

- (1) St. John can be visited only via water. It has no airport and there is no seaplane service from St. Thomas. Thus, nearly all visitors (other than those on their own or chartered boats) take the ferry that runs hourly between St. Thomas and St. John throughout the day and into the early evening. (Of the facilities on St. John, only Caneel Bay Plantation has its own transportation facilities, including its own boats, for transporting guests to and from St. Thomas.) The first analysis, therefore, was based on ferry (or shuttle boat) users.
- (2) A substantial number of individuals who are directly involved with the VINP are the guests of the three major installations on St. John associated with the VINP. A separate survey of these guests was made with the cooperation of the installations involved.
- (3) The third analysis, which is the subject of Chapter III of this report, deals with those visitors whose visits to St. John are on boats based on St. John and St. Thomas.

The first analysis -- of ferry boat users to St. John -- is summarized as follows:

Step One involved determining the number of shuttle boat users. Table 1 shows the number of passengers traveling to and from St. John via ferry for calendar year 1980. It indicates that some 300,000 passengers made the round trip that year.

Step Two involved securing a profile of these passengers. This was done through a survey conducted over a three-month period (March, April and May 1981) during which a random sampling of passengers was taken just prior to their trip from St. John to St. Thomas:<sup>2</sup>

TABLE 1

NUMBER OF PASSENGERS TRAVELING TO AND FROM ST. JOHN

VIA FERRY, JANUARY THRU DECEMBER 1980\*

	<u>VARLACK VENTURES</u>		<u>TRANSPORTATION SERVICES</u>		<u>TOTAL</u>
	<u>Red Hook to Cruz Bay</u>	<u>Cruz Bay to Red Hook</u>	<u>Red Hook to Cruz Bay</u>	<u>Cruz Bay to Red Hook</u>	
January	14,600	14,623	13,300	13,112	55,635
February	15,400	14,497	14,590	13,404	57,891
March	15,780	15,550	14,350	14,250	59,930
April	16,400	16,447	13,393	12,800	59,040
May	13,422	13,200	13,100	12,113	51,835
June	11,000	10,543	13,403	13,200	48,146
July	16,349	12,141	13,341	10,341	52,172
August	19,420	10,242	11,102	10,400	42,164
September	8,682	8,500	9,159	8,500	34,841
October	11,100	10,166	10,533	10,300	42,099
November	12,000	11,296	10,200	10,099	43,595
December	13,300	12,644	11,182	10,100	47,226
TOTAL	158,453	149,849	147,653	138,619	594,574

\* Virgin Islands Port Authority, Marine Division; Office of Marine Manager.

From this survey it was determined that, on the basis of the 3-month sample:

Users of the shuttle were:

Residents of the U.S.-----	62%
Residents of the U.S. Virgin Islands (Commuters)----	5
Residents of the U.S. Virgin Islands (Non-Commuters)	24
Residents of Foreign Countries-----	9
	<u>100%</u>

It was also determined that the principal purposes of trips were:

Vacation-----	92%
Business or Commuting-----	5
Shopping (or "Other")-----	3
	<u>100%</u>

Step Three involved determining to what extent ferry users were influenced to visit St. John by reason of the fact that the VINP was on that island. The survey (excluding commuters) gave the following results:

Not at all-----	2%
Some-----	5
About 50%-----	11
Considerably-----	36
Primary Consideration-----	42
Did not Answer-----	4
	<u>100%</u>

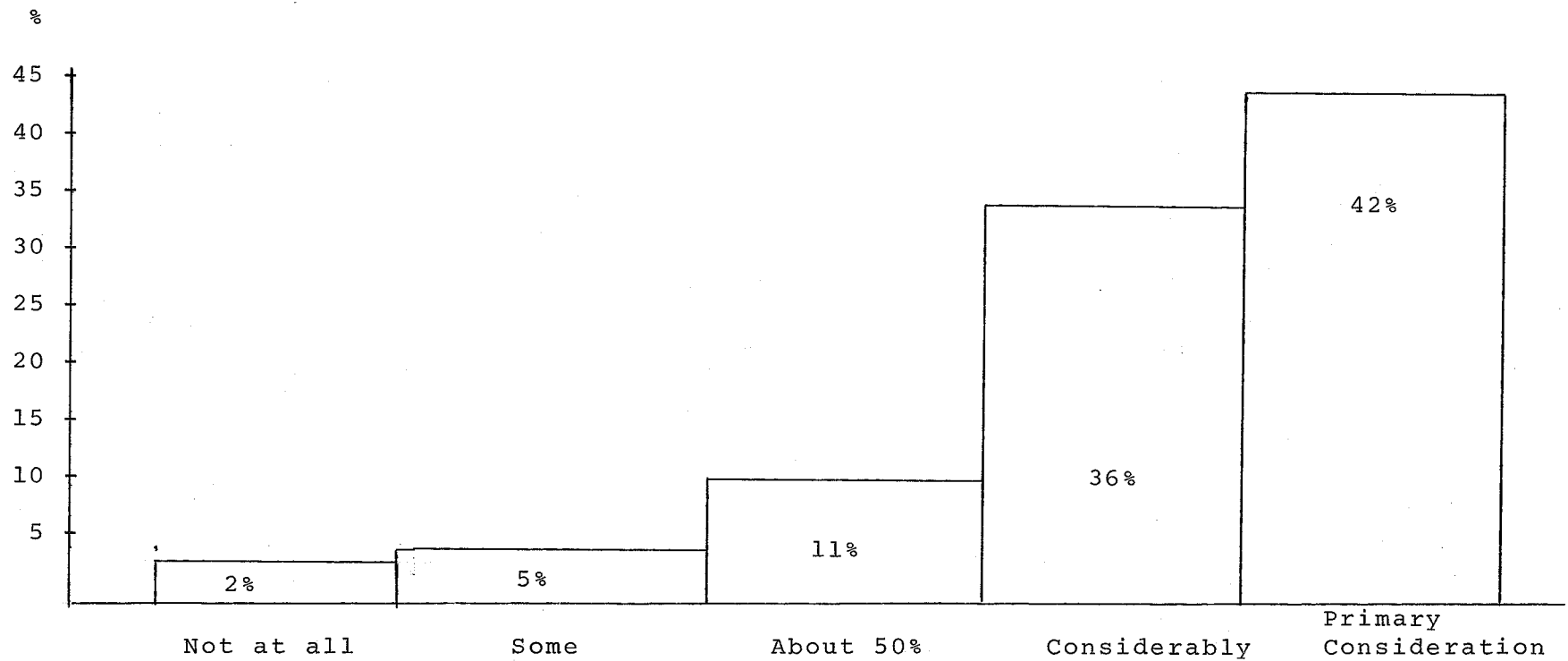
Because of the importance of this aspect of the study, a separate bar graph depicting additional details of the results of this aspect of the survey follows on the next page.

A separate question asking users how they evaluated their St. John experience gave the following results:

Outstanding-----	36%
Better than Average-----	43
About Average-----	12
Below Average-----	5
Poor-----	-
Did not Answer-----	4
	<u>100%</u>

Step Four involved securing an answer to the question of how much shuttle boat users spent. The survey question on this subject limited responses to amounts spent on the stay in St. John and gave an over-all average of \$34.60 per adult. (The large percentage of ferry users [47%] were one-day visitors, including 24% Virgin Island residents; thus, this amount is considerably less than the \$86.00 per day per tourist reported by the Depart-

QUESTION 6: TO WHAT EXTENT DID THE FACT THAT ST. JOHN  
HAS A NATIONAL PARK INFLUENCE YOUR VISIT



14A

\*\* Three (3) Month average of all responses

ment of commerce.)<sup>3</sup>

A second analysis was made of the guests of the major VINP-related installations on St. John. This analysis was designed to secure demographic and economic impact information concerning visitors who remain on St. John for a period of days and weeks. Questionnaires, along with internally devised surveys, were administered by the management staffs at the selected facilities.<sup>4</sup>

From this analysis it was possible to secure estimates of the expenditure patterns of guests and to determine to what extent guests were influenced to visit St. John because of the fact that the VINP was on that island.

Results of the survey revealed that guests at Caneel Bay Plantation spent considerably more than the average visitors to the Virgin Islands: an estimated total of \$210.00 per adult per day (including lodging and meals). Guests at Cinnamon Bay Campground spent approximately \$68.00 per adult per day (including lodging and meals), and guests at Maho Bay Campgrounds spent some \$61.00.<sup>5</sup>

The survey also revealed that, in response to the question about the extent to which guests were influenced to visit St. John because of the fact that the VINP was on that island, Caneel Bay guests were less influenced by this consideration than were the guests who stayed at campgrounds. The derived mean of responses for Caneel Bay was 43.7%, and for Cinnamon Bay Campground it was 72.6%; for Maho Bay Campground it was 66.5%.<sup>6</sup>

Cruise Ship Visitors to the VINP. A substantial number of the visitors to St. John and to the VINP are from the cruise ships that visit St. Thomas regularly. Based on interviews with cruise ship directors, set up by the Tourism Officer of the Department of Commerce, it can be reasonably estimated that approximately 65,000 visitors per year -- somewhat more than 10% of total cruise ship visitors to St. Thomas in 1980 -- take tours that include the VINP and St. John.<sup>7</sup> These tours include safari tours through the VINP, time to enjoy snorkeling and swimming opportunities at Trunk Bay within VINP, and opportunities to shop in St. Thomas. Daily expenditures in St. Thomas by the average cruise ship passenger amount to \$84.00.<sup>8</sup>

No separate survey to determine the special influence of the VINP on cruise ship visitors was possible within the time and budgetary restraints of the present study, but a substantial number of cruise ship visitors were among the ferry boat users that were included in the survey described in Appendix A.



Derivation of Economic Impact Estimates. From information summarized above, plus supplemental data presented herein, estimates of the dollar impact of the VINP on tourism in the Virgin Islands can be developed. The analysis involves:

1. Numbers of visitor days by category are obtainable from the report of users of shuttle boats between St. Thomas and St. John (see Table 1 above), and from statistics on public use of the VINP for recreational purposes. These statistics, taken from public use reports and work sheets of the VINP, are summarized in Table 2, following.
2. Daily expenditures of each category of visitor are taken from survey results and from the Annual Economic Review for 1980 of the Department of Commerce of the V.I. Government.
3. The extent of the influence of the VINP on visitors is taken from survey results.
4. The imputed value of VINP influence is reduced by a factor ("multiplier") used in earlier studies by the Planning and Research section of the V.I. Department of Commerce to convert actual expenditures to contributions to the gross territorial product of the Virgin Islands.

Table 3, with explanatory notes, presents the results of this analysis.

The analysis presented in this chapter does not constitute the total impact of the VINP on tourism in the Virgin Islands. Another extremely significant aspect of the existence of the VINP is in connection with water related activities of visitors to the Virgin Islands. Because more precise data on the economic impact of the recreational boat industry was available, the analytical approach is different. It is summarized in the following chapter of this report.

TABLE 2  
RECREATIONAL PUBLIC USE OF THE VINP,  
CALENDAR YEAR 1980

TOTAL DAY &  
OVERNIGHT  
VISITS

<u>MONTH</u>	<u>DAY VISITS</u>						<u>OVERNIGHT VISITS</u>				
	Camp-ground	Inholder	Caneel Bay Guest	Permittee Land Tours	Beach Use	Boat Use	TOTAL	Camp-ground	Boat Use	TOTAL	
JANUARY	7,737	16,427	1,050	6,912	8,695	13,898	54,719	7,737	7,711	15,448	70,167
FEBRUARY	7,567	15,731	1,348	8,147	10,243	18,578	61,614	7,567	7,510	15,077	76,691
MARCH	8,532	16,803	1,449	6,976	10,288	17,197	61,245	8,532	8,674	17,206	78,451
APRIL	7,322	9,174	1,376	5,675	7,904	14,074	45,525	7,322	8,060	15,382	60,907
MAY	5,246	11,495	1,298	4,790	7,375	11,718	41,922	5,246	7,042	12,288	54,210
JUNE	5,337	10,909	1,121	5,092	5,374	10,389	38,222	5,337	6,286	11,623	49,845
JULY	5,065	10,130	1,046	6,081	7,686	14,887	44,895	5,065	6,847	11,912	56,807
AUGUST	5,343	12,322	1,316	4,742	8,525	10,584	41,306	5,343	5,512	10,855	52,161
SEPTEMBER	1,655	4,576	570	3,216	4,162	6,930	21,109	1,655	3,727	5,382	26,491
OCTOBER	1,841	8,964	1,169	6,250	4,441	7,886	30,551	1,841	4,628	6,469	37,020
NOVEMBER	3,000	11,166	1,260	5,384	4,372	10,786	51,394	3,000	5,767	8,767	60,161
DECEMBER	5,158	15,135	1,500	7,609	8,440	16,048	53,890	5,158	7,619	12,777	66,667
TOTAL	63,803	142,805	14,503	70,874	87,505	152,975	546,392	56,066	79,383	143,186	689,578

Source: Compiled from monthly public use reports of the VINP and supporting information provided by the VINP.

TABLE 3

DERIVATION OF ESTIMATES OF ECONOMIC IMPACT  
OF VINP ON TOURISM IN ST. THOMAS/ST. JOHN

(EXCLUDING IMPACT ON BOATING INDUSTRY)

	No. of VINP Visitor Days In 1980	Expend. Per Day	Total Expend. (Thou.)	% Influence of VINP	Imputed Value of VINP Influence (Thou.)	Multiplier	Net Econ. Benefit Imputed to VINP (Thou.)
Cruise Ship Visitors	65,000	\$ 84.00 (Note 1)	\$ 5,460	78% (Note 2)	\$ 4,259	.55 (Note 3)	\$ 2,342
Tourists Visiting VINP on Vacation, other than U.S. Virgin Island Residents and Guests Residing on St. John	114,500 (Note 4)	\$ 86.00 (Note 5)	9,847	78% (Note 2)	7,681	.55 (Note 3)	4,224
U.S.V.I. Residents Visit- ing VINP on Vacation	68,000 (Note 6)	\$ 27.67	1,882	79% (Note 7)	1,486	.70 (Note 8)	1,040
Guests on St. John: (Note 9) Residing at Caneel Bay	100,000	\$101.48 (Note 10)	10,148	43.7% (Note 11)	4,435	.55 (Note 3)	2,439
Residing at Cinnamon Bay Campground	56,000	\$ 48.17 (Note 12)	2,698	72.6% (Note 11)	1,959	.55 (Note 3)	1,077
Residing at Maho Bay Campground	42,000	\$ 61.14 (Note 13)	2,568	66.5% (Note 11)	1,708	.55 (Note 3)	939
TOTAL							<u>\$12,061</u>

NOTES TO TABLE 3

Note 1: Expenditures per day of Cruise Ship Visitors taken from Annual Economic Review, 1980, op. cit., p. 28.

Note 2: From Survey Results, Appendix A, Table A-5.

Note 3: The conversion of outlays in various categories into contributions to the Gross Territorial Product (GTP) of the Virgin Islands has been used by the Office of Policy Planning and Research, V.I. Department of Commerce, in its studies. The multiplier for tourist expenditures was set at .55, in recognition of the high import component of most products purchased. (See Water Island Study--Summary Report and Analysis, an EDA Technical Assistance Study prepared by the SB Corporation under supervision of the Virgin Islands Department of Commerce, p. 51.) For purposes of this analysis, a contribution to GTP of the Virgin Islands is considered to be equivalent to net economic benefit to the Virgin Islands.

Note 4: This number is derived from two sources: Total numbers of shuttle boat users (see Table 1, p. 13 above), verified by public use statistics of the VINP. It is a net number, excluding all VINP visitors grouped in other categories. Actual numbers are:

Gross no. of shuttle boat users	300,000
Less:	
29% of users who are U.S.V.I. residents	(87,000)
Cruise ship visitors (treated as separate category)	(65,000)
Estimate of St. John guests who make use of shuttle. For campground guests this was calculated on basis of 2 round trips per guest; for Caneel Bay guests, 1 round trip per guest (assuming the other round trip was on Caneel Bay transportation)	(25,000)
Percentage of users not on vacation (From Appendix A, Table A-1)	( 8,500)
Balance-----	<u>114,500</u>

Note 5: From Annual Economic Review 1980, op. cit., p. 21 modified to reflect St. Thomas calculations only. The averages summarized in Table A-7, obtained from the shuttle boat survey, give a much smaller result because the questionnaire asks only for expenditures on St. John. Since the study deals also with St. Thomas expenditures, the higher average is appropriate.

- Note 6: Derived from Appendix A Tables A-1 and A-2: 78% of 87,000 total no. of U.S.V.I. residents estimated to make use of shuttle boat per year.
- Note 7: From Appendix A, Table A-5.
- Note 8: See Note 3 above. The multiplier for expenditures by residents of the Virgin Islands was set at .70, since a smaller proportion of their outlays can be expected to be for gift and other items which have a large import component.
- Note 9: The estimates of VINP visitor days of guests on St. John were taken primarily from public use statistics of the VINP, verified by independent information secured from each of the installations as to guest capacity and estimated occupancy rates during 1980.
- Note 10: See Appendix B, Table B-4. Note that this expenditure per day excludes costs of lodging and meals at Caneel Bay Plantation. This is because the economic impact of such expenditures are calculated elsewhere in this report on the basis of specific information supplied by the managers of Caneel Bay and Cinnamon Bay.
- Note 11: See Appendix B, Table B-5.
- Note 12: Appendix B, Table B-4. See Note 10 above.
- Note 13: Appendix B, Table B-4. In the case of guests at Maho Bay, the expenditures per day include lodging and meal costs, since no separate information of operating costs was supplied by Maho Bay Management.

FOOTNOTES FOR CHAPTER II

- <sup>1</sup>See Annual Economic Review 1980, U.S. Virgin Islands, Department of Commerce, Government of the Virgin Islands, p. 9.
- <sup>2</sup>See Appendix A for a complete description of the methodology used in this survey and a complete report of results of the survey.
- <sup>3</sup>In Annual Economic Review 1980, op. cit., p. 28.
- <sup>4</sup>See Appendix B for a complete description of the methodology used in this survey and a complete report of results of the survey.
- <sup>5</sup>See Appendix B, Table B-4, for more information. Note that in these tables expenditures per day for Caneel and Cinnamon Bay exclude amounts for lodging and food taken at the installation, while the amount for Maho Bay includes these items. The difference in the questionnaires to the installations involved was due to the fact that economic analysis data available from the management of Caneel and Cinnamon Bay was more complete than that from Maho, requiring different analytical techniques.
- <sup>6</sup>See Appendix B, Table B-5, for details. The "derived mean" is based on a weighted average which assigns 100 to a response that indicates that the existence of the VINP was the "primary reason" for the visit; 75 for a response indicating that the visit was "considerably" influenced by the VINP; down to 0 for a response indicating that the influence of the VINP was "not at all".
- <sup>7</sup>This estimate is supported by separate statistics furnished by the two principal tour operators on St. Thomas. See also Annual Economic Review 1980, op. cit., p. 68, for total cruise ship passengers to St. Thomas in 1980.
- <sup>8</sup>Annual Economic Review 1980, op. cit., p. 38.

CHAPTER III: ECONOMIC IMPACT OF VIRGIN ISLANDS  
NATIONAL PARK ON BOATING INDUSTRY IN ST. THOMAS/ST. JOHN

A. ANALYTICAL APPROACH

Extent to which Charterboats Use National Park Waters.

Boating and Registry in the U.S. Virgin Islands. Boating in the waters of the American Virgin Islands has grown rapidly in the last five years as evidenced by the increase in boat registration from 1,583 in 1975 to 2,644 as of December 1980.<sup>1</sup> This increase can be attributed to two major factors: many of the new boats come from islands in the Caribbean and the Bahamas where exorbitant taxes and other restrictions make chartering a marginal operation; and the waters of the Virgin Islands, particularly surrounding St. John, are considered the number one preferred anchorage in the area. This section deals with the relationship between the viability of the expanding boat industry and the attraction of National Park waters.

Extent of Charterboating in National Park Waters. According to National Park Service records, over a twelve month period 232,358 persons were counted as entering park water boundaries via charter boats (crewed and bareboat), averaging 4.8 persons per boat.<sup>2</sup> This accounts for 48,407 boats entering park waters, of which 5,253 boats transporting 21,937 persons were of foreign registry, according to U.S. Customs figures.<sup>3</sup> Therefore, of the total number of boats (48,407) anchoring in park waters, 45.3% carrying 21,937 boaters were not registered as based at an American port.

Types and Costs of Charterboating. According to a 1980 survey of charterboating in the Virgin Islands conducted for the V.I. Department of Commerce<sup>4</sup> it was reported that there are 190 charterboats, mainly all sail, that are available for crewed term charters. In addition to the 190, which are exclusively for overnight charters, there are 20 boats that actively seek one day sails through hotels and resorts. It is estimated there are 189 overnight charters without crew (bareboats), which are registered in the U.S. Virgin Islands. These are operated by eleven companies. Expansion plans of five of these operators will add 62 boats by the end of 1982.

An estimate of the number of charters booked on the 190 crewed boats average 17 weeks a year (1979 figures). Each charter averages 5.2 persons a charter at \$110.00 per person per day, for a total gross income of some \$13 million.

Bareboat companies, on the other hand, reported that their boats ranged from 15 to 32 weeks of charter per year. In 1979 there were 4,370 charters, or 21,000 people, providing an approximate

gross annual income of about \$4.5 million. Taken together, the total gross annual income for charterboat operations, crewed as well as bareboat, approximates \$17.5 million.

Prices for crewed boats range from \$1,500 a week for a two-passenger boat to \$12,500 a week for an eight-passenger boat, or an average of \$110.00 per day per charter person. On crewed boats this is an all-inclusive price -- all meals, snacks, beverages, wine, use of snorkel and fishing equipment are included. Bareboats range from \$350.00 a week for a two-passenger boat to \$1,500 for a boat that will carry up to six. The daily per person average is \$45, but this does not include provisions or beverages, which the party chartering the boat can purchase locally or from the boat company.

According to a survey of boat captains/owners it was estimated that 70% of all charterers request to visit National Park waters. Reason given for such high demand varied from, "friends' recommendations", to "promotion in national and special interest magazines".<sup>5</sup> The survey also revealed that of those who request to charter in park waters, fifty percent of the charter time is spent anchored in park waters.

The Department of Commerce charterboat study pointed out there are 20 boats in the crewed charterboat fleet that are fully equipped for diving and are often chartered for week-long diving excursions. During the course of this study major dive operations were contacted. They stated that the impact of diving in National Park waters is insignificant, principally because travel to and from park waters is time consuming, the high cost of fuel renders it uneconomical, and the general roughness of the water hinders diving activities. The study team also explored the economic impact of the fishing industry (including sport fishing) in relation to the existence of the VINP and reached the conclusion that there was a minimal connection.

Local Expenditures By Charterboat Industry. It has already been reported that gross annual income from charterboat operations approximates \$17.5 million. Of this it is estimated that the crewed fleet spends close to \$2 million a year on food, beverages and condiments. About \$550,000 was spent on hauling, bottom paint, varnish, parts and other maintenance locally. About \$575,000 was spent locally on marine insurance. Fuel costs were about \$240,000, all of which was spent locally, and some \$1.8 million was paid in broker (booking agent) commissions. However, only about eight percent of this amount, or \$19,200, was earned by the several St. Thomas brokers. The rest was paid to some 25 brokers in the United States and one in Argentina. The bareboat fleet of 189 boats expends about \$3,500 per boat for hauling, paint, varnish and general maintenance, all procured locally. Provisioning, whether provided by the boat companies or the charterer, amounted



to about \$1.7 million. Fuel costs were about \$125,000. Nearly all bareboats are individually owned by stateside residents; consequently, they are financed and insured there.

About 90 percent of all crewed boat charterers spend at least one night before or after a charter in a local hotel. It is estimated that crewed boat charterers spend nearly \$700,000 on hotel rooms. Bareboat charterers spend less time in a hotel room, as the boat operating companies will allow them to sleep in the boat they chartered if they arrive early or use another boat in the fleet if their boat is not ready. The charge for this is about 10 percent of hotel room rates. An estimate for bareboat charterers for hotel rooms is about \$300,000.

With regard to employment, crewed boats have an average crew of 3.5, including the captain and mate, which generally is the husband and wife and also the owners of the boat. If they can be considered employees, the crewed boat fleet has about 665 employees. At an average of 17 weeks employment per year the total workforce of crewed boat charters earned approximately \$1.5 million in wages.

The bareboat operators employ about 60 full time people plus some casual labor. Based on the federal minimum wage (\$3.35 per hour) the gross weekly salaries of bareboat workers totals about \$8,040. Since they are employed on an average of 24 weeks the gross estimated wages paid to employees of bareboat charters is \$192,960.

#### B. SUMMARY OF FINDINGS

There are a total of 372 crewed or bareboat chartered boats in the U.S. Virgin Islands that generate an annual gross income of about \$17.5 million. Based on interviews with charterboat owners and operators, 70% of most charter activity taking place in the Virgin Islands is carried out within the water boundary of the V.I. National Park. As such, approximately 260 of all charters regularly do business within park waters. Of those (260) that regularly charter to the National Park, fifty percent of their time is spent anchored within the park boundary.

Charterboat owners and operators spend approximately \$6.9 million annually for food, beverages, boat maintenance, fuel, insurance and incidentals. This figure includes what bareboat charterers spend themselves on provisioning. All expenditures in these categories are for goods and services procured locally. Another \$1.7 million goes for personal services. No separate estimates of taxes paid by these owners and operators is available.

### C. CONCLUSION

The impact of the VINP on the boating industry can be expressed in dollar amounts, using approximate relationships. Some 260 boats (70% of the total St. Thomas/St. John boats engaged in chartering) use VINP waters regularly -- for approximately 50% of the elapsed time that they are out on charters. Total income of the charterboat industry is estimated at \$17.5 million, of which approximately \$8.6 million can be directly or indirectly related to outlays affecting the St. Thomas/St. John economy. Assuming that some portion of the balance of the boating industry revenue (\$17.5 million less the \$8.6 million accounted for) is also used for purposes that benefit the local economy, and adjusting for the multiplier factors previously referred to in Table 3 at page 19, the "order of magnitude" estimate of economic benefits from the boating industry attributable to the VINP is \$3.0 million.

FOOTNOTES FOR CHAPTER III

- <sup>1</sup>Annual Boat Registry, 1975 and 1980; V.I. Department of Conservation and Cultural Affairs, Division of Fish and Wildlife.
- <sup>2</sup>V.I. National Park Service, Monthly Use Reports (1980).
- <sup>3</sup>U.S. Customs Registry of Foreign Arrivals (1980).
- <sup>4</sup>Carder, Cldye, "Survey of Charter Boating and Related Businesses In the Virgin Islands Relative to their Contribution to our Tourism Related Economy", - A Report Prepared for the V.I. Department of Commerce, July 1980. A summary of this report is included as Appendix C of this study.

CHAPTER IV. ECONOMIC IMPACT OF  
THE VINP ON LAND VALUES ON ST. JOHN

A. METHODOLOGY

General. Determining the economic impact of the VINP on economic activities on the island of St. John itself required a different form of analysis from those described in Chapters II and III. As noted in Chapter I, economic data on the growth and nature of the economy of St. John are almost non-existent, largely because many of the establishments on St. John are branches of larger operations based on St. Thomas.

In the absence of other viable methods for measuring economic impact directly, the study team decided to use a modified form of the approach described in the Herr et. al. study of the Cape Cod National Seashore.<sup>1</sup>

The essential feature of this approach is that economic growth of a surrounding community--increased business establishments related to increased numbers of visitors; increased demand for properties for home sites; increased employment; increased taxis and other transportation vehicles; and other types of increased economic activities--nearly all result in increased land values. Thus, in the absence of information that permits measurement of direct economic growth indicators, comparable conclusions can be reached by measuring increases in land values over a period of time.

Analysis. For a complete analysis, it would have been desirable to know land values of all lands donated or purchased by the VINP as of the date of donation or purchase and the annual values of land on St. John outside the VINP for each year starting with 1956. Not all this information is, in fact, available, but there is sufficient data so that by interpolation and extrapolation, the trend of land values can be determined. Following are facts required for the land value analysis:

Average appraised values per acre of land for 7 years were as follows:<sup>2</sup>

1961	\$ 438
1965	637
1968	1,420
1972	2,341
1976	6,952
1979	13,050
1980	18,513

There is apparently no readily available record from which the value of the 5,085 acres donated to the VINP at the time of its

inception can be determined.<sup>3</sup> However, assuming that the value of the land donated was approximately equal to the value of the remaining land on St. John, this value is estimated at \$2.0 million. (The calculation is based on a \$438 value per acre in 1961, deflated according to consumer price index changes between 1961 and 1956 [a factor of .9085].)

The value of all subsequent land and improvements obtained by the VINP is summarized in Table 4, following. It should be noted that amounts paid were the result of voluntary agreements to sell, with prices determined by independent appraisers. No lands were taken over by condemnation. It should also be noted that an additional 14 acres (approximately) were donated to the VINP subsequent to the initial donations.

Changes in the Consumer Price Index between 1956 and 1980 are summarized on page 31.<sup>4</sup>

From the above information, derived conclusions concerning land values and taxes on St. John are as follows:

1. Value of VINP land based on values at time of donation and purchase, adjusted for the impact of inflation, are summarized in the following tabulation.

	<u>Acreage</u>	<u>Original Val.</u> (Thousands)	<u>Adjusted for</u> <u>Inflation</u> (Thousands)
Original Donation <sup>1</sup>	5,085	\$2,000	\$6,068
Later Donations <sup>2</sup>	14	110	140
All Purchases <sup>3</sup>	<u>1,874</u>	<u>11,167</u>	<u>17,323</u>
Total	<u>6,973</u>	<u>\$13,277</u>	<u>\$23,531</u>

<sup>1</sup>Inflation adjustment factor, 1956 to 1980, is 3.034.

<sup>2</sup>Donations made in late 1970's. Estimated value of \$8,000 per acre plus inflation adjustment factor of 1.36.

<sup>3</sup>From Table 4.

2. Estimated value of taxes lost on properties donated to or purchased by the VINP: \$23,695.000 x 60% assessment x 1.25% tax: \$176,483.

3. Increases in land values on St. John, excluding land owned by VINP, based on appraised values furnished by Office of the Tax Assessor and on approximate total acreage of 5,500 are as follows:

	<u>(Thousands)</u>		<u>(Thousands)</u>	<u>Annual % Increase</u>
From 1961 to 1965:	\$ 2,412	to	\$ 3,502	10
1965 to 1968:	3,502	to	7,810	33
1968 to 1972:	7,810	to	12,878	13
1972 to 1976:	12,878	to	38,234	31
1976 to 1979:	38,234	to	71,775	23
1979 to 1980:	71,775	to	101,823	42

From the above data, it is clear that property values (based on changes in appraised values of all properties on St. John) have increased an average of 22% a year from 1961 to 1980, and have increased an average of just under 29% a year from 1972 to 1980.

An independent verification of these high percentage changes was secured by an analysis of sales transactions of land on St. John taken from the Office of the Recorder of Deeds of the Virgin Islands. Several pieces of property were identified that had been sold several times over the past 25 years. All examples report sales of land without improvements:

A tract of land consisting of .85 acres was originally sold in 1957 for \$250.00. In 1969 it was sold for \$1,500.00; in 1973 for \$3,900.00; in 1978 for \$9,800.00

Another tract of land consisting of 2.04 acres was sold in 1962 for \$14,000 and in 1969 for \$165,000.

Another tract consisting of 1 acre was sold in 1949 for \$225.00 and resold in 1972 for \$4,200.00

A further verification is based on an inspection of properties purchased by the VINP over the years. While individual properties vary enormously because of the improvements thereon, their location, etc., personnel of the VINP were able to identify properties with substantially the same characteristics and to support the fact that increased purchase prices for such similar properties over the years are consistent with an average increase of around 20% per year in the period from 1960 to 1980.

TABLE 4  
ACREAGE PURCHASED BY V.I. NATIONAL PARK  
SINCE ITS ESTABLISHMENT IN 1956

Tract No.	Year of Acquisition	Acreage	Purchase Amount**	Annual Property Tax On Purchase Date	Purchase Amount Adj. For Inflation***
01-116	1975	93.99	\$1,800,000	\$12,700	\$2,754,000
01-134	1958	4.50	1,125	17	3,200
01-135	1959	35.00	250,000	1,640	705,000
01-136	1957	38.67	165,000	1,390	474,000
01-137	1968	55.00	242,000	2,250	574,000
01-141	1977	1.45	100,000	1,015	134,000
02-112	1979	287.00	3,995,000	4,250	4,514,000
02-118	1970	1.80	135,500	1,670	286,000
02-145	1856	.53	99,000	720	245,000
02-147	1959	164.00	424,500	5,045	1,197,000
02-148	1959	472.20	250,500	1,430	606,400
02-149	1967	2.72	91,300	625	226,000
02-151	1975	376.47	213,143	1,735	326,100
02-152	1974	-	9,500	-	15,650
03-197	1979	1.09	35,000	147	39,600
03-108	1977	1.00	26,000	66	35,600
03-113	1977	.50	16,000	37	21,000
03-148	1977	.35	18,000	23	24,700
04-101	1976	2.13	362,000	1,136	521,300
05-115	1967	7.00	23,000	49	56,800
05-116	1967	6.67	72,500	389	179,100
05-117	1959	162.50	90,000	640	253,800
05-118	1965	13.00	3,770	31	9,800
05-119	1958	6.00	1,740	14	4,900
05-120	1959	1.00	5,200	36	14,665
05-121	1967	7.00	17,500	29	43,225
06-116	1963	19.00	7,700	50	20,700
07-115	1976	20.92	45,000	313	64,800
07-116	1976	14.60	255,500	2,106	530,000
08-123	1979	29.60	788,500	2,165	801,000
10-101	1970	2.05	175,000	34	371,000
10-102	1969	2.04	165,000	1,210	371,250
10-103	1969	4.67	125,000	840	281,250
10-110	1970	.76	85,000	74	180,200
10-125	1975	3.28	161,353	1,290	246,870
10-126	1975	1.55	75,000	405	114,750
11-101	1957	9.00	49,500	270	145,000
11-102	1958	6.00	2,300	46	6,540
12-102	1979	9.65	223,000	1,412	252,000
13-112	1979	.58	12,000	82	13,560
13-113	1979	.60	32,000	119	36,160
13-114	1977	.68	27,000	84	37,000
13-116	1977	1.13	32,000	98	43,840
13-120	1977	.72	40,000	278	54,800
13-121	1977	.72	29,000	112	39,700
13-122	1977	.73	29,000	117	39,730
13-135	1979	.72	17,000	91	19,200
13-142	1979	.52	14,500	41	16,400
13-143	1979	.61	16,000	73	18,100
13-145	1979	.86	13,300	36	15,300
15-101	1979	1.62	300,000	2,110	339,000
Total		1,874.18	\$11,166,931	\$50,540	\$17,322,990

Source: \* National Park Service - Division of Land Acquisition Master Deed Listing (Status of Lands as of 11/30/79).  
 \*\* V.I. Tax Assessor's Records (1956-1980).  
 \*\*\* Inflation Adjustment calculated on basis of National Consumer Price Index (In the absence of any similar index for the Virgin Islands)

CONSUMER PRICE INDEX

<u>YEAR</u>	<u>ALL ITEMS</u>
1956	81.4
1957	84.3
1958	86.6
1959	87.3
1960	88.7
1961	89.6
1962	90.6
1963	91.7
1964	92.9
1965	94.5
1966	97.2
1967	100.0
1968	104.2
1969	109.8
1970	116.3
1971	121.3
1972	125.3
1973	133.1
1974	147.7
1975	161.2
1976	170.5
1977	181.5
1978	195.3
1979	217.7
1980	247.0

Source: U.S. Bureau of Labor Statistics, Monthly Labor Review.



## B. SUMMARY OF FINDINGS

### Costs

Loss of Real Property Tax. The data presented shows that the estimated value of taxes lost in 1980 on properties donated to or purchased by the VINP since its establishment amounts currently to \$176,483.<sup>5</sup>

Interest on Investment of U.S. Government Funds. Table 4 shows that in the period from 1956 to 1980 the U.S. Government spent a total of \$11,166,931 on purchases of property for the VINP. During these years, a conservative estimate is that the cost of borrowing by the Federal Government would average around 6%.

Thus, the annual interest on the U.S. Investment of properties in the VINP is 6% of \$11,166,931 or \$670,000.

### Benefits

Additional Taxes to V.I. Government from Increased Land Values. Information from the V.I. Government Office of the Tax Assessor reveals that property taxes in 1980 on St. John properties will total approximately \$600,000. Taxes on equivalent acreage in St. John in 1961 (the latest year for which information is available) were \$24,765. Allowing for inflation only from 1961 to 1980, these taxes would have increased to approximately \$70,000 in 1980. The increase is thus \$530,000 per year (\$600,000 minus \$70,000).

Increased Land Values. The factual information available shows a dramatic increase in land values on St. John since the establishment of the VINP. In the aggregate, private property values are appraised at more than \$100 million in 1980--up from approximately \$2 million in 1961. The 20% per year growth rate, if continued, would lead to further increases of \$20 million per year, based on 1980 values. By contrast, the 1961 total value adjusted for inflation amounts to about \$7.2 million in 1980 (\$2.4 million times inflation adjustment factor of 3). The annual increase in land value would be less than \$1 million per year, even at current high inflation rates. Put in a somewhat different perspective, in a period when population on St. John went from approximately 950 in 1961 to 2,500 in 1980<sup>6</sup>, an increase of just over 150%, the increase in property values was nearly 1,300% (from \$7.2 million in adjusted 1961 dollars to \$100 million in comparable 1980 dollars).

A far more difficult question is whether the VINP should be given credit for all or any part of the increases that did, in fact, occur. On the negative side, it can be argued that on St. Thomas, where there is no national park, land values increased in the same order of magnitude as on St. John. But St. Thomas enjoys the benefits of a totally different magnitude of investment plus the advantages of an internationally known harbour and a good airport.

Another point, made by the chief of the assessment office on St. John, is that the VINP forces up other land values on St. John simply by reason of the enforced scarcity caused by the fact that some 55% of the land on the island is owned by the VINP.

The conclusion of this study is that the surplus of actual land value increases per year over increases attributable to inflation (\$19,000,000, as explained above) must be in part attributable to the existence of the VINP. The number of visitors attracted to the VINP that make use of transportation, food and beverage, and (increasingly) of shopping facilities; the unique value of guaranteed scenic and recreational opportunities extolled by real estate brokers on the island; and the survey results presented in Chapter II of this study as to the extent of influence of the VINP on visitors to St. John all bolster this general conclusion.

There are several reasons, however, why an imputed benefit of \$19 million would be too high. Population increases and the related construction investment on the island cannot be wholly attributable to the VINP. There is merit to the point that the withdrawal of the majority of the land on the island pushes up the values of the rest of the land. Furthermore, it would be inappropriate for this study to impute total increases in land value as a benefit of the VINP when the aggregate numbers used include Caneel Bay Plantation property and Maho Bay Campground property, benefits for which are calculated separately in the study.

Given all the above, conclusions reached can be stated as follows:

- (1) It is reasonable to use increased land values on St. John as an indicator of economic growth on St. John, in the absence of other more direct studies of increased economic activity.
- (2) The VINP has made a very significant contribution to land values on St. John.
- (3) For purposes of establishing a rough measure of annual quantitative benefits in 1980 dollars, an "order of magnitude" estimate of \$5 million would seem to be conservative.

FOOTNOTES FOR CHAPTER IV

<sup>1</sup>Philip B. Herr & Associates, op. cit.

<sup>2</sup>Office of Tax Assessor, Lt. Governor's Office, Government of the Virgin Islands.

<sup>3</sup>The Department of the Interior, in response to a question about whether there was any record of such a value at the time of the establishment of the VINP, responded in the negative.

<sup>4</sup>U.S. Bureau of Labor Statistics, Monthly Labor Review.

<sup>5</sup>See Page 28.

<sup>6</sup>Annual Economic Review 1980, op. cit., pg. 34-35.

CHAPTER V. DIRECT AND INDIRECT ECONOMIC IMPACT OF  
VINP AND VINP CONCESSIONAIRES ON ST. THOMAS/ST. JOHN ECONOMY

This chapter pulls together the direct and indirect costs and economic benefits of the VINP and the major tourist-related commercial activities directly connected with it.

A. COSTS OF THE VINP

Operational and Maintenance Costs

In attempting to arrive at representative annual costs of the VINP in 1980, the study relied principally on Financial Planning Operating Program data for fiscal year 1980. However, in order to convert this one-year sample into a more representative annual cost, financial information and budgets were also reviewed for fiscal years 1979, 1981, and 1982. Financial information was provided by the St. Thomas headquarters of the VINP.

From this review, 1980 direct costs were approximated as follows:

Operating Costs:	(Thousands)
Personnel Compensation (Note 1)	\$ 825
Other Operating Costs (Note 2)	175
Equipment (capital) Costs (Note 3)	50
"Cyclic" Maintenance Costs (Note 4)	<u>200</u>
Total (Note 5)	<u>\$1,250</u>

Note 1: The total of \$825,000 is slightly in excess of the programmed amount, but forced absorptions of pay raises in fiscal year 1980 and higher costs for the portion of fiscal 1981 falling in calendar year justify use of the higher amount.

Note 2: Includes costs of supplies and materials, rents, communications and utilities, printing and reproduction, and all other services.

Note 3: Actual equipment costs for 1980 were programmed at \$7,900. However, the annual depreciation estimate of \$43,800 in that year suggests much higher equipment costs in prior years, so that an average of \$50,000 appears to be justified.

Note 4: Actual cyclic maintenance program for 1980 was \$121,000. However, the estimates for subsequent years indicate substantial maintenance requirements (surfacing of roads) that presumably can not be deferred for too long a time. Thus a rounded estimate of \$200,000 seems reasonable.

Note 5: There is a distinction between cost of the operation and total outlays in the V.I. Economy. Thus, reimbursable outlays of the VINP (for quarters and for sanitary collection) are excluded from this total, although they must be taken into account in calculating benefits to the V.I. economy related to the existence of the VINP.

Costs of VINP to Local Government and/or Related Organizations  
After exploring in some depth the question of public services provided the VINP by other entities, the study concludes that the VINP represents no drain on outside public services and that, in the opinion of some officials at the VINP, the VINP provides more services than it receives.

During the course of the study, officials from the following executive agencies of the Virgin Islands Government, plus the liaison officer of the U.S. Coast Guard, were interviewed:

- Department of Public Works
- Department of Public Safety
- Fire Division
- Conservation and Cultural Affairs
- Water and Power Authority
- U.S. Coast Guard
- Port Authority

Interactions identified were:

Road Service: There is a 1962 Road Agreement Act (Act #806) between VINPS and the Virgin Islands Government whereby all roads on St. John belong to the Virgin Islands Government, but the VINPS maintains some of the roads -- primarily the "North Shore Road". Since these roads would be required to provide road service on the island of St. John, it can be reasonably argued that the assumption of maintenance responsibility by the VINP constitutes a kind of windfall to the Virgin Islands Government.

Solid Waste Disposal Facility: VINP provides land for solid waste disposal to portions of the St. John community.

Health Services: A rough sort of quid pro quo exists between the Department of Public Health and the VINP. VINP personnel receive free physical examinations at the hospital in St. John, and the hospital also tests drinking water samples. In return, the VINP provides standby emergency boat service when the sole, unreliable emergency boat available to the St. John Health Service office is out of commission.

Fire Protection: No protection is provided to the VINPS by the Virgin Islands Government, and VINP does not have its own fire protection services. VINP officials believe that a cooperative effort with the Virgin Islands Government to provide protection to housing located on park lands would be desirable. Fortunately, the relatively high rainfall in the area minimizes dangers from brush or forest fires.

Police Protection: Virgin Islands Government provides no security services for VINP. VINP staff are responsible for security within the Park area.

Other Services: VINPS has cooperated in implementation of an environmental studies program in cooperation with the Department of Conservation and Cultural Affairs, and, when the program was moved out of that Department, the Department of Education, which managed the program during its early years, assumed responsibility for the administration of the program. Relatively few children of VINP staff make use of the public schools, according to VINP officials.

Electricity is provided by the Water and Power Authority (WAPA), a separate authority under the Virgin Islands Government. VINP has only small emergency generators available in locations designated as hurricane shelter areas. Service is provided on a commercial basis; WAPA does not feel that the VINP requirements affect its ability to provide services to the St. John community, or that the existence of VINP has significantly resulted in services being available that would not otherwise be available.

General. All the organizations contacted (including the U.S. Coast Guard) which have activities on St. John felt that they had little or no involvement with the operation or management of the VINP. This fact may be attributed to the low level of development on St. John in general, and to the fact that only a very small percentage of the local operating government's services are allocated for St. John. Another contributing factor may be that because VINP controls some 55 percent of the land area on St. John, land that, for the most part, remains undeveloped, the need for public services is slight. Moreover, the three major developments within the Park (Caneel Bay Plantation, Cinnamon Bay Campgrounds, and Maho Bay Campgrounds) maintain their own generating plants, sewage treatment facilities, water desalination, and waste disposal facilities.

In addition to direct interactions between VINP and local governmental entities, it is worth pointing out that the VINP performs some functions that would otherwise have to be undertaken by the local government (Government of the Virgin Islands). For example, duties of the Department of Conservation and Cultural Affairs are lighter because the VINP assumes enforcement responsibility for its share of land on St. Thomas. And the Department of Public Safety is relieved of its responsibilities for the same reason.

## B. ECONOMIC BENEFITS OF THE VINP

### Direct Benefits

Employment: The VINP employs a total of 64 persons, 48 of whom are Virgin Islanders.

Economic Benefits of VINP Outlays to Economies of St. John/St. Thomas.

From information supplied by VINP headquarters, the following analysis is derived:

	<u>Total Outlays (Thous.)</u>	<u>Multiplier</u>	<u>Net Economic Benefit (Thous.)</u>
Salaries and Wages (Note 1)	\$ 855.0	.8 (Note 2)	\$ 700.0
Outlays for Supplies, Materials, services, Equipment in Local Economy (Note 3)	<u>185.0</u>	.7	<u>129.5</u>
Total	<u>\$1,040.0</u>		<u>\$ 829.5</u>

Note 1: Includes salaries and wages for employees engaged in reimbursable activities as well as in operations and maintenance of the VINP.

Note 2: See Water Island Study, op. cit. pg. 51. On the basis of information supplied by VINP headquarters, the portion of wages and salaries that would be paid in the form of income taxes was estimated. The balance of after tax income is converted into impact on the St. Thomas/St. John economy on the basis of a multiplier of .8 -- on the assumption that a larger portion of wages and salaries will go for goods and services in the local economy.

Note 3: The VINP headquarters provided an estimate of the amount of outlays for goods and services directly in the V.I. economy, as distinguished from those purchased off-island. Estimate allows for reimbursable activities as well as for direct VINP operations and maintenance.

Indirect Benefits

Since its beginning on St. John twenty-five years ago VINP has developed and implemented a number of community service programs whose benefits have directly affected the recreational, environmental, cultural and scenic quality of life of many Virgin Islanders. Many of these programs were beyond the funding capabilities of the territorial government. A brief description of the most recent program offerings follows:

Volunteers In Park - Administered exclusively by the National Park Service, this program assists visitors to better understand both the natural and human history of the park and its surrounding area. Volunteers working in tandem with park personnel assist in a variety of duties including resource management, environmental study, arts and crafts, history, archeology and natural science.

Environmental Study Program (ESP) - A total environmental learning program was established within the park in 1969. Three areas (Reef Bay, Annaberg Ruins and Salt Pond Bay) were designated National Environment Study Areas. Funded partially through the local Department of Conservation and Cultural Affairs, this program offered an opportunity to 15,000 students over the years to experience various ecosystems, to explore firsthand seashore dynamics and inter-relations, and to learn more about the linkages of their cultural past with the social and physical environment of today.

Tektite Program - A program for the operation of an underwater marine habitat research station at Tektite base camp at Lameshur administered by the College of the Virgin Islands within park waters. This experimental program has since been phased out, but while in full operation, it served as an invaluable scientific and research laboratory for academic institutions, private foundations, and the national space program.

In addition to the foregoing, the National Park Service maintains a weekly schedule of activities which feature the following:

- \* An evening program of slide and film presentations about plants, animals, marine life, culture and history of the island.

- \* A children's hike offering two hours of fun-filled hiking, exploring the Cinnamon Bay area.

- \* A hike of Brown Bay featuring stops to Annaberg Ruins, Leinster Bay, Brown Bay and Hurricane Hole.

- \* Snorkeling instruction enabling novices and enthusiasts to learn safe snorkeling and discover the wonders of colorful reef life.

- \* Adventure trails featuring leisurely hikes down hills to the south shore of the island. Visitors are exposed to mysterious petroglyphs, old sugar mill ruins, and lush forest.

- \* Caneel Bay Historic Walk: A short stroll through St. John history and 19th century sugar mill ruins at Caneel Bay.

- \* Historic Places Exploration: A visit to some of the lesser known historic places with a knowledgeable guide.

- \* Leinster Bay Bird Walk: A walk into the world of Avian Faun (wading, shore, and terrestrial).

#### C. ECONOMIC BENEFITS OF CANEEL BAY/CINNAMON BAY

##### OPERATIONS ON ST. JOHN

The management of Caneel Bay cooperated with the study team by providing information about its 1980 operations from which it is pos-



sible to calculate direct economic benefits to the economies of St. Thomas/St. John. These calculations are as follows:

Total Employment: Full time employees, 412; part-time employees, 18.

	<u>Total Outlays (Thous.)</u>	<u>Multiplier</u>	<u>Net Economic Benefit (Thous.)</u>
Annual Payroll	\$3,963	.8	\$3,250
Taxes Paid to V.I. Govt.	1,350	(Note 1) -	1,350
Outlays for Goods, Services, Capital Items, Purchased in V.I. Economy	<u>428</u>	.7	<u>300</u>
Total	<u>\$5,741</u>		<u>\$4,900</u>

Note 1: See Note 2, page 38.

The manager of Caneel Bay is quoted as saying that without the existence of the VINP, Caneel Bay would not be able to continue. If this assumption were accepted, the full net economic benefit of Caneel Bay/Cinnamon Bay operations would be attributable to the VINP.

The more conservative approach is to use the results of the Caneel Bay Survey which indicates that the extent of the influence of the VINP on guests at Caneel Bay was 43.7%, and of guests at Cinnamon Bay was 72.6%. The weighted average of approximately 50% suggests that some \$2,500,000 is a conservative estimate of the contribution to the St. Thomas/St. John economy from this source.

## CHAPTER VI. SUMMARY AND CONCLUSIONS

### A. SUMMARY

#### Approaches and Methodologies

The purpose of the study was to perform an objective evaluation of the special economic impact made by the Virgin Islands National Park (VINP) on the economy of St. Thomas/St. John in the Virgin Islands. To accomplish this purpose, the study made use of several approaches and methodologies. The principal determinant in each case was the kind and appropriateness of information available.

For the most part,<sup>1</sup> economic impact was determined first by securing information as to funds spent in St. Thomas/St. John that could directly or indirectly be attributable to the existence of the VINP. Secondly, the net effect on the V.I. economy was derived by using multipliers developed and used in the past by the Department of Commerce and the Virgin Islands Government to convert expenditures to contributions to gross territorial product of the V.I. Different multipliers are used depending on the types of expenditures. Thus, tourist expenditures are given a relatively low multiplier (.55), recognizing that many of the gift items purchased contain a substantial import component that reduces the economic benefit to the local economy. Payrolls, on the other hand, are assigned a multiplier of .80 (after deducting for estimated taxes paid directly) in recognition of the fact that a larger percentage of such expenditures are likely to be used within the V.I. economy.

The several approaches used raised the danger of double counting of economic impact. The study team was very much aware of this danger and was careful to adjust all its calculations so as to eliminate double counting.

Some of the information relevant to the study (such as the cooperative educational programs and other community services of the VINP) did not lend themselves to quantification, even though it is clear that some economic benefit to the total V.I. economy does, in fact, accrue from these activities.

The study team believes that its underlying assumptions, approaches taken, and methodologies used give a conservative estimate of the special economic impact made by the VINP on the St. Thomas/St. John economy. The multivariate analyses used in the study are summarized below.

#### The Impact of the VINP on Tourism

This aspect of the study raised the most difficult problems. The fact that the VINP is significant to the tourist industry in St. Thomas/St. John is supported by the extent to which the park is mentioned in promotional advertising for the Virgin Islands and by the large numbers of persons who visit the park for recreational purposes. However, there are many other reasons why the Virgin

Islands attract tourists, and the question that had to be resolved by the study was the extent to which VINP influences visitors, and consequently the extent to which it has an economic impact on the St. Thomas/St. John economy.

The study was constrained by budgetary and time restrictions. More elaborate research techniques would undoubtedly have yielded more positive conclusions. Nonetheless, the study team feels that there is a good rationale for results presented herein.

Separate approaches were used for each of three groups: Group 1 deals with tourists who do not reside on St. John but who visited the VINP. Group 2 deals with tourists who stay at the three major resort areas on St. John -- Caneel Bay Plantation, Cinnamon Bay Campground, and Maho Bay Campground. Group 3 deals with the boat visitors to St. John.

The analysis used with respect to the first group is summarized as follows:

- The number of individuals visiting St. John can be determined approximately from statistics secured from the Port Authority of the V.I. Government. To reach St. John, visitors must nearly all come by water transportation, and the Port Authority receives monthly statistics on number of passengers on the shuttle boats that provide the means of transportation for all but a few visitors to St. John.

- The profile of passengers using shuttle boats was secured through a survey. From this survey it was possible to segregate information as to numbers of off-island visitors visiting St. John on vacation, as well as number of Virgin Islanders visiting St. John on vacation.

- The extent to which visitors to St. John were influenced by the existence of the VINP was determined by including in the survey a question that permitted visitors to estimate to what extent they were influenced. (A 5 point scale--"Not at all", "Some", "About 50%", "Considerably", and "Primary"-- was used.)

- Tourists were further divided into cruise ship visitors (almost entirely one-day visitors to St. Thomas) and overnight visitors who spend their vacations on St. Thomas and stay for an average of more than a week, according to information collected by the V.I. Govt.'s Department of Commerce. The number of cruise ship visitors to St. John was obtained from the major tour companies who arrange with the cruise ship companies to conduct tours and by interviews with cruise ship directors of some of the major vessels, who have information on the number of their passengers who choose from among the alternative tours available when the ships are in St. Thomas.

- Expenditures of tourists from outside the Virgin Islands are available from information collected by the V.I. Government's Department of Commerce. The survey of shuttle boat users provided similar information concerning daily outlays by the visitors who come from the Virgin Islands.

- An independent comparison of visitors to the VINP calculated from the above analysis with public use statistics collected by the VINP indicates that the two approaches are compatible.

The assumptions used in calculating economic impact, drawing on information summarized above, are:

- Cruise ship visitors choosing to take tours to St. John (including the VINP) indicate that they are largely influenced by the existence of the VINP. The extent of this choice, using the scale of weights developed for the study, is 78%. Consequently, 78% of expenditures by cruise ship visitors who take the St. John tours is reasonably attributable to the existence of the VINP.<sup>2</sup>

- Other non-Virgin Island visitors choosing to spend all (or part of) a day visiting St. John likewise indicate that they are 78% influenced by the existence of the VINP (based on the results of the shuttle boat survey). Consequently, 78% of the average daily expenditures by such visitors for one day is reasonably attributable to the existence of the VINP.

- Visitors from the Virgin Islands constitute approximately 24% of the visitors to St. John. The survey indicates that they are 79% influenced by the existence of the VINP (using the scale referred to above). Hence 79% of expenditures by these visitors for the one day of their visit is reasonably attributable to the existence of the VINP.<sup>3</sup>

The methodology used for this analysis yields results that might be too conservative or too liberal. No weight is given to the possibility that some visitors to St. Thomas/St. John were influenced primarily by the existence of the VINP. If this fact could be established for any number of visitors, the total expenditures during the stay by such visitors could then be attributable to the VINP. From this standpoint, conclusions reached are too conservative.

On the other hand, it can be argued that the results are too liberal. The study gave weight only to visitors who both visited the VINP and indicated that they were influenced in making the visit to St. John by reason of the VINP. However, in so doing, it made the implicit assumption that such visitors stayed in the Virgin Islands an extra day (rather than deciding to accommodate the VINP visit within predetermined lengths of stay). From this standpoint, the study should not have attributed to the VINP the full average daily expenditures of overnight visitors but rather should have included

the smaller expenditures exclusively attributable to the visit to St. John.

Tourists Residing at Major Resort Areas on St. John. For this group of tourists, a different analysis was made, based on special surveys conducted with the assistance of the managements of the three entities involved. The analysis of this group is summarized as follows:

- Number of guests at the organizational entities mentioned were obtainable from information on capacity and occupancy rates. It was also taken from separate statistics collected by the VINP for its public use reports.

- The extent of influence of the VINP on their reasons for visiting St. John came from survey results.

- Daily expenditures by tourists residing at the various areas were also provided by survey results.<sup>4</sup>

- Numbers of visitor days multiplied by average daily expenditures for the different entities gave gross expenditures, which were then corrected to reflect the extent of the influence of the VINP on visits, following the procedure described above.

Boat Visitors to National Park Waters. A very different analytical approach was used to determine the economic impact of boat visitors, since specific information concerning the industry was available.

The analysis of this group is summarized as follows:

- Information as to total expenditures by the boating industry on St. Thomas/St. John was available from a separate study prepared for the V.I. Government's Department of Commerce.

- Information as to the extent of the use by the boating industry of National Park waters was derived through statistics collected by the VINP as to number of boats on a day visit and overnight visit basis, corrected to exclude foreign registered boats. Verification of these calculations was made by interviews of boat captains on St. Thomas/St. John.

- Economic impact of the boating industry was determined by assigning a share of total expenditures proportional to usage of National Park waters.

This analysis bypasses the need to estimate numbers of tourists taking boat visits to the VINP or VINP waters. It is based on direct benefits to one industry that is largely influenced by the VINP. There is no double counting with other analyses except to the extent that boating installations based on St. John would have contributed to the aggregate of economic growth on that island and thus contributed to the estimates of increased land values used in another section of the current study.

### Impact of the VINP on Increased Land Values on St. John

The most direct approach to the impact of a new national park on its environment would be by a before and after analysis of economic activities. Unfortunately, information to permit such an analysis was not available in the case of the VINP and the island of St. John.

From a review of possible alternative approaches, the study team decided that the approach used by Philip B. Herr & Associates<sup>5</sup> represented a viable substitute to direct before and after measures of economic activity. The essential feature of this approach is that economic growth of a surrounding community--increased business establishments; increased demand for properties for home sites; increased employment; etc.--results in increased land values due to appreciation and improvements to land.

Implementation of this analysis required that: (1) land values be established as soon as possible, preferably as of the inception date of the VINP; (2) that increases in land values thereafter be calculated on a projected basis assuming the normal impact of inflationary prices; (3) that actual land value increases had to be determined on the basis of reliable statistics.

In practice, the study team found that it could not get necessary data for 1956, when the VINP was established, but that it could get appraised values for land on St. John for a number of years beginning with 1961 and continuing through 1980.

The information developed, presented in detail in Chapter IV, shows that the excess of actual annual land value increases on St. John over projected increases attributable to inflation was \$19 million in 1980. Not all of this excess can reasonably be attributable to the VINP. Furthermore, it would be inappropriate for this study to impute total increases in land value as a benefit of the VINP when aggregate numbers used include Caneel Bay Plantation property and Maho Bay Campground property, benefits for which are calculated separately in the study.<sup>6</sup> There would also seem to be merit to a strongly-voiced opinion by several informed individuals that land values on St. John increase in value at least in part because of the scarcity of land caused by the occupation of more than 55% of all land on St. John by the VINP.

As a related part of the land value analysis, the study determined that land with a value of \$23,531,000 (based on values at time of donation and purchase, adjusted for the impact of inflation) were removed from the real property tax base of the V.I. Government in 1980 leading to a tax loss in 1980 of \$176,000. Also, Federal Government investments of over \$11 million for the purchase of additional properties for the VINP since 1956 represent an annual imputed interest cost of some \$670,000. These items are treated as indirect costs for purposes of establishing the economic impact of the VINP on St. Thomas/St. John.

Direct and Indirect Costs and Benefits of VINP and VINP Concessionaires.

This analysis (Chapter V of the report) required a straightforward aggregation of estimated 1980 costs from the VINP and the Rock Resorts Management, which operates Caneel Bay Plantation and Cinnamon Bay Campgrounds.

The study was concerned also with the question of public services provided to the VINP by other entities. As explained in Chapter V, the conclusion reached is that the VINP represents no drain on outside public services and that, in fact, there is a good case that the VINP provides more services than it receives.

Benefits to the local economy from the existence of the VINP were derived from VINP expenditures in the local economy for payrolls and goods and services. Similar benefits were derived from expenditures by the management of Caneel Bay and Cinnamon Bay facilities.

B. CONCLUSIONS

Benefit Cost Ratios Based on Analyses Used in Study

The following tabulation pulls together results of all analyses presented in detail in previous sections of the report:

TABLE 5

COMPARISONS OF ANNUAL COSTS AND BENEFITS, ECONOMIC IMPACT OF VINP  
ON ST. THOMAS/ST. JOHN ECONOMY, 1980 DATA

	<u>Direct</u> <u>(Thous.)</u>	<u>Indirect</u> <u>(Thous.)</u>	<u>Total</u> <u>(Thous.)</u>
<u>Costs</u>			
Operation and Maintenance of VINP (see Chapter V)	\$1,250		
Interest on Federal Invest- ment in VINP Properties (see Chapter IV)		\$ 670	
Taxes Lost on Property Re- moved from Local Govern- ment Rolls (see Chapter IV)		176	
 TOTAL	<u>\$1,250</u>	<u>\$ 846</u>	<u>\$2,096</u>

	<u>Direct</u> (Thous.)	<u>Indirect</u> (Thous.)	<u>Total</u> (Thous.)
<u>Benefits</u>			
Outlays of VINP in Local Economy (see Chapter V)	\$ 830		
Outlays of VINP Concessionaires in Local Economy (see Chapter V)	2,500		
Imputed Benefits from VINP Impact on Tourism (see Chapter II)		\$12,061	
Imputed Benefits from VINP Impact on Boat Industry (see Chapter III)		3,000	
Imputed Benefits from VINP Impact on Increased Land Values on St. John, as an Indicator of Increased Economic Growth on St. John (see Chapter IV)		5,000	
 TOTAL	 <u>\$3,330</u>	 <u>\$20,061</u>	 <u>\$23,391</u>

Reduced to ratios, the above tabulation indicates that:

The Benefit/Cost Ratio of the existence of the VINP on the local economy, based on direct costs and benefits only is -----2.7 to 1

The Benefit/Cost Ratio of the existence of the VINP on the local economy, based on indirect (imputed) costs and benefits only is ----23.7 to 1

Total Benefit/Cost Ratio of the existence of the VINP on the local economy, based on all costs (direct and indirect) is -----11.1 to 1

These ratios are, of course, approximations. It would take very little change in assumptions to alter them substantially--in either direction. In sum, however, they support the proposition that the VINP even if measured on only a dollar and cents basis, plays a very significant role in the economy of St. Thomas/St. John--well beyond the costs incurred in its operation and maintenance.

#### Future Projections

In its section on "Outlook for the 1980's",<sup>7</sup> the V.I. Government projects a continuation of tourism as the number one industry of the U.S. Virgin Islands.



Renovation and expansion of the airport on St. Thomas (as well as on St. Croix) will significantly improve the ability of the economy to receive more tourists, and it is assumed that the construction of hotel rooms and other facilities will make it possible for the economy to absorb continued expansion.

With respect to St. John, a new and possibly significant development is the decision by the Holland-American Lines to schedule 10 visits of an 850-capacity cruise ship to St. John during the period from October 1981 thru April 1982. It seems inevitable that this new, additional burden of tourists will have a very significant impact on economic activities on St. John.

The future of the VINP, despite concerns raised by some of the officials and individuals contacted during the study,<sup>8</sup> should be increasingly important--from the economic point of view, and, more importantly, because of the esthetic/cultural benefits that it guarantees for future years.

FOOTNOTES FOR CHAPTER VI

- <sup>1</sup>The section of the report dealing with the impact of the VINP on land values on St. John did not make use of this approach. See Chapter IV.
- <sup>2</sup>It should be noted that the tours referred to provide ample opportunity for shopping on St. Thomas.
- <sup>3</sup>Average daily expenditures for V.I. residents are based solely on St. John outlays and, as might be expected, average only a third of average daily expenditures by non-Virgin Island visitors in both St. Thomas and St. John.
- <sup>4</sup>As noted in the body of the report, these expenditures were collected differently from Caneel Bay and Cinnamon Bay guests and from Maho Bay guests. In order to avoid double counting of the economic impact of payments made by guests at Caneel Bay and Cinnamon Bay, they were asked to exclude payments made for lodging and meals at these installations. This is so because detailed data were received from these organizations that gave a direct basis for determining economic impact on them by the VINP. This information was not available from Maho Bay, so that total guest expenditures were requested. It should be noted that the study does contain a minor amount of double counting in that guest expenditures for gift and other items from the Caneel Bay and Cinnamon Bay shops are included in financial reports used for direct analysis and are also included in guest expenditures used for purposes of calculating indirect economic impact. Amounts are too small to have any appreciable effect on results of the study, however.
- <sup>5</sup>Op. cit.
- <sup>6</sup>Cinnamon Bay Campground is entirely on VINP land, so that it is not included in this qualification.
- <sup>7</sup>Annual Economic Review, 1980, op. cit., pg. 17.
- <sup>8</sup>See Appendix D for a summary of community suggestions that were given to members of the study team during the course of the study.

INDIVIDUALS CONTACTED DURING COURSE OF STUDY

1. Warren Abels - St. John Realtor
2. Pete Allen - Park Ranger, VINPS
3. John Battles - Port Director, West Indian Co., Ltd.
4. Dr. Robert Brander - Researcher, VINPS
5. E. David Brewer - Vice President/General Manager, Caneel Bay Resorts
6. Vernon Brown - Director, St. John Tourist Office, V.I. Department of Commerce
7. Warren Brown - Planner, Heritage Conservation & Recreation Service
8. Leona Bryant - Director of Tourism, V.I. Department of Commerce
9. Captain Lance Burgo - Charter Boat Owner
10. Joe Burroughs - Charterboat Owner
11. Verne Callwood - Tax Assessor, V.I. Tax Assessor's Office, Office of Lt. Governor
12. Teddi Ann Davis - Executive Director, V.I. Charterboat League
13. Gary Deering - Watersports, Inc.
14. Fred Denton - Fiscal Officer, VINPS
15. Anne Garrity - V.I. Diving Club
16. Calvin George - St. John Tax Assessor's Office
17. Carmen George - Sr. Information Officer, V.I. Tourists Bureau
18. Dr. Jay Gogue - Chief Scientist, NPS Southeast Region
19. John Harvey - General Manager, Maho Bay
20. Larry Hickey - Shore Excursion Manager, Cruise ship "Song of Norway"

21. Franke Hoheb - Chief Enforcement Officer, V.I. Department of Conservation and Cultural Affairs
22. John James - Assistant Commissioner, V.I. Department of Public Safety
23. Chief Rudolph Jennings - V.I. Fire Division
24. Jim Loveland - Jim Loveland Travel Services
25. David Lynton - President, V.I. Taxi Association
26. John McCleverty - Director, Cruise Ship Operations, Virgin Islands Department of Commerce
27. Marsha McLaughlin - Senior Planner, Coastal Zone Management Commission
28. Lt. John Morrow - U.S. Coast Guard, St. Thomas
29. William Newbold - Economist, V.I. Department of Commerce
30. Ann Petersen - St. John Realtor
31. James Pobicki - Director, Office of Policy, Planning and Research, V.I. Department of Commerce
32. Noel Rachta - Superintendent, VINPS
33. Jim Riddle - Resource Management Officer, VINPS
34. Ed Rosinski - Economist, V.I. Department of Commerce
35. John Sheridan - St. John Realtor
36. John Silke - Cruise Ship Director, Cruise ship "Sun Viking"
37. Senator Gilbert Sprauve - Member Fourteenth Legislature of the Virgin Islands
38. Christen Venn - Assistant Cruise Ship Director, Cruise ship "Skyward"
39. Douglas White - Charterboat Owner
40. Clara Whiteside - Environmental Studies Program Coordinator, V.I. Department of Education

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## APPENDIX A

### SURVEY OF SHUTTLE BOAT USERS, ST. JOHN TO ST. THOMAS, MARCH, APRIL, MAY 1981

In order to secure essential information available from no other source, the study deemed it essential to gather primary research data on the aggregate-mix of people traveling to and from St. John and St. Thomas by shuttle boat. The reasons for this research and its connection with the principal thrust of the study are discussed in Chapter II.

The major constraints on the survey were the budget, available methodology, and the time frame within which the study could be conducted. Because of these constraints, the shuttle boat survey was conducted for a three-month period starting in March and extending through May 1981.

The questionnaire used for the survey follows.

1. Are you:  
a) A resident of St. John \_\_\_\_\_ b) A visitor from U.S. \_\_\_\_\_  
St. Thomas \_\_\_\_\_ (State or Territory)  
St. Croix \_\_\_\_\_ c) A visitor from a foreign country \_\_\_\_\_  
(Name of country)

2. What is (or was) the main purpose of your trip to St. John?  
a) Vacation (recreation) \_\_\_\_\_ c) Commuting to or from work \_\_\_\_\_ d) Other \_\_\_\_\_  
b) Business trip \_\_\_\_\_ d) Shopping \_\_\_\_\_

3. Are you traveling:  
a) Alone \_\_\_\_\_ (No. in party) \_\_\_\_\_ c) With friends \_\_\_\_\_ (No in party)  
b) With family \_\_\_\_\_ d) With business associates \_\_\_\_\_  
c) With tour group \_\_\_\_\_

4. What is (or was) the estimated length of your stay on St. John?  
a) One day \_\_\_\_\_ c) 1-2 weeks \_\_\_\_\_ e) Four weeks or more \_\_\_\_\_  
b) 2 - 6 days \_\_\_\_\_ d) 3-4 weeks \_\_\_\_\_

5. If your stay is (or was) for more than 1 day, where did (or do) you stay?  
a) Hotel \_\_\_\_\_ b) Camp grounds \_\_\_\_\_  
(Name of Hotel) (Name of area)  
c) Condominium/Guest Cottage \_\_\_\_\_ d) Friends or relatives \_\_\_\_\_ e) Other \_\_\_\_\_

6. To what extent did the fact that St. John has a National Park influence your visit?  
(Please circle the number that most nearly applies)  
1 2 3 4 5  
(Not at all) (Some) (About 50%) (Considerably) (Primary consideration)

7. How would you evaluate your St. John experience?  
a) Outstanding \_\_\_\_\_ b) Better than average \_\_\_\_\_ c) About average \_\_\_\_\_  
d) Below average \_\_\_\_\_ e) Poor \_\_\_\_\_  
f) Any comments: \_\_\_\_\_  
(Continue on back of sheet, if necessary)

8. What are (were) the estimated average daily expenses per adult incurred during your stay in St. John? (Such as lodging, food, taxis, tours, shopping, recreation, entertainment. Exclude transportation costs to and from the Virgin Islands.)  
a) Under \$25 \_\_\_\_\_ d) \$75.00 to \$99.99 \_\_\_\_\_ g) \$200 to \$249.99 \_\_\_\_\_  
b) \$25.00 to \$49.99 \_\_\_\_\_ e) \$100 to \$149.99 \_\_\_\_\_ h) \$250 to \$349.99 \_\_\_\_\_  
c) \$50.00 to \$74.99 \_\_\_\_\_ f) \$150 to \$199.99 \_\_\_\_\_ i) \$350 to \$499.99 \_\_\_\_\_  
j) \$500 and over \_\_\_\_\_

9. What is the approximate annual income of your household?  
a) Under \$10,000 \_\_\_\_\_ d) \$30,000-\$39,999 \_\_\_\_\_ g) \$60,000-\$74,999 \_\_\_\_\_  
b) \$10,000-\$19,999 \_\_\_\_\_ e) \$40,000-\$49,999 \_\_\_\_\_ h) \$75,000-\$99,999 \_\_\_\_\_  
c) \$20,000-\$29,999 \_\_\_\_\_ f) \$50,000-\$59,999 \_\_\_\_\_ i) \$100,000 or more \_\_\_\_\_

10. What is your age? \_\_\_\_\_ What is your sex?  
a) Under 20 \_\_\_\_\_ d) 40-49 \_\_\_\_\_ a) Male \_\_\_\_\_  
b) 20-29 \_\_\_\_\_ e) 50-59 \_\_\_\_\_ b) Female \_\_\_\_\_  
c) 30-39 \_\_\_\_\_ f) 60 plus \_\_\_\_\_

Thank you for your cooperation. The information derived from this questionnaire will be used strictly for statistical purposes. ISLAND RESOURCES FOUNDATION, St. Thomas, V.I.



### Validity of Sample

The empirical findings reflect procedural and methodological parameters of the VINP study noted above. The VINP aggregate survey respondents were randomly selected from the passengers from the St. John shuttle boats during the period from March to May 1981. During this period, the total number of passengers utilizing the St. John shuttle boat was approximately 85,000<sup>1</sup> -- or 28.3 percent of the total passengers using the shuttle boat during the year, which compares favorably with the 25 percent period of the year included. Seasonal factors can be assumed to be approximately balanced during the period: March and at least a portion of April (when the St. Thomas Carnival week is scheduled) are representative primarily of the peak tourist season; May and the remaining portion of April are representative of the slow season.

The objective of the survey was to gather data on the people traveling to and from St. John, with only one member of each traveling group eligible for sampling. Thus the population size to be sampled was approximately 42,500 (one-half the total number of passengers, since average size of party was approximately two).

The random sample size was 710 respondents who were contacted by interviewers (as noted above). Four hundred and ninety four respondents were willing to complete the questionnaires; however, 48 responses were eliminated because they were not sufficiently complete and/or suffered water damage. The loss rate of 9.7 percent was primarily due to the occasional inclement weather condition at the open-air departure area of the shuttle boats at Cruz Bay, St. John. There were 457 responses sufficiently complete -- 64 percent response rate for the sample as a whole -- and these responses formed the base for tabulations.

The 457 respondents represent a 1.07 percent representation rate of projected traveling parties for the three-month period of the survey. This representation rate compares favorably with the representation rate used in the 1980 V.I. Government Exit Survey, according to information from the Exit Survey Technical Director.<sup>2</sup> The Bureau of Labor Statistics has also selected the 1 percent representation rate in sampling of households for the consumer price index.<sup>3</sup>

### Basis for Calculations of Tabulations of Survey Results

Tabulations were made according to the following guidelines:

#### Questions 1 & 2

The tabulation for questions 1 & 2 used the 457 response as the denominator for calculating percentages.

#### Question 3

The tabulation used 436 response as the denominator for calculating percentages. The 436 is the adjusted response to reflect the removal of the 21 commuter respondents, who only answered

questions 1 and 2 in the questionnaire. The mean calculation was based on the arithmetic mean formula.

#### Question 4

The tabulation used 436 response as the denominator for calculating percentages. The arithmetic mean calculation assumed the following weights for the length of stay. The weights were established from information on reservation pattern of guests provided by Virgin Island hoteliers.

2 - 6 days	- 6 days
1 - 2 weeks	- 14 days
2 - 3 weeks	- 21 days
4 weeks or more	- 28 days

#### Question 5

Results from responses to Question 5 proved to be incompatible with other survey information. It was determined that this was due to misinterpretation of the question by respondents and interviewers, so that findings based on this question are not included in this report.

#### Question 6

The tabulation used the 436 response as the denominator to calculate percentages. The arithmetic mean was calculated with the following weights for the scale 1-5. The interviews provided this weighting information from the respondents

No influence	- 1 - 0%
Some influence	- 2 - 25%
About 50%	- 3 - 50%
Considerable	- 4 - 75%
Primary consideration	- 5 - 100%

#### Question 7

The tabulation used 436 response as the denominator to calculate percentages. The arithmetic mean was based on the following weights:

Poor	- 0%
Below average	- 25%
About average	- 50%
Better than average	- 75%
Outstanding	- 100%

#### Question 8

The tabulation was based on the 436 response as the denominator for percentage calculations. The arithmetic mean was calculated in the following manner: for the lower limit, \$20 was assumed; for the upper limit, \$550 was assumed. Mid-points were used for all the expenditure ranges.

Question 9

The tabulation used 436 response as the denominator to calculate percentages. The arithmetic mean used mid-points with the upper limit of \$150,000.

The research design selected for the survey involved the random sampling of the persons who travel between St. Thomas and St. John -- a total of some 300,000, according to information supplied by the Virgin Islands Government Port Authority.

The random sample was set up so that it would include each day of the week and each departure time.

The procedure adopted was as follows: Respondents were selected randomly from among persons waiting at the shuttle boat departure area at Cruz Bay, St. John. The shuttle boat departs every hour on the hour and passengers tend to arrive well in advance of departure times, since there is no alternative transportation.

Interviewers were given the following set of guidelines: to identify themselves with a one-to-one approach to the potential respondents; to state briefly the purpose of the survey; to select only one respondent from each party traveling together; to provide the potential respondent with a copy of the questionnaire to read and fill in; to be available to assist in the preparation of the questionnaire or to answer questions as required.

Interviewers collected the completed questionnaires from respondents in advance of departure time, trying to make sure that all answers were filled in. During the three month survey, a total of 710 questionnaires were distributed to respondents and 457 questionnaires were received back: a very good percentage of returns.

The interviewers selected were students at the College of the Virgin Islands. They were trained in the techniques of the interview process prior to the survey period. A member of the study team accompanied the interview team during all survey periods. For the most part, the interview process went well, and the purpose of the study was adequately conveyed to the respondents. The only problem that occurred occasionally was due to the fact that some foreign respondents were unable to cope with the English language, and interviewers were for the most part unable to translate the questions adequately in such cases.

The following tabulations summarize the results of the survey, starting with a preliminary profile of respondents and continuing with tabulations keyed to the numbered questions in the survey instrument.

FOOTNOTES FOR APPENDIX A

<sup>1</sup>See Chapter II, Table 1, in body of the report.

<sup>2</sup>Douglas Beals, P.O. Box 3277, St. Thomas, U.S.V.I. 00801

<sup>3</sup>Information supplied by U.S. Department of Labor, Bureau of Labor Statistics.

SUMMARY PROFILE OF SHUTTLE BOAT USERSComposite Profile

Vacation	91%
Average Number in Party	2.03
Average Length of Stay	5.1 days
Average Annual Income	\$40,387
Average Daily Expenditures	\$34.60
Park Influence on Visit to St. John	78.3%
Evaluate VINP Experience	77%

U.S. Resident

Vacation	96%
Average Number in Party	2.1
Average Length of Stay	8.45 days
Average Annual Income	\$45,357
Average Daily Expenditures	\$34.72
Park Influence on Visit to St. John	78%
Evaluate VINP Experience	77%

USVI Resident

Vacation	79%
Average Number in Party	2.6
Average Length of Stay	1 day
Average Annual Income	\$22,109
Average Daily Expenditures	\$27.67
Park Influence on Visit to St. John	79%
Evaluate VINP Experience	79%

Foreign Resident

Vacation	93%
Average Number in Party	1.9
Average Length of Stay	7.7 days
Average Annual Income	\$51,500
Average Daily Expenditures	\$44.94
Park Influence on Visit to St. John	76%
Evaluate VINP Experience	72%

TABLE A-1  
RESULTS OF SURVEY OF SHUTTLE BOAT USERS  
ST. JOHN TO ST. THOMAS  
MARCH, APRIL, MAY 1981

QUESTION 1: PROFILE OF USERS  
(In Percentages)

	<u>March</u>	<u>April</u>	<u>May</u>	<u>3 Mo. Total</u>
United States Resident	63%	69%	55%	62%
U.S. Virgin Island Residents-Commuters	4	4	5	5
U.S. Virgin Island Residents-All Others	23	22	28	24
Foreign Residents	<u>10</u>	<u>5</u>	<u>12</u>	<u>9</u>
Totals	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(136)	(169)	(152)	(457)

TABLE A-2

RESULTS OF SURVEY OF SHUTTLE BOAT USERS  
ST. JOHN TO ST. THOMAS  
MARCH, APRIL, MAY 1981

QUESTION 2: MAIN PURPOSE OF TRIP  
(In Percentages)

	<u>March</u>	<u>April</u>	<u>May</u>	<u>3 Mo. Total</u>
<u>All Responses:</u>				
Vacation	90%	92%	91%	91%
Business	1	2	1	1
Commuting	4	3	5	4
Shopping	2	-	-	1
Other	3	2	2	2
Total*	<u>100</u>	<u>100</u>	<u>99</u>	<u>99</u>
No. Responses (Actual)	(136)	(169)	(152)	(457)
<u>U.S. Residents:</u>				
Vacation	96	95	97	96
Business	-	2	1	1
Commuting	-	-	-	-
Shopping	1	1	-	1
Other	2	1	1	1
Total*	<u>99</u>	<u>99</u>	<u>99</u>	<u>99</u>
No. Responses (Actual)	(85)	(117)	(83)	(285)
<u>U.S. Virgin Islands-Residents:</u>				
Vacation	70	80	84	78
Business	3	2	-	2
Commuting	16	16	16	16
Shopping	3	-	-	1
Other	8	2	-	3
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(37)	(44)	(50)	(131)
<u>Foreign-Residents:</u>				
Vacation	100	100	84	93
Business	-	-	5	2
Commuting	-	-	-	-
Shopping	-	-	-	-
Other	-	-	11	5
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(14)	(8)	(19)	(41)

\* Does not add to 100% due to rounding.

TABLE A-3

RESULTS OF SURVEY OF SHUTTLE BOAT USERS  
ST. JOHN TO ST. THOMAS  
MARCH, APRIL, MAY 1981

QUESTION 3: NUMBER IN PARTY  
(In Percentages)

		All Responses				U.S. Residents				U.S. Virgin Island- Residents-(Non-Commuting)				Foreign Residents			
		March	April	May	3 Mo. Total	March	April	May	3 Mo. Total	March	April	May	3 Mo. Total	March	April	May	3 Mo. Total
No. In Party																	
Alone	1	8	1	2	3	12	2	1	5	-	-	-	-	-	-	11	5
With Family	2	64	56	57	59	70	62	75	69	35	30	26	30	86	88	47	68
	3	10	7	4	7	7	6	1	5	19	14	7	13	7	-	11	7
	4	4	2	3	3	2	1	-	1	13	3	5	6	-	-	11	5
	5	**	-	-	-	1	-	-	**	-	-	3	1	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7 or more		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tour Group	2	**	-	-	-	-	-	-	-	-	-	-	-	-	12	-	2
	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-
	5	1	-	1	**	1	-	1	**	-	-	-	-	-	-	-	-
	6	-	-	1	**	-	-	1	**	-	-	-	-	-	-	-	-
7 or more		-	-	1	**	-	-	-	-	-	-	-	-	-	-	5	2
With Friends	2	4	17	9	11	-	13	7	7	19	30	17	22	-	-	-	-
	3	4	11	12	9	4	10	3	6	7	16	29	18	7	-	5	5
	4	1	1	5	3	1	-	3	1	-	5	12	6	-	-	-	-
	5	1	-	-	**	1	-	-	**	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7 or more		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Business Associates																	
	2	1	1	-	1	-	1	-	**	3	3	-	1	-	-	-	-
	3	-	1	1	1	-	1	1	1	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7 or more		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Did not answer		1	1	3	2	-	2	4	2	3	-	-	1	-	-	10	5
Total*		100	99	100	100	100	99	98	98	99	101	99	98	100	100	100	99
No. Responses (Actual)		(130)	(162)	(144)	(436)	(85)	(117)	(83)	(285)	(31)	(37)	(42)	(110)	(14)	(8)	(19)	(41)
Mean					2.03				2.1				2.6				1.9

\* Does not add to 100% due to rounding.

\*\* Less than .5%



TABLE A-4  
RESULTS OF SURVEY OF SHUTTLE BOAT USERS  
ST. JOHN TO ST. THOMAS  
MARCH, APRIL, MAY 1981

QUESTION 4: ESTIMATED LENGTH OF STAY  
(In Percentages)

	<u>March</u>	<u>April</u>	<u>May</u>	<u>3 Mo. Total</u>
<u>All Responses:</u>				
One Day	41	41	59	47
2-6 Days	20	24	9	18
1-2 Weeks	38	31	32	33
3-4 Weeks	1	2	-	1
4 Weeks or more	-	1	-	1
Did not answer	-	1	-	**
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(130)	(162)	(144)	(436)
Mean				5.1 Days
<u>U.S. Residents:</u>				
One Day	27	27	39	31
2-6 Days	25	26	12	22
1-2 Weeks	47	41	46	45
3-4 Weeks	1	3	2	2
4 Weeks or more	-	1	-	-
Did not answer	-	2	-	-
Total*	<u>100</u>	<u>100</u>	<u>99</u>	<u>100</u>
No. Responses (Actual)	(85)	(117)	(83)	(285)
Mean				8.45 Days
<u>U.S. Virgin Island- Residents (Non-Commuting):</u>				
One Day	97	100	100	99
2-6 Days	3	-	-	1
1-2 Weeks	-	-	-	-
3-4 Weeks	-	-	-	-
4 Weeks or more	-	-	-	-
Did not answer	-	-	-	-
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(31)	(37)	(42)	(110)
Mean				1 Day

TABLE A-4 (cont.)

Question 4: Cont'd

	<u>March</u>	<u>April</u>	<u>May</u>	<u>3 Mo. Total</u>
<u>Foreign Residents:</u>				
One Day	-	12	37	20
1-2 Days	29	25	10	21
1-2 Weeks	64	63	53	59
3-4 Weeks	-	-	-	-
4 Weeks or more	-	-	-	-
Did not answer	7	-	-	-
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(14)	(8)	(19)	(41)
Mean				9.7 Days

\* Does not add to 100% due to rounding

\*\* Less than .5%

TABLE A-5

RESULTS OF SURVEY OF SHUTTLE BOAT USERSST. JOHN TO ST. THOMASMARCH, APRIL, MAY 1981

QUESTION 6: TO WHAT EXTENT DID THE FACT  
THAT ST. JOHN HAS A NATIONAL PARK INFLUENCE YOUR VISIT?  
(In Percentages)

	<u>March</u>	<u>April</u>	<u>May</u>	<u>3 Mo. Total</u>
<u>All Responses:</u>				
Not at all	1	2	3	2
Some	4	6	4	5
About 50%	13	13	7	11
Considerably	32	36	40	36
Primary consideration	45	40	43	42
Did not answer	5	3	3	4
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(130)	(162)	(144)	(436)
Derived Mean***				78.3%
<u>U.S. Residents:</u>				
Not at all	-	3	1	1
Some	5	6	5	5
About 50%	16	15	8	13
Considerably	29	33	40	34
Primary consideration	41	40	43	41
Did not answer	9	3	3	5
Total*	<u>100</u>	<u>100</u>	<u>100</u>	<u>99</u>
No. Responses (Actual)	(85)	(117)	(83)	(185)
Derived Mean***				78.0%
<u>U.S. Virgin Island- Residents (Non-Commuting):</u>				
Not at all	3	3	5	4
Some	3	5	2	4
About 50%	6	11	5	7
Considerably	29	35	38	33
Primary consideration	58	46	48	50
Did not answer	-	-	2	1
Total*	<u>99</u>	<u>100</u>	<u>100</u>	<u>99</u>
No. Responses (Actual)	(31)	(37)	(42)	(110)
Derived Mean***				79.0%

TABLE A-5 (cont.)

Question 6: Cont'd

	<u>March</u>	<u>April</u>	<u>May</u>	<u>3 Mo. Total</u>
<u>Foreign Residents:</u>				
Not at all	-	-	5	2
Some	-	13	5	5
About 50%	14	13	5	12
Considerably	50	50	47	49
Primary consideration	36	13	37	29
Did not answer	-	11	-	2
Total*	<u>100</u>	<u>100</u>	<u>99</u>	<u>99</u>
No. Responses (Actual)	(14)	(8)	(19)	(41)
Derived Mean***				76%

\* Does not add to 100% due to rounding.

\*\*\* The Derived mean was calculated by assigning the following weights to answers given:

"Not at all"	-	0
"Some"	-	25%
"About 50%"	-	50%
"Considerably"	-	75%
"Primary Consideration"	-	100%

TABLE A-6

RESULTS OF SURVEY OF SHUTTLE BOAT USERS  
ST. JOHN TO ST. THOMAS  
MARCH, APRIL, MAY 1981

QUESTION 7: EVALUATION OF ST. JOHN EXPERIENCE  
(In Percentages)

	<u>March</u>	<u>April</u>	<u>May</u>	<u>3 Mo. Total</u>
<u>All Responses:</u>				
Outstanding	34	35	39	36
Better than average	38	33	42	38
About average	15	21	10	16
Below average	5	5	6	5
Poor	-	1	1	-
Did not answer	7	5	3	5
Total*	<u>99</u>	<u>100</u>	<u>101</u>	<u>100</u>
No. Responses (Actual)	(130)	(162)	(144)	(436)
Derived Mean ***				77.0%
<u>U.S. Residents:</u>				
Outstanding	32	36	45	37
Better than average	36	31	41	35
About average	16	21	8	16
Below average	5	6	5	5
Poor	-	2	1	1
Did not answer	11	4	-	6
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(85)	(117)	(83)	(285)
Derived Mean ***				77.0%
<u>U.S. Virgin Island- Residents (Non-Commuting):</u>				
Outstanding	42	35	33	36
Better than average	35	41	50	43
About average	13	16	7	12
Below average	10	3	2	5
Poor	-	-	-	-
Did not answer	-	5	7	4
Total*	<u>100</u>	<u>100</u>	<u>99</u>	<u>100</u>
No. Responses (Actual)	(31)	(37)	(42)	(110)
Derived Mean ***				79.0%

TABLE A-6 (cont.)

Question 7: Cont'd

	<u>March</u>	<u>April</u>	<u>May</u>	<u>3 Mo. Total</u>
<u>Foreign Residents:</u>				
Outstanding	29	13	26	24
Better than average	57	38	31	41
About average	14	38	21	22
Below average	-	-	16	7
Poor	-	-	-	-
Did not answer	-	11	5	6
Total*	<u>100</u>	<u>100</u>	<u>99</u>	<u>100</u>
No. Responses (Actual)	(14)	(8)	(19)	(41)
Derived Mean***				72.0%

\* Does not add to 100% due to rounding.

\*\*\*The Derived Mean was calculated by assigning the following weights to answers given:

"Outstanding"	- 100%
"Better than average"	- 75%
"About average"	- 50%
"Below average"	- 25%
"Poor"	- 0

TABLE A-7

RESULTS OF SURVEY OF SHUTTLE BOAT USERS  
ST. JOHN TO ST. THOMAS  
MARCH, APRIL, MAY 1981

QUESTION 8: AVERAGE DAILY EXPENSES PER ADULT  
(In Percentages)

	<u>March</u>	<u>April</u>	<u>May</u>	<u>3 Mo. Total</u>
<u>All Responses:</u>				
Under \$25.00	46	52	45	48
\$25.00 - \$49.99	36	21	38	31
\$50.00 - \$79.99	9	14	7	10
\$75.00 - \$99.99	2	2	1	2
\$100.00 - \$149.99	-	1	2	1
\$150.00 - \$199.99	-	1	1	1
\$200.00 - \$249.99	-	1	-	**
\$250.00 - \$349.99	-	-	1	**
Did not answer	7	9	5	7
Total*	<u>100</u>	<u>101</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(130)	(162)	(144)	(436)
Mean				\$34.60
<u>U.S. Residents:</u>				
Under \$25.00	43	49	43	46
\$25.00 - \$49.99	38	21	39	32
\$50.00 - \$79.99	6	17	7	11
\$75.00 - \$99.99	1	2	1	1
\$100.00 - \$149.99	-	1	2	1
\$150.00 - \$199.99	-	1	1	1
\$200.00 - \$249.99	-	1	-	**
\$250.00 - \$349.99	-	-	1	**
Did not answer	11	8	6	8
Total*	<u>99</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(85)	(177)	(83)	(285)
Mean				\$34.72
<u>U.S. Virgin Island- Residents (Non-Commuting):</u>				
Under \$25.00	58	70	55	61
\$25.00 - \$49.99	29	19	36	28
\$50.00 - \$79.99	13	-	5	5
\$75.00 and above	-	-	-	-
Did not answer	-	11	4	6
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(31)	(37)	(42)	(110)
Mean				\$27.67

TABLE A-7 (cont.)

Question 8: Cont'd

	<u>March</u>	<u>April</u>	<u>May</u>	<u>3 Mo. Total</u>
<u>Foreign Residents:</u>				
Under \$25.00	36	13	31	29
\$25.00 - \$49.99	36	25	42	37
\$50.00 - \$74.99	21	25	11	17
\$75.00 - \$99.99	7	13	5	7
\$100.00 - \$149.99	-	13	5	5
\$150.00 and above	-	-	-	-
Did not answer	-	11	5	5
Total*	<u>100</u>	<u>100</u>	<u>99</u>	<u>100</u>

No. Responses (Actual)

Mean

\$44.94

\* Does not add to 100% due to rounding.

\*\* Less than .5%



TABLE A-8

RESULTS OF SURVEY OF SHUTTLE BOAT USERS  
ST. JOHN TO ST. THOMAS  
MARCH, APRIL, MAY 1981

QUESTION 9: APPROXIMATE ANNUAL INCOME OF HOUSEHOLD  
(In Percentages)

	<u>March</u>	<u>April</u>	<u>May</u>	<u>3 Mo. Total</u>
<u>All Responses:</u>				
Under \$10,000	1	2	6	3
\$10,000 - \$19,999	4	6	7	6
\$20,000 - \$29,999	10	11	11	11
\$30,000 - \$39,999	17	9	20	15
\$40,000 - \$49,999	21	15	26	20
\$50,000 - \$59,999	17	16	13	15
\$60,000 - \$74,999	2	3	2	2
\$75,000 - \$99,999	1	2	1	2
\$100,000 or more	-	1	1	**
Did not answer	27	35	12	26
Total*	<u>100</u>	<u>100</u>	<u>99</u>	<u>100</u>
No. Responses (Actual)	(130)	(162)	(144)	(436)
Mean				\$40,378
<u>U.S. Residents:</u>				
Under \$10,000	-	-	-	-
\$10,000 - \$19,999	-	1	-	**
\$20,000 - \$29,999	3	5	2	4
\$30,000 - \$39,999	24	10	29	20
\$40,000 - \$49,999	29	18	37	27
\$50,000 - \$59,999	24	18	20	22
\$60,000 - \$74,999	1	4	1	2
\$75,000 - \$99,999	-	3	2	2
\$100,000 or more	-	1	1	**
Did not answer	20	40	7	23
Total*	<u>101</u>	<u>100</u>	<u>99</u>	<u>100</u>
No. Responses (Actual)	(85)	(117)	(83)	(285)
Mean				\$45,387
<u>U.S. Virgin Island- Resident (Non-Commuting):</u>				
Under \$10,000	3	8	21	12
\$10,000 - \$19,999	19	27	26	25
\$20,000 - \$29,999	35	35	33	35
\$30,000 - \$39,999	10	5	12	9
\$40,000 - \$49,999	3	5	-	3
\$50,000 - \$59,999	3	-	-	1
\$60,000 - \$74,999	-	-	-	-
\$75,000 - \$99,999	-	2	-	1
\$100,000 or more	-	-	-	-
Did not answer	26	16	7	14
Total*	<u>99</u>	<u>98</u>	<u>99</u>	<u>100</u>

Cont'd

TABLE A-8 (cont.)

Question 9: Cont'd

	<u>March</u>	<u>April</u>	<u>May</u>	<u>3 Mo. Total</u>
U.S. Virgin Island- Resident (Non-Commuting): Cont'd				
No. Responses (Actual)	(31)	(37)	(42)	(110)
Mean				\$22,109
<u>Foreign Residents:</u>				
Under \$10,000	-	-	-	-
\$10,000 - \$19,999	-	-	-	-
\$20,000 - \$29,999	-	-	-	-
\$30,000 - \$39,999	-	13	5	5
\$40,000 - \$49,999	21	25	42	32
\$50,000 - \$59,999	14	13	11	12
\$60,000 - \$74,999	7	13	11	10
\$75,000 - \$99,999	7	-	-	2
\$100,000 or more	-	-	-	-
Did not answer	50	35	31	39
Total*	<u>99</u>	<u>99</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(14)	(8)	(19)	(41)
Mean				\$51,500

\* Does not add to 100% due to rounding.

\*\* Less than .5%

## APPENDIX B

### SURVEY OF GUESTS OF CANEEL BAY PLANTATION; CINNAMON BAY CAMPGROUND; AND MAHO BAY CAMPGROUND

In order to secure essential information available from no other source, the study deemed it essential to gather primary research data on guests at the three principal VINP-related resorts on St. John. The reasons for this primary research and its connection with the principal thrust of the study are discussed in Chapter II.

Managements of the facilities involved -- Rock Resorts, which manages Caneel Bay Plantation and Cinnamon Bay Campground, and the manager of the privately owned and operated Maho Bay Campground -- were most cooperative. All three facilities make use of their own questionnaires, designed to provide information on the quality of service rendered, suggestions for improvements, etc. Questionnaires prepared by the study team were given to the respective managements who, for the period of the survey, gave them to their guests along with their own questionnaires, collected them along with their own questionnaires, and sent the completed questionnaires to Island Resources Foundation for tabulation.

Major constraints on this survey were essentially the same as for the survey described in Appendix A, but the period of the study was extended somewhat so that the period covered a span of 4 months, from March through June 1981. Another constraint was that each questionnaire be limited to a single page and be in a simple format so that it could be easily read and completed without assistance.

A separate questionnaire was prepared for the Rock Resort facilities (both Caneel and Cinnamon) and for Maho Bay. The principal difference was that the study team had obtained from Rock Resorts sufficient operating information so that an economic analysis of the impact of the facilities on the economies of the Virgin Islands could be developed without going through a multiplier pass-through of payments received from guests. (Rock Resorts supplied information on employment, payroll, taxes, capital and operating costs, including estimated amounts spent in the Virgin Islands economy.) Thus, the guests were asked to exclude amounts spent for lodging and meals at Rock Resort facilities.

Maho Bay did not make this kind of information available. Hence the method used for estimating economic impact of Maho guests' outlays entailed the indirect analysis described in Chapter II of this report for lodging and meals of Maho guests as well as for all other expenditures.<sup>1</sup>

Another difference between the two questionnaires was in the categories used to collect expenditures per day. These differed because of the likelihood that Caneel Bay guests would be in higher income brackets.

The two questionnaires used for the survey are as follows:

QUESTIONNAIRE

This questionnaire has been developed in cooperation with the management of Caneel Bay, Inc., and Cinnamon Bay Camp Ground. It is part of a study to estimate the significance of Virgin Islands National Parks on the economy of the Virgin Islands. Please complete it and return it along with your Caneel Bay (or Cinnamon Bay) questionnaire.

1. Did you stay at: Caneel Bay, Inc. \_\_\_\_\_ Cinnamon Bay Camp Ground \_\_\_\_\_
2. What is your permanent residence?
  - a) United States \_\_\_\_\_  
(State or Territory)
  - b) Other Country \_\_\_\_\_  
(Name of Country)
3. How many in your party? a) \_\_\_\_\_ b) \_\_\_\_\_  
(Adults) (Children)
4. What was your length of stay in the Virgin Islands? \_\_\_\_\_  
(No. of days)
5. What were the estimated average daily expenses per adult person incurred during your stay in the Virgin Islands (St. John, St. Thomas, St. Croix)? (Such as, food, taxis (or other local transportation), tours, shopping, recreation, entertainment. Do not include transportation costs to and from the Virgin Islands, or the costs of lodging and meals at Caneel Bay/Cinnamon Bay.)
 

a) \$50 or less _____	c) \$100-\$150 _____	e) \$200-\$250 _____	g) \$300-\$400 _____
b) \$50-\$100 _____	d) \$150-\$200 _____	f) \$250-\$300 _____	h) \$400-\$500 _____
i) Over \$500 _____			
6. To what extent did the fact that Caneel Bay, Inc. (Cinnamon Bay Camp Ground) is in a National Park environment influence your visit? (Circle the number that most nearly applies.)
 

1	2	3	4	5
(Not at all)	(Some)	(About 50%)	(Considerably)	Primary Consideration
7. Your age and sex:
 

a) Male _____	c) Under 20 _____	e) 30-39 _____	g) 50-59 _____
b) Female _____	d) 20-29 _____	f) 40-49 _____	h) 60-69 _____
i) 70 or over _____			

Thank you for your cooperation. The information derived from this questionnaire will be used strictly for statistical purposes.

ISLAND RESOURCES FOUNDATION  
St. Thomas, V.I.

# QUESTIONNAIRE

MaHo Bay Camps, Inc., is cooperating with Island Resources Foundation on a study to estimate the significance of V.I. National Parks on the Virgin Islands economy. As part of the study, we ask your cooperation in completing the following questionnaire and dropping it off at the Front Office in the large envelope marked, "STUDY QUESTIONNAIRE."

1. What is your permanent residence?  
a) United States \_\_\_\_\_  
(State or Territory)  
b) Other Country \_\_\_\_\_  
(Name of Country)
2. How many in your party? a) \_\_\_\_\_ b) \_\_\_\_\_  
(Adults) (Children)
3. What was (is) your planned length of stay in the Virgin Islands? \_\_\_\_\_  
(No. days)
4. What were the estimated average daily expenses per adult person incurred during your stay? (Such as lodging, food, taxis, tours, shopping, recreation. Do not include transportation costs to and from the Virgin Islands.)
- a) \$25 or less \_\_\_\_\_ d) \$100-\$125 \_\_\_\_\_ g) \$175-\$200 \_\_\_\_\_ j) \$300-\$350 \_\_\_\_\_  
b) \$25-\$75 \_\_\_\_\_ e) \$125-\$150 \_\_\_\_\_ h) \$200-\$250 \_\_\_\_\_ k) \$350-\$400 \_\_\_\_\_  
c) \$75-\$100 \_\_\_\_\_ f) \$150-\$175 \_\_\_\_\_ i) \$250-\$300 \_\_\_\_\_ l) \$450-\$500 \_\_\_\_\_  
m) Over \$500 \_\_\_\_\_
5. To what extent did the fact that you knew you would be in a National Park environment influence your visit? (Circle the number that most nearly applies.)
- 1 2 3 4 5  
(Not at all) (Some) (About 50%) (Considerably) (Primary Consideration)
6. Your age and sex:  
a) Male \_\_\_\_\_ c) Under 20 \_\_\_\_\_ e) 30-39 \_\_\_\_\_ g) 50-59 \_\_\_\_\_  
b) Female \_\_\_\_\_ d) 20-29 \_\_\_\_\_ f) 40-49 \_\_\_\_\_ h) 60-69 \_\_\_\_\_ i) 70 or over \_\_\_\_\_

Thank you for your cooperation.  
The information derived from this  
questionnaire will be used strictly  
for statistical purposes in con-  
nection with the study referred  
to herein.

ISLAND RESOURCES FOUNDATION  
St. Thomas, V.I.

A total of 1,000 questionnaires were left with Caneel Bay and Cinnamon Bay management, but it is not known how many were actually distributed to guests. A total of 277 completed questionnaires were returned by Caneel Bay guests and 153 by Cinnamon Bay guests -- probably around a 50 percent return, based on information concerning occupancy rates during the months the survey was in progress.

A total of 500 questionnaires were delivered to Maho Bay Campgrounds, and 190 questionnaires were returned. Again no information is available as to the number of blank questionnaires actually distributed to guests, but the rate of return appears to be quite high -- well over 50 percent.

The following tabulations summarize the results of the survey, starting with a summary profile of the guests at each installation.

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<sup>1</sup>See notes accompanying Table 3 for a further elaboration on this point.

SUMMARY PROFILE OF GUESTS AT MAJOR ST. JOHN FACILITIESCaneel Bay Plantation  
(Average)

Number in Party	2.0%
Length of Stay	11.6 days
Age	40.3
Daily Expenses	\$101.48
Park Influence on Visit	43.7%

Cinnamon Bay Campgrounds  
(Average)

Number in Party	2.2%
Length of Stay	13 days
Age	37.1
Daily Expenses	\$48.17
Park Influence on Visit	72.6%

Maho Bay Campgrounds  
(Average)

Number in Party	2.1%
Length of Stay	14.3 days
Age	36.2
Daily Expenses	\$61.14
Park Influence on Visit	66.5%



TABLE B-1  
SURVEY OF GUESTS: CANEEL BAY PLANTATION,  
CINNAMON BAY CAMPGROUND, MAHO BAY CAMPGROUND

SURVEY PERIOD: MARCH - JUNE 1981

QUESTION 1: PERMANENT RESIDENCE  
(In Percentages)

	<u>Caneel</u>	<u>Cinnamon</u>	<u>Maho</u>	<u>Total</u>
U.S.	96	95	95	96
U.S.V.I.	-	1	-	**
Foreign Country	<u>4</u>	<u>3</u>	<u>5</u>	<u>4</u>
Total*	<u>100</u>	<u>99</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(227)	(153)	(190)	(570)

\* Does not add to 100% due to rounding

\*\* Less than .5%

TABLE B-2

SURVEY OF GUESTS: CANEEL BAY PLANTATION,  
CINNAMON BAY CAMPGROUNDS, MAHO BAY CAMPGROUND

SURVEY PERIOD: MARCH - JUNE 1981

QUESTION 2: TRAVELING PARTY COMPOSITION  
(In Percentages)

	<u>Caneel</u>	<u>Cinnamon</u>	<u>Maho</u>	<u>Total</u>
<u>No. Adults</u>				
1	1	11	4	4
2	90	73	83	83
3	2	8	6	5
4	6	3	6	5
5	**	2	**	2
6 or more	<u>1</u>	<u>3</u>	<u>1</u>	<u>2</u>
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(227)	(153)	(190)	(570)
Mean	2.2	2.2	2.1	2.19

\*\* Less than .5%

TABLE B-3

SURVEY OF GUESTS: CANEEL BAY PLANTATION,  
CINNAMON BAY CAMPGROUND, MAHO BAY CAMPGROUND

SURVEY PERIOD: MARCH - JUNE 1981

QUESTION 3: LENGTH OF STAY  
(In Percentages)

	<u>Caneel</u>	<u>Cinnamon</u>	<u>Maho</u>	<u>Total</u>
One Day	1	-	-	**
2-6 Days	30	19	3	18
1-2 Weeks	67	78	87	77
3-4 Weeks	2	3	9	5
4 Weeks or more	<u>-</u>	<u>-</u>	<u>1</u>	<u>**</u>
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(227)	(153)	(190)	(575)
Mean	11.6 days	13.0	14.3	13.4

\*\* Less than .5%

TABLE B-4SURVEY OF GUESTS: CANEEL BAY PLANTATION  
AND CINNAMON BAY CAMPGROUNDSURVEY PERIOD MARCH - JUNE 1981QUESTION 4: AVERAGE DAILY EXPENSES  
(In Percentages)

<u>\$</u>	<u>Caneel</u>	<u>Cinnamon</u>
50 or less	42	73
50 - 100	33	16
100 - 150	8	5
150 - 200	3	2
200 - 250	3	-
250 - 300	4	-
300 - 350	-	-
350 - 400	2	-
450 - 500	1	-
over 500	4	-
Did not answer	-	2
Total	<u>100</u>	<u>98</u>
No. Responses (Actual)	(227)	(153)
Mean*	\$101.48	\$48.17

\* Mean was derived using mid points for expenditure ranges.

TABLE B-4 (cont.)SURVEY OF GUESTS: MAHO BAY CAMPGROUNDSURVEY PERIOD MARCH - JUNE 1981QUESTION 4: AVERAGE DAILY EXPENSES

(in Percentages)

<u>\$</u>	<u>Maho Bay</u>
25 or less	13
25 - 75	56
75 - 100	18
100 - 125	6
125 - 175	5
175 - 200	-
200 - 500	-
Over 500	-
Did not answer	-
Total	<u>98</u>
No. Responses (Actual)	(190)
Mean	\$61.14

TABLE B-5

SURVEY OF GUESTS: CANEEL BAY PLANTATION,  
CINNAMON BAY CAMPGROUND, MAHO BAY CAMPGROUND

SURVEY PERIOD: MARCH - JUNE 1981

QUESTION 5: EXTENT OF NATIONAL PARK INFLUENCE ON VISITS

	<u>Caneel</u>	<u>Cinnamon</u>	<u>Maho</u>	<u>Total</u>
Not at all	29	4	4	14
Some	21	10	15	16
About 50%	10	11	14	12
Considerably	31	33	44	36
Primary consideration	8	39	23	21
Did not answer	<u>1</u>	<u>3</u>	<u>-</u>	<u>-</u>
Total*	<u>100</u>	<u>100</u>	<u>100</u>	<u>99</u>
No. Responses (Actual)	(222)	(149)	(190)	(561)
Derived Mean**	43.7%	72.6%	66.5%	59.7%

\* Does not add to 100% due to rounding

\*\* The derived mean is based on the following weights:

"Not at all"	-	0
"Some"	-	25%
"About 50%"	-	50%
"Considerably"	-	75%
"Primary consideration"	-	100%

TABLE B-6  
SURVEY OF GUESTS: CANEEL BAY PLANTATION,  
CINNAMON BAY, MAHO BAY

SURVEY PERIOD MARCH - JUNE 1981

QUESTION 6: AGE & SEX OF RESPONDENTS  
(In Percentages)

<u>Age</u>	<u>Caneel</u>	<u>Cinnamon</u>	<u>Maho</u>	<u>Total</u>
Under 20	1	3	3	2
20 - 29	21	36	29	28
30 - 39	32	29	37	33
40 - 49	20	11	17	16
50 - 59	15	8	8	11
60 - 69	6	9	4	6
70 & Over	2	2	1	2
Did not answer	<u>2</u>	<u>2</u>	<u>1</u>	<u>2</u>
Total*	<u>99</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(227)	(153)	(190)	(370)
Mean (Age)	40.3	37.1	36.2	38.2
<u>Sex</u>				
Male	55	40	50	49
Female	42	57	50	49
Did not answer	<u>3</u>	<u>3</u>	<u>-</u>	<u>2</u>
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
No. Responses (Actual)	(227)	(153)	(190)	(570)

\* Does not add to 100% due to rounding.

APPENDIX C

SURVEY OF CHARTER BOATING AND RELATED  
BUSINESSES IN THE VIRGIN ISLANDS RELATIVE  
TO THEIR CONTRIBUTION TO OUR TOURISM  
RELATED ECONOMY

A report prepared for the  
Department of Commerce of the  
U.S. Virgin Islands  
by Clyde Carder  
July 14, 1980

(Funds for this project were made available by the  
International Development Research Center -  
Ottawa, Canada)



To: Amadeo I.D. Francis  
Commissioner  
V.I. Department of Commerce  
St. Thomas

From: Clyde D. Carder

Re: Survey of charter boating and related businesses  
in the Virgin Islands relative to their contribu-  
tion to our tourism related economy.

Introduction:

I was retained by John Tinsley, chief economist of the Department, to survey the charter boat and related businesses within the "scope of work agreement" which is attached to this copy of the survey results.

The survey was conducted during various times in February, March and April 1980 by personal interviews with 25 people on St. Thomas, and by phone with seven on St. Croix and three on St. John. BVI results were determined by interviews with about six boat captains who operate out of St. Thomas but who are registered in Tortola and are quite familiar with the industry there and in the other British Virgin Islands, and a careful reading of BVI tourist literature.

Because of the in-depth nature of the conduct of the survey, the margin of error for all figures cited should not exceed five to seven percent.

Scope of Work and Results:

A. An inventory of vessels engaged in the following types of operations on the U.S. Virgin Islands

- 1) Charter (sail and/or power) boats available for overnight charters, crewed. There are approximately 190 boats, nearly all sail, that are available for crewed term charters. About 25<sup>4</sup> of these are registered in the BVI or elsewhere (the larger boats that carry six or more passengers), but are considered part of the St. Thomas fleet.
- 2) Charter boats (sail) available for charter of one day or less, crewed. This is an almost impossible figure to determine with any degree of accuracy. At one time a good number of the crewed boats that were not on term charters were available for day charters through the V.I. Charterboat League. The League gave up trying to be

1/V.I. Charterboat League indicates this figure to between 40-50

a central booking office for this activity for lack of staff. A good estimate is that there are about 20 boats that actively seek day sails through the hotels. The average day-sail rate is \$20 per person. The figure used for the boats engaged in this business does not include Ho Tei, Kon Tiki, Capt. Yellow Bird or True Love.

- 3) Charter boats (sail) available for overnight charters without crew (bareboat). There are 189 bare boats in this category, operated by 11 companies. Expansion plans of five of these operations will add 62 boats by the end of 1982.
- 4) Fishing or diving charter boats (power) available for one day charters, crewed. There are 13 fishing boats available for charter at all times. (When major tournaments are held, as many as 15 additional boats come from the BVI and Puerto Rico to participate.) There are 28 dive boats available for half-or full-day charters. (About 20 boats in the crewed charter boat fleet are fully equipped for diving and are often chartered for week-long diving expeditions.)
- 5) Any other vessels that can be considered as charter boats. About 20 small sail boats, including multi-hulls, are available for rent by the hour, half-or full-day.

B. An estimate of the number of Puerto Rican boats registered in the Virgin Islands and also the number of Puerto Rican power boats which visit the Virgin Islands on a regular basis (four times a year). The Bureau of Fish and Wildlife of the Department of Conservation and Cultural Affairs, the unit that handles boat registration, was unable to answer the question about the number of Puerto Rican boats registered in the V.I. The person said that many such boats give a local address, that of a relative or friend (presumably to avoid PR taxes), so it is impossible to identify these boats. Those that register with a PR address are not kept in a separate file and it would require someone to go through all registrations to identify them. Conservation will not do this for us. There were 2,765 boats of all types registered in the V.I. as of December 31, 1979.

The Sheraton Marina does not indicate on its fuel receipts the registration area of the boats it services. (This should have been a best source of information on the number of PR boats that come into V.I. waters on long weekends, as nearly all fuel

2/ V.I. Charterboat League advises that as of mid-October,

## Boat Survey--3

there on the way in or out.) The estimate, from several marina employees, is that from 80 to 100 PR power boats visit during the four long weekends of the year.

C) A list of locally based commercial or other enterprises which cater to the charter boat fleet.

- Insurance companies that handle marine coverage
- Marine supply stores
- Marine electronic sales and repair shops
- Inboard and outboard engine sales and repair shops
- Marinas in general and marinas with haul-out facilities
- Supermarkets and wholesale food purveyors
- Sail makers and carpet stores
- Central boat reservation offices and boat brokers

D) A summary of the number of charter boats of all types based in the British Virgin Islands that compete directly with the U.S. Virgin Islands fleet. The best estimate from several local sources and BVI tourist literature is that there are about 220 bare boats based in the BVI, which are operated by some 10 companies. About 20 of these boats are available with a captain. (These are not included in the BVI-based crewed boats mentioned earlier.) It seems that BVI bare boat operators see a good market for crewed boats and make captains available to charterers who are not sure of their sailing abilities. These really can be called semi-crewed in that only a captain is provided. Cooking is done by the charterer.

There are four sport fishing boats. They are operated by owners on a part-time basis who have other occupations. St. Thomas sport fishing boat captains do not consider the BVI sport fishing fleet a professional operation. Seven dive boats operate from various islands in the BVI group.

E) In A, B and C above, statistics should be obtained as far as is possible covering:

- 1) The number of each type: This is answered throughout the above information.
- 2) An estimate of the number of charters booked:  
Crewed boats: each of the 190 boats chartered an average of 17 weeks a year (1979 figures). Each charter, about 3,320, averaged 5.2 people at an average cost of about \$110 per person per day, or a total gross income for

1979 of some \$13 million.

Bare boats: bare boat companies reported that their boats ranged from 15 to 32 weeks of charter per year. There were 4,370 charters of 21,000 people for an approximate gross annual income of about \$4.5 million. Most bare boat operations have a three-season rate schedule, which offers a very inexpensive summer (off-season) rate.

Each fishing boat spent about 140 full days at sea. (A combination of half and full day charters

Dive boats do not operate as charter boats per se, but take anyone who wants to make a dive at a scheduled time. (This does not apply to the 20 crewed charter boats that are equipped for diving and are often chartered specifically for week-long diving trips.)

- 3) The prices charged for the various services: Crewed boats range from \$1500 a week for a two passenger boat to \$12,500 a week for an eight passenger boat such as the Antares, or an average of \$110 per day per charter passenger. On crewed boats this is an all inclusive price--all meals, snacks, beverages, wine, use of snorkel and fishing equipment are included.

Bare boats range from \$350 a week for a two-passenger boat to \$1500 for a boat that will carry up to six. Most bare boats have a three season rate structure. Summer rates are extremely low. The daily per person average is about \$45, but this does not include provisions or beverages, which the charterer can purchase at the supermarket or have the boat company supply.

Sport fishing boats are \$175 for a half day, \$350 for a full day and \$400 a day for tournament fishing. This is for a boat which four persons can share.

Dive boats get \$35 for a boat dive and \$65 for a dive on the Rhone.

- 4) Local purchases by charter boat operators: It is estimated that the crewed fleet spends close to \$2 million a year on food, beverages and condiments. About \$550,00 was spent on hauling, bottom paint, varnish, parts and other maintenance locally. Another \$300,000 was spent on hauling in Puerto Rico and the BVI and an additional \$150,000 was spent on paint and parts in the United States and Puerto Rico. About \$575,00 was spent locally on marine insurance, with another \$125,000 going to BVI agencies. Fuel costs

were about \$240,000, all of which was spent locally. Some \$1.8 million was paid in broker (booking agent) commissions. Only about eight percent of this amount was earned by the several St. Thomas brokers. The rest was paid to some 25 brokers in the states and one in Argentina.

The bare boat fleet of 189 boats spent about \$3,500 per boat for hauling, paint, varnish and general maintenance, all local. Provisioning, whether provided by the boat companies or the charterer, amounted to about \$1.7 million. Practically all of this was spent locally. Fuel costs were about \$125,000. Nearly all bare boats are individually owned by stateside residents, financed and insured there. A few are locally owned and financed. Just about all bare boat charters are booked directly with the operating companies instead of brokers. (A significant amount of net profit realized from the bare boat operation goes to the stateside owners and is not spent here.)

Fishing boats average 140 days at sea and spend between \$60 and \$70 per trip for fuel (1979 fuel costs), or about \$110,000 a year. Hauling and other maintenance is about \$60,000 for the fleet.

Dive boats spent about \$90,000 on fuel in 1979 and \$70,000 on hauling and other maintenance.

- 5) The activities of the charter visitors including:
  - a) The amount of shopping done by the charter boat visitors: It appears that charterers of bare and crewed boats consider shopping of secondary importance to being in the V.I., as their primary reason is to sail and enjoy the associated water sports. Their expenditures are difficult to determine. A good assumption, based on interviews with charterers and charter boat captains, is that they spend a little less than a cruise ship passenger and much less than the long-stay visitor.
  - b) The average stay (in time) at local hotels before and/or after a charter by charter visitor  
About 90 percent of all crewed boat charters spend at least one night before or after a charter in a local hotel. The Sheraton and its predecessor operators offered a significant discount to charterers who booked boats moored at their marina. It is estimated that crewed boat charterers spent nearly \$700,000 on hotel rooms during 1979.

Bare boat charterers spend less time in a hotel room as the boat operating companies will let them sleep in the boat they chartered if they

## Boat Survey--6

arrive early or use another boat in the fleet if their boat is not ready. The charge for this is about 10 percent of hotel room rates. An estimate for bare boat charterers for hotel rooms is about \$300,000.

- F. A final report summarizing the information obtained as part of the project. There are 422 crewed, bare, fishing and dive boats in the U.S. Virgin Islands (several of the crewed charter boats are based in the BVI but do nearly all of their business out of St. Thomas) that generate an annual estimated gross income of about \$21 million. This figure does not include income generated by the day sail boats or the large party-type boats such as the Ho Tei, Le Junk, Captain Yellowbird or True Love.

Boat owners and operators spend about \$6 million annually for food, beverages, boat maintenance, fuel, insurance and incidentals. This figure includes what bare boat charterers spend themselves on provisioning.

The bare boat companies employ about 60 full-time people plus some casual labor.

Crewed boats have an average crew of 3.5, including the captain and mate, generally the husband and wife owners of the boats. If they can be considered employees, the crewed boat fleet has about 665 employees.

Surveyors Comments:

Many of the crewed boat captains who were interviewed who have been chartering here for five or more years and have seen the fleet grow from about 35 to more than 200 boats at the time of the last boat show in November 1979, feel that the fleet grew too fast in proportion to the amount of business that can be generated and that some will drop out. Declining membership in the V.I. Charterboat League is evidence that this is beginning to happen. (Many of the new boats during the past two years came from islands in the Caribbean and the Bahamas where exhorbitant taxes and other restrictions made chartering a marginal operation.

Bare boating has grown rapidly in the last four years and seems to be holding its own, with some companies planning to expand during the next several years.

Sport fishing has declined in recent years as fuel costs have raised charter rates to a near prohibitive rate. Diving seems to be the current "in" water sports oriented activity and growing rapidly.

Clyde D. Carder  
July 14, 1980

## APPENDIX D

### A SUMMARY OF COMMUNITY VIEWS EXPRESSED BY OFFICIALS AND INDIVIDUALS CONTACTED DURING THE STUDY

General. As noted previously, the island of St. John has a resident population of approximately 2,500 persons, comprised mostly of native Virgin Islanders and migrants from other Caribbean islands. Based on interviews with a number of residents, including the island legislator (Senator Gilbert Sprauve), housewives, taxi drivers, students, entrepreneurs, and government officials, it was generally accepted that the presence of the VINP was viewed as an asset by those on the island.

Notwithstanding, the general acceptance of the VINP by the local populace, issues of disagreement with the relationship between the VINP and the St. John community were surfaced. Following is a summary of issues and suggestions that came up:

Land Acquisition. A number of St. Johnians expressed the view that the National Park Service should discontinue land acquisition until such time as the housing needs of St. Johnians are adequately met. There also seemed to be considerable confusion over the difference between the authorized exterior boundaries of the park and the NPS ownership boundary. Along with this view was a feeling that the National Park Service should compensate the local government for territorial tax revenue losses caused by Federal land ownership. The thought was expressed that if the NPS could not make payments in lieu of taxes it should provide more community services on St. John. Suggested services included providing park land for territorial government expansion, and for an island community complex. Other suggestions were to set aside land for economic development activities such as farming, horticulture, and agriculture. (It should be noted that VINP officials expressed the view that they would be pleased to cooperate with such endeavors, subject to NPS policies, but that they felt a strong responsibility to be sure that any such projects would be solidly based and supported, so that the VINP, having in good faith participated in a cooperative project, did not find itself after a period of time "holding the bag".)

Cultural Resources. Support was expressed for exterior rehabilitation and/or restoration of historic structures at selected locations on St. John, including Reef Bay, Brown Bay, Catherineberg, and Trunk Bay. Continuation and expansion of interpretive programs dealing with the vernacular culture of the islands was encouraged, and research to document and preserve St. Johnian folkways and oral history was endorsed. One suggestion was that an interpretive area be developed at

Lameshur Bay where local senior citizens could perform cultural demonstrations. It was also noted that a comprehensive archaeological survey of the park might be undertaken usefully.

Natural Resource Management. Pollution control, land based and on the waterways, is a matter of prevalent concern. It was emphasized that new park developments should not be located near the shore. Shore protection is vital to prevent environmental damage to beaches, coral beds, and mangroves. Comments regarding waste discharges in park waters varied from insignificant due to seaward currents to complaints that they are a potential attraction that might lure sharks into park swimming areas.

Wildlife management is also of concern. Specific issues discussed included controlling wild donkeys on St. John and liberalizing park restrictions on traditional seine fishing.

Development. The use and misuse of beaches in the park was a topic of concern. St. Johnians expressed a fear that Hawksnest Bay might become overdeveloped, or subjected to heavy use, as is the case with Trunk Bay. Some feel that Trunk Bay is currently over-used by tour groups and that the existing concession and dressing room facilities badly need upgrading.

Visitor Services. Other St. Johnians feel that the NPS should become more involved in community action and develop more recreation and interpretive programs for West Indian visitors. Criticism was leveled at the VINP for the lack of Virgin Islanders in park concessions, and it was recommended that concession contract bidding be more open to local people.

Other Issues. The VINP was urged to employ more Virgin Islanders in upper-level park positions, particularly in the area of community relations. An in-service training and educational program for local young people in park management was urged.

Comments were voiced about the relationship between the VINP and Caneel Bay Plantation. There were views that Caneel Bay has in the past received unfair preferential treatment by the VINP in concession bidding and NPS dock access.