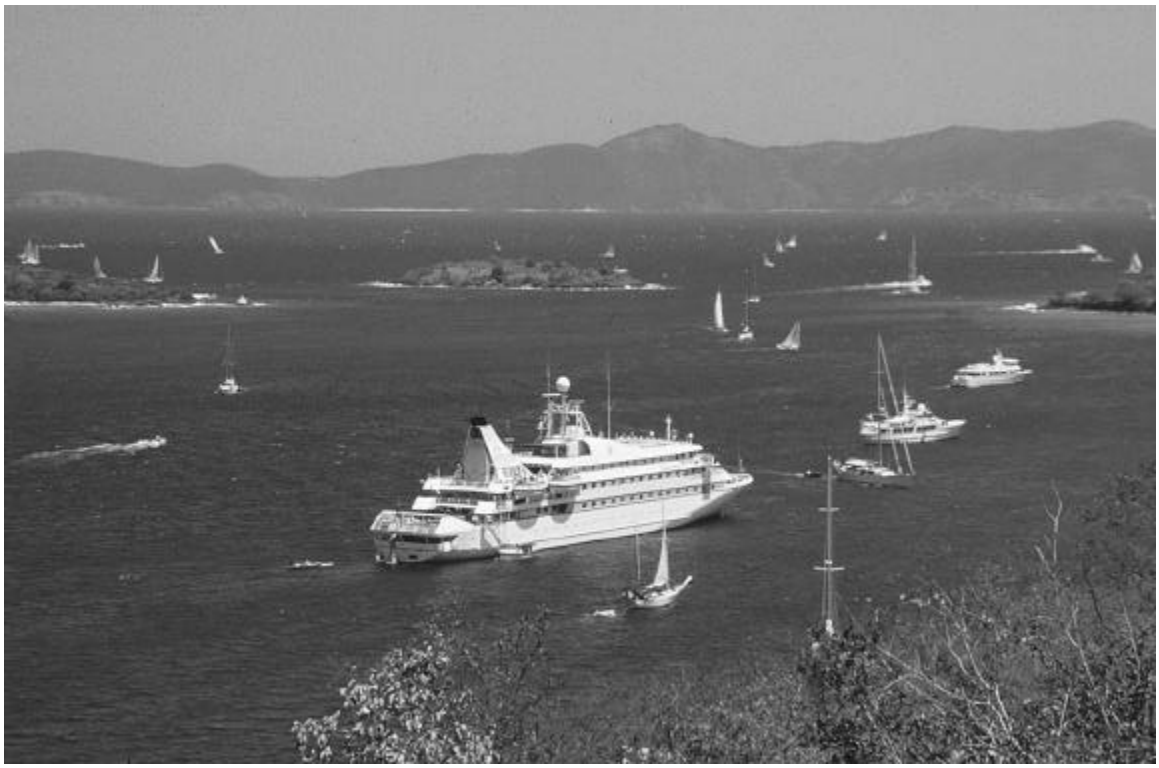
VIRGIN ISLANDS NATIONAL PARK

DRAFT
VESSEL MANAGEMENT PLAN
AND ENVIRONMENTAL ASSESSMENT

DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
SOUTHEAST REGION

MARCH 2002



This is a draft plan for the long-term (10-15 years) management of vessel use within the waters of Virgin Islands National Park (VINP). This management direction would supplement that provided for commercial vessels in the park's Commercial Services Plan (July 2001). The general public can use this document to become more informed about authorized vessel uses, anchoring and mooring, beach access, boating facilities and services, and operating requirements.

Comments and Availability

Comment on this Draft Vessel Management Plan/Environmental Assessment (Plan/EA) should be postmarked by _____ and addressed to:

Planning Office
National Park Service
Virgin Islands National Park
P.O. Box 710
St. John, Virgin Islands 00831
npplanning@islands.vi
340/776-6201x247

The Draft Plan/EA is available for public review at the following locations:

Elaine I. Sprauve Public Library St. John, VI	Enid M. Baa Public Library St. Thomas, VI
VINP Visitor Contact Station Cruz Bay; St. John, VI	National Park Service Headquarters Cristiansted; St. Croix, VI

The Draft Plan/EA may also be viewed at www.nps.gov/viis or www.friendsvinp.org. Printed copies of the Draft Plan/EA can be requested from the National Park Service at the address above; electronic copies can be requested by contacting npplanning@islands.vi

Important Notice

Reviewers should provide the National Park Service (NPS) with their comments during the review period for the Draft Plan/EA. This will allow NPS to analyze and respond to the comments at one time and to use information acquired in the preparation of a Final Plan/EA, thus avoiding undue delay in the decision-making process. Reviewers have an obligation to structure their participation in the National Environmental Policy Act process so that it is meaningful and alerts the agency to the reviewer's position and contentions. Vermont Yankee Nuclear Power Corp. vs. NRDC 435 U.S. 519.533 (1978). Environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the Final Plan/EA. City of Angoon vs. Hodel (9th Circuit, 1966) and Wisconsin Heritages, Inc. vs. Harris 490f. Supp. 1334, 1338 (E.D. Wis. 1980). Comments on the Draft Plan/EA should be specific and should address the adequacy of the analysis and the merits of the alternatives discussed (40 CFR 1503.3).

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historic places, and providing for enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to assure that their development is in the best interests of all. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

ACRONYMS AND TERMS

Action Alternatives	Alternatives other than Alternative 1, the No Action Alternative.
Anchorage	Area where boats concentrate to moor or anchor.
CFR	Code of Federal Regulations.
Commercial Vessel	Includes both "six-pac" and multi-passenger day sailboats, SCUBA vessels, kayaks, crewed charter sailboats and powerboats, and vessels associated with water sports operations. Bareboat charter vessels are not included and not subject to permit.
Commercial Services	Activities or services conducted in a park by private parties for which a fee is charged.
DN	Decision Notice
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
GMP	1983 Virgin Islands National Park General Management Plan
LOA	Length Overall
Megayacht	Luxury power or sail yacht at least 90 feet LOA
NEPA	National Environmental Policy Act
NPS	National Park Service
Plan	Vessel Management Plan
PAOT	Persons At One Time
VINP	Virgin Islands National Park
VMP	Vessel Management Plan

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CHAPTER I: PURPOSE AND NEED

A. INTRODUCTION

The waters of Virgin Islands National Park (VINP) have long been popular for both recreational and commercial boating. As elsewhere in the American and British Virgin Islands, these waters are blessed with steady trade winds, balmy weather, and sheltered harbors. Relatively remote seclusion with numerous beautiful anchorages and beaches are key attractions. Sailing has consequently been at the core of the park's history.

Today, approximately 25,500 boats per year moor or anchor in park waters, accounting for an average of 132,000 visitors annually. An additional 250,000 visitors are estimated to be transported by commercial vessels for day visits. In total, about one-third of park visitation is via water, with almost 95% of this visitation to north shore bays and beaches. The highest visitation is from mid-December to mid-April.

Approximately 60 commercial boating businesses operate in park waters, catering to both one-day cruise ship passengers and to longer-term St. John guests and residents. Crewed full-day, half-day and sunset sails to north shore beaches are the most popular commercial activities. An increasing number of crewed and bareboat powerboat rental operations provide access to park waters. Charter boats (both crewed and bareboat) typically use park waters for overnight mooring or anchoring as part of a multi-island cruise itinerary. Other commercial activities include diving, snorkeling, and guided kayak excursions. The majority of water sport operations are based out of St. Thomas marinas and resorts.

Like most national parks, Virgin Islands National Park is challenged by a dual mission to protect the scenic, natural and cultural resources for which the national park was established and to provide a quality and enjoyable experience for visitors, whether they be accessing the park by land or by water. Because of changing conditions and current trends toward increased visitation, there is concern about the future quality of visitor experiences, the types and levels of visitor uses, and the preservation of the park's scenic, natural and cultural resources. Because it is a key component of the visitor experience at VINP, the National Park Service (NPS) has prepared this Vessel Management Plan (VMP) to provide management direction for vessel use in the park over the next 10-15 years.

At the initiation of the planning process, the Vessel Management Plan was intended to provide long-term management direction for all vessel use of park waters, both recreational and commercial. Several months into the planning process, the park initiated a separate planning process to prepare a Commercial Services Plan. That Plan, approved in July 2001, provides detailed management direction for commercial vessel uses within the park (summarized in Section I.D.2.b). As a consequence, the scope of the Vessel Management Plan has been significantly reduced and focuses primarily on recreational vessel use. Also, the preparation of this Plan was delayed until the Commercial Services Plan was completed and approved.

Pursuant to NPS Director's Order 2, the VMP is an Implementation Plan that defines specific actions and projects to implement the general management direction provided in the 1983 General Management Plan (GMP) for VINP. Implementation planning focuses on how to implement a program or actions to achieve long-term goals established by the GMP.

The Plan and its accompanying Environmental Assessment (EA) have been prepared in accordance with the National Environmental Policy Act (NEPA) and NPS policy and guidelines. This EA is intended to serve as a site-specific analysis for proposed facilitites; no additional NEPA analysis would be conducted for authorized facilities.

The Proposed Action and alternatives assessed in this document are based on issues raised in scoping and the VINP's purpose and significance. The document discloses the potential environmental consequences that may result from implementation of alternative management strategies. Comments received during public review of this Draft Plan/EA will be considered in preparation of a Final Plan. The NPS decision will be documented in a Finding of No Significant Impact (FONSI) and a Decision Notice (DN) document.

B. LOCATION AND SETTING

VINP is located near the Tropic of Cancer in the northeast corner at the end of the Lesser Antilles that separate the Caribbean Sea from the Atlantic Ocean. The most northwesterly of this clustered island chain are the Virgin Islands of the United States and Great Britain, and approximately 113 kilometers (70 miles) to the west, the U.S. Commonwealth of Puerto Rico. The U.S. Virgin Islands, made up of three main islands and 57 smaller, mostly uninhabited islands and cays, are found near the crossing of 18 degrees north latitude and 64.5 degrees west longitude. The island of St. John (52 square kilometers or 20 square miles) is the smallest and least developed of the three main U.S. owned Virgin Islands. St. Croix (218 square kilometers or 84 square miles) lies approximately 64 kilometers (40 miles) to the south of St. John, and St. Thomas (83 square kilometers or 32 square miles), lies about 4 kilometers (2.5 miles) to the west. In 2000, the population of St. John was 4,197 persons.

VINP comprises a little over half (9,485 acres) of the island of St. John. Established in 1956, the park was expanded in 1962 to encompass 8.7 square miles of the surrounding waters. Within the authorized boundaries of VINP, three square miles are owned by either private interests or the Virgin Islands government. In 1978, Congress authorized the addition of approximately 135 acres on Hassel Island in the Charlotte Amalie harbor, St. Thomas to the park. Also on St. Thomas, approximately 15 acres in the Red Hook area are under park jurisdiction and, until recently, served as the park's administrative headquarters.

The marine or water portion of VINP comprises approximately 5,650 acres, consisting of 4,100 acres off the north shore of St. John and 1,550 acres off the south shore. These submerged lands and waters comprise 41% of the total area of the national park. *A brief description of the primary bays and beaches within the park is provided in Chapter III.*

Because of its internationally significant natural resources, VINP was designated an international Biosphere Reserve in 1976 and is one of the few biosphere reserves that has both marine and terrestrial resources. The park was included in the United Nation's Biosphere Reserve System as a representative example of Lesser Antillean cultural and natural ecosystems.

VINP contains examples of most tropical Atlantic terrestrial, coastal and marine ecosystems. These include various types of subtropical dry to moist forest, salt ponds, beaches, mangroves, seagrass beds, coral reefs and algal plains. Terrestrial topography is quite dramatic with average

Figure 1: Location of St. John, Virgin Islands

slopes being 30 percent. The highest mountain peak plunges sharply to the sea over a distance of three quarters of a mile. Rock petroglyphs, middens and three settlements are several of the remains of prehistoric cultures found to date. European settlement patterns and plantation systems significantly altered St. John's biology and ecology by removing native forests, building structures, terraces, rock walls and roads, and importing vegetation and mammals. The plantation settlements took advantage of the labor of African slaves. The last four decades have brought considerable change on St. John through the development of vehicular transportation and roads, resorts and other tourist facilities.

In terms of visitor attractions, scenery and beaches are probably the most significant features of VINP. However, there are about 400 historic structures within the park, most of them remnants of the Danish sugar plantation era, which are increasingly popular with tourists. Over the past ten years, visitation to VINP has averaged approximately 942,800 persons annually.

C. PURPOSE AND NEED

The purpose of the Vessel Management Plan is to provide long-term (10-15 years) management direction for vessel use within the waters of Virgin Islands National Park. This management direction would supplement that provided for commercial vessel uses in the recently approved (July 2001) Commercial Services Plan. While the Commercial Services Plan provides detailed management direction on the authorization of commercial vessel activities, it does not provide management direction for recreational vessels nor address issues such as overall carrying capacity for vessels, anchoring and mooring, beach access, boating facilities and services, and regulations for operating vessels. Similarly, the park's 1983 General Management Plan (GMP) provides little specific direction on vessel uses and did not anticipate any significant increase or change in vessel use of park waters.

The use of VINP has grown dramatically over the last two decades and is expected to continue to increase. While the number of vessels using park waters has fluctuated over the past 30 years, it currently exceeds 25,000 overnight visits annually and is growing. On peak days, more than 300 boats may be within park waters at one time, including 60 commercial vessels. The wide range of vessel types, both private and commercial, and their varying needs for services and effects on park resources and operations necessitate detailed management direction.

Concerns over environmental impacts, visitor conflicts, wildlife disturbance, noise, and safety have increased as visitation to the park has grown. Increasing use levels affect scenic, natural and cultural resources. The quality of the natural environment, the caliber of the visitor experience, and the livability of the island are all dependent upon the management of this growth. As tourism growth escalates, allowing unlimited visitor use can destroy the very qualities of the national park that attracts visitors and residents alike.

Both a literature review and interviews with local scientists indicate that the marine resources within VINP are not as healthy as expected given 45 years of NPS protection, with no significant difference within versus outside the park. The abundance, the diversity and size of marine resources have been drastically reduced. Given past trends and current types and levels of park use, future projections for marine resources within VINP are for a continuing slow to moderate decline. The need to protect the park's resources, particularly its marine resources, is even more compelling when the increasing deterioration of marine areas throughout the Caribbean is

considered. The NPS probably has a better chance to protect marine resources in the Virgin Islands than any other agency or government.

Research indicates that damage from improper anchoring and boat groundings on coral reefs and seagrass beds has been significant. Historic aerial photographs show that most of the park's bays once had large seagrass beds, many of which have been lost or seriously degraded. Many reef communities in shallow water have been significantly damaged by anchors as well. The installation of 215 moorings on the park's north and south shores is allowing for recovery of seagrass in a number of park bays. However, the mooring system needs to be reviewed to determine whether additional moorings should be installed or existing moorings removed to protect marine resources, as well as to meet the changing needs of the boating community (e.g., larger vessels, growth in powerboat rentals). Direction is also needed on where anchoring is appropriate and inappropriate in park waters. Operational issues such as vessel speed, noise and lighting need to be addressed to ensure that threatened, endangered and other sensitive species are being adequately protected.

NPS is required by law to address carrying capacity in planning for park management. The 1983 GMP calculated carrying capacities for park facilities, including some of the anchorages within park waters, but did not establish them as any type of limitation on visitation. However, these capacities were calculated prior to the installation of moorings and detailed marine resource surveys and need to be re-examined. Additionally, no capacities were calculated for a number of bays regularly used by commercial and recreational boaters.

Long-range planning and guidance is needed to assure that appropriate and adequate services are available to the visiting public, including that which arrives by and recreates at sea. Vessel uses, most notably sailing and powerboat excursions, are a key component of the Territory's tourism and recreation industry. At the same time, promoting tourism for the sake of the economy is not the primary role of the Park. Vessel uses, like other forms of tourism, need to be managed so that they leave the park's terrestrial and marine resources, scenery and cultural resources unimpaired for the enjoyment of future generations.

Additional explanation of the purpose and need for specific Plan elements is provided in Chapter II.

D. MANAGEMENT DIRECTION

1. OVERALL PARK MANAGEMENT

a. Enabling Legislation and Park Purpose

On August 2, 1956, Congress established a portion of the U.S. Virgin Islands "containing outstanding scenic and other features of national significance" as the Virgin Islands National Park, to be "administered and preserved…in its natural condition for the public benefit and inspiration…" (70 Stat. 940). In October 1962, Congress expanded the park's boundaries to include offshore areas "in order to preserve for the benefit of the public significant coral gardens, marine life, and seascapes…" (76 Stat. 746) This act also specified that there was no intent to limit customary uses of or access to offshore areas "for bathing and fishing, subject to regulations as the Secretary of Interior may find reasonable and necessary for protection of natural conditions

and prevention of damage to marine life and formations". In 1978, Hassel Island, which is located in St. Thomas harbor, was added to the Park and not more than $1 million was authorized to be spent to restore and rehabilitate historic structures and develop public facilities on the island.

All activities at VINP are governed by the 1916 Organic Act that created the NPS and congressional and presidential directives. Congress's mandate to the Park Service has been expressed as conserving resources while providing for their enjoyment by today's citizens in a manner that will leave them unimpaired for future generations. Specifically, in 1916, Congress created the National Park Service in the Department of the Interior to:

> Promote and regulate the use of the Federal areas known as national parks, monuments, and reservations by such means and measures as conform to the fundamental purpose of said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations. (NPS Organic Act, 16 USC 1)

Congress supplemented and clarified these provisions through enactment of the General Authorities Act in 1970 and an amendment to that Act in 1978 that expanded Redwood National Park:

> The authorization of activities shall be construed and the protection, management and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which the various areas have been established, except as may have been or shall be directly and specifically provided by Congress. (16 USC 1a-1)

NPS policy is to encourage recreational activities within national parks that are consistent with applicable legislation, that promote visitor enjoyment of park resources through a direct association or relation to those resources, that are also consistent with the protection of resources, and that are compatible with other visitor uses. Any activity may be regulated or special regulation or by restrictions imposed under the Superintendent's discretionary authority (36 CFR 1.5).

In providing for the enjoyment of park resources and values, NPS is required to consider the "enjoyment" of all people of the United States. This includes people who visit parks as well as those who appreciate them from afar. Congress, recognizing that the enjoyment by future generations of national parks can be assured only if the superb quality of park resources and values is left unimpaired, has provided that when there is a conflict between conserving resources and values and providing for the enjoyment of them, conservation is to be predominant.

b. Park Mission and Significance

The VINP mission statement is based upon the park's enabling legislation and the 1998 Strategic Management Plan, which was required of all federal agencies by the Government Performance and Results Act (GPRA):

> The mission of the Virgin Islands National Park is to preserve and interpret the significant natural and cultural resources and scenery for public benefit and inspiration.

The park's mission goals describe the desired future conditions for resource protection and the visitor experience. Goals with a direct impact on vessel uses include:

- Scenic, natural and cultural resources and associated values are protected, restored and maintained in good condition and managed within their broad ecosystem and cultural context.
- Visitors safely enjoy and are satisfied with the availability, accessibility, diversity and quality of facilities, services and appropriate recreational opportunities.
- Park visitors and the general public understand and appreciate the preservation of parks and their resources for this and future generations.

VINP's significance is based upon its scenic, natural and cultural resources and values that must be preserved unimpaired to accomplish the park's purpose. In terms of visitor attractions, scenery is the park's most significant feature. However, the park's natural resources are national and internationally significant in that they provide an example of a tropical environment where the processes of nature can be observed, studied and used as a base for comparing natural ecosystems in similar areas. The park's cultural resources are significant in the settlement and colonization of the New World and in maritime history and commerce.

c. General Management Plan

General Management Plans (GMPs) are required for each unit of the national park system. These plans provide direction for visitor use and resource preservation and provide a basic foundation for decision-making and management of the park. To this end, the 1983 General Management Plan for VINP identifies the park's significant resources; existing patterns of visitor use; improved opportunities for visitors to directly experience the park; management strategies to perpetuate and enhance significant resources and environmental systems; and developments to facilitate use, offset visitor impacts and meet NPS operational requirements.

The GMP divides the park into three types of management zones: natural, historic and development. Most of the park is managed as a natural area including the protected area subzone which contains the largest acreage and consists of terrestrial and aquatic features such as native tropical forests, salt ponds, fringing mangroves, coral reefs and seagrass beds. These areas have a heavy emphasis on protection of the resources with minimal human intrusion. The recreational natural area subzone includes the north shore beaches, hiking trails and reef areas where water-based recreation is encouraged.

Specific GMP provisions affecting vessel uses include:

- General upgrading of existing beach facilities on St. John will improve the visitor experience and accommodate the slight increase in park use envisioned for the future.
- Existing patterns of visitor use will continue; however, some facilities and services will be improved. The present variety of resource-related activities and social interactions will be maintained.
- Redhook on St. Thomas will continue to be the primary departure point for visitors to St. John. Cruz Bay will remain the arrival point. Tour groups will continue to use the NPS dock on St. John where visitor contact and information will be improved. Individual visitors will continue to use the public ferry dock.
- Trunk Bay will continue to be the principal beach access and day use area serving tour groups and other visitors.
- At Caneel Bay, the private resort will continue to operate compatibly with park objectives.

- Cinnamon Bay will be retained as a principal developed area for day use and overnight accommodations. The concessionaire-operated campground, cafeteria, campstore and equipment rental will continue.
- At Maho Bay …the private campground provides accommodations compatible with park objectives so beach and water use permits will be continued.
- Francis Bay will continue to be a principal anchorage and beach area for boaters and land-based facilities will be improved.
- Saltpond Bay will continue to be a low-use beach area.
- In the roadless unit, access will continue to be by trail or by boat to selected features and the minimal facilities will be improved; however, the primitive character and low density use of the unit will be maintained.
- The marine unit will be managed to protect water quality and marine life and to enhance safety. At sites frequented by boaters, resource protection and other boating information will be provided. Markers will be maintained to designate swimming areas and some anchorages to protect resources and for visitor safety. At selected anchorages where boating use is heavy and benthic resources are vulnerable, moorings may be provided. Garbage facilities will be provided for boaters near present beach areas.
- Territorial and federal boating restrictions prohibiting boat waste discharges will continue to be enforced.
- In park waters, programs will be continued or initiated to maintain the health of the marine environment. Through cooperation with other federal and territorial agencies, terrestrial and water-borne pollution sources will be identified and controlled. A contingency plan will be developed in cooperation with the U.S. Coast Guard and the Virgin Islands government to deal with oil or toxic substance spills that may threaten the resources.
- Fisheries management in the park will protect natural conditions and prevent damage to marine life and formations. Interpretive programs will be designed to better educate boaters and divers on nondestructive use of reef and seagrass areas.
- Marine resources to be monitored as a basis for management actions include: marine water quality (specifically to detect pollutants, excessive sedimentation, and offshore oil spills), commercial and sport fishing, and diver and boater impacts on coral.

The GMP established the following priorities for allocating the park's staff and financial resources:

- Maintain habitat for endangered species and preserve selected cultural resources that are imminently threatened.
- Perpetuate intact marine and terrestrial ecosystems.
- Provide for visitor use.
- Stabilize disturbed ecosystems.

d. Biosphere Reserve

In 1976, the park was designated as a Biosphere Reserve by the United Nations Educational, Scientific and Cultural Organization (UNESCO) through its Man and the Biosphere (MAB) program. It is the first biosphere reserve in the Lesser Antilles, a region of many developing countries. The concept of a Biosphere Reserve emphasizes the interrelationship of humans and the natural world, embracing both the park and the surrounding areas and communities. It illustrates the careful balance between conservation and development.

The park is recognized as internationally significant. It was selected because it represents the Lesser Antillean biogeographic province, because it contains a national park which provides

long-term legal protection from inappropriate development and rapid change, and because it has an extensive dry subtropical forest. These natural resources provide a relatively undisturbed example of tropical ecosystems where the processes of nature can be observed, studied and used as a basis for comparison to similar ecosystems elsewhere that are undergoing rapid development and alteration.

e. Coral Reef Initiative

On June 11, 1998, President Clinton signed Executive Order 13089 directing all federal agencies to increase their efforts to protect the nation's coral reef resources. The Order created the U.S. Coral Reef Task Force, charged with developing a comprehensive program of inventorying, monitoring, and research to map and identify the major causes and consequences of degradation of coral reef ecosystems. The Order directs Federal agencies to use their authorities to protect coral reef ecosystems and, to the extent permitted by law, prohibits them from authorizing funding or carrying out any actions that will degrade these ecosystems. The Task Force has produced *The National Action Plan to Conserve Coral Reefs* as a cohesive national strategy to implement the President's Executive Order. The Action Plan was developed in consultation with various stakeholders and covers the spectrum of coral reef conservation from mapping, monitoring, management, and research to education and international cooperation. The plan calls for designating 20% of all U.S. coral reefs as no-take ecological reserves by 2010, mapping all coral reefs by 2009, and building an integrated national reef monitoring system that profiles and tracks the health of U.S. coral reefs. Collectively, these actions are intended to provide a comprehensive road map for federal, state, territorial, and local actions to reverse the worldwide decline and loss of coral reefs.

f. Other Direction

Park resources and values are also protected by a variety of other statutory authorities. Key authorities to be considered in the authorization and management of vessel uses within VINP include: Territorial Submerged Lands Act of 1974 (48 USC 1705); Archeological Resources Protection Act (16 USC 470aa et seq.); Abandoned Shipwreck Act (102 Stat. 432) and guidelines (55 CFR 50116); Clean Air Act as amended (42 USC 7401 et seq.); Endangered Species Act (16 USC 1531 et seq.); Marine Mammal Protection Act (16 USC 1361 et seq.); Ocean Dumping Act (16 USC 1361 et seq.); Noise Control Act (42 USC 4901 et seq.); and Coastal Zone Management Act (16 USC 1451 et seq.).

Other authorities involved with enforcing laws relating to use of park waters include the U.S. Coast Guard and the Virgin Islands Department of Planning and Natural Resources. Territorial rules and regulations of particular relevance include the Coastal Zone Management Act of 1978 (Title 12, Chapter 21 VI Code) and the Mooring and Anchoring of Vessels and Houseboats Act of 1990 (Title 25, Chapter 16 VIRR).

2. MANAGEMENT OF VESSEL USE

a. CFR and Compendium

The Superintendent's Compendium details the special designations, closures, public use limits, permit requirements and other restrictions imposed under the discretionary authority of the

Superintendent. The Superintendent's authority to implement these provisions is found in Title 36, Code of Federal Regulations (CFR), Section 1.5(a). The compendium is reviewed and updated annually to ensure adequate protection of the park's resources, provide for public safety and enjoyment, and to address changes in public use patterns.

The Compendium is utilized in conjunction with Title 36, Code of Federal Regulations, which includes the full text of National Park Service regulations. Chapter I, Parts 1-7, of Title 36, include sections addressing resource protection, public use, recreation, boating, vehicles and traffic safety, commercial operations, and special regulations. These regulations are applicable on all federally owned lands and waters within the boundaries of Virgin Islands National Park and on lands and waters under the administrative control of the National Park Service. In addition, certain regulations found within Title 36 are applicable on non-federally owned lands under the legislative jurisdiction of the United States.

Unless specifically revised by this Plan, the following vessel-related requirements and restrictions from the Superintendent's Compendium remain in effect.

<u>Section 1.5: Closures and Public Use</u>

Vessel Size

- Vessels with an overall length on deck greater than 210 feet are prohibited from anchoring or mooring within park waters.
- Commercial vessels with an overall length on deck greater than 125 feet are prohibited from anchoring or mooring within park waters.
- Private vessels between 125 and 210 feet in overall length may anchor only in sand in Francis Bay. Anchoring must be at least 500 feet seaward of the shoreline and at depths greater than 30 feet.
- Vessels less than 26 feet in overall length may access NPS beaches where channels have been designated by a red and green buoy.

Swim Areas and Resource Protection Areas

- Vessels may not enter or anchor in areas marked as Boat Exclusion Zones, designated by white oblong buoys marked with "NO BOATS" and/or the international swimming symbol – an orange diamond with an orange cross in it. Exceptions are made for watercraft less than 12 feet in length, hand propelled without any motor attached, and inflatable without a hard bottom.
- Vessels may not enter areas marked with resource protection buoys.

Anchoring and Mooring

- Vessels are not permitted to anchor within 200 feet of any marker buoy.
- Vessels over 12 feet in overall length may not anchor within park waters on the south side of St. John. Vessels must utilize moorings provided by the NPS. The only exception is that anchoring is permitted for the specific purpose of fishing for Blue Runner in the area due south of Cabritte Horn Point.
- Vessels greater than 60 feet in overall length are prohibited from using NPS provided moorings.
- Setting of anchors is prohibited while on moorings provided by the NPS. Vessels using NPS moorings may not use additional ground tackle.
- Rafting of vessels is not permitted while using NPS provided moorings.
- Vessels anchoring or mooring within park waters may be subject to length of stay limits

imposed by the Superintendent.

- Anchoring is prohibited within beach access channels marked by red and green buoys

Other Water Operations

- Vessels docking at the Cruz Bay finger pier are limited to (15) minutes to load and unload passengers.
- Docking at the NPS pier at Red Hook is by special use permit only.

Boat Launching

- Boats may only be launched at designated boat launching ramps during daylight hours. Parking of trailers, boats and vehicles in the ramp areas may not exceed 24 hours.
- Boats may be launched at Leinster Bay adjacent to the paved roadway.

Section 2.1: Preservation of Natural Features

- Dinghies may not be secured in any way to any natural feature including rocks and vegetation.

Section 3.6: Boating and Water Use Activities

- Operating a vessel in excess of 5 mph or creating a wake is prohibited in park waters at the following locations: Salomon Bay and anchorage area, Caneel Bay and anchorage area, Hawksnest Bay, Jumbie Bay, Maho Bay, Francis Bay, Leinster Bay, Red Hook boat docking area, Cruz Bay boat docking area, Lameshur boat docking area, Cruz Bay, Trunk Bay, Salt Pond Bay, in any dinghy channel, and in locations designated as "no wake" areas by the posting of signs/markers.

Section 3.20: Water Skiing

- The towing of any person or recreational device is prohibited in park waters.
- Commercial kite skiing operations are prohibited.

Section 3.24: Personal Watercraft

- The use of personal watercraft (PWC) such as a jet ski or similar type device is prohibited.

b. Commercial Services Plan

Detailed management direction for commercial vessel uses of park waters is provided in the July 2001 *Commercial Services Plan*. Key vessel-related provisions of that Plan include:

- Identification of appropriate and inappropriate commercial vessel uses; for example, commercial vessels over 125 feet, including mini-cruise ships, are no longer authorized to operate in park waters. Private vessels between 125-210 feet may continue to anchor in Francis Bay, in sand, and 1,000 feet from boat exclusion buoys;
- Authorization of specific water-based commercial activities through Incidental Business Permits (renamed to Commercial Use Authorizations by the 1998 National Park Service Concessions Management Improvement Act). This includes a requirement that sailboat and powerboat rental companies obtain permits for their day use crewed excursions.
- Limitations on the number of certain types of commercial vessels, as well as the number of visitors at one time accessing bays and beaches by commercial vessel. Specifically, the number of permits available for larger multi-passenger vessels (more than 12 passengers) is capped close to or at current levels;
- Closure of certain bays and beaches to commercial vessel access;

- Operation of NPS dock at Red Hook through a concession contract; and
- Contracting for the collection of mooring and anchoring fees under Recreational Fee Demonstration Program authority.

Pursuant to 40 CFR 1502.21, the *Commercial Services Plan* is incorporated by reference. It is available for review at www.nps.gov/viis or www.friendsvinp.org. Printed or electronic copies can be requested from the Superintendent's Office.

E. SCOPING AND SIGNIFICANT ISSUES

1. SCOPING PROCESS

Scoping is the process used to determine the scope of the analysis to be conducted in preparing the Vessel Management Plan and its accompanying Environmental Assessment (EA). It is used early in the NEPA process to identify: (1) the issues to be addressed, (2) the depth of the analysis, (3) alternatives to assess, and (4) potential environmental and socioeconomic impacts of the various alternative management actions. The minimum public involvement requirements of NEPA (40 CFR 1501.7) are being far exceeded in order to develop a Plan with few to no surprises for the public.

The scoping process has had four distinct stages: (1) scoping for issues to be addressed in the Plan, (2) scoping for the Significant Issues to be analyzed in detail in the plan, (3) scoping for a draft range of alternatives, and (4) scoping for a Preliminary Draft Preferred Alternative.

The scoping process began with announcement of the planning process in April 1999, although the formal public review process was not initiated until November 1999. At that time, a community open house and a scoping questionnaire was distributed. Press releases were widely distributed during the first week of December and a press briefing was conducted on December 10, 1999. Wide press coverage resulted. Scoping activities included:

- Four public open houses in December, 1999 and January, 2000 on St. John and St. Thomas.
- Briefings/interviews with NPS staff; staff of the Congressional Delegate's Office; the St. John Administrator; Territorial Senator; USVI Department of Planning and Natural Resources; marine industry representatives; concessionaires and IBP holders; and other key community leaders and interest groups.
- Presentations and/or workshops with interest groups.
- Distribution of over 700 project newsletters with scoping questionnaires.
- Posting of press releases and the project newsletter/questionnaires on the web sites for VINP and the Friends of the VINP.

Almost 200 persons attended the open houses and an equal number participated in presentations or workshops. More than 65 scoping questionnaires were submitted. A *Scoping Report* summarizes the issues raised during this first phase.

Through an April, 2000 newsletter, presentations to interest groups, and media coverage, public input was then solicited on the "Significant Issues" to be addressed in the Plan. In June 2000, public and agency input was solicited through a project newsletter, media coverage, and interest group presentations on a preliminary range of three alternatives proposed for detailed assessment

in the Plan. A *Range of Alternatives* report was widely disseminated. In July 2000, a *Preliminary Draft Preferred Alternative* report was circulated for public review. Based upon input received, the Proposed Action was modified and identified as the Preferred Alternative in this Draft Plan/EA.

2. SCOPING ISSUES

a. Issues To Be Addressed In The Plan

Based upon public and agency comments received during the scoping process, 40 different issue statements addressing 11 topic areas were identified for analysis in the Plan/EA. These issue statements have been compiled and paraphrased as planning questions in a *Scoping Report: Vessel Management Plan* (April 2000). This document is available for review at the Superintendent's Office.

NEPA requires federal agencies to focus analysis and documentation on the significant issues related to a proposed action. The following have been identified as the significant issues to serve as the basis for developing and comparing alternatives. These significant issues provide the key options for decision-making, i.e., the plan assesses various alternative "choices" that respond to each of these issues. While the Plan/EA focuses on these significant issues, all issues identified through scoping are addressed.

Issue: *Appropriate Uses Within Park Waters*

1. Should ferries and commercial vessels passing through Park waters to destinations elsewhere be diverted outside Park waters for safety, environmental and other reasons?
2. Should loud, high speed boats (e.g., cigarette boats) be barred from Park waters?
3. Is the anchoring/mooring of large cruise ship passenger transport vessels within Park waters appropriate?

Issue: *Carrying Capacity Limitations*

4. What limitations on vessel uses of specific bays and beaches are needed to protect Park resources and to ensure a quality recreational experience?

Issue: *Anchoring and Mooring*

5. Should additional anchorless areas be designated?
6. Should specific anchoring areas be designated?
7. Should additional moorings, including moorings reserved for vessels 60-75' in length and a hurricane mooring in Mary Creek, be provided?
8. Should moorings be removed to provide additional anchoring opportunities?
9. Does the current location of moorings provide sufficient and convenient access for swimming/snorkeling uses? Should anchoring close to/on beaches be accommodated, particularly by commercial multi-passenger vessels?
10. Is it appropriate to authorize the installation/maintenance of moorings by private parties?
11. Should moorings be reserved for commercial day use and commercial overnight operators?

Issue: *Beach Access and Use*

12. What is appropriate in terms of dinghy access to beaches?

13. Should dinghy tethers be installed at popular snorkeling/swimming sites, e.g Honeymoon Beach and Little Cinnamon Bay?

Issue: *Boating Facilities and Services*

14. What additional dock space in Cruz Bay for both dinghies and larger vessels should be provided by the Park Service? For what timeframe should dock space be made available?
15. Should the Park Service provide pump-out facilities? What are the requirements for the use, operations, locations and financing of pump-out facilities if provided?

Issue: *Use Regulations*

16. Should appropriate speed limits and/or no wake zones be established in all anchorages and swimming areas?
17. Should a maximum speed limit throughout park waters be instituted?
18. Should the use of multiple spotlights to attract baitfish or the use of halogen lights be regulated?

During scoping for this Plan, future commercial services on Hassel Island was identified as a significant issue and addressed in the Range of Alternatives and Preliminary Draft Preferred Alternative. However, given its focus on commercial uses, this issue has been assessed in the recently completed *Commercial Services Plan* and is not addressed here.

b. Issues Beyond Plan's Scope

Fishing within park waters.

- Because of their complexity, fishing issues will be addressed through a separate future planning process.

Hazardous materials spill prevention and containment.

- Authority to address this issue resides with the U.S. Coast Guard, U.S. Environmental Protection Agency and the Territorial Government.

Reduction in the use of multiple lights by large vessels.

- While perhaps desirable from energy conservation and aesthetic perspectives, the National Park Service does not believe it appropriate to regulate the number of lights in use on a vessel.

F. COORDINATION AND CONSULTATION

An Interdisciplinary Team (IDT) was established at the initiation of the planning process to assist in identifying significant issues and a range of alternatives to assess in the EA. The IDT consists of representatives of each Park Division and the Biological Resources Division, USGS (see Chapter VI: List of Preparers). In addition, a Sounding Board, composed of volunteer representatives of Park user groups, community organizations, and the Territorial government, provided input at key stages of plan development.

Section 7 of the Endangered Species Act (ESA) requires that a federal agency consult with the U.S. Fish and Wildlife Service (USFWS) or U.S. National Marine Fisheries Service (NFMS) on any action that may affect endangered or threatened species, candidate species or result in adverse

modification of critical habitat. NPS initiated consultation with USFWS and NMFS in April 2000; this consultation is ongoing. An updated list of threatened and endangered species that may occur within the park is provided as Appendix A.

With release of this Draft Plan/EA, formal consultation will be initiated with the State Historic Preservation Office regarding effects on archaeological and cultural resources, including submerged resources, in accordance with the National Historic Preservation Act, Archaeological Resources Protection Act, and NPS policy. Similarly, consultation will be initiated with the Territory's Department of Planning and Natural Resources in conformance with the Coastal Zone Management Act.

Coordination with the Territorial government has been ongoing since initiation of the planning process through briefings, distribution of draft documents, and representation on the Sounding Board.

CHAPTER II: RANGE OF ALTERNATIVES

A. DEVELOPMENT OF ALTERNATIVES

The National Environmental Policy Act (NEPA) requires that a reasonable range of alternatives be developed to provide decision-makers and the public with a clear basis for choice (40 CRF 1502.14). Case law has determined that reasonable alternatives include those that are technically and economically practical and feasible, using common sense, rather than those that are simply desirable (46 CFR 18027, *Forty Most Asked Questions Concerning CEQ's NEPA Regulations*).

Based upon the issues identified through scoping, the project's Interdisciplinary Team (IDT) preliminarily identified a range of three alternatives for detailed assessment in the Plan/EA. Public comment was solicited through distribution of a *Range of Alternatives* report, a June 2000 newsletter, and group presentations. Based upon that input, a Preliminary Draft Preferred Alternative (PA) was identified in early July 2000 and circulated for public review. That Preliminary Draft Preferred Alternative, in turn, has been revised in response to public and agency comment and analyzed as the Proposed Action in this Draft Plan/EA.

Through public input, a variety of revisions were identified to specific elements of the preliminary draft preferred alternative identified by the IDT. Other than establishment of an anchorless park, no other distinct alternatives have been identified. Consequently, differences between the action alternatives are minimal and focus on the numbers of proposed facilities and how to apply proposed new regulations on vessel uses.

Establishment of an entirely anchorless park has been eliminated from detailed consideration in this Plan but may be re-evaluated during update of the park's General Management Plan. To implement an anchorless alternative would require the installation of numerous additional moorings, including moorings capable of accommodating vessels up to 210 feet in length and a significantly increased enforcement presence. Alternatively, the number of vessels visiting the park could be limited to that accommodated by the existing mooring system, also requiring a significantly expanded enforcement program and closing access to the park by any vessel larger than 60 feet (the current mooring buoy capacity). In either case, funding is not and would not be expected to be available to implement these scenarios. While the south shore has been designated as an anchorless area because of its role as a Biosphere Reserve, there is inadequate evidence to justify establishment of the entire north shore as anchorless from a resource protection or impairment perspective. The IDT believes that the park's resources would be adequately protected from impairment by boating activities through the implementation of the Proposed Action combined with existing measures, specifically the south shore anchoring prohibition, the north shore mooring system, and existing regulations.

B. ALTERNATIVES CONSIDERED IN DETAIL

A range of three alternatives, including a No Action alternative and the agency's Proposed Action, is analyzed in this Draft Plan/EA. This range of alternatives is intended to provide clear choices for the decision-maker and to respond to public comment, particularly significant issues raised in scoping.

As required by NEPA, Alternative 1 is included as a "No Action" alternative, serving as a benchmark against which other action alternatives can be compared. This alternative represents the state of management of vessel uses of park waters at this point in time, with current regulations remaining status quo. Two action alternatives take somewhat different approaches to managing increasing and changing vessel use of park waters without compromising the resource values for which the park was established.

Alternative 2, the agency's Proposed Action, identifies those management strategies that the NPS believes best fulfill its statutory mission and responsibilities; best meet the Purpose and Need and respond to the Significant Issues; and balance environmental, visitor experience, economic, and other factors. This alternative has been designed to provide a higher level of resource protection for sensitive park resources, particularly federally-listed threatened and endangered species. It is also designed to ensure a quality visitor experience by responding to anticipated increases in vessel use, as well as changes in the types of vessels visiting park waters (e.g., larger cruising vessels).

Alternative 3 is designed to accomplish essentially the same goals as Alternative 2 but with a stronger focus on expanded visitor opportunities and a lower level of regulatory oversight. It accommodates a slightly higher level of vessel use within the park than does Alternative 2.

The analysis of alternatives is organized to respond to the significant issues identified through scoping. Brief explanations of the purpose and need related to specific plan elements are provided to supplement that in Section I.C.

1. CAPACITY AND USE LIMITATIONS

a. Size Limitations

Common To All Alternatives

While no vessels would be prohibited from entering park waters, all vessels in excess of 210 feet would continue to be prohibited from anchoring or mooring in Park waters. Pursuant to the Commercial Services Plan, commercial vessels over 125 feet, including mini-cruise ships, would not be authorized to anchor or moor in park waters. Recreational (non-commercial) vessels between 125-210 feet would be authorized to anchor in Caneel Bay or Francis Bay, in sand and 1,000 feet from boat exclusion buoys.

b. Capacity Limitations and Closures

Common To All Alternatives

Due to sensitive natural resources and/or insufficient infrastructure, certain bays and beaches have been closed to commercial vessel access by the July 2001 Commercial Services Plan. These closures would be common to all alternatives. Other bays and beaches could be closed to commercial and/or recreational vessel use for protection of federally-listed species or for other appropriate reasons.

Alternative 1: No Action

The 1983 GMP calculated carrying capacities for park facilities, including some of the anchorages within park waters, but did not establish them as any type of limitation on visitation. Carrying capacities for commercial vessels have been established by the Commercial Services Plan through limitations on the number of permits available for multi-passenger commercial vessels, as well as on the number of visitors at one time accessing bays and beaches by commercial vessel.

Commercial vessel uses would continue to be controlled through the commercial use permitting process. There would be no limitations on the number of recreational vessels in park waters in this alternative, except that south shore use would be limited by the number of moorings available. Additionally, no bays would be closed to recreational vessel access for mooring or anchoring (north shore only) conducted in accordance with existing regulations.

Alternatives 2 and 3

Capacity limitations for commercial vessels would be as described for Alternative 1. No specific capacity limitations would be established for recreational vessels. On the south shore, the number of vessels would continue to be limited by the number of moorings. The number of available moorings would also serve as a defacto control on the number of vessels in most north shore bays for the following reasons:

- Most boaters prefer the convenience and security of mooring. Observation indicates that 90-95% of boaters choose to use park moorings when available.
- Anchoring for most vessels would be restricted to areas seaward of mooring fields and thus be limited by water depth, conditions (currents), and distance to shore. Water depth in particular would preclude many smaller vessels from anchoring.
- Most boaters are seeking solitude and would avoid crowded anchorages when possible.
- Except for peak periods, the number of existing moorings would be expected to be adequate to accommodate demand, except for vessels greater than 60 feet in length.

The cumulative effects of ongoing recreational vessel use of Mary Creek, Brown Bay, Mennebeck Bay, and Haulover Bay (which are closed to commercial use) would be monitored on a regular basis and could be curtailed or modified if adverse effects to natural resources occur.

c. Length of Stay

Alternative 1: No Action

Currently, all vessels are limited to 14 nights, per calendar year, when mooring or anchoring in park waters, except as authorized by a written permit from the Superintendent (Superintendent's Compendium, 36 CFR Section 1.5). The purpose of this limitation is to prevent persons from living in the park onboard a vessel; monopolizing available services, e.g., moorings; or storing vessels. In this alternative, there would be no change in this 14-day limitation.

Alternative 2: Proposed Action

The current 14-day limitation would be modified to 30 nights, per calendar year, with a maximum of 14 consecutive nights within the same bay. Visitors would continue to be prohibited from living in the park aboard a vessel and from storing vessels in park waters. The institution of mooring and anchoring fees would be expected to serve as a disincentive to long-term stays in park waters. Extending the allowable stay to 30 days would better accommodate historic cruising patterns, as well as local use.

Alternative 3

In this alternative, there would be no annual limitation on the length of time for mooring or anchoring within park waters, except that there would be a maximum of 14 nights within the same bay. Visitors would continue to be prohibited from storing vessels in park waters. As in Alternative 2, the institution of mooring and anchoring fees would be expected to serve as a disincentive to long-term stays.

d. Commercial Transit Through Park Waters

Alternative 1: No Action

Other than prohibitions against entering buoyed boat exclusion, swimming, and resource protection areas, there would be no restrictions on the transit of commercial vessels through park waters.

Alternative 2: Proposed Action

To minimize conflicts with other uses, improve safety, and reduce shoreline erosion, the transit through park waters would be restricted for the following types of vessels:

- Passenger ferries;
- Tugs with tows;
- Other commercial cargo vessels;
- Cruise ships and other commercial and non-commercial vessels over 210 feet in overall length; and
- Mini-cruise ships (commercial vessels between 125-210 feet in overall length).

For the above vessels, the following restrictions would become effective 120 days after Plan adoption to allow for notification and staff training. These restrictions would not be applicable to authorized day use commercial vessels or to recreational (non-commercial) vessels under 210 feet.

- Vessels transiting north shore waters would be required to pass through park waters on the north side of Henley/Ramgoat Cays, Johnsons Reef and Whistling Cay, except as authorized by the Superintendent during storm events or emergencies.
- In the Cruz Harbor/Lind Point area, vessels would be required to remain seaward of the Lind Point boundary buoy (Buoy B).

Alternative 3

Same as Alternative 2, except that commercial cargo vessels would continue to be permitted to transit between Caneel Bay and Henley/Ramgoat Cays. Specifically, ferries, water taxis, tugs

with tows and other commercial cargo vessels transiting north shore waters would be required to pass through Park waters on the north side of Johnsons Reef and Whistling Cay, except as authorized by the Superintendent during storm events or emergencies. In the Cruz Harbor/Lind Point area, these vessels would be required to remain seaward of the Lind Point boundary buoy (Buoy B).

e. Special Events

Common To All Alternatives

Special events and uses, such as yacht races and yacht club events that originate or end in park waters, could be authorized at the Superintendent's discretion through special use permits. However, no motorized boat races would be authorized.

2. ANCHORING AND BEACH ACCESS

a. Boat Exclusion and Swim Areas

Common To All Alternatives

Recognizing that their primary function is resource protection, areas closed to vessels would be designated as boat exclusion areas rather than as swim areas. All existing areas would be retained as currently demarcated.

Alternative 2: Proposed Action

At Trunk Bay, the existing boat exclusion area would be retained and a smaller swim area would be delineated using portable markers that could be placed/removed daily by lifeguards. While the existing boat exclusion buoys were sited to protect sensitive marine resources, a smaller and flexible swim area that could be adjusted based upon conditions would facilitate lifeguarding.

b. Anchoring

Alternative 1: No Action

On the north shore, anchoring of recreational vessels less than 125 feet LOA would be permitted in any bay. Anchoring of commercial vessels less than 125 feet LOA would be permitted in any bay except those closed to commercial use by the Commercial Services Plan. In all cases, anchoring would be prohibited:

- On coral, seagrass or gorgonian plains;
- Within boat exclusion or resource protection areas;
- Within dinghy channels;
- Within 100 feet of any beach; and
- Within 200 feet of any mooring or buoy.

Private vessels from 125-210 feet LOA would continue to be required to anchor only in Francis Bay, in sand and at depths greater than 30 feet. Vessels greater than 210 feet in length would continue to be prohibited from anchoring or mooring in park waters.

On the south shore, anchoring would continue to be prohibited except by vessels less than 12 feet in length and for the specific purpose of fishing for Blue Runner in the area due south of Cabritte Horn Point.

Alternative 2: Proposed Action

Anchoring on the park's north shore would be regulated as follows:

- ❑ Anchoring by recreational vessels less than 125 feet in length would be permitted in all bays except Mary Creek and the inner (seagrass) portion of Brown Bay. These areas would be closed to anchoring to protect sensitive marine resources. Mary Creek would continue to serve as a safe harbor as authorized by the Superintendent during storm events or emergencies.
- ❑ Anchoring by recreational vessels from 125-210 feet in length would be permitted in:
- Francis Bay shoreward of a line from Mary Point to America Point, seaward of mooring areas and in sand at depths greater than 30 feet; or
- Salomon/Caneel Bay from Honeymoon Beach east of Lind Point to Turtle Point seaward of mooring areas.

  In recognition of the desire by large private yachts to access the resort facilities at Caneel Bay and the absence of sensitive resources seaward of the existing mooring field, Caneel Bay would be added as an area for anchoring by these larger vessels.
- ❑ Anchoring by commercial vessels less than 125 feet in length would be permitted in all bays except those closed to commercial use by the Commercial Services Plan.
- ❑ Anchoring by vessels 60 feet or less in length would be permitted only if the moorings in a specific bay are fully occupied. That is, these vessels would be required to use moorings if available.
- ❑ Except for commercial vessel anchoring on certain beaches without boat exclusion areas, anchoring would be permitted only seaward of mooring fields and at a minimum distance of 200 feet from moorings and buoys.
- ❑ Anchoring would be permitted by commercial vessels at certain beaches without boat exclusion areas, specifically the western portion of Salomon Beach (see *Beach Access* below), Honeymoon Beach, and the western portion of Cinnamon Bay (Little Cinnamon Beach). The existing prohibition against anchoring within 100 feet of the beach would be eliminated and vessels would be authorized to directly access the beach. Because these are popular day excursion destinations, visitor safety would be improved by providing direct access to the beach, especially for elderly persons and poor swimmers. Also, these areas lack the coral and seagrass resources that would justify restricting vessel access. Conditions on this anchoring and access include:
- Anchoring would be authorized in wet sand only; no anchoring on the beach or tying to vegetation would be permitted.
- Beach access would be limited to 90 minutes per visit.
- Commercial vessel use would be limited as prescribed for both persons-at-one-time and the number of vessels at one time in the Commercial Services Plan.
- Vessel use of these beaches would be monitored on an annual basis and could be curtailed or modified if there are adverse effects to natural resources or to the visitor experience.
- ❑ Due to near-shore resource values, the existing prohibition against anchoring within 100 feet of the beach would be retained at Leinster Bay, Mennebeck Bay, and Haulover Bay, and any beach with designated dinghy channels.
- ❑ Anchoring would be prohibited:

- On coral, seagrass or gorgonian plains;
- Within boat exclusion or resource protection areas;
- Within dinghy channels; and
- Within 200 feet of any mooring or buoy.
- ❑ All vessels greater than 210 feet in length would continue to be prohibited from anchoring or mooring in Park waters.

On the south shore, except for the specific purpose of fishing for Blue Runner in the area due south of Cabritte Horn Point, anchoring would be prohibited for all vessels, including those less than 12 feet in length.

Alternative 3

Anchoring regulations would be as detailed for Alternative 2, except:

- ❑ Anchoring would be permitted within mooring fields irrespective of whether moorings are fully occupied if minimum distance requirements from moorings and buoys are met.
- ❑ Mary Creek and Brown Bay would remain open to recreational vessel anchoring with a biannual assessment of the need for closure based upon any significant increase in resource damage. The area would serve as a safe harbor as authorized by the Superintendent during storm events or emergencies.

c. Beach Access

Alternative 1: No Action

Beach access by vessels would be restricted to dinghy channels where provided and unrestricted where dinghy channels are not provided. The exception is that non-motorized, inflatable (without a hard bottom) vessels no greater than 12 feet in length would continue to be authorized to access beaches through boat exclusion areas.

Where dinghy channels are delineated, access via dinghy channels would continue to be limited to boats no greater than 26 feet in length. Anchoring would be prohibited within dinghy channels; dinghys may be beached ashore but not secured to living or dead vegetation.

Where dinghy channels or resource protection areas are not delineated (e.g., Honeymoon Beach, western Cinnamon Bay, Leinster Bay, Brown Bay, south shore), there would be no limitation on beach access except that vessels may not anchor closer than 100 feet to the beach. Vessels would be permitted to pull up to shore to collect/drop off passengers, but could not remain anchored on shore or within 100 feet of shore. To accommodate authorized watersport operations, this 100-foot restriction would not be applicable to private resort beaches at Caneel Bay Resort, Cinnamon Bay Campground, and Maho Bay Camps.

Alternative 2: Proposed Action

Vessel access to park beaches would be as described for Alternative 1, except:

- ❑ At Salomon Beach, boat exclusion buoys would be relocated to encircle the coral reef on its eastern end (as at Honeymoon Beach) and the existing dinghy channel would be removed from its western end. This would open the western portion of the beach to direct vessel access.

- Dinghy channels would be relocated at Maho and Francis bays to improve safety for swimmers and snorkelers, while continuing to ensure convenient beach access for boaters. At Maho Bay, the dinghy channel would be relocated slightly to the south to avoid conflicts with snorkelers at Maho Point. At Francis Bay, the dinghy channel would be relocated slightly to the north to align with the parking lot to avoid conflicts with snorkelers and swimmers at the beach's south end.
- To reduce confusion and to improve consistency in regulation, the exception allowing non-motorized, inflatable vessels no greater than 12 feet in length to access beaches through boat exclusion areas would be eliminated. That is, no vessels would be allowed at any time in boat exclusion areas.

Alternative 3

Vessel access to beaches would be the same as in Alternative 2, except that existing regulations would be revised to permit kayaks (excluding commercial guided kayak tours), as well as non-motorized, inflatable vessels no greater than 12 feet in length, to access beaches at any location, including through delineated boat exclusion areas.

3. MOORINGS AND BUOYS

a. Mooring/Buoy Program

Alternative 1: No Action

In this alternative, there would be no change in the existing mooring program, either in terms of additional moorings installed or moorings removed. The park would continue to provide 215 moorings for recreational and commercial vessel use (Table 1).

As noted above, the primary function of buoys is resource protection. There are approximately 150 boat exclusion and resource protection (e.g., at Windswept Point) buoys in place in park waters. There would be no specific changes in the siting of these regulatory buoys, however buoys could be added, removed or relocated as needed for resource protection, safety or other public needs. Typically, such changes would be categorically excluded from environmental analysis under NEPA and public notice would not be required.

The park's Resource Management Plan identifies the need for boundary buoys along the remainder of the north shore and on the south shore. Given the expense, the installation of additional boundary buoys would be a low priority.

Alternative 2: Proposed Action

During scoping, industry representatives identified the fastest growing segment of the term charter industry as the 60-75 foot vessel market. The use of existing moorings is restricted to vessels 60 feet or less in length, forcing larger boats to anchor. The park's commercial vessel operators identified the need for reserved commercial moorings to ensure convenient and safe access to popular swimming/snorkeling sites and to reduce conflicts with recreational boaters. Additional quarantine moorings were requested to facilitate access to Customs and Immigration

and other services in Cruz Bay. A mooring is needed at the mouth of Mary Creek to reduce the potential for impacts to coral resources from existing diving activities.

To meet these demands, 31 additional moorings, for a total of 246, would be authorized in Alternative 2 as indicated in Table 1. While authorized through this Plan, additional environmental analysis could be required prior to installation. Installation would also be subject to the ability to locate suitable sites, the availability of funding, demand, and other factors. Consequently, the authorization of new moorings should not be considered to be a guarantee of installation. Authorized new moorings would include:

- Maximum of 18 moorings specifically reserved for 60-75 foot vessels at popular north and south shore bays. As discussed below under *Mooring/Buoy Installation and Maintenance*, the installation of these moorings would be dependent upon charter industry funding.
- Maximum of 7 moorings reserved for commercial vessel day use at Salomon Beach, Honeymoon Beach and Little Cinnamon Bay. To the extent feasible, these moorings would be sited shoreward of existing moorings.
- One additional commercial mooring reserved for the watersports operation at Cinnamon Bay Campground, as authorized by the concessionaire's limited concession permit.
- Four additional quarantine moorings at Lind Point. The existing time limitation would be expanded from one to four hours.
- One additional dive mooring installed outside the mouth of Mary Creek to accommodate existing dive operations.

Table 1: Mooring Program, Alternative 2

Location	**Existing**	**New**	**Purpose of New Moorings**	**Total**
North Shore				
Cruz Bay	4	0		4
Lind Point	2	4	Quarantine	6
Salomon Beach	4 (1)	2	Reserved for commercial day use	6
Honeymoon Beach	17 (1)	3 4	Reserved for commercial day use Installed seaward of mooring area and reserved for vessels 60-75'	24
Caneel Bay (2)	31	4	Reserved for vessels 60-75'	35
Henley Cay	2	0		2
Hawksnest Bay	13	0		13
Trunk Bay	5	0		5
Cinnamon Bay	9	2 1	Reserved for commercial day use Reserved for watersports operation	12
Maho Bay	28	0		28
Francis Bay	35	5	Reserved for vessels 60-75'	40
Whistling Cay	7	0		7
Mary Creek	0	1	SCUBA mooring installed outside Creek mouth	1
Leinster Bay	20	3	Reserved for vessels 60-75'	23
SUBTOTAL	179	29		208
South Shore				
Reef Bay	3	0		3

Little Lameshur Bay	6	1	Reserved for vessels 60-75'	7
Great Lameshur Bay	14	1	Reserved for vessels 60-75'	15
Salt Pond Bay	8	0		8
Ram Head	2	0		2
Tektite	2	0		2
Booby Rock	1	0		1
SUBTOTAL	36	2		38
TOTAL	215	31		246

(1) From Lind Point to Caneel Bay, there are 23 moorings; the assignment to Salomon or Honeymoon is arbitrary.
(2) Includes Scott Bay

The need for installation of a hurricane mooring system in Mary Creek, the safest hurricane anchorage on the north shore, was also identified during scoping. Through funding provided by Friends of Virgin Islands National Park and the National Oceanic and Atmospheric Administration, the park is planning to install hurricane moorings in four bays with Hurricane Hole within the Virgin Islands Coral Reef National Monument. It is anticipated that these moorings would meet most if not all of the island's demand for hurricane moorings. Depending upon unmet demand remaining after installation of the Hurricane Hole moorings in, a hurricane mooring in Mary Creek could be authorized subject to environmental review and funding availability.

No existing moorings would be removed or relocated. The function of the moorings to protect sensitive marine resources would remain unchanged in all existing locations. Although several day use moorings at Henley Cay and Whistling Cay are located within areas that are periodically subject to strong currents, alternative locations are unavailable.

The only change to the regulatory buoy program would be as described above for Salomon Beach and dinghy channels at Maho and Francis bays.

Alternative 3

The mooring program would be as described for Alternative 2, with an additional six moorings authorized, for a total of 252. The following additional moorings would all be restricted to vessels no greater than 60 feet in length:

- Cruz Bay: Two additional quarantine moorings, for a total of 6.
- Leinster Bay: Maximum of two moorings reserved for commercial vessel day use for a total of 25. Existing overnight moorings may need to be reconfigured to accommodate these moorings in locations readily accessible to Waterlemon Cay.
- Brown Bay: Two day use moorings would be installed for recreational vessel use to reduce the potential for impacts to seagrass resources from recreational vessel use. Pursuant to the Commercial Services Plan, Brown Bay would be closed to commercial vessel use.

The only change to the regulatory buoy program would be relocation of dinghy channels at Maho and Francis bays as described for Alternative 2.

b. Mooring/Buoy Installation and Maintenance

Alternative 1: No Action

The park's Resource Management Division is assigned responsibility for the installation and maintenance of moorings and buoys in park waters. Future contracting for mooring/buoy installation and maintenance would not be precluded, however, if determined to be more cost-effective.

No private installation and maintenance of moorings or buoys within park waters would be authorized, except for the following. In all instances, ownership of moorings and buoys would be retained by the NPS.

- A single cruise ship passenger transport vessel mooring in Trunk Bay would be installed and maintained by the permittee (currently Heritage Boats, Inc.) under NPS supervision;
- Commercial moorings designated for watersports operations in conjunction with Caneel Bay Resort, Cinnamon Bay Campground, and Maho Bay Camps would be maintained by the operators pursuant to concession contracts or permits; and
- Boat exclusion area and dinghy channel buoys at Caneel, Scott, Turtle, and Caneel/Hawksnest bays would be installed and maintained by Caneel Bay, Inc. under NPS supervision.

Alternative 2: Proposed Action

The park would be responsible for the installation of moorings and buoys, with the exceptions detailed in Alternative 1. In addition, the charter boat industry would be responsible to finance NPS installation of moorings reserved for vessels 60-75 feet in length. A one-time, long-term maintenance fee would be assessed in conjunction with the installation of these moorings; this fee would be determined in consultation with industry representatives.

Removal of unauthorized privately-installed moorings, e.g., at Gibney Bay and Peter Bay, would be required no later than 120 days following Plan adoption.

Alternative 3

Private installation and maintenance of moorings and buoys would be limited to that described for Alternative 1. The installation of moorings for vessels 60-75 feet in length would be financed by NPS, rather than by the charter boat industry as in Alternative 2. Given competing budget priorities, NPS funding would not be expected to be a short or intermediate-term possibility.

c. Use of Moorings

Alternative 1: No Action

There would be no changes to existing regulations governing the use of moorings that include:

- Except for moorings reserved for concessionaires, all moorings are available on a first-come, first-served basis.
- Commercial moorings in Caneel Bay, Cinnamon Bay and Little Maho Bay are designated for use by Caneel Bay Resort, Cinnamon Bay Campground and Maho Bay Camp watersports operators through concession contracts; use by other commercial or recreational vessels is not authorized.

- The use of moorings is restricted to vessels no greater than 60 feet in length.
- Anchoring and rafting are prohibited while on a mooring.
- SCUBA moorings are reserved for commercial and recreational diving; no overnight use is authorized.
- Quarantine mooring use is limited to one hour.
- Per a Memorandum of Understanding, Virgin Islands Environmental Research Station (VIERS) is entitled to day use of two moorings in Great or Little Lameshur bays; this entitlement does not authorize staff or guests to live aboard vessels or to store vessels in park waters.
- Moorings must be vacated if sustained winds exceed 40 mph or when otherwise directed by the Superintendent due to storm events, emergencies such as spills, or other public safety needs.

Alternatives 2 and 3

Subject to the restrictions described for Alternative 1 and the following exceptions, moorings would be available on an unreserved basis for any vessel 60 feet or less in length:

- "Reserving" moorings with a dinghy while the primary vessel is elsewhere would be prohibited.
- Moorings designated for 60-75 foot vessels would not be available for either day or overnight use by smaller or larger vessels; and
- Moorings designated for commercial use at Salomon Beach, Honeymoon Beach and Little Cinnamon Bay would not be available for either day or overnight use by recreational vessels.

4. FACILITIES AND SERVICES

a. Dock Facilities

Cruz Bay Dock Facilities

Alternative 1: No Action

NPS docking facilities in Cruz Bay Creek include the Visitors Center bulkhead, finger pier, and area between the finger pier and Virgin Islands Port Authority dock currently used for dinghy tie-up (dinghy dock). The Visitor Center bulkhead is reserved for NPS vessels. Public docking is limited to 15 minutes for passenger pickup/drop-off at the finger pier.

In this alternative, there would be no change in the number or use of NPS dock facilities in Cruz Bay. Specifically:

- NPS vessels would dock along the Visitor Center bulkhead and finger pier.
- Due to structural limitations, no public docking would be permitted along the Visitor Center bulkhead except as specifically permitted by the Superintendent.
- The finger pier would be available for both commercial and recreational docking and passenger pickup/drop-off.
- Dinghys would continue to be accommodated at the informal (undesignated) dinghy dock.

Alternative 2: Proposed Action

To provide the park with a secure, readily accessible operations center for its fleet of ten vessels, a new docking facility for NPS vessels would be constructed in Little Cruz Bay adjacent to the NPS boat launch ramp. Removing most park vessels from the existing finger pier and bulkhead would provide improved public access to these facilities for loading/unloading, relieving some of the current congestion in this portion of the bay. The new facility would consist of a piling supported deck designed to break away in major storm events. Access to shore would be provided by walkways tied to concrete deadmen above the high tide line. No dredging would occur to increase water depth.

Other aspects of this alternative include:

- Public access to the NPS boat ramp would continue to be provided.
- There would be no public use of the new NPS dock.
- The informal dinghy dock would be formally designated and signed as such. Use would be limited to vessels no greater than 14 feet in length.
- With removal of NPS vessels, the finger pier would be available for both docking and passenger pickup/drop-off by commercial and recreational vessels less than 36 feet in length. Docking would be limited to one hour on the north side of the pier. Passenger pickup/dropoff would be limited to 15 minutes on the south side.
- Because of structural limitations, use of the bulkhead area directly in front of the Visitor Center would be limited to two NPS vessels and public docking by vessels no greater than 30 feet in length along the remainder of the bulkhead. Use would be limited to one hour at all times.

Alternative 3

In this alternative, with the exception of 2-3 vessels docked at the Visitor Center bulkhead, park vessels would be stored on trailers at the NPS boat launch ramp. Vessels would be launched when needed. Removal of most NPS vessels from the Visitor Center bulkhead and finger pier would provide additional commercial and recreational vessel docking and passenger pickup/dropoff opportunities. Other aspects of this alternative would be as described for Alternative 2.

<u>Red Hook Dock Facilities</u>

Common To All Alternatives

The termination of commercial and recreational vessel use of the NPS dock at Red Hook, except through specific authorization by the Superintendent, initiated as of January 1, 2001, would remain in effect due to safety reasons (potential structural instability and lack of on-site security) until such time as a structural engineering analysis and necessary repairs to bring the facility up to engineering standards could be completed. The Commercial Services Plan provides the opportunity for a concessionaire to operate the dock for commercial vessel use on a fee basis.

Reef Bay Dock Facilities

Alternative 1: No Action

There are currently no dock facilities at Reef Bay and none would be constructed in this alternative.

Alternatives 2 and 3

A 4x10 foot docking facility, designed for removal in major storm events, would be constructed at the base of the Reef Bay Trail at the site of the former dock facility that was destroyed by a hurricane. Use would be limited to administrative activities, NPS tours and other authorized uses. Because Reef Bay Trail is a steep, downhill three-mile hike, most visitors (approximately 4,000 per year) are ferried by inflatable dinghy to boats moored in Reef Bay for transport back to Cruz Bay. The dock would improve the safety of loading/unloading of passengers and equipment needed for maintenance and other administrative purposes. No other dock facilities are available in the area and there is no road access.

Lameshur Bay Dock Facilities

Common To All Alternatives

The NPS dock would continue to be used for NPS boat docking and short-term public use.

Dinghy Docks/Tethers

Alternatives 1and 2

Dinghy docks would be limited to the Cruz Bay dinghy dock described above. A dinghy tether would be maintained by NPS at Waterlemon Cay; no additional tethers would be installed.

Alternative 3

In addition to the dinghy dock in Little Cruz Bay and tether at Waterlemon Cay, NPS would install and maintain dinghy tethers at Honeymoon Beach, Trunk Bay, Cinnamon Bay, and Maho Bay. Installation would be subject to the availability of funding and would be a lower priority than other proposed facilities and services.

b. Boat Launch Facilities

Common To All Alternatives

Public boat launching in the park is limited to the NPS ramp in Little Cruz Bay and an unimproved area at Leinster Bay near to the access road into Annaberg Historic Site. Storage of trailers, boats and vehicles is permitted at the NPS boat ramp for a period not exceeding 24 hours. To provide security, the access road to the NPS boat ramp would be gated and locked.

In all alternatives, no additional launch facilities would be constructed. The Little Cruz Bay ramp would remain the only improved public boat launch facility in the park.

Alternative 2: Proposed Action

Through special use permit, a maximum of eight private trailers would be authorized for storage at the NPS boat ramp for a period not exceeding 24 hours.

Alternative 2

The unimproved launch area at Leinster Bay would be closed as a designated boat launch site due to the lack of improved road access and its unsafe conditions.

Alternative 3

As in Alternative 2, the Leinster Bay site would be closed. With the storage of most NPS vessels on trailers at the NPS boat ramp, the ramp in Little Cruz Bay area would be closed to public storage of trailers, vessels and vehicles.

c. Repair Facilities

Common To All Alternatives

Except for emergency repairs, vessel repair and maintenance operations of any type would be prohibited within the park.

d. Pumpout Facilities

Common To All Alternatives

There are currently no pumpout facilities available for vessels operating within VINP. In the Commercial Services Plan, NPS authorized a pumpout facility for use for a fee by vessels visiting park waters. If located on NPS property, the construction and operation of this facility may be competitively contracted as a concession. The Caneel Bay shipyard in Little Cruz Bay was identified as a preferred location. Implementation would be contingent upon the availability and capability of adequate sewage treatment facilities. Alternative public and/or private initiatives would not be precluded by the authorization of this concession.

d. Garbage Collection

All Alternatives

The park provides trash receptacles for boaters use at its most popular beaches including Hawksnest, Trunk, Francis, Leinster (at Annaberg Historic Site), Salt Pond, and Lameshur bays. Cannel Bay Resort provides trash pickup at Honeymoon Beach. Specially designed receptacles for boaters would continue to be provided at Francis, Leinster, and Salt Pond bays. Boaters would be limited to two bags of trash that must be able to fit into trash containers. No additional garbage collection services would be provided.

The park is currently soliciting for a contractor(s) for the collection of mooring fees. Although not included as a service to be provided at this time in conjunction with fee collection, collection of garbage directly from vessels for a fee could be considered in the future.

5. OPERATING REQUIREMENTS

a. Pollution Control

Common To All Alternatives

Territorial and federal boating restrictions prohibiting boat waste discharges would continue to be enforced. Federal boating emission regulations would also be enforced to the extent feasible. As funding and technology permits, the park would convert its vessels' engines to 4-stroke or other energy efficient, lower polluting technologies.

b. Speed Limits and No Wake Areas

Common To All Alternatives

Operating a vessel in excess of 5 mph or creating a wake would be prohibited in most north shore anchorages and bays, at the Lameshur Bay boat docking area and in Salt Pond Bay on the south shore, and in any dinghy channel. Such actions would also be prohibited within 100 feet of a diver's marker or swimmer.

Existing prohibitions against operating a boat in a reckless or negligent manner or in a manner that endangers a person or property (36 CFR 3.6) would be expected to provide law enforcement the latitude to cite a vessel for excessive speed outside of no wake areas.

Alternative 2: Proposed Action

As in Alternative 1, there would be no speed limit for vessels operating outside of no wake areas. Additional no wake areas with a maximum speed limit of 5 mph would be designated as follows:

- Within 500 feet of any mooring field and docking facility;
- Honeymoon Bay due to the large volume of visitation and to improve safety;
- Mary Creek to reduce the impacts of boat wakes to mangove communities and nesting seabirds; and
- Little Lameshur and Great Lameshur bays to reduce impacts to moored vessels, with the exception of NPS boat operation training exercises.

Alternative 3

Additional no wake areas would be designated as proposed in Alternative 2. Outside of no wake areas, a maximum speed limit of 25 mph for all vessels would be established.

c. Noise Limits

Alternative 1: No Action

Noise limits for activities in the park are established by 36 CFR 2.12 based upon a maximum noise level of 60 decibels measured on the A-weighted scale at 50 feet or any noise that is unreasonable considering the nature and purpose of the activity. Additionally, 36 CFR 5.13 prohibits noise activities that would constitute nuisances. In this alternative, noise associated

with vessel activities such as exhaust noise (e.g. “go fast” boats), loud music, and parties would continue to be regulated under these provisions.

“Quiet hours” between 10:00 pm and 6:00 am would be in effect for all anchorages and creating or sustaining unreasonable noise would be prohibited (per standards for camping in 36 CFR 2.10).

Alternatives 2 and 3

Noise limitations for vessels operating in park waters would be developed based upon research of management tools in use elsewhere. For example, 36 CFR 3.7 establishes a maximum noise level of 82 decibels measured at a distance of 82 feet for vessels operating in inland waterways. Specifically, additional research would be needed on appropriate limitations for “go fast” or “cigarette” boats that tend to create high noise levels over long distances. In the interim, excessive noise would be addressed as described for Alternative 1.

d. Lights

Alternative 1: No Action

The use of vessel lights is not currently regulated and would not be in this alternative.

Alternative 2: Proposed Action

The use of spotlights to attract baitfish would be prohibited. Additionally, in accordance with NPS Management Policy 4.10 and because they disrupt the natural lightscape of the park and intrude upon the solitude of other park users, the use of halogen deck lights when moored or anchored would also be prohibited.

Alternative 3

As in Alternative 2, the use of spotlights to attract baitfish would be prohibited.

6. OTHER PLAN ELEMENTS

The following elements would be common to all alternatives.

a. Bay Host Program

In cooperation with Friends of Virgin Islands National Park and/or other groups, a volunteer bay host program would be developed to serve as the park’s “eyes and ears” at the most popular bays in the park. Similar to campground hosts, bay hosts would assist the park in providing visitor information, monitoring resource health, conducting cleanups and other resource protection/restoration projects, and other similar services. Design of the program would be undertaken following at least one year of mooring fee collection in order to determine how best to coordinate the two programs.

b. Procedures for Marine Resource Damage Assessments

Appendix B details standard operating procedures for responding to and assessing damage caused by vessels running aground, inappropriate anchoring, or other incidents of damage to marine resources. These procedures would be adopted as an element of this Plan.

c. Submerged Cultural Resources

Pursuant to NPS policy, the park would identify, evaluate, register, monitor and protect all submerged cultural resources. Such resources would be left in place unless removal is compellingly justified by overriding protection, research or interpretive requirements. No treasure hunting or salvage activities at or around shipwrecks or other submerged resources would be permitted.

7. PLAN IMPLEMENTATION AND AMENDMENT

By definition, Plan elements of Alternative 1, the no action alternative, are currently in effect. Certain aspects of the management direction established by Alternatives 2 and 3 would take effect immediately upon Plan approval, other elements would be implemented over time as the necessary regulations and procedures are developed and as budget and personnel limitations permit. The management direction established by this Plan would not be intended to be static. The Plan would be periodically reviewed and updated as necessary to address changes in vessel uses, visitor needs, resource conditions and protection needs, management goals, etc..

C. ENVIRONMENTALLY PREFERRED ALTERNATIVE

In accordance with CEQ regulations, Alternative 2 is identified as the environmentally preferred alternative. The environmentally preferred alternative is defined by CEQ as the alternative "that will promote the national environmental policy as expressed in NEPA's Section 101. Generally, this means the alternative that causes the least damage to the biological and physical environment and best protects, preserves and enhances historic, cultural and natural resources." (40 CFR 1500-1508, *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*, Question 6a).

Both Alternatives 2 and 3 would be environmentally preferred over Alternative 1. However, Alternative 2 would better respond to NPS goals to balance the public need for visitor services with the mandate to preserve and interpret the significant resources for which VINP was established. Because a greater number of facilities would be installed in Alternative 3, potential adverse effects on park resources would be greater than those in Alternative 2. Additionally, use limitations and operating requirements proposed in Alternative 2 would better protect, preserve and enhance the park's historic, cultural and natural resources than in Alternatives 1 and 3. Consequently, Alternative 2 would best fulfill NPS's statutory mission and responsibilities, best meet the purpose and need for a Vessel Management Plan, best respond to the significant issues identified through public and agency scoping, and achieve the best balance of environmental, visitor experience, economic, and other factors.

D. COMPARISON OF ALTERNATIVES

1. COMPARISON OF PLAN ELEMENTS BY ALTERNATIVE

ELEMENT	ALTERNATIVE 1: No Action	ALTERNATIVE 2: Proposed Action	ALTERNATIVE 3
Capacity and Use Limitations			
Size Limitations	Recreational vessels over 210 feet and commercial vessels over 125 feet prohibited.	As in alternative 1.	As in Alternative 1.
Capacities and Closures	Capacity limitations for commercial vessels per Commercial Services Plan. No capacity limitations on recreational vessels on north shore; limited by number of moorings on south shore. Closures for commercial vessels per Commercial Services Plan; no closures for recreational vessels.	As in Alternative 1. As in Alternative 1, with cumulative effect of recreational vessel use monitored.	As in Alternative 1. As in Alternative 2.
Length of Stay	No change.	Extended to 30 nights per year, with a maximum of 14 consecutive nights within the same bay.	No annual limitation, but a maximum of 14 consecutive nights within the same bay.
Commercial Transit	No restrictions.	Restricted to north side of Henley/Rangoat Cays, Johnsons Reef and Whistling Cay, and to seaward of Buoy B at Lind Point.	As in Alternative 2 except permitted to transit inside of Henley/Ramgoat Cays.
Special Events	Special use permits required. No motorized boat races.	As in Alternative 1.	As in Alternative 1.
Anchoring and Beach Access			
Boat Exclusion/Swim Areas	No change.	At Trunk Bay, existing boat exclusion area retained but smaller swim area delineated with portable markers.	No change.

Anchoring North Shore	Anchoring by recreational vessels less than 125 feet in all bays.	Anchoring by vessels less than 60 feet only if moorings are fully occupied. Mary Creek and Brown Bay closed to anchoring.	As in Alternative 1.
	Anchoring by recreational vessels 125-210 feet in Francis Bay.	Caneel Bay added as anchoring area for recreational vessels 125-210 feet.	As in Alternative 2.
	Anchoring within mooring fields if distance requirements satisfied.	Anchoring only to seaward of mooring fields.	As in Alternative 1.
	Anchoring prohibited within 100 feet of any beach.	Anchoring by commercial vessels on beach at Salomon Beach, Honeymoon Beach, and Little Cinnamon Bay subject to restrictions.	As in Alternative 2.
	Anchoring prohibited on resources, within boat exclusion areas, within dinghy channels, and within 200 feet of moorings and buoys.	As in Alternative 1.	As in Alternative 1.
South Shore	Anchoring prohibited, except by vessels less than 12 feet and for Blue Runner fishing.	Anchoring prohibited for all vessels, including those less than 12 feet.	As in Alternative 2.
Beach Access	Restricted to dinghy channels where provided except by non-motorized inflatables less than 12 feet; unrestricted where absent.	Exception eliminated for non-motorized inflatables less than 12 feet. Boat exclusion buoys relocated at Salomon Beach to open western portion to vessel access. Dinghy channels relocated at Maho and Francis bays to improve safety.	As in Alternative 1 with kayaks (non-commercial) added as an exception. As in Alternative 2.

Moorings and Buoys			
Mooring/Buoy Program	215 moorings and 150 buoys provided. No existing moorings or buoys removed or relocated.	246 moorings authorized: - 18 for 60-75 foot vessels - 7 reserved for commercial vessel day use - 1 reserved for Cinnamon Bay watersports - 4 additional quarantine - 1 additional SCUBA - No existing removed or relocated. Boat exclusion buoys relocated at Salomon Beach dinghy channel buoys relocated at Maho and Francis bays. Hurricane mooring installed in Mary Creek subject to demand and funding.	252 moorings authorized as in Alternative 2, except: - 2 additional quarantine for a total of 6 additional - 2 at Leinster Bay reserved for commercial vessel day use - 2 at Brown Bay for recreational vessel day use As in Alternative 2. As in Alternative 2.
Installation/Maintenance	With exceptions of boat exclusion and dinghy channel buoys in Caneel Bay and commercial moorings at Caneel Bay, Trunk Bay, cinnamon Bay, and Little Maho Bay, no private installation or maintenance permitted.	As in Alternative 1, except installation and maintenance of moorings for 60-75 foot vessels financed by industry.	As in Alternative 1, except installation and maintenance of moorings for 60-75 foot vessels financed by NPS.
Use of Moorings	Moorings available on first-come, first-served basis unless reserved for watersports operations.	As in Alternative 1 with large vessel moorings reserved for 60-75 foot vessels. Reserved commercial moorings not available for recreational vessel use. Reserving moorings with dinghies prohibited.	As in Alternative 2.
Boating Facilities and Services			
Dock Facilities Cruz Bay	Docking at Visitor Center bulkhead, finger pier, and dinghy dock in Cruz Bay Creek.	New NPS dock in Little Cruz Bay. Expanded public docking facilities in Cruz Bay Creek.	Trailer storage of NPS vessels. Expanded public docking facilities in Cruz Bay Creek.

Red Hook	Special use permit required.	As in Alternative 1.	As in Alternative 1.
Reef Bay	No facilities.	Removable dock limited to NPS use.	As in Alternative 2.
Lameshur	NPS dock available for short-term public use.	No change.	No change.
Dinghy docks/tethers	Dock in Cruz Bay Creek, tether at Waterlemon Cay.	No change.	Tethers installed by NPS at Honeymoon Beach, Trunk Bay, Cinnamon Bay, and Maho Bay.
Boat Launch Facilities	Limited to NPS boat launch ramp in Little Cruz Bay and at dinghy channel in Leinster Bay.	Leinster Bay site closed.	As in Alternative 2. Cruz Bay launch area closed to trailer and vehicle storage.
Repair Facilities	Prohibited.	As in Alternative 1.	As in Alternative 1.
Pumpout Facilities	Concession operation at Caneel Bat boatyard.	As in Alternative 1.	As in Alternative 1.
Garbage Collection	Trash receptacles for boaters at Francis, Leinster and Saltpond bays.	No additional services.	As in Alternative 2.
Operating Requirements			
Pollution Control	Territorial and federal regulations enforced.	As in Alternative 1.	As in Alternative 1.
Speed Limits/No Wake Areas	No wake areas with 5 mph speed limit in most north shore anchorages, at Lameshur boat dock, and in dinghy channels.	Additional no wake areas at Honeymoon Bay, Mary Creek, Little Lameshur Bay and Great Lameshur Bay.	As in Alternative 1.
	No speed limits outside of no wake areas.	As in Alternative 1.	25 mph outside of no wake areas.
Noise Limits	Regulated per CFR limitations.	Research of noise management tools in place elsewhere. Quite hours established for anchorages.	As in Alternative 2.
Lights	Unregulated.	Use of spotlights to attract baitfish and halogen deck lights prohibited.	Use of spotlights to attract baitfish prohibited.

2. COMPARISON OF PLAN ELEMENTS BY LOCATION (1)

LOCATION/ELEMENT	ALTERNATIVE 1: No Action	ALTERNATIVE 2: Proposed Action	ALTERNATIVE 3
Cruz Bay			
Moorings	No change = 4.	As in Alternative 1.	2 additional quarantine, for a total of 6.
Dock Facilities	Visitor Center bulkhead, finger pier, and dinghy dock for both NPS and public use.	New NPS dock in Little Cruz Bay.	As in Alternative 1, with trailer storage of most NPS vessels.
Pumpout Facilities	Preferred location for concession operation.	As in Alternative 1.	As in Alternative 1.
Lind Point			
Moorings	No change = 2.	4 additional quarantine, for a total of 6.	As in Alternative 2.
Salomon Beach			
Anchoring/Beach Access	Anchoring prohibited within 100 feet of beach.	Boat exclusion buoys relocated to eastern end and dinghy channel removed. Beach access authorized.	As in Alternative 2.
Moorings	No change = 4	2 reserved for commercial day use, for a total of 6.	As in Alternative 2.
Honeymoon Beach			
Anchoring/Beach Access	Anchoring prohibited within 100 feet of beach.	Beach access authorized.	As in Alternative 2.
Moorings	No change = 17	3 reserved for commercial day use and 4 reserved for vessels 60-75 feet, for a total of 24.	As in Alternative 2.
Dock Facilities	None.	None.	Dinghy tether installed.
No Wake Areas	None.	No wake area designated.	As in Alternative 2.
Caneel Bay			
Anchoring	Limited to vessels no greater than 125 feet.	Authorized for recreational vessels no greater than 210 feet.	As in Alternative 2.
Moorings	No change = 31.	4 reserved for vessels 60-75 feet, for a total of 35.	As in Alternative 2.
Trunk Bay			
Boat Exclusion/Swim Area	No change.	Boat exclusion area retained but	No change.

		smaller swim area delineated using portable markers.	
Moorings	One permittee-maintained mooring to accommodate large cruise ship passenger transport vessel.	As in Alternative 1.	As in Alternative 1.
Dock Facilities	None.	None.	Dinghy tether installed.
Cinnamon Bay			
Anchoring/Beach Access	Anchoring prohibited within 100 feet of beach.	Beach access by vessel authorized.	As in Alternative 2.
Moorings	No change = 9	2 reserved for commercial day use and 1 additional for watersports operation, for a total of 12.	As in Alternative 2.
Dock Facilities	None.	None.	Dinghy tether installed.
Maho Bay			
Beach Access	No change.	Dinghy channel relocated to south.	As in Alternative 2.
Dock Facilities	None.	None.	Dinghy tether installed.
Garbage Collection	None.	Trash receptacles installed.	As in Alternative 2.
Francis Bay			
Anchoring	Authorized for recreational vessels no greater than 210 feet.	As in Alternative 1.	As in Alternative 1.
Beach Access	No change.	Dinghy channel relocated to south.	As in Alternative 2.
Moorings	No change = 35.	5 reserved for vessels 60-75 feet, for a total of 40.	As in Alternative 2.
Mary Creek			
Vessel Use	No restrictions for recreational vessels; closed to commercial use.	Recreational use to be monitored.	As in Alternative 2.
Anchoring	No restrictions.	Designated as anchorless area.	As in Alternative 1.
Moorings	No change = 0.	Dive mooring outside Creek mouth. Hurricane mooring installed subject to demand and funding.	As in Alternative 2.
No Wake Areas	None.	No wake area designated.	As in Alternative 2.
Leinster Bay			
Anchoring/Beach Access	Anchoring prohibited within 100 feet of beach.	As in Alternative 1.	Beach access by vessel authorized.
Moorings	No change = 20	3 reserved for vessels 60-75 feet,	As in Alternative 2 plus 2 reserved

		for a total of 23.	for commercial day use, for a total of 25.
Brown Bay, Mennebeck Bay, and Haulover Bay			
Vessel Use	No restrictions for recreational vessels; closed to commercial use.	As in Alternative 1 with recreational use monitored.	As in Alternative 2.
Anchoring	No restrictions.	Inner Brown Bay closed to anchoring.	As in Alternative 1.
Moorings	None.	None.	In Brown Bay, 2 day use moorings for recreational vessel use; closed to commercial vessel use.
Reef Bay			
Dock Facilities	None.	Mobile dock facility for NPS and other authorized uses.	As in Alternative 2.
Little Lameshur Bay			
Moorings	No change = 6	1 reserved for vessels 60-75 feet, for a total of 7.	As in Alternative 2.
No Wake Areas	None.	No wake area designated.	As in Alternative 2.
Great Lameshur Bay			
Moorings	No change = 14	1 reserved for vessels 60-75 feet, for a total of 15.	As in Alternative 2.
No Wake Areas	None.	No wake area designated.	As in Alternative 2.

(1) For Alternatives 2 and 3, only site-specific changes over existing conditions are noted. General management direction changes, e.g. access through boat exclusion areas by vessels less than 12 feet, are compared in Section 2 above.

3. COMPARISON OF IMPACTS BY ALTERNATIVE

ALTERNATIVE 1: No Action	ALTERNATIVE 2: Proposed Action	ALTERNATIVE 3
Endangered/Threatened Species		
Some increase over current levels of impacts with growth in vessel use. No species or critical habitat would be likely to be adversely affected.	Some reduction in impacts over Alternative 1 with operational requirements. Same as Alternative 1.	Greatest reduction in impacts with establishment of maximum speed limit outside of anchorages. Same as Alternative 1.

Marine Resources		
Some increase over current levels of impacts with growth in vessel use. No significant adverse impacts. No floodplains or wetlands affected.	Greatest reduction in impacts through additional moorings, requiring use of moorings if available, designating Mary Creek as an anchorless area, extending the south shore anchoring prohibition to all boats, and relocating dinghy channels at Maho and Francis bays, and other measures. Same as Alternative 1.	Significant reduction in impacts over Alternative 1, primarily through additional moorings and anchoring restrictions. Same as Alternative 1.
Cultural Resources		
No anticipated impacts.	Same as Alternative 1.	Same as Alternative 1.
Scenic Values		
Scenic values impacted to minor degree by vessel uses.	Moderate increase in impacts with additional moorings and facilities.	Greatest increase in impacts with larger number of moorings and facilities.
Soundscape		
Noise levels would increase with growth in vessel use.	Increase in impacts over Alternative 1 with additional moorings and facilities.	Greatest increase in impacts with additional moorings.
Visitor Experience		
No change. No significant adverse effects.	Greatest effect with new anchoring restrictions, enhanced beach access, additional moorings, new facilities, and operational requirements. As in Alternative 1.	As in Alternative 2 but with fewer anchoring restrictions. As in Alternative 1.
Socioeconomic Impacts		
Minimal effect.	As in Alternative 1.	As in Alternative 1.
Park Operations		
Increase in demand with growth in vessel use.	Additional facilities and services and new regulations would require additional personnel and equipment. Highest level of impacts with expanded law enforcement, installation of additional moorings, and construction of Little Cruz Bay dock.	As in Alternative 2 but less impacts with no new Little Cruz Bay dock and lower enforcement costs.
Cumulative Effects		
Some diversion of vessels from Monument to park waters. Increased administrative,	As in Alternative 1.	As in Alternative 1.

maintenance, interpretative, monitoring and enforcement demands on VINP.		
Hurricane mooring in Hurricane Hole would negate need for Mary Creek hurricane mooring.	As in Alternative 1.	As in Alternative 1.
Mooring fees would cause some boaters to redirect their activities.	As in Alternative 1.	As in Alternative 1.
If resources continue to deteriorate, visitation would decline.	As in Alternative 1.	As in Alternative 1.
Limited contribution by vessel uses to local economy.	As in Alternative 1.	As in Alternative 1.
GMP update could affect vessel uses. Effects of changes to regulations of other agencies unknown.	As in Alternative 1.	As in Alternative 1.

CHAPTER III: AFFECTED ENVIRONMENT

A. INTRODUCTION

Marine and terrestrial ecosystems within VINP are described in detail in *Marine and Terrestrial Ecosystems of the Virgin Islands National Park and Biosphere Reserve* (USDI, National Park Service and Virgin Islands Resource Management Cooperative 1988). This information is updated and expanded to address cultural resources and the Park's current program for resource management and research in the 1999 *Resource Management Plan* (USDI, National Park Service, Virgin Islands National Park). The 1997 *Implementation Plan: Virgin Islands/Florida Inventory and Monitoring Program* (USGS, Biological Resources Division) describes the status of resource inventories and monitoring programs. The 1983 *General Management Plan* also provides a general description of the affected environment. The July 20001 *Commercial Services Plan* (USDI, National Park Service, Virgin Islands National Park) details commercial vessel uses of park waters. This document incorporates by reference that information and does not repeat it here.

B. VESSEL USE SETTING

1. Vessel Use

Approximately 25,500 boats per year moor or anchor in park waters, accounting for an average of 132,400 visitors annually. It is estimated that an additional 250,000 visitors are transported by commercial vessels for day visits. In total, approximately one-third of park visitation is via water, with almost 95% of this visitation to north shore bays and beaches. The highest visitation is from mid-December to Easter. Sailboats dominate, although both day rental powerboats and "megayachts" in season are increasing. Caneel Bay, Maho Bay, Francis Bay and Leinster Bay are the most popular anchorages.

a. Types of Uses

Vessel use is of four primary types: commercial day excursions, crewed or bareboat cruising, "local" boating, and commercial transit through park waters.

Approximately 60 commercial boating businesses are authorized to operate in park waters, catering to both one-day cruise ship passengers and to longer-term St. John guests and residents. The number of water-based commercial operations has grown significantly over the past several years, growing from approximately 35 permitted businesses in 2000. Crewed full-day, half-day and sunset sails to north shore beaches are the most popular commercial activities. With increasing growth in cruise ship and corporate group visitation to St. Thomas, the nature of the day sail business has changed to accommodate larger groups. Where six-passenger vessels dominated the market in the 1980's, there are currently a greater number of multi-passenger (12-50 passengers) than smaller (up to 12 passenger) vessels under permit to operate in park waters. An increasing number of crewed and bareboat powerboat rental operations provide access to park waters. Other commercial activities include diving, snorkeling, and guided kayak excursions. The majority of water sport operations are based out of St. Thomas marinas and resorts.

Charter boats (both crewed and bareboat) typically use park waters for overnight mooring or anchoring as part of a multi-island cruising itinerary. There are approximately 250-350 term charter vessels operating in the U.S. and British Virgin Islands. These range from 37-foot sailboats to 105-foot powerboats, with the majority being 55 to 60-foot sailboats (Wilbur 2000). During the late 1970's and early 1980's, St. Thomas was the center of the Caribbean charter boat industry as boats immigrated from other Caribbean islands where exorbitant taxes and other restrictions made chartering a marginal operation. The economic downturn following Hurricane Hugo in 1989 decimated the fleet, with Hurricane Marilyn causing more significant damage in 1995. Many charter businesses moved to the British Virgin Islands due to favorable tax laws, clean and affordable marinas, accessibility of provisioning and parts, and a very low crime rate. The Virgin Islands Marine Industry (VIMI) Association indicates that its membership today is 40% lower than in the early 1980's and that the number of crewed yachts has declined by almost 50% (VIMI 2000). Recent meetings between the boating community and U.S. Coast Guard have produced a commitment by the agency to examine provisions in existing regulations concerning acceptable safety equivalents that may allow formerly inspected charter yachts to obtain Certificates of Inspection, increasing their charter guest carrying capacity from six to 12 passengers.

"Local" vessel use is largely limited to day use and overnight use on holiday weekends as vessels are limited to 14 nights, per calendar year, when mooring or anchoring in park waters to prevent persons from living in the park onboard a vessel, monopolizing available services (e.g., moorings), or from storing vessels. Great Cruz Bay and Coral Bay are the most popular anchorages for local boats. The St. John, Nauti, and Coral Bay yacht clubs sponsor periodic sailboat races and club events within park waters. Powerboat rentals are also increasingly popular as a way to see the island and visit beaches inaccessible by vehicle.

Passenger ferry service to and from the island is maintained by two ferry boat companies as permitted and monitored by the Public Service Commission. The ferry service runs hourly from 6 am to 12 pm every day between Red Hook and Cruz Bay. In addition, there is direct service between between Charlotte Amalie and Cruz Bay. Ferries also travel several times daily between Cruz Bay and Tortola. Weekend trips are offered to Puerto Rico. There is also daily car passenger barge service and inter-island commercial cargo service.

Other than prohibitions against entering buoyed boat exclusion, swimming, and resource protection areas, there are no restrictions on the transit of commercial vessels through park waters. There are ongoing problems with ferries cutting mooring lines and causing shoreline erosion as they pass close to shore in the Lind Point area. Also in the Lind Point area, as well as between Caneel Bay and Durloe Cays and in Funghi Passage (between Mary Point and Whistling Cay), there are regular conflicts with vessels on moorings or anchoring and recreational users (e.g., kayaks) due to large wakes, speed, noise and air pollution.

b. Vessel Counts

Vessel counts by month for 1999-2001 are provided in Appendix C. Based upon these counts, the daily average number of vessels for the preceding three years is calculated in Table 2. Year-to-year variations are a combination of increased visitation and anomalies in counting. As seen in the annual totals, the number of vessels has been rising over the past two years. The annual average over the past decade, however, was approximately 25,500; for the 1994-99 period, 23,530. This compares to 30,000 vessels in the mid-to-late 1980's during the height of the charter industry in St. Thomas.

Table 2: Daily Average Number of Vessels by Month and Annual Totals, 1999-2001

Month	1999	2000	2001
January	114	120	100
February	100	111	103
March	68	108	99
April	77	126	124
May	67	85	84
June	67	63	76
July	42	78	77
August	14	10	16
September	37	26	48
October	28	22	45
November	34	37	47
December	47	86	150
Annual Total	21,010	26,406	29,446

Source: VINP Resource Protection Division with extrapolations by Planning Office.

c. Vessel Size

Based upon a series of boat surveys conducted over the past 10 years and daily vessel counts, the average boat size is 40-50 feet. A 1986 survey of 200 boats anchored in the park indicated that only 11 boats were greater than 55 feet in length; the remaining 189 boats had an average length of 42 feet. Another survey in 1993 indicated that only two out of the 57 boats surveyed were over 55 feet in length; the average length was approximately 44 feet. Recently, however, the number of larger boats, including "megayachts" (defined as a luxury power or sail yacht at least 90 feet LOA) visiting park waters has been increasing. For example, in 1999, out of the 53 term charter vessels represented by Flagship (a yacht brokerage based out of American Yacht Harbor in Red Hook), 31 were greater than 55 feet in length and 5 were greater than 75 feet (Flagship 1999). According to a leading magazine dedicated to megayachts, today's custom yachts are averaging 139 feet in length (Caribbean Boating/Newport Sailor 2001). There are 13 megayacht slips at Crown Bay Arena in St. Thomas; from Christmas week to Easter, all, or nearly all, are filled (Caribbean Boating/Newport Sailor 2001).

d. Use Patterns

Vessel use patterns within park waters have been consistent for some time. With the establishment of an anchoring prohibition on the south shore in the mid-1990's, there was a minor redirection of vessel use to the north shore. South shore use has historically been relatively low in comparison to the north shore due to more exposed anchorages, a longer distance from ports-of-call, and a lack of services. There has been no noticeable change in use patterns associated with the installation of moorings in most park bays. To the contrary, anecdotal evidence indicates that the park is a more attractive cruising destination because of its extensive mooring system. While the Commercial Services Plan closed some bays to commercial use and established limitations on the numbers of vessels and persons-at-one-time, no significant change in commercial vessel use patterns has been observed.

2. Setting

a. Bay-By-Bay Summary

The following is a bay-by-bay summary of vessel uses, moorings, and other facilities.

Cruz Bay
Cruz Bay is the main harbor and port of entry for St. John. VINP provides limited anchoring space and four quarantine moorings in Little Cruz Bay. Painter lines to these buoys are frequently cut and/or the mooring balls are missing; consequently, many vessels entering Little Cruz Bay to visit Customs and Immigration are forced to anchor. The park's boat launch ramp serves as the only improved launch facility within the park.

NPS maintains docking facilities for NPS vessels and a finger pier for public use in Cruz Bay. These include the Visitors Center bulkhead, finger pier, and area between the finger pier and Virgin Islands Port Authority dock currently used for dinghy tie-up (dinghy dock). The Visitor Center bulkhead is reserved for NPS vessels; due to structural limitations, no public docking is permitted along the bulkhead except as specifically permitted by the Superintendent. Public docking is limited to 15 minutes for passenger pickup/drop-off at the finger pier.

Cruz Bay services include the park's Visitor Center, Customs and Immigration, Post Office, groceries, restaurants and shops. Boater services, including fuel and water, are available at the Caneel shipyard adjacent to NPS's bulkhead.

Lind Point
Two quarantine moorings are located off the north side of the point near a well developed coral community. Lines to these moorings are frequently cut by ferries entering and exiting Cruz Bay. Two overnight moorings are located to the east side of the point. There is no shore access.

Salomon Bay
A narrow crescent beach here is popular with day sailors. Six moorings are located parallel to a buoyed boat exclusion (swim) area. Vessel access to the beach is via a buoyed access ("dinghy") channel. There are no services.

Honeymoon Beach
This is the most popular multi-passenger commercial vessel destination in the park, because it provides the closest reef/beach to St. Thomas-based operations and because the beach is more accessible than other sites due to the absence of a boat exclusion area. Three rows of 23 overnight moorings run from the reef separating Salomon Bay and Honeymoon Beach into the west side of Caneel Bay. There are also seven commercial moorings assigned to Caneel Bay Resort subconcessioners. The ability of boats to pull up onto Honeymoon Beach has been an ongoing issue. Caneel Bay Resort is a leaseholder of the upland portions of Honeymoon Beach, which is a favorite spot for corporate outings. Trash receptacles are provided.

Honeymoon Beach suffers from overcrowding during peak periods. The reef separating Salomon Bay and Honeymoon Beach is in decline due, in part, to damage from swimmers and snorkelers. To reduce

impacts to marine resources and to the quality of the visitor experience, the Commercial Services Plan established limitations on both the number of persons and the number of commercial multi-passenger vessels at one time accessing the beach.

Caneel Bay

On the east side of Caneel Bay and wrapping around to Scott Bay are 23 overnight moorings and one additional commercial mooring assigned to a Caneel Bay Resort subconcessionaire. There are five separate beaches along this shoreline that extends from Caneel Bay into Hawsnest Bay; all have buoyed boat exclusion areas. This is a popular anchorage for large private yachts because of the services available at Caneel Bay Resort. Vessel access to the main resort beach is via a dinghy channel to the private resort dock; dinghies may tie up for passenger loading/unloading only. Resort guests are transported from this point to/from the NPS dock at Red Hook. The boat exclusion area and dinghy channel buoys are installed and maintained by Caneel Bay, Inc. under NPS supervision. Caneel Bay, Inc. holds a limited concession permit for water sports at Caneel Bay Resort which includes eight reserved moorings for its subconcessioners.

The Commercial Services Plan establishes the desired future condition at Caneel Bay Resort to be to maintain a mix of available commercial services while minimizing the number of commercial vessels permanently moored there, given the ready access to nearby private moorings in Cruz Bay and Great Cruz Bay.

Durloe Cays

Three small, uninhabitated islands make up the Durloe Cays west of Turtle Point. Henley Cay is popular for snorkeling and as a kayaking destination. Through an Incidental Business Permit, Caneel Bay Resort is authorized to use a portion of the island for day use activities. The northern part of the island is closed to visitor access to protect seabird nesting habitat. Two day use moorings are located off the south shore. Because of strong currents, many vessels choose to anchor rather than use the moorings. There are no services.

Hawksnest Bay

Three beautiful beaches fringe this bay. There are 13 overnight moorings, the majority hugging the bay's eastern shore. The entire bay is a buoyed boat exclusion area with a dinghy channel at the Gibney Beach portion of the bay. Group use facilities are provided by NPS at the main Hawksnest Beach; the existing showers and changing rooms are scheduled for replacement in FY 2002. At Gibney Beach, there are several new private rental cottages. The landowner semi-permanently moors his vessel on an unauthorized mooring. At Oppenheimer Beach, the Territory rents a pavilion for group use.

This area accommodates a moderate amount of commercial vessel use, including larger multi-passenger vessels. The reef area off the NPS beach is very shallow and easily subject to damage; this portion of the bay has been closed to commercial vessels.

Jumbie Bay

Located at the west end of Trunk Bay, Jumbie Bay is a small beach with close-in, shallow reefs. Access is via a dinghy channel. No moorings have been installed and there are no on-shore facilities. Jumbie Bay is closed to commercial vessel use.

Trunk Bay

Trunk Bay is considered to be one of the most beautiful beaches in the world. An underwater snorkeling trail is located on the west side of Trunk Cay. The bay is not as desirable as an anchorage as other north shore locations due to its exposure; consequently, there are only four overnight moorings. A dinghy

channel is located at the west end of the beach. Large designated swimming areas are buoyed on both sides of Trunk Cay. Lifeguards are on duty and visitor facilities (bathrooms, showers, rental equipment, and food services) are available. This is the single most-visited site in the park and is the only beach designated for commercial tour groups. It is a Recreational Fee Demonstration Program site with a $4 per person user fee.

A single commercial mooring is installed and maintained, under NPS supervision, by Heritage Boats, Inc. operating the Leylon Sneed. The Commercial Services Plan authorizes one 50+ passenger vessel for the purpose of transporting cruise ship visitors to Trunk Bay. Other commercial vessels are permitted to access Trunk Bay but are required to use an unreserved, public mooring.

Cinnamon Bay

Cinnamon Bay is a shallow, open bay with three distinct beach areas – Peter Bay, Little Cinnamon, and the beach area fronting Cinnamon Bay Campground. Although unbuoyed, private development along the Peter Bay shoreline discourages public access. Private property owners semi-permanently anchor or moor their vessels to unauthorized moorings or to NPS moorings. Little Cinnamon beach is a popular daysail destination. Like Honeymoon Beach, the absence of a designated swim area makes beach access more convenient than at other sites. There are no public facilities at Peter Bay or Little Cinnamon Beach.

Through a concession, NPS operates the only campground within the park at Cinnamon Bay. A full range of public facilities are available, including a watersports operation and a restaurant readily accessible to boaters. Within the center of the bay, there are eight overnight moorings and one commercial mooring assigned to a Campground subconcessioner.

Snorkeling is popular around Cinnamon Cay and along the fringing reef to the west. The east side of Cinnamon Cay is buoyed as a boat exclusion area, elsewhere in the bay the beach can be directly accessed by vessel.

Maho Bay

Because it is protected from north swells, Maho Bay is very popular as both a day and overnight anchorage. There are 28 overnight moorings, making it the second largest mooring field in the park behind neighboring Francis Bay. The entire bay is a buoyed boat exclusion area with a dinghy channel providing beach access at its northern end.

With the North Shore Road paralleling its length, the beach is the most accessible in the park. There are no facilities or services than other than a pavilion available for group use by special use permit, although the adjacent Maho Bay Camps offer a full range of visitor services.

Of the 1,800 acres of inholdings within the park's boundary, Maho Bay Estate, which encompasses most of the Maho Bay watershed and borders the length of Maho Bay, is the highest priority for acquisition because of its imminent threat of development. Through land donations, NPS holds a 3/11th undivided interest, which is insufficient to prevent partitioning and private development. While not directly a vessel use issue, resort or other extensive development would likely change the character of use of this bay and reduce its attractiveness as an anchorage.

Little Maho Bay

Maho Bay Camps resort overlooks this small bay between Maho and Francis bays. A full range of services, including watersports, is available. There are four commercial moorings assigned to resort subconcessioners. The Commercial Services Plan establishes the desired future condition at Maho Bay

Camps to be to maintain the current mix of commercial operations, i.e., two six-pack day sail operators, a multi-passenger day sail operator, and a dive/snorkel excursion operator.

Francis Bay

Francis Bay is the largest and most popular anchorage in the park, with 31 overnight moorings available. Because of its size and lack of sensitive resources outside of the designated boat exclusion area, Francis Bay is the only anchorage currently available to recreational (non-commercial) vessels between 125-210 feet. The entire bay is a buoyed boat exclusion area to protect sensitive seagrass and coral resources. A dinghy channel at its south end provides beach access. A small parking area, restrooms and trash receptacles are also located at this end of the beach. Picnic tables and grills are available along the beach. The nearby Francis Bay Trail provides excellent bird watching in the winter.

Both land-based and vessel-based commercial group use of Francis Bay beach was terminated in January 2001 due to sensitive resource values (concentration of threatened and endangered species) and a lack of supporting infrastructure.

Whistling Cay

There are four overnight moorings and three dive moorings on the south side of Whistling Cay. There are no services and no land access.

Mary Creek

Because of its shallow entrance and a lack of facilities, Mary Creek is lightly visited by cruising vessels. Some diving and snorkeling occurs at the Creek mouth and it has historically served as a safe anchorage during heavy north shore swells and hurricanes. It is closed to commercial vessel use. There are no moorings or regulatory buoys in the Creek.

Leinster Bay

This bay is a popular anchorage and Waterlemon Cay on its north side is the most popular snorkeling site in the park. Waterlemon Cay is ringed by boat exclusion buoys; a dinghy tether was installed on its south side several years ago to accommodate vessels up to 13 feet. Dinghy operators regularly ignore the boat exclusion buoys, however, and put ashore on the Cay's west end.

There are 20 overnight moorings in the bay. The absence of a boat exclusion area on its east end (Waterlemon Bay) allows direct beach access. There are no services at this end of the bay. The Johnny Horn Trail access is behind the beach and leads to Brown Bay and Coral Bay. A buoyed dinghy channel at the bay's west end provides access to an unimproved boat launch, the Annaberg Historic Site, restrooms, trash receptacles, and the North Shore Road.

Other North Shore Bays

There are no moorings, regulatory buoys, nor other facilities or services at Brown, Mennebeck and Haulover bays. All three receive minimal recreational vessel use and are closed to commercial vessels.

Reef Bay

Because of its exposure, isolation (no road access) and lack of services, this bay receives relatively light vessel use. There are two day use moorings. As for the entire south shore, anchoring is prohibited except by vessels less than 12 feet. On its east end is the termination of the Reef Bay Trail, where hikers participating in NPS-led hikes are picked up for transport back to Cruz Bay. This is also the site of a former NPS dock facility that was destroyed by a hurricane in 1994. Except for a bathroom at the base of the Reef Bay Trail, there are no facilities for boaters.

Little Lameshur Bay
There are six overnight moorings in Little Lameshur Bay. Road access to the south shore ends here. Trash receptacles, grills, and picnic benches are provided. A park ranger residence and radio tower overlook the bay.

Great Lameshur Bay
Providing the largest sheltered anchorage on the south shore, Great Lameshur Bay has 14 overnight moorings and an NPS dock used for park boats and short-term public docking. An abandoned University of Virgin Islands research lab fronts the dock. Per a Memorandum of Understanding, the nearby Virgin Islands Environmental Research Station (VIERS) is entitled to day use of two moorings in Great or Little Lameshur bays; this entitlement does not authorize staff or guests to live aboard vessels or to store vessels in park waters. There are two dive moorings at the Textite site off of Cabritte Horn Point.

Salt Pond Bay
This bay provides a good sheltered anchorage with eight overnight moorings. At Bobby Rock, directly outside the bay's mouth, there is a single dive mooring. Restrooms, trash receptacles, grills and picnic benches are provided. This is the most popular snorkeling beach on the south shore. The Drunk Bay and Ram Head trails begin at the south end of the bay.

Other South Shore Bays
There are two day use moorings each in Ram Head Bay and at the Textite site but no landside facilities.

Red Hook
Until its Visitor Center opened in 2000 in Cruz Bay Creek, the park's administrative offices were housed on its 15-acre Red Hook property on St. Thomas. The park also maintains a dock on this site which historically has been used by Caneel and Weston resorts for guest loading/unloading and by tour companies and water taxis as an alternative to the public dock. As of January 1, 2001, commercial and recreational vessel use of the NPS dock was terminated, except through specific authorization by the Superintendent, due to safety reasons (potential structural instability and lack of on-site security). The Commercial Services Plan provides the opportunity for a concessionaire to operate the dock for commercial vessel use on a fee basis subject to completion of the requisite repairs.

Hassel Island
Boat access to Hassel Island is limited to private land inholders and NPS property lessees. The docking facilities at Creque Marine Railway are currently being cleared of vegetation and debris so that the railway ruins can be stabilized. The dock at Garrison House was damaged in past hurricanes and is no longer operable. There are no services available on the island. VINP intends to initiate an update of its 1983 General Management Plan (GMP) in FY 2002. Management direction for Hassel Island, including the nature of boating facilities, will be a key issue addressed in the GMP update.

b. Other Facilities and Services

Pumpouts
A survey of vessel pumpout programs in the Caribbean and at selected U.S. national parks was conducted in conjunction with Plan preparation (Appendix D). That survey found that although there is strong interest by most Caribbean islands and U.S. national parks in providing vessel pumpout programs, most of these entities are limited by lack of funds, lack of regulations on waste discharge, or lack of interest on the part of boaters. Boating representatives have raised questions about demand for such facilities, given that an increasing number of boaters are using dry (chemical) facilities, rather than holding tanks, on their

vessels. Consequently, pumpout facilities are generally limited to larger marinas on the larger Caribbean islands, e.g. Bahamas and Puerto Rico.

Through the 1992 Clean Vessel Act, grant funds are available to the Territory for the construction and/or renovation, operation and maintenance of pumpout and portable toilet dump stations. As a federal agency, NPS is not eligible for these funds. Since the Act's passage, grants have been awarded to install 2,200 pumpout stations and 1,400 dump stations nationwide. However, pumpout facilities in the US Virgin Islands are limited to three marina facilities, none of which serve St. John or VINP. Clean Vessel Act funds have also been designated for a pumpout boat to provide mobile service to mooring fields and vessels around the east end of St. Thomas and on St. John. That vessel is not currently operational and there are no other are mobile facilities serving St. John.

The Commercial Services Plan authorizes the operation of a pumpout facility as a concession if located on NPS property. A fee would be assessed by the concessionaire for use of the facility. The Caneel Bay shipyard in Little Cruz Bay has been identified as a preferred location. Implementation is contingent upon the availability and capability of adequate sewage treatment facilities. Alternative public and/or private initiatives would not be precluded by the authorization of this concession.

Repair Facilities

There are no commercial boat repair facilities within the park, as commercial repair and maintenance operations of any type are prohibited.

C. ANCHORING, MOORING AND BEACH ACCESS

1. Anchoring

Current anchoring regulations are detailed in the description of the No Action Alternative in Section II.B.2.b. In summary (and with exceptions), anchoring is permitted in all bays on the north shore and prohibited in all bays on the south shore.

The incidence of anchoring in park waters has dramatically declined with the installation of moorings. Observations indicate that 90-95% of boaters visiting park waters will take a mooring if available versus anchoring. Key exceptions are vessels over 60 feet in length that are prohibited from using moorings and Puerto Rican boaters who prefer to raft their boats together, which is prohibited on moorings.

Studies documenting where people anchor have shown that as many as 50% of boaters do not anchor properly and have demonstrated that anchors and anchor chains adversely impact seagrass beds and coral (Virgin Islands National Park 1994). While the vast majority of boaters seek out sandy areas for anchoring, in many of those areas seagrass beds are interspersed with sandy openings. While the anchor itself may be in the sand, often the anchor chain is not and when vessels swing back and forth the chains damage seagrass and coral. These openings then tend to continue to enlarge with swells and other storm events.

All vessels that anchor have the potential to injure or destroy coral and seagrass. However, there is a dramatic difference between the effects of large versus small anchors. Large anchors can overturn and smash large areas of coral several meters across and can damage the underlying reef framework, not just the veneer of coral on the surface of a reef. Smaller anchors inflict comparatively superficial damage. On small boats, there is more ability to spot sandy areas for anchoring and to manually reset anchors when

needed. Obviously, on larger boats it is difficult to observe the bottom and impossible to manually reset large anchors. Recovery of scarred areas in seagrass beds or reefs is generally faster for smaller scars than larger ones because adjacent organisms can grow into the damaged area. Coral recolonization of the central portions of large anchor scars takes much longer.

Research studies have documented the history of coral reef and seagrass bed destruction from improper anchoring and occasional boat groundings on reefs within the park. In a 1987 survey, of 186 boats surveyed, 32% were anchored in seagrass and 14% in coral (Rogers et.al., 1988). The remaining 54% were anchored properly on sand, mud or coral pavement. In 1993, a boat anchor survey of both the north and shore shores was conducted by Friends of VINP. Of 200 vessels, 57.5% were anchored on sand, 15% on rubble, 11.5% on seagrass, 10.5% on dead coral and 5.5% on live coral. This research, along with two dramatic anchor damage cases ("Windspirit" and "Seaborne Pride") and numerous groundings on Johnson's Reef, led to measures to restrict anchoring and install moorings.

2. Mooring and Buoy Program

a. Mooring Buoys

Mooring buoys have been shown to be an effective management tool to minimize damage to coral reefs and other sensitive marine resources from careless and/or inappropriate anchoring practices. The process to install moorings in VINP began in 1985. Initial installations were stalled by a lack of funding, equipment failures and Hurricane Hugo. After a series of workshops with boaters and divers and a review of alternatives, the park selected installation of moorings to reduce anchoring and resource protection buoys to identify locations of shallow coral and rocks and to separate swimmers and boaters. Mooring buoys were designed to hold boats up to 17 meters LOA (55 feet), 82% of the boaters using park waters at that time. In the early 1990's, with assistance from the U.S. Navy and funding from Friends of VINP, 20 moorings were installed on the south shore and 16 on the north shore.

A 1997 study (Link 1998) found that despite the installation of moorings, destruction of significant marine resources in the park was continuing because many boaters were unfamiliar with anchoring and mooring regulations. That study concluded that the anchoring and mooring practices of boaters in VINP are influenced by knowledge (of regulations, sensitivity of resources), perception (of the safety of moorings, consequences of non-compliance), and ability (to anchor skillfully, to find an available mooring). This and other research conducted by the park throughout the 1990's identified the need for additional moorings to protect sensitive marine resources, especially north shore seagrass areas.

A second round of mooring installation began in 1999 following public review of a draft mooring plan prepared by the park's Resource Management Division. That $325,000 installation was financed by private donations to Friends of the VINP and included installation of 175 new moorings, retrofitting of 26 existing moorings, and replacement of 13 privately-installed commercial moorings with NPS moorings.

As shown in Table 3, there are currently 215 moorings in place in park waters, with 182 of these available for overnight use. Based upon a survey conducted for this Plan (Appendix E), this is currently the largest program of overnight moorings in the Caribbean. While there are about 300 moorings installed in the Cayman Islands and plans to increase the number in Puerto Rico to about 250, the vast majority are designated for day use and are not available for overnight use.

Table 3: Location of Moorings by Type

LOCATION	TYPE					TOTAL
	Overnight	Day Use	Quarantine(a)	SCUBA	Commercial	
NORTH SHORE						
Cruz Bay	0	0	4	0	0	4
Lind Point	0	0	2	0	0	2
Lind Point – Caneel Bay	23	0	0	0	0	23
Caneel Bay – Scott Bay	23	0	0	0	8	31
Henley Cay	0	2	0	0	0	2
Hawksnest Bay	13	0	0	0	0	13
Trunk Bay	4	0	0	0	1(b)	5
Cinnamon Bay	8	0	0	0	1	9
Maho Bay	28	0	0	0	0	28
Francis Bay	31	0	0	0	4(c)	35
Whistling Cay	4	0	0	3	0	7
Leinster Bay	20	0	0	0	0	20
SUBTOTAL	**154**	**2**	**6**	**3**	**14**	**179**
SOUTH SHORE						
Reef Bay	0	2	0	0	1	3
Little Lameshur Bay	6	0	0	0	0	6
Great Lameshur Bay	14	0	0	0	0	14
Salt Pond Bay	8	0	0	0	0	8
Booby Rock	0	0	0	1	0	1
Tektite	0	0	0	2	0	2
Ram Head	0	2	0	0	0	2
SUBTOTAL	**28**	**4**	**0**	**3**	**1**	**36**
TOTAL	**182**	**6**	**6**	**6**	**15**	**215**

(a) One-hour use while visiting Customs and Immigration
(b) Reserved commercial mooring installed and maintained by Leylon Sneed per NPS permit
(b) Little Maho Bay

b. Use of Moorings

Except for moorings designated and reserved for commercial operators at Caneel Bay, Trunk Bay, Cinnamon Bay, and Little Maho Bay, all moorings are available on a first-come, first-served basis. The commercial moorings at Caneel Bay, Cinnamon Bay and Little Maho Bay are designated for use by Caneel Resort, Cinnamon Bay Campground and Maho Bay Camp watersports operators. The commercial mooring at Trunk Bay is reserved by permit for a cruise ship passenger transport vessel. Other commercial operators may use the mooring when it is not occupied by the permittee.

The use of existing moorings is restricted to vessels 60 feet or less in length; larger boats are required to anchor. Other regulations relating to the use of moorings are detailed in the description of the No Action Alternative in Section II.B.3.c.

c. Hurricane Moorings

On St. John, there are two naturally preferred locations for securing boats during storm events -- Hurricane Hole in the Virgin Islands Coral Reef National Monument and Mary Creek on the park's North shore. Both of these sites are deeply indented bays with mostly sand bottoms. However, they are also fringed with red mangroves that serve as valuable nursery habitat for most reef fish and roosting/nesting habitat for many species of wildlife. Unfortunately, many mangroves are damaged or killed each year by ropes tied to them.

The park has received funds from Friends of the Virgin Islands National Park and the National Oceanic Atmosphere Administration (NOAA) to install a hurricane mooring system in Hurricane Hole. The system will be similar to the ones used in Paraquita Bay in Tortola and Simpson Bay Lagoon in St. Martin. It is anticipated that it will be installed later this year with the intent to have it ready for use in the 2002 hurricane season.

d. Mooring Fee Collection Program

In Spring/Summer 2002, the park intends to initiate fees for the overnight use of moorings in park waters. Daily fee collection will be contracted. Day use of park waters will not be subject to a user fee. Any vessel moored in park waters between the hours of 5:00 pm and 7:30 am will be required to pay a $15 per day mooring use fee.

e. Regulatory and Boundary Buoys

The purpose of regulatory buoys is to separate boaters and other marine users from sensitive natural resources, as well as to ensure the safety of visitors. There are approximately 150 regulatory buoys installed in park waters, delineating areas closed to vessels for either resource protection purposes and/or to prevent conflict with swimmers/snorkelers. Buoys around Waterlemon Cay and at most north shore beaches serve to keep boat anchors from being placed in nearshore seagrass communities and coral reef areas. Because Johnson's Reef, north of Trunk Bay, has a history of boat groundings, two lighted and two unlighted buoys have been installed around it.

The park installed three boundary buoys along the North shore of St. John in 1995, one just outside of Cruz Bay, another at the southeast end of Lovango Cay and the third just north of Johnson's Reef. These buoys serve to indicate the seaward boundary of the park, thus providing marine users with a visual reference. The Resource Management Plan identifies a need for boundary buoys along the remainder of the north shore boundary as well as along the south shore boundary, however, the expense is prohibitive at this time. The park is contracting with a local company to maintain the present boundary buoys and the additional buoys at Johnson's Reef.

f. Installation and Maintenance

The park's Resource Management Division is assigned responsibility for the installation and maintenance of moorings and buoys in park waters. Each mooring is monitored quarterly and regulatory buoys, several times a year. Private installation and maintenance of moorings or buoys within park waters is not authorized, except for the following:

- A single cruise ship passenger transport vessel mooring in Trunk Bay has been installed and is maintained by the permittee (currently Heritage Boats, Inc.) under NPS supervision;

- Boat exclusion area and dinghy channel buoys at Caneel Bay have been installed and are maintained by Caneel Bay, Inc. under NPS supervision; and
- Commercial moorings reserved for watersports operators at Caneel Bay, Cinnamon Bay and Little Maho Bay are maintained by these operators pursuant to concession contracts or permits.

3. Groundings and Damage Assessment

Many boaters are unfamiliar with park waters, resulting in occasional boat groundings, especially on Johnson's Reef, Windswept Reef, and at the entrance to Mary Creek on the north shore. Windswept Reef has been circled by a ring of buoys designed to reduce the incidence of groundings. The U.S. Coast Guard has replaced the red marker buoy on the south side of Johnson's Reef with a white "shallow-shoal" marked buoy. The red and green buoys marking this reef had previously been mistaken by some boaters as a channel, which resulted in a number of boats going aground on the shallow coral. Four additional buoys were also installed to prevent further reef damage. The installation of these buoys to mark shallow reef areas has greatly reduced boat impacts. According to observation, before these buoys were installed, an average of four groundings a week within park waters could be observed (Boulon 2000).

Coral Reef Damage Standard Operating Procedures (SOP) have been developed by NPS's Southeast Regional Office to provide general guidance in investigating damage to marine resources from vessels, anchors, and individuals touching or breaking the resources. While VINP has its own September 1997 SOP for marine resource damage assessments, it has not finalized nor adopted those procedures.

4. Beach Access

Beach access by vessels is restricted to dinghy channels where provided and unrestricted where dinghy channels are not provided. The exception is that non-motorized, inflatable (without a hard bottom) vessels no greater than 12 feet in length are permitted to access beaches through boat exclusion areas. Where dinghy channels are delineated, access via dinghy channels is limited to boats no greater than 26 feet in length. Anchoring is prohibited within dinghy channels; dinghys may be beached ashore but not secured to living or dead vegetation.

Where dinghy channels or resource protection areas are not delineated (e.g., Honeymoon Beach, western Cinnamon Bay, Leinster Bay, Brown Bay, south shore), there is no limitation on beach access except that vessels may not anchor closer than 100 feet to the beach. Vessels are permitted to pull up to shore to collect/drop off passengers, but may not remain anchored on shore or within 100 feet of shore.

D. OPERATING REGULATIONS

In addition to anchoring, mooring, beach access and other regulations discussed above, NPS has established limitations on vessel size, length of stay and other operational considerations. These are detailed in the discussion of the No Action Alternative in Chapter II. Other key operational issues assessed in the Plan are summarized below.

1. Speed Limits

Operating a vessel in excess of 5 mph or creating a wake is currently prohibited in most north shore anchorages and bays, at the Lameshur Bay boat docking area and in Salt Pond Bay on the south shore, and in any dinghy channel. Such actions are also prohibited within 100 feet of a diver's marker or swimmer.

Coast Guard authority for enforcing speed limitations is limited to shipping channels. However, states and municipalities have authority to establish such regulations. For example, the State of Maryland has set a limit of six knots in designated areas which are frequently congested and a maximum 35 knots on all waters away from congested areas. Maryland also has established minimum wake zones where boats proceed only at a speed necessary to maintain steerage in order to protect highly erodible shorelines, shallow bottoms, cultural sites, or recreation areas. Glacier Bay National Park and Preserve (Alaska) has established a vessel speed limit of 10 knots in specific areas to minimize disturbance to feeding humpback whales, a federally listed endangered species. There are no similar Territorial regulations.

While high speed "go fast" (AKA "cigarette boats") commonly speed through park waters, within the last five years there has been only one observed incident of a collision between boats (Williams personal communication).

2. Noise Regulations

Noise limits for activities in the park are established by 36 CFR 2.12 based upon a maximum noise level of 60 decibels measured on the A-weighted scale at 50 feet or any noise that is unreasonable considering the nature and purpose of the activity. Additionally, 36 CFR 5.13 prohibits noise activities that would constitute nuisances. Quiet hour (10 pm to 6 am) regulations are in effect but given a lack of night patrols, there is no effective enforcement. Excessive noise from vessels tends to be associated with holiday weekend parties.

3. Lighting

The use of vessel lights is not currently regulated.

4. Waste Disposal

Dumping of garbage into the sea is a worldwide problem, with plastic refuse comprising the majority of the refuse found in the seas and on beaches. 36 CFR 2.14 prohibits polluting or contaminating park waters in any manner, including the dumping of garbage, dishwater/greywater and fresh fish parts. The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste if such discharge either causes a film or sheen upon or discoloration of the water's surface or causes a sludge or emulsion beneath the water's surface.

5. Boating Safety

Assistance to vessels in distress is provided by the U.S. Coast Guard, the Coast Guard Auxilliary, VINP Protection Division, and Virgin Island Search and Rescue (VISAR). VISAR reported the busiest year in its history in 2001 (Greenspon 2002), with over 1,500 volunteer hours expended for distress assistance.

E. AFFECTED RESOURCES

1. Endangered/Threatened Species

The Endangered Species Act (PL 93-205) requires that federal agencies protect all listed species and habitats. Twelve federally listed endangered and threatened species have been observed in the park. A listing of federally-listed Endangered and Threatened Species and Critical Habitat for both marine and terrestrial species is provided in Appendix A.

Five species of whales, as well as several porpoise species, may migrate through the park. The endangered West Indian manatee had been recorded as being very rare around St. John, although it has been recently recorded (ca. 1990) from West End, Tortola. Three federally-listed sea turtles are found in park waters. The hawksbill sea turtle requires coral reefs for food and refuge. Peak nesting season on park beaches is from July through November, although nesting activity may take place any month of the year. While leatherback and green sea turtles feed in seagrass beds in park waters, they are infrequent nesters on St. John beaches.

Five federally-listed threatened or endangered bird species have been identified. The federally endangered brown pelican nests, feeds and roosts both adjacent to and within park boundaries. The U.S. Fish and Wildlife Service is evaluating nesting success in considering this species for delisting. The federally endangered peregrine falcon is a rare winter migrant. The federally threatened roseate tern and endangered least tern are summer residents that have both been observed nesting within the park in recent years (1997 and 1999, respectively). Piping plover are a very rare summer migrant.

The federally endangered Epicrates Virgin Islands tree Boa has never been observed on St. John although it occurs on the east end of St. Thomas and on Tortola, BVI. This species could conceivably exist on St. John.

All of the Federally and Territorially listed species require some level of protection and monitoring. Direct impacts on federal endangered species by exotic species include the rooting of *C. thomasiana* by feral pigs and depredation of sea turtle nests and eggs by the small Indian mongoose (*Herpestes auropunctatus*). Feral goats and donkeys may be having an impact on many territorial endangered species of plants. Nesting frequencies have decreased on many beaches due to adjacent upland development that results in people, lights and dogs, all of which deter turtles from using particular beaches.

Sea turtle mortality due to boat strikes has increased over the last fifteen years (Boulon 1998). In some years, over half of all reported turtle strandings (accidents) involved damage to the carapace from boat propellers or hulls. Sea turtle stranding data is maintained by the Virgin islands Department of Planning and National Resources; eight strandings within park waters over the past 10 years are recorded. Antedotal evidence suggests a much higher incidence of strandings. Increasing populations of juvenile green turtles and increasing numbers of high speed powerboats create the potential for increased numbers

of incidental mortalities. The number of high speed boats travelling along the north shore of St. John en route to the British Virgin Islands continues to increase.

Sea turtle nesting surveys have been conducted most years since 1981. These consist of weekly beach walks to detect and disguise turtle nesting activities. Monitoring is focused on beaches within the park with little to no development, as these beaches should provide some of the first indications of increases in nesting levels. Continued monitoring for nesting activities is required under the recovery plans for green, hawksbill and leatherback sea turtles.

Endangered and threatened seabirds (brown pelican, roseate and least tern) are most commonly affected by predation on eggs and young by rats and mongoose. Humans are also potential poachers of eggs in remote areas. Disturbance by human visitation to offshore cays results in low egg production, death of chicks to sun exposure or even abandonment of the whole nesting colony. Decreases in baitfish populations may limit nesting populations and affect the breeding and fledging success of these birds.

Other marine species of special concern include the jewfish and black corals. These species are protected under Territorial regulations as well as CITES. No surveys have ever been done to determine population levels and distribution of these species.

2. Marine Resources

Protection of the marine environment is a critical consideration in planning for vessel uses. VINP is perhaps best known for its coral reefs and associated seagrass and mangrove habitats, which are among the most diverse and valuable ecosystems on earth. Reef systems are storehouses of immense biological wealth and provide economic and environmental services to millions of people as shoreline protection, areas of natural beauty, recreation and tourism, and sources of food, pharmaceuticals, jobs and revenues. According to one estimate, these "rainforests of the sea" provide services worth about $375 billion each year, a staggering figure for an ecosystem that covers less than one percent of the earth's surface (United States Coral Reef Task Force 2000).

While coral reefs may be economically and environmentally invaluable, they are also vulnerable to harmful environmental changes, particularly those resulting from human activities. Over the last two decades, coral reefs have experienced an unprecedented loss of live coral cover due to human-caused and natural threats. Present estimates are that 10% of all coral reefs are degraded beyond recovery; 30% are in critical condition and may die within 10-20 years; and, if current pressures continue unabated, another 30% will perish completely by 2050 (United States Coral Reef Task Force 2000).

A recent World Resources Institute report states that about 9% of the world's mapped coral reefs are found in the Caribbean. Of these reefs, almost 2/3's are at risk, with 1/3 at high risk (WRI 1998). Several Caribbean species have declined to the point that they are candidates for listing under the Endangered Species Act. Conditions contributing to the degradation and decline of reefs worldwide will be difficult to control under scenarios of growing demand for reef products and habitat loss, fueled by increasing population growth, development in coastal areas and rapid expansion of tourism (Hatziolos 1997).

The status of corals and coral reef ecosystems is highly variable throughout the Caribbean. Coral health is generally best on deeper reefs, around low islands, and away from centers of population and tourism. In recent years, there has been a marked trend toward increasing degradation throughout the region. This degradation is the result of both direct and indirect impacts. Direct impacts include: hurricanes,

anchoring, littering, trampling, diver damage, collection of corals and other reef organisms, and overfishing and destructive fishing practices. Indirect impacts include those factors contributing to the widespread decline in coastal environments in the Caribbean, such as: mangrove depletion; increased turbidity due to coastal development, deforestation and poor agricultural practices; land-based pollution loading from industrial wastes, fertilizers, pesticides and other agricultural products; and eutrophication from sewage and other domestic waste, as well as marine-based pollution from oil refineries, oil tanker traffic and offshore oil reserves (Wilkinson 1998; Jameson et al. 1995).

Based on a review of literature and research published on the state of the coral resources in the Virgin Islands, which happens to be some of the longest data sets available in the Caribbean, as well as interviews with local scientists and NPS and U.S. Geological Survey staff, the coral resources within the VINP are in decline and not as healthy as could be expected given 45 years of NPS protection. Ongoing scientific research indicates that the abundance and diversity of reef fish, live coral and seagrasses have all been drastically depleted.

Since about 1980, the amount of live coral cover has noticeably declined both in VINP and in outlying Caribbean waters (Rogers 1998). One of the major culprits is white band disease. Over the years, this disease, in addition to major tropical storms and hurricanes, has wiped out massive amounts of elkhorn coral (*Acropora palmata*), which is one of the primary reef-building corals in the Caribbean (Rogers 1998). At Buck Island (St. Croix), elkhorn coral cover fell from approximately 85% of total coral cover in 1976 to 5% in 1988 (Rogers et al 1982; Gladfelter 1991). Another devastating coral disease is plague type II disease. This disease was first recorded in 1997 and is currently observed to be severe around St. John (Rogers and Beets 2000). Coral bleaching has also had a detrimental impact on the area's coral reefs, with the worse epidemics occurring in 1987, 1990 and 1998 (Rogers and Beets 2000). Recent monitoring data indicates that the percent of live coral in Newfound Bay on St. John's northeast shore decreased from 18% in 1999 to 13.9% in 2000, a 22% loss (Rogers, Miller and Waara 2000). This result is especially disconcerting, as Newfound Bay is one of St. John's least disturbed bays.

One of the most serious potential threats from human activities to reefs within the park is the increased sedimentation from runoff associated with careless development of private inholdings and of land adjacent to or near park boundaries. The island's exceptionally steep hillsides lead to significant amounts of runoff. Sediments can smother coral colonies, reduce light needed for photosynthesis by corals and other reef organisms, and make the bottom unsuitable for settlement and growth of new corals (Rogers 1990).

Algae (seaweeds) grow on the portions of corals killed by sediments, disease, storms, and other stresses. If the algae-eating (herbivorous) fishes and urchins cannot keep this algal growth under control, reefs will be unable to recover because corals cannot settle and grow on surfaces covered with excessive algal growth. One concern is that fishing around St. John may have significantly decreased the number of herbivorous fishes, hindering reef recovery.

Fishing in the USVI, including within VINP, has led to a decrease in the larger predatory species such as groupers and snappers and a decrease in the average size of many fishes. Although the legislation that established the marine portions of VINP allowed only traditional fishing with traps of "conventional design", illegal commercial trap fishing is occurring inside the park. The park is not serving as a refuge for reef fishes. Visual censuses of fishes indicate no significant differences in the number of species, biomass of fishes, nor mean size of fishes observed inside vs. outside park boundaries. Similarly, the number of fishes per trap is similar inside and outside park waters.

A monitoring program was established in 1988 for water quality around the island of St. John, in waters both within and outside of VINP. Marine water quality in park waters is excellent with the exception of Cruz Bay. However, turbidity has been increasing, with turbidity values in waters outside the park being consistently higher than in park waters, probably reflecting sediment erosion from development of in-holdings and land outside the park. Clean, clear water is critical to maintaining healthy coral communities and seagrass beds. The excellent water clarity is also one of the island's main tourist attractions.

The key problems affecting the park's marine resources include sedimentation from coastal development, coral diseases, heavy fishing pressure, and damage from vessels and other human impacts. The impact of vessels over time has undeniably degraded park marine resources. The number and concentration of boats has increased substantially since park establishment, mainly because the VINP is such an attraction (Boulon 2000). Direct vessel impacts include anchor damage and groundings which have been significantly reduced through moorings, closed areas, limits on the size of vessels allowed in park waters, and other regulations. Inexperienced snorkelers or scuba divers damage coral colonies by standing on them or breaking off branches. Boats unknowingly passing over endangered sea turtles can cause severe injury or death. Indirect vessel impacts include sewage and garbage discharges, petroleum discharges, boat wakes which stir up sand and suffocate coral, and noise pollution which places stress on the underwater marine inhabitants. Significant destruction from boat anchors on seagrass beds and from boats running aground on reefs has been documented within the park over the years. One prime example is the cruise ship "Windspirit" that ran aground in 1988 and destroyed a 283m^2 section of reef within the park. Monitoring at this site reveals no significant recovery of hard coral after 10 years (Rogers and Garrison 1999). In 1987, a survey was conducted of 186 boats in bays around St. John. Fourteen percent were anchored in coral communities and 32% were anchored in seagrasses (that is, 46% were anchoring improperly). Approximately 40% of the anchors in coral and 58% of the anchors in seagrass beds caused damage (Rogers et al 1988).

A number of bays, most notably on the park's north shore, that were historically dominated by seagrass or corals have not recovered from past damage and are now primarily sandy bottoms. Seagrass beds play a pivotal role in modifying the physical, chemical and geological properties of coastal areas. They provide a foraging ground for endangered species, enhance biological diversity and productivity, and provide nutrients, primary energy and habitats to sustain coastal fishery resources (Mac et al 1998). Seagrass beds are slow to recover from damage though, requiring decades to resemble their original state. Corals are also very slow to recover, with dominant species growing less than 1 cm a year.

Beginning in the early 1990's, the VINP established mooring sites for boats to attach to instead of dropping anchors. Currently, 215 mooring sites have been established, significantly reducing impacts to coral and seagrass resources.

Considerable research has been conducted over the years, including the effects of hurricanes on reefs and seagrass beds, changes in reef assemblages, and the status of the trap fishery in the USVI (Rogers and Beets 2000), as well as the ecological history for the VINP through the late 1980's (Rogers and Teytaud 1988). Additional research includes average seagrass densities (Muehlstein, L.K., and J. Beets 1999), research on resultant sediment flow from development of private land inside and adjacent to park boundaries (Rogers 1998), as well as a three-year study to assess the effects of fishing and to determine trends in species composition, abundance and size of fishes (Garrison 1998). Given past trends and currents levels and types of park use, a slow to moderate decline in the health of the park's marine resources is projected.

3. Cultural Resources

Detailed information on cultural resources is contained in the Resource Management Plan (1999) and summarized in the Commercial Services Plan (2001). For purposes of this plan, the focus is on submerged cultural resources.

Submerged cultural resources have received cursory investigation. A list of 28 shipwrecks recorded in the vicinity of St. John from 1713 to 1916 has been compiled. Preliminary evaluations indicate that there is a high potential for well-preserved shipwrecks within park waters.

4. Scenic Values

VINP's purpose and significance are based in large part on "…outstanding scenic…features of national significance…". This is confirmed in the park's mission "to preserve and interpret the significant natural and cultural resources and scenery for public benefit and inspiration." For boaters, as well as other park visitors, scenery is probably the most significant feature of the park. Visiting boaters enjoy the views of sparkling blue water, white beaches, lush green vegetation, and sparse-to-no development. Numerous cultural resources, e.g., Annaberg Historic Site, add to the park's scenic values. No other park in the National Park System has the combination of developing tropical forests, white sand beaches, and coral reefs that are found in VINP, making it truly a scenic "gem" in the National Park System.

Many of the park's viewsheds, however, have been seriously altered by private development since the park was established in 1956. The large number of in-holdings within park boundaries have allowed significant residential development to occur, seriously compromising the park's scenic values, e.g., Peter Bay, Dreekets Bay, Susanaberg. Additionally, many of the residences constructed within park boundaries tend to be grossly disproportionate in size with the scale of St. John and thus have even greater visual impact. Priorities for land acquisition identified in the 1997 *Land Protection Plan* reflect NPS's concern about preserving strategically located private lands for their scenic and other environmental values. For example, the plan's highest priorities for acquisition reflect the need to protect the park's shores from incompatible development that could have devastating, permanent and far-reaching effects on significant scenic, natural and cultural resources.

5. Soundscape

Soundscape refers to the total ambient acoustic environment or sound level associated with a given environment. In a national park setting, the soundscape is composed of both natural ambient sounds and a variety of human-made sounds. NPS Director's Order #47: Soundscape Preservation and Noise Management requires "to the fullest extent practicable, the protection, maintenance or restoration of the natural soundscape resource in a condition unimpaired by inappropriate or excessive noise sources."

The fundamental principle underlying the establishment of soundscape preservation objectives is the obligation to protect or restore the natural soundscape to the level consistent with park purposes, taking into consideration other applicable laws. Where natural soundscape conditions are currently not impacted by inappropriate noise sources, the objective must be to maintain those conditions. Where the soundscape is found to be degraded, the objective is to facilitate and promote progress toward the restoration of the natural soundscape. This basic principle is modified by noise-generating activities that are appropriate to the park under the NPS Organic Act and other relevant legislation related to natural and cultural resource

management or the provision of visitor services. In these situations, soundscape management goals are to reduce noise to minimum levels consistent with the appropriate service or activity, as long as that service or activity continues to be needed.

Primary generators of noise associated with vessels include visitor activities at beaches; motor noise, most notably high-speed powerboats ("go fast" or cigarette boats"); amplified sound; and onboard parties, especially over holiday weekends.

6. Lightscape

Recognizing the value and roles of natural lightscapes, NPS Management Policy 4.10 requires that natural darkness and other components of natural lightscapes be protected by preventing or minimizing the intrusion of artificial light into the night scene of the ecosytems of parks. The policy prohibits the use of artificial lighting in areas such as sea turtle nesting locations, where the presence of artificial lighting would disrupt dark-dependent natural resource components of a park. It restricts the use of artificial lighting to those areas where security, basic human safety, and specific cultural resource requirements must be met and, when used, requires that such lighting be shielded to prevent the disruption of the night sky or natural processes.

Light pollution is considered a widespread problem at national parks, affecting not only the visitors' experience of viewing dark skies but also endangering marine and avian species by drawing them away from their natural habitats (National Parks Conservation Association 2000). Lighting issues associated with vessels include the use of spotlights to attract bait fish and the increasing use of halogen lights. In its comments on the Commercial Services Plan, USFWS raised concerns about the effects on artificial lighting on nesting sea turtles.

F. CARRYING CAPACITIES

NPS is required by law to address carrying capacity in planning for park management. Simply stated, carrying capacity is a measure of sustainability. In terms of vessel use, carrying capacity is defined as the type and level of vessel use that can be accommodated while sustaining the desired resource protection and visitor use experience in the park. Capacity limitations on the number of boats overnighting in bays would be similar to limiting the number of campers in a campground. NPS strives to offer a diversity of experiences to the public, and the opportunity to stay in a bay with relatively uncrowded conditions is one such experience. Through carrying capacities, vessel uses can be monitored or controlled to avoid unacceptable impacts to the scenic, natural and cultural resources and values for which the park was established.

The 1983 GMP calculated carrying capacities for park facilities, including some of the anchorages within park waters, but did not establish them as any type of limitation on visitation. For example, the GMP established capacities of 30 and 50 anchorages in Caneel Bay and Francis Bay, respectively. However, these capacities were calculated prior to the installation of moorings and detailed marine resource surveys. Additionally, no capacities were calculated for a number of bays regularly used by commercial and recreational boaters, e.g., Salomon and Honeymoon beaches, Henley and Whistling cays.

There is no known model for calculating carrying capacities for general vessel use in a national park. The Glazier Bay National Park and Preserve Vessel Management Plan establishes carrying capacities for

commercial vessels through the use of quotas for different types of vessels (cruise ships, tour boats, charter boats, and private boats). These quotas include limitations on daily entries, seasonal entries, and seasonal use-days, as well as special use area closures and restrictions. The primary purpose of these quotas is to regulate day use commercial vessel impacts, particularly by cruise ships, on sensitive park resources, especially the endangered humpback whale. VINP's Commercial Services Plan adopted a similar approach to commercial day use activities, limiting the number of available permits and instituting closures and restrictions. However, such an approach is not applicable to general boating use in the park where the majority of vessels are overnighting on moorings and where multiple-day visits are the norm. Also, with minimal potential for impacts to threatened or endangered species by vessels operating within the park, the need for a program of quotas on recreational vessel use is not justified.

To a great extent, VINP has previously established carrying capacity limitations on vessels within park waters through a variety of measures including:

- A prohibition on anchoring and a limited number of moorings on the south shore;
- Installation of an extensive mooring system located in the most desirable anchorages, effectively restricting anchoring to areas seaward of the mooring fields where it is limited by water depth, conditions (currents), and distance to shore. Water depth in particular precludes many smaller vessels from anchoring;
- Restrictions on mooring use and anchoring, e.g., prohibitions on anchoring within 200 feet of moorings and boat exclusion buoys and on rafting while on a mooring; and
- Capacity limitations for commercial vessels established by the Commercial Services Plan.

The park's intent to begin assessing a user fee for mooring later this year will also serve as a defacto limitation.

As detailed in the Commercial Services Plan, NPS typically uses a Visitor Experience and Resource Protection (VERP) framework in conducting carrying capacity analyses. That Plan identified a variety of carrying capacity indicators (Table 10) for selected areas in the park, including all vessel use areas. Based upon those indicators, vessel carrying capacities are calculated below in Table 4. These capacities include the total number of vessels mooring and anchoring within a bay at one time. The desired future condition represents that vessel use capacity which best balances resource protection with a quality visitor experience. The maximum carrying capacity (or limit of acceptable change) represents a level of vessel use that would be the maximum that could be sustained and ensure the protection of sensitive resources and a quality visitor experience. These capacities are qualitatively derived based upon current scientific information on resources present, empirical observation, daily operational knowledge, and public input. In establishing these capacities, it is recognized that there is no magic number that identifies the optimal number of vessels that should be authorized. There are simply too many variables that form part of the equation. Many of these variables are not only subjective, but vary from individual to individual. The inability to predict with any scientific certainty where the critical thresholds of resilience to stress lie along the continuum of human-induced and natural disturbances makes it inherently difficult to establish carrying capacities.

G. SOCIOECONOMICS

Tourism is the dominant economic activity in the U.S. Virgin Islands (almost 80% of the Territory's gross revenues) and VINP is an icon that is on the "must see" list for many travelers to the islands. Tourism provides a substantial net benefit to local residents. Key U.S. Virgin Islands annual tourism indicators

Table 4: GMP Carrying Capacities, Desired Future Conditions, and Maximum Sustainable Capacities for Vessel Use, Selected Areas (1)

Area	GMP Carrying Capacity (2)	Current Moorings	Desired Future Condition	Maximum Carrying Capacity	Explanation
North Shore					
Cruz Bay	NA	4	4	6	Little Cruz Bay is the only portion of the bay suitable for mooring or anchoring. Because of its proximity to Customs and immigration and Cruz Bay services, it is reserved for quarantine mooring/anchoring. Its proximity to the Cruz Bay harbor entrance limits its suitability as an overnight anchorage. With construction of a new NPS dock in Little Cruz Bay and continued operation of the boat launch ramp, there would be limited space for additional vessels.
Lind Point	NA	2	6	6	This is a small anchorage adjacent to a major travel lane between Cruz Bay and points east. Consequently, it is typically not suitable for overnight use. Anchoring is limited by water depth.
Salomon Beach	NA	4	6	8	There would be sufficient area to accommodate a limited number of additional vessels on the seaward side of the existing mooring field. Providing moorings for commercial vessels could divert some of the day use visitation from Honeymoon Beach.
Honeymoon Beach	NA	17	24	24-26	Although the most popular commercial day sail destination in the park, this area has the ability to accommodate additional moorings or anchoring to the seaward of the existing mooring field. This number is limited by the potential for conflicts with vessels accessing Caneel Bay Resort, including passenger ferries, and by water depth. Given the proximity of services at Caneel Bay Resort and the absence of coral or seagrass, it is an appropriate anchorage for larger yachts. With some reconfiguration of existing mooring, reserved commercial moorings could be sited relatively close to shore.
Caneel Bay	30	31	35	35-40	Like the Honeymoon Beach section above, this area has the

					ability to accommodate a moderate amount of additional vessels, with the same limitations of potential conflicts with vessels accessing the resort and water depth. At the east end (Scott Bay), there is the potential for conflicts with vessels transiting through the area due the narrowing of the channel between Turtle Point and Durloe Cays.
Henley Cay	NA	2	4	6	The presence of coral throughout the anchorage and strong currents at both the Cay's north and south ends restrict the number of vessels that can be accommodated. The ability to install additional moorings is limited by a lack of suitable substrate. Commercial access to the island is limited to protect seabird nesting habitat.
Hawksnest Bay	10	13	15	18-20	Although a relatively large bay, it can accommodate only a relatively small increase in the number of vessels. As part of the Caneel Bay Resort, its western portion is closed to access and has no moorings. The reef area off the NPS beach in the center of the bay is very shallow and easily subject to damage; this portion of the bay has been closed to commercial vessels. Consequently, additional vessel moorings or anchoring would be limited to the eastern portion and seaward of the existing moorings.
Denis Bay	NA	0	0	0	Due to its exposure and the danger of decaying pier remnants, this is not a suitable anchorage.
Jumbie Bay	NA	0	0	0	This small bay within Trunk Bay is buoyed as a boat exclusion area due to the coral reefs that limit shore access. It is not a suitable anchorage.
Trunk Bay	10	5	7	7	The bay is not as desirable as a moorage/anchorage as other north shore locations due to its exposure; consequently, there are only four overnight moorings. Large designated swimming areas are buoyed on both sides of Trunk Cay, limiting the anchorage area. The Commercial Services Plan authorizes one 50+ passenger vessel for the purpose of transporting cruise ship visitors to Trunk Bay. Other commercial vessels are permitted to access Trunk Bay but are required to use an unreserved, public mooring.
Cinnamon Bay	12	9	12	12-14	The suitability of this bay as an anchorage is limited by its

					exposure to north swells. Its east side is buoyed as a boat exclusion area, limiting the anchorage area.
Maho Bay	20	28	28	32	With 28 moorings in place, the only area in which additional vessels could be accommodated would be seaward of the mooring field.
Francis Bay	50	35	45	50	Because of its size and lack of sensitive resources outside of its designated boat exclusion area, Francis Bay could accommodate more additional vessels than any other bay within the park. It is the only anchorage currently available to recreational (non-commercial) vessels between 125-210 feet.
Whistling Cay	NA	7	7	7-8	Strong currents on both the east and west ends of the Cay limit the size of this anchorage. A double row of moorings would likely be impractical due to water depth. Additional anchoring could adversely affect coral reef resources.
Mary Creek	NA	0	1	2	Providing for a limited number of day use moorings at the mouth of the Creek would reduce the potential for impacts to coral and seagrass. Due to its narrow entrance, shallowness and value as habitat, mooring and anchoring within the Creek itself should be discouraged, except during storm events.
Leinster Bay	20	20	23	25	A very popular anchorage, moorings in Leinster Bay are commonly filled before other anchorages. Areas to accommodate additional vessels are limited by exposure and water depth. Its solitude values could be compromised by any significant increase in the number of vessels.
Brown Bay	NA	0	0	0	Its shallowness, value as seagrass habitat, and exposure limit its suitability as an anchorage. The Commercial Services Plan closed the bay to commercial vessel access.
Mennebeck Bay and NPS portion of Haulover Bay	NA	0	0	0	Their coral reefs and exposure make them unsuitable as anchorages. The Commercial Services Plan closes these bays to commercial vessel access.
South Shore					
Reef Bay	15	3	5	5-7	Because of its exposure, isolation (no road access) and lack of services, this bay receives relatively light vessel use. While a relatively large bay, coral reefs on its north and

					south ends limit the area suitable as an anchorage. As for the entire south shore, anchoring is prohibited except by vessels less than 12 feet.
Little Lameshur Bay	(3)	6	7	7-8	Limited area would be available to accommodate additional vessels due to the coral reefs that frame its entrance and rocks in the bay's center.
Great Lameshur Bay	20(3)	14	16	20	A large, well-protected anchorage, it could accommodate a moderate increase in the number of moorings. However, increased utilization could compromise its solitude values.
Saltpond Bay	12	8	8	10	Limited protected area would be available. Increased utilization could compromise its solitude values.
Grootpan/Kiddell Bays	10	0	0	0	Despite their identification in the GMP as significant anchorages, their coral reefs, exposure, water depth and isolation (lack of services) make them unsuitable as anchorages.
Ram Head Bay and Textite	NA	Ram Head: 2 Textite: 2	Ram Head: 2 Textite: 2	Ram Head: 2 Textite: 2	Because of their isolation and exposure, these sites receive light vessel use.

(1) Capacity expressed as number of vessels at-one-time.
(2) NA = no capacity established by GMP.
(3) GMP does not differentiate between Little and Great Lameshur bays.

(1995) include: 1,733,300 total visitors; $820.5 million in total expenditures; and 8,980 in tourism-related employment. The economic activity generated by the park helps support the local economy and provides employment opportunities for local residents. However, very little quantitative information specific to the park's influence is available. According to a 1981 Study on the Economic Impact of VINP on the St. Thomas/St. John Economy (Island Resources Foundation 1981), 78% of the average daily expenditure of visitors to St. John is attributable to VINP.

Vessel uses in the national park provide both direct and indirect benefits to the local economy. Even in 1980 dollars (the last available park-specific economic data available), direct benefits by VINP amounted to over $3.3 million, while indirect benefits exceeded $20 million. Direct benefits are derived from VINP expenditures in the local economy for payrolls and goods and services. Indirect impacts include expenditures by boaters on chartering provisions, boat maintenance, fuel, and incidentals. The total financial contribution of vessel uses to the local economy has not been calculated. However, with over one-third of VINP visitation being by vessel, it would be expected that vessel-related revenues exceed 30% of total revenues.

According to Virgin Islands Charter Yacht League data, the average number of charters has increased from 650 between 1995-1998 to a millennium high of 800 in 2000. For 2001, 600-700 charters were predicted (Bareuther 2001b). Charter rates average $1,500-2.500 per person, with the average charter consisting of four persons. Annual revenues average $4-7 million. A significant portion of these revenues is funneled back into the local economy in provisioning and maintenance/repairs.

In the wake of the September 11, 2001 terrorist attacks in New York and Washington, the commercial boating industry has felt the ripple effects of vacation cancellations. However, to date, these effects have been minimal. The crewed charter industry in particular has been little affected (Bareuther 2001). Various tourism promotion plans are expected to benefit the marine tourism sector. These include a campaign to market the Territory as a friendly destination under the American flag, lobbying to have the airlines restore flights to the Virgin islands, and restoring the recently slashed cap on travel agent commissions for domestic ticketing.

CHAPTER IV: ENVIRONMENTAL CONSEQUENCES

A. INTRODUCTION

Very little quantifiable data is available about the effects of maintaining, decreasing or expanding vessel uses within park waters over the long term, given the vagaries and unpredictability of individual business decisions; forces affecting the local, Caribbean and world markets; and changes in Territorial and federal policies and programs, e.g. promotion of tourism; and other factors. Consequently, this analysis of environmental consequences is largely a qualitative assessment of the effects of the alternatives on scenic, natural and cultural resources; the visitor experience; the socioeconomic environment; and park operations.

B. EFFECTS ON NATURAL AND CULTURAL RESOURCES

1. ENDANGERED/THREATENED SPECIES

In all alternatives, there would be ongoing disturbance to sensitive wildlife species and their habitats by human presence associated with vessel uses, with harassment of wildlife and noise being the most significant impacts. Most directly affected would be threatened and endangered species of sea turtles and seabirds. Indirectly affected would be endangered whales. As vessel activities do not occur on land, there would be no direct effects on federally-listed or other sensitive vegetative species. Indirect effects from shore-based activities to vegetative species would be expected to be minimal, as sensitive species are typically located in upland areas.

Whales that migrate through park waters could be affected in all alternatives through exposure to underwater noise, vessel disturbance, and petroleum pollution. Noise and vessel disturbance (harassment through approaching too close) could cause decreased respiratory intervals, increased dive times, and moving away from the noise and disturbance sources. Increased vessel use of park waters would be accompanied by an increased risk of collisions and other accidents with associated fuel spills. However, vessel uses within park waters generally occur outside of migratory areas and minimal direct impacts would be expected in all alternatives. Effects of cruise ships and other large vessels have been determined to be greater than those from smaller vessels due their speed, noise and other factors (USDI, National Park Service 1995). The Commercial Services Plan's prohibitions on private vessels over 210 feet and commercial vessels over 125 feet anchoring or mooring within park waters would further reduce the potential for adverse impacts. Indirectly, increased vessel use in park waters would be expected to result in additional incidences of disturbance as operators strive to "get up close and personal" when whales are sighted. Long-term effects on migratory patterns would not be expected.

Occasional deaths of or injuries to sea turtles would be expected as the result of their being unintentionally struck by vessels, particularly high speed boats and dinghies operating in high use areas. Experience at VINP and other marine parks and reserves indicates that sea turtle accidents are higher with rental powerboat operators than with other user groups. Nesting frequencies may continue to decrease on many beaches due to the indirect effects of beach use and adjacent upland development that results in people, lights and dogs, all of which deter turtles from using particular beaches. Potential effects on sea turtles would not be expected to vary among alternatives.

With growing numbers of vessels in park waters in all alternatives, disturbance by human visitation to offshore cays would be expected to adversely affect endangered and threatened seabirds. However, as use of these cays has historically been limited, these impacts would not be expected to be significant. Monitoring of use patterns would occur as part of the park's ongoing Inventory and Monitoring Program.

In all alternatives, areas on the north and south shores with sensitive natural resources have previously been closed through the Commercial Services Plan to water-based commercial tour groups. Other bays or beaches could be closed to both commercial and recreational vessel uses if needed for protection of federally-listed species. In Alternatives 2 and 3, the cumulative effects of ongoing recreational vessel use of Mary Creek, Brown Bay, Mennebeck Bay, and Haulover Bay would be monitored on a regular basis and could be curtailed or modified if adverse effects to federally-listed or other sensitive species occur.

Effects on federally-listed species would be limited to proposed operational elements (e.g., capacity and use limitations, operating requirements) in the range of alternatives; none of the proposed facilities or services would be expected to have any adverse effects. Requiring commercial ferry and cargo traffic to transit park waters on the north side of Henley/Rangoat Cays (Alternative 2) and Whistling Cay (Alternatives 2 and 3) would bring more large commercial vessels in proximity to nesting seabird habitat, as nesting tends to be more prolific on the north side of these cays. However, such vessels routinely pass on the north sides of these cays with no apparent effect on nesting seabirds and no additional impacts to sensitive species would be expected.

In its comments on the park's Commercial Services Plan, the National Marine Fisheries Service raised concerns about the effects of high-speed boat traffic on listed species. In all alternatives, existing speed limits (5 mph) for anchorages and in the vicinity of divers and swimmers would be maintained. In Alternatives 1 and 2, outside of existing no wake areas, there would be no speed limit for vessels in park waters, although operating a boat in a reckless or negligent manner or in a manner that endangers a person or property would be prohibited (36 CFR 3.6). This provision would provide law enforcement officers the latitude to cite a vessel if a listed species were being adversely affected due to excessive speed. In Alternative 3, outside of no wake areas, a maximum speed limit of 25 mph for all vessels would also be established. As discussed below under *Effects On Park Operations*, while speed limits could be helpful in reducing impacts to listed species, they would be impractical to implement.

In all alternatives, establishment of mooring fee collection and bay host programs would provide opportunities for increased boater education on listed and sensitive species and their habitats.

Potential impacts to federally-listed and sensitive species would vary little among the alternatives, with the establishment of a speed limit outside of anchorages in Alternative 3 being the only substantive difference. In all alternatives, no species or critical habitat would be likely to be adversely affected pursuant to Section 7 of the Endangered Species Act.

2. MARINE RESOURCES

Among the park's natural resource assets, marine resources would have the greatest potential in all alternatives to be adversely affected by vessel use. There has been a marked trend toward increasing degradation of the park's marine resources resulting from both direct and indirect human impacts. In all alternatives, that trend would be expected to continue as there would be ongoing impacts associated with vessel uses and facilities, including: anchor damage, boat groundings, littering, trampling, diver damage, collection of corals and other reef organisms, marine pollution, and short-term water quality degradation.

In all alternatives, anchoring would have the greatest impacts on marine resources. Studies documenting where people anchor have shown that as many as 50% of boaters do not anchor properly and have demonstrated that anchors and anchor chains adversely impact seagrass beds and coral (Virgin Islands National Park 1994). All vessels that anchor would have the potential to injure or destroy coral and seagrass. However, there would be greater effects from large versus small anchors. Beginning in the early 1990's, the VINP established mooring sites for boats to attach to instead of dropping anchors. Currently, 215 mooring sites have been installed. The incidence of anchoring in park waters has dramatically declined with the installation of these moorings. Based upon use patterns to date, it would be expected that 90% of vessels 60 feet or less in length would take a mooring if available versus anchoring. In all alternatives, this use of moorings would be expected to continue to significantly reduce the potential for impacts on coral and seagrass resources. In Alternatives 2 and 3, the installation of additional moorings would contribute to a further reduction in the potential for impacts. Other measures that would reduce potential impacts include:

- Prohibiting private vessels over 210 feet and commercial vessels over 125 feet from anchoring or mooring within park waters (all alternatives).
- Permitting anchoring by vessels 60 feet or less only if moorings are fully occupied and only seaward of mooring fields (Alternative 2).
- Designating Mary Creek as an anchorless area (Alternative 2).
- On the shore shore, extending the anchoring prohibition to cover vessels less than 12 feet in length (Alternative 2).
- Eliminating the exception for non-motorized, inflatable vessels no greater than 12 feet to pass through boat exclusion areas (Alternative 2).
- Providing moorings for vessels 60-75 feet in length at popular north and south shore bays (Alternatives 2 and 3).
- Relocating dinghy channels at Maho and Francis bays away from coral reefs (Alternative 2).

All alternatives would continue to concentrate vessel uses in the more popular anchorages (Caneel Bay, Maho Bay, Francis Bay and Leinster Bay), reducing the potential for adverse effects to marine resources elsewhere in the park. However, this concentration would increase the intensity of effects, e.g. anchor damage and pollution, to marine resources in these anchorages.

In Alternatives 2 and 3, the requirement that passenger ferries, commercial cargo vessels, and commercial vessels over 125 feet remain seaward of the Lind Point boundary buoy would be expected to reduce shoreline erosion in this area. Similarly, shoreline erosion should be reduced at the east end of Whistling Cay and at Mary Point by diverting commercial vessel transit to the north side of Whistling Cay. In all alternatives, no wake areas would also reduce impacts to shorelines.

In all alternatives, additional groundings would be expected with increased vessel use of park waters, particularly by small rental powerboats. These groundings would cause an unknown amount of damage to coral, seagrass and other marine resources. While no specific actions would be proposed (i.e., marker buoys), the adoption in all alternatives of procedures for assessing damage to marine resources would provide the park with a standardized approach to responding to groundings and other incidents.

Marine pollution would be expected to increase in all alternatives. While most boats are equipped with holding tanks, current law requires that a boat be three miles offshore prior to pumping out its tanks. It is assumed that this law is not and would be universally followed. Consequently, pollution would be expected to increase in all anchorages. Nutrient levels could increase in the most popular anchorages. Pollution in Cruz Bay Creek would be reduced by conversion of the park's vessel engines to 4-stroke or other lower polluting technologies. Increased vessel activity would increase the potential for more catastrophic vessel collisions and fuel spills, with attendant adverse effects on marine resources.

Short-term, localized water quality impacts would accompany construction of new dock facilities in Little Cruz Bay in Alternative 2 and in Reef Bay in Alternatives 2 and 3. No dredging would be performed at this site to increase water depth as adequate depths are present for the small to medium sized vessels which would utilize this facility. Impacts to marine communities from dock construction and operation would be short-term and localized. Water quality at the Cruz Bay site is highly degraded due to adjacent commercial vessel traffic. In terms of water quality, reduced NPS vessel use of the bulkhead and finger pier in Cruz Bay Creek would be offset by increased visitor use of these facilities. Given the small size (4x10 feet) of the Reef Bay dock, impacts to both water quality and marine communities from construction and operation of this facility would be insignificant. An increase in vessel launching and retrieval activities at the NPS boat ramp in Little Cruz Bay in Alternative 3 would have a minor, ongoing effect on water quality as vessels are throttled up getting on and off boat trailers. Installation of additional moorings (Alternatives 2 and 3), regulatory buoys (Alternative 2), and dinghy tethers (Alternative 3) would have negligible impacts on water quality and marine resources.

In Alternatives 2 and 3, prohibiting the use of spotlights to attract baitfish would reduce disruption of normal fish behavior. Similarly, prohibiting the use of halogen deck lights in Alternative 2 would reduce effects of nighttime lighting on feeding and other behavior.

In all alternatives, establishment of mooring fee collection and bay host programs would provide opportunities for increased boater education on protection of marine resources.

Both Alternatives 2 and 3 would take a more aggressive approach to marine protection than is proposed in Alternative 1, most notably through measures to reduce anchoring. Impacts in Alternative 2 would be slightly reduced over than those in Alternative 3 primarily due to the greater number of anchoring restrictions. In all alternatives, no significant adverse impacts to marine resources would be expected. No wetlands or floodplains would be adversely affected in any alternative.

3. CULTURAL RESOURCES

In all alternatives, there would be no anticipated impacts to submerged cultural resources, as these resources are not generally accessible. No treasure hunting or salvage activities at or around shipwrecks or other submerged resources would be permitted. Under all alternatives, the park's cultural resources, both land-based and submerged, would be protected and preserved in accordance with applicable federal and state laws and NPS policies and regulations related to cultural resources. No significant adverse effects to any cultural resources would be expected in any alternative.

4. SCENIC VALUES

In all alternatives, the park's scenic values would be negatively impacted to a minor degree by vessels in anchorages and by the presence of mooring, boat exclusion, resource protection, and boundary marker buoys. In all alternatives, vistas from land to sea at more popular day use anchorages (e.g., Honeymoon Beach, Little Cinnamon Bay, Leinster Bay) would be impacted by the volume of vessels anchoring just off the beach. In Alternative 2, authorizing vessels to anchor on the beach would further affect scenic values at Salomon Beach, Honeymoon Beach, and the western portion of Cinnamon Bay. Commercial vessel closures established by the Commercial Services Plan would protect the scenic values of the most sensitive (not previously impacted) bays and beaches on both the north and south shores. In Alternative 2, Mary Creek would essentially be closed to vessel use, protecting its scenic values.

Increasing the number of moorings by 31 (14%) and by 37 (17%) in Alternatives 2 and 3, respectively, would add to the "visual clutter" of existing mooring fields. Installing dinghy tethers at Honeymoon Beach, Trunk Bay, Cinnamon Bay, and Maho Bay in Alternative 3 would further add to the concentration of vessels in these locations. During scoping, removal of a portion of these moorings during low season was suggested. Because of the excessive costs entailed in removing and reinstalling moorings and their hardware, a seasonal mooring removal program would be infeasible.

The construction of a new NPS dock in Little Cruz Bay in Alternative 2 would reduce slightly the visual impact of numerous larger vessels utilizing the existing dock facilities in Cruz Bay Creek, however, new visual impacts would occur at the site of the new dock. Given that this facility is adjacent to the main channel and on the fringe of the Cruz Bay commercial district, there would be minimal impacts on overall scenic values. In Alternative 3, storage of most NPS vessels at the boat launch ramp would result in increased visual clutter in this area.

Construction of a new dock facility in Reef Bay in Alternatives 2 and 3 would introduce a man-made structure into an area devoid of improvements. However, this would be an extremely small (4x10 feet) replacement facility for a larger structure destroyed by a hurricane.

No new moorings/buoys or other facilities would be introduced in Alternative 1 and visual impacts would remain unchanged over current conditions. Due primarily to a larger number of moorings and the installation of additional dinghy tethers, visual impacts would be somewhat greater in Alternative 3 than in Alternative 2.

5. SOUNDSCAPE

All vessel activities would be noise-generating to some degree, with soundscape impacts associated with equipment and human noise greatest at the most popular anchorages. In all alternatives, patterns of vessel use would remain relatively unchanged and, consequently, existing noise patterns would remain the same. In Alternatives 2 and 3, additional moorings and new boating facilities would slightly increase noise-generating activities in some areas.

The Commercial Services Plan addressed noise associated with commercial vessel uses through closure of certain bays and beaches to commercial group access and through limitations on PAOT, the number of some types of commercial uses, and the number of commercial vessel passengers at one time at popular destinations such as Trunk Bay, Cinnamon Bay Campground, and Honeymoon Beach.

During scoping, regulation of excessive noise from high-speed vessels ("go-fast" or "cigarette" boats) was raised as the most significant noise issue to be addressed. In Alternative 1, noise associated with vessel activities would continue to be regulated under current noise regulations. These regulations would be expected to mitigate most noise impacts but would not address noise generated by high-speed boats. Noise from onboard parties, especially over holiday weekends, would remain difficult to control as additional enforcement officers on the water, including night patrols, would be required. In Alternatives 2 and 3, noise limitations for vessels operating in park waters would be developed based upon research of management tools in use elsewhere. Specifically, additional research would be needed on appropriate limitations for high-speed boats that tend to create high noise levels over long distances. While it is recognized that this noise would adversely affect other park visitors and likely marine animals, research is needed on the extent of NPS authority (e.g., NPS has no authority to regulate the mufflering of vessels) and the practicality of enforcement (see discussion of speed limits under *Effects on Park Operations*). In the interim, excessive noise would be addressed as described for Alternative 1.

In Alternatives 2 and 3, impacts of noise associated with ferries and other commercial cargo vessels would be reduced by requiring these vessels to transit park waters on the north side of Henley/Rangoat Cays (Alternative 2), Johnson's Reef (Alternatives 2 and 3), and Whistling Cay (Alternatives 2 and 3).

In Alternatives 2 and 3, short-term construction noise impacts would be associated with a new NPS dock facility in Little Cruz Bay and a replacement dock facility in Reef Bay. Overall noise levels would increase in Little Cruz Bay with dock operation and continued public use of the boat launch ramp. However, because this area is adjacent to the main channel and on the fringe of the Cruz Bay commercial district, there would be minimal impacts to the overall soundscape. Use of the Reef Bay dock would be limited to less than two hours 3-4 times per week and impacts to the soundscape would be insignificant.

While noise levels would increase with growth in vessel use in all alternatives, they would be slightly higher in Alternatives 2 and 3 than in Alternative 1 due to the installation of additional moorings and dock facilities. No significant adverse effects would be expected in any alternative to the overall VINP soundscape.

6. LIGHTSCAPE

There would no regulation of artificial lighting in Alternative 1 and, consequently, no reduction in the effects of vessel lights on the park's natural lightscape. Prohibitions on the use of spotlights to attract baitfish (Alternatives 2 and 3) and the use of halogen deck lights when vessels are moored or anchored (Alternative 2) would reduce disruptions to the natural lightscape of the park and upon the solitude of other park users. While the use of spotlights to attract baitfish is and would be expected to be an intermittent issue, the use of halogen lights would be expected to increase as the number of vessels, particularly megayachts, visiting the park grows. Prohibiting the use of halogen deck lights would reduce the potential for disruption of sea turtle nesting and the potential to draw other marine and avian species away from their natural habitats. It would also improve the ability of other visitors to experience night skies.

Artificial lighting for new and existing facilities would be limited to existing dock facilities in Cruz Bay and Red Hook (all alternatives), a new NPS dock facility in Little Cruz Bay (Alternative 2), and a pumpout facility (all alternatives). These facilities are all located in "urban" areas where the natural lightscape has previously been altered; lighting for these facilities would be shielded to minimize impacts to the lightscape.

In comparison to landside activities, vessel impacts upon the park's natural lightscape would be insignificant. Alternative 3 would best preserve the natural lightscape through its regulation of halogen lights and spotlights used for bait fishing.

C. EFFECTS ON VISITOR EXPERIENCE

1. OPPORTUNITIES FOR RECREATION

a. Capacity and Use Limitations

While limitations on the number and types of commercial vessels operating in park waters have been established by the Commercial Services Plan, there would be no specific limitations on the number of

recreational vessels visiting park waters in any alternative. Rather, anchoring and other restrictions, coupled with the number of available moorings, would serve as defacto limitations on recreational boat use. Visitation to the park's south shore declined somewhat after a prohibition on anchoring was instituted in conjunction with Biosphere Reserve designation. However, there is no evidence that vessel use to park waters generally has declined in response to that anchoring prohibition or any other existing regulations. To the contrary, vessel use would be expected to continue to increase but, to a certain degree, be self-limiting. Key factors that would be expected to control growth include:

- Most boaters are seeking solitude and would avoid crowded anchorages when possible.
- The initiation of a mooring fee program could cause some boaters to avoid park waters.
- Facilities and services for boaters would continue to be limited.
- The length of stay in park waters would continue to be limited.

Although no specific limitations would be established on the number of vessels in park waters, in all alternatives cruise ships, mini-cruise ships, and other vessels over 210 feet in length would be precluded from mooring or anchoring in park waters. Allowing these vessels to stay in park waters would adversely affect the visitor experience for smaller vessels in multiple ways, including through competition for anchorages, the overwhelming of facilities and services, noise and air pollution, etc.. Passengers on these vessels would continue to have ready access to the park through commercial tours originating outside the park or via private transport.

Private vessels between 125 and 210 feet in length would be limited in Alternative 1 to one location (Francis Bay) or in Alternatives 2 and 3 to two locations (Caneel Bay and Francis Bay). Authorizing anchoring in Caneel Bay would provide access to the facilities at Caneel Bay Resort and recognize a historic demand for an additional anchorage. Limiting the number of anchorages for these vessels would have minimal effect on the visitor experience as these vessels are equipped with high-speed tenders that could provide easy access to anywhere in the park.

In Alternatives 1 and 3, there would be no change to the limitation of 14 days annually for mooring or anchoring in park waters. This restriction would continue to limit the ability of local boaters and cruising yachts to visit the park. Extension of this limitation to 30 days as proposed in Alternative 2 would benefit both cruising and local boaters without adversely impacting other park visitors, as there would be sufficient moorings and anchoring areas to accommodate demand. Restricting vessels to 14 nights within the same bay would be expected to prevent monopolizing of the most desirable sites. In all alternatives, institution of a mooring fee program would facilitate monitoring of visitation to prevent "liveaboards" or the storing of vessels in the park.

Restrictions on commercial transit through park waters in Alternatives 2 and 3 would benefit other vessels moored or anchored in proximity to travel lanes through reduced boat wakes, noise and air pollution. Conflicts with recreational uses such as diving and kayaking would also be reduced, most notably in the Lind Point and Fungi Passage (Mary Point/Whistling Cay) areas.

The prohibition on motorized boat races in all alternatives would prevent conflicts with other vessel and recreational uses of park waters and avoid impacts associated with wakes, speed, noise and air pollution.

b. Anchoring and Beach Access

In Alternative 1, opportunities to anchor within the park would continue to be limited to north shore bays outside of boat exclusion/resource protection areas, at least 100 feet from the beach, and at least 200 feet from any mooring or buoy. Given that (based upon observations to date) 90-95% of boaters would take a mooring if available, that adequate anchoring areas are available in most bays, and that facilities and

services would remain easily accessible, current anchoring restrictions would not be expected to adversely affect recreational boaters. Multi-passenger commercial vessels would continue to be adversely affected by the prohibition against anchoring within 100 feet of a beach.

In Alternative 2, opportunities to anchor would both be reduced and expanded over those in Alternative 1. Opportunities to anchor would be reduced primarily by the requirement that vessels 60 feet or less in length use moorings if available. While benefiting resource protection, this requirement could adversely affect boaters by creating confusion on when and where they could anchor, causing queuing to wait for moorings to be vacated, and limiting areas within a bay where vessels could locate. Requiring anchoring by all vessels to the seaward of mooring fields would affect smaller vessels that may have difficulty anchoring in deeper water. Access to services would be affected by a greater distance to shore. Designating Mary Creek and the inner (seagrass) portion of Brown Bay as anchorless areas would be expected to have minimal impact as they are very lightly used. Local boaters who anchor there because of their seclusion would be most affected. Mary Creek would continue to be available as a safe harbor during storm events or emergencies. Extending the south shore anchoring prohibition to vessels less than 12 feet in length would also be expected to have minimal impact as these vessels can readily be pulled ashore rather than anchoring. The current exemption causes confusion and damage to marine resources.

Expanded anchoring opportunities would be provided in Alternative 2 by designating Salomon/Caneel Bay as an additional anchorage for private vessels 125-210 feet in length and by eliminating the prohibition against anchoring within 100 feet of the beach at certain beaches without boat exclusion areas and dinghy channels. During scoping, the prohibition on anchoring within 100 feet of a beach was raised as an issue more frequently than any other. Because Salomon Beach, Honeymoon Beach and the western portion of Cinnamon Bay are popular day excursion destinations, visitor safety would be improved by providing direct access to the beach, especially for elderly persons and poor swimmers. Also, these areas lack the coral and seagrass resources that would justify restricting vessel access. Allowing direct beach access would eliminate the need to dinghy passengers to the beach, reducing potential safety conflicts with swimmers and snorkelers. Proposed conditions on this access, including annual monitoring, would be expected to prevent adverse impacts to natural resources or to the experience of other beach users.

In Alternative 3, anchoring opportunities would be further expanded beyond those in Alternative 2 to permit anchoring within mooring fields irrespective of whether moorings are fully occupied and to keep Mary Creek and Brown Bay open to anchoring.

In all alternatives, beach access by vessels would be restricted to dinghy channels where provided and unrestricted where they are not. An adequate number of dinghy channels would be maintained to ensure convenient access to beaches having boat exclusion areas. There would continue to be numerous daily incidents of entry into boat exclusion areas by boaters ignoring or not understanding that these areas are closed to access by all vessels except non-motorized inflatables no greater than 12 feet in length. In Alternative 2, eliminating this exemption would reduce confusion about what boats can/cannot transit through boat exclusion areas and would help to concentrate boats in one versus many locations on a beach. In Alternative 3, both kayaks (excluded commercial guided tours) and non-motorized inflatables no greater than 12 feet in length would be able to enter into boat exclusion areas. This exemption for kayaks would recognize current practices; given the slow speed of kayaks and their unobstructed range of vision, conflicts with swimmers/snorkelers would be minimal.

In Alternatives 2 and 3, relocation of boat exclusion buoys at Salomon Beach would provide direct beach access to vessels. Relocation of dinghy channels at Maho and Francis bays would improve safety for swimmers and snorkelers, while continuing to ensure convenient beach access for boaters.

c. Moorings and Buoys

In all alternatives, the provision of moorings in most park bays would provide the majority of vessels with a convenient and safe means of visiting the park. All alternatives would provide the largest program of overnight moorings within the Caribbean, with Alternatives 2 and 3 increasing the size of the park's mooring program by 14% and 17%, respectively. The majority of these new moorings would be installed on the north shore to meet demand in the more popular anchorages. In keeping with its designation as a Biosphere Reserve, the number of new moorings on the south shore would be limited. Except for peak periods, the number of existing moorings would be expected to be adequate to accommodate demand for vessels 60 feet or less in length. The initiation of an overnight mooring fee in Spring/Summer 2002 would finance the ongoing maintenance of the moorings, as well as additional natural resource education efforts.

During scoping, industry representatives identified the fastest growing segment of the term charter industry as the 60-75 foot vessel market. The use of existing moorings is restricted to vessels 60 feet or less in length, forcing larger boats to anchor. To respond to this demand, in Alternatives 2 and 3, a maximum of 18 moorings would be installed and specifically reserved for 60-75 foot vessels to ensure convenient and safe access to popular swimming/snorkeling sites and to reduce conflicts with smaller recreational vessels. In Alternative 1, these vessels would continue to be required to anchor, generally seaward of mooring fields in deeper water.

In Alternative 2, seven moorings would be installed and reserved for commercial vessel day use at the park's most popular north and south shore anchorages. The installation of two additional moorings in Alternative 3 at Leinster Bay would likely require the reconfiguration of existing overnight moorings so that the commercial moorings could be sited in locations readily accessible to Waterlemon Cay. In both alternatives, these moorings would ensure convenient access to popular swimming/snorkeling sites by commercial day sail operations and reduce competition with recreational vessels for "close-in" moorings.

In Alternative 3, two day use moorings would be installed in Brown Bay for recreational vessels no greater than 60 feet in length to reduce the potential for impacts to seagrass resources. Pursuant to the Commercial Services Plan, Brown Bay would be closed to commercial vessel use in all alternatives.

Six quarantine moorings would continue to be provided in Alternative 1 to facilitate access to Customs and Immigration and other services in Cruz Bay. In Alternative 2, four quarantine moorings would be installed at Lind Point to meet demand for additional moorings. In Alternative 3, two additional quarantine moorings would be installed in Little Cruz Bay. In Alternative 2, with the construction of a new NPS dock, there would be inadequate room for additional moorings in Little Cruz Bay. The existing time limitation would be extended from one to four hours to accommodate shopping and access to other services in Cruz Bay.

In Alternatives 2 and 3, one new dive mooring would be installed at the mouth of Mary Creek to reduce the potential for impacts to coral resources from existing dive operations. In Alternative 1, dive boats and other vessels would continue to anchor, with ongoing damage to coral and seagrass resources. Day use and overnight moorings are not proposed within the Creek itself as additional moorings would attract more vessels. The entrance to the Creek is shallow and tricky to navigate; coral heads at the mouth could be readily damaged. Increased vessel use could also adversely affect the Creek's value as relatively undisturbed habitat.

In all alternatives, the vast majority of moorings would be available to all vessels no greater than 60 feet in length on a first-come, first-served basis. Exceptions would be limited to moorings reserved for concessionaires (all alternatives), at Trunk Bay for a cruise ship passenger transport vessel (all

alternatives), for 60-75 foot vessels (Alternatives 2 and 3), or for commercial day use excursions (Alternatives 2 and 3). Combined with limitations on the length of stays in the park, an open use program for moorings would help to ensure that visitors have access to moorings in most bays in the park at most times.

d. Facilities and Services

In Alternative 1, the large fleet of park vessels would continue to utilize most, if not all, of the available space at the existing dock facilities in Cruz Bay Creek, thus limiting access to these facilities by the visiting public and small commercial vessels. Public docking would be limited to the dinghy dock and to the finger pier for passenger pickup/dropoff.

With construction of a new dock for NPS vessels in Little Cruz Bay in Alternative 2, most NPS vessels would be removed from Cruz Bay Creek, providing public access to the Visitor Center bulkhead and the finger pier for loading/offloading purposes. This would relieve some of the current congestion in this portion of the bay. Additionally, having a docking facility associated with the boat launch ramp would provide additional facilities for public users of the ramp, as one or two slips at the multi-vessel dock would be dedicated for loading/unloading of private vessels.

In Alternative 3, most park vessels would be stored on trailers at the boat launch ramp. This would reduce the need to utilize existing dock facilities in Cruz Bay Creek and enable public access to those facilities.

A replacement dock in Reef Bay in Alternatives 2 and 3 would improve visitor safety for NPS tours and other authorized uses. The dock would not be available for general public use. In Alternative 1, hikers on NPS tours would continue to have to be ferried from shore to vessels moored in the bay for transport back to Cruz Bay.

In all alternatives, public use of the park's dock at Red Hook would be restricted to specially authorized activities until such time as a structural engineering analysis and necessary repairs could be completed. As a consequence, most tours having a Red Hook origin/destination would be required to compete for use of the congested public dock across the harbor. Short-term public use of the NPS dock in Lameshur Bay would continue to be provided in all alternatives.

In all alternatives, a dinghy tether at Waterlemon Cay would be maintained to facilitate swimmer/snorkeler access to this site. In Alternative 3, additional tethers would be installed to facilitate access to swimming and snorkeling at Honeymoon Beach, Trunk Bay, Cinnamon Bay and Maho Bay. These tethers would also be more convenient for boaters to tie up to than pulling their boats ashore.

Public boat launch facilities within the park would be limited in all alternatives to the NPS ramp in Little Cruz Bay. The Caneel Bay shipyard would remain the preferred location for a pumpout facility to vessels visiting the park. No additional trash receptacles or garbage collection services for vessels are proposed in any alternative.

e. Operating Requirements

In all alternatives, the impacts of speeding vessels on other vessels and recreation activities, e.g., kayaking and windsurfing, would be minimized within most anchorages through existing no wake areas and an accompanying 5 mph speed limit. In Alternatives 2 and 3, additional no wake areas in Honeymoon, Little Lameshur, and Great Lameshur bays would reduce impacts from speeding vessels in these anchorages. In Alternatives 1 and 2, outside of existing no wake areas, there would be no speed limit for vessels in park

waters, although operating a boat in a reckless or negligent manner or in a manner that endangers a person or property would be prohibited. In Alternative 3, a maximum speed limit of 25 mph outside of no wake areas would reduce conflicts among vessels and other recreation activities. At the same time, establishing speed limits outside of no wake zones would adversely affect the experience for some park visitors who enjoy the thrill of high speeds. It would also adversely impact those boaters with high speed boats who are striving to go from one point to another as expeditiously as possible.

Effects on the visitor experience of noise and lights are addressed above under *Soundscape* and *Lightscape*, respectively.

2. VISITOR SAFETY

A wide variety of measures in all alternatives would be designed to ensure visitor safety, with little difference between Alternatives 2 and 3 in terms of the degree of improvement to safety. Visitor safety would be most improved through the following actions:

- Restricting the transit of commercial ferries and cargo vessels through north shore waters (Alternatives 2 and 3);
- Delineating a smaller swim area at Trunk Bay using portable markers (Alternative 2);
- Providing direct access to the most popular beaches for commercial day sail excursions (Alternatives 2 and 3);
- Increasing the number of moorings available for day and overnight uses (Alternatives 2 and 3);
- Delegating responsibility to NPS for the installation and maintenance of most moorings and buoys (all alternatives);
- Providing additional public docking opportunities in Cruz Bay Creek (Alternatives 2 and 3);
- Continuing the closure of the Red Hook dock, except by special authorization, until such time as a structural engineering analysis and necessary repairs can be completed;
- Constructing a replacement dock in Reef Bay for use in transporting NPS tour participants (Alternatives 2 and 3);
- Maintaining a dinghy tether to provide close-in access to Waterlemon Cay (all alternatives) and installing new tethers at Honeymoon Beach, Trunk Bay, Cinnamon Bay, and Maho Bay (Alternative 3); and
- Maintaining existing no wake areas (all alternatives), establishing additional no wake areas (Alternatives 2 and 3), and establishing speed limits outside of no wake areas (Alternative 3).

3. USER CONFLICTS

Several existing and potential user conflicts would be unresolved in Alternative 1. Measures designed to minimize or avoid user conflicts would include:

- Maintaining limitations on the size of vessels authorized to moor and anchor within park waters (all alternatives);
- Limiting the length of stay within park waters to prevent vessels from monopolizing services (all alternatives);
- Restricting the transit of commercial ferries and cargo vessels through north shore waters (Alternatives 2 and 3);
- Restricting anchoring to areas seaward of mooring fields (Alternative 2);
- Prohibiting access by all vessels through boat exclusion areas (Alternative 2);

- Installing moorings reserved for commercial vessel day use at the most popular anchorages (Alternatives 2 and 3);
- Providing moorings on an unreserved basis, with some exceptions (all alternatives); and
- Relocating most NPS vessels from Cruz Bay Creek to a new dock in Little Cruz Bay (Alternative 2) or to storage at the NPS boat launch ramp (Alternative 3).

4. SUMMARY

In summary, anchoring opportunities would be greatest in Alternative 1, as both Alternatives 2 and 3 would impose new restrictions on when and where anchoring could occur. At the same time, beach access opportunities would be improved in these alternatives over those in Alternative 1 with the authorization of anchoring on certain beaches. Mooring opportunities would also be improved in Alternatives 2 and 3 with the installation of additional moorings, including moorings designed to accommodate unserved sectors of the boating market. Available facilities and services, most notably docking facilities in Cruz Bay Creek, would be expanded in Alternatives 2 and 3 over those in Alternative 1. Additional regulation of speed, noise and lights proposed in Alternatives 2 and 3 would improve the experience for boaters and other park visitors who are adversely affected by excessive vessel speeds, excessive noise, and spotlights and halogen lights. The overall opportunity for recreation would be expanded in Alternatives 2 and 3 over that in Alternative 1. No significant adverse effects to the visitor experience would be expected in any alternative.

D. SOCIOECONOMIC EFFECTS

Socioeconomic effects and differences would be minimal in all alternatives. Proposed regulations would apply equally to all economic and social strata. Similarly, all facilities (except moorings for larger vessels or reserved for commercial operators) and services would be available to all boaters.

Restricting the route of commercial transit through park waters in Alternatives 2 and 3 would primarily affect inter-island ferries that typically pass close to Lind Point and on the south side of Henley/Ramgoat Cays and occasionally on the south side of Johnson's Reef and Whistling Cay. Other commercial cargo vessels, cruise ships, and mini-cruise ships infrequently take this "inside" route and would be minimally affected. In Alternative 2, requiring these vessels to transit park waters on the north side of Henley/Ramgoat Cays, Johnson's Reef, and Whistling Cay and seaward of Lind Point boundary buoy B would add 3-5 minutes to the length of an inter-island ferry trip between Cruz Bay and West End, Tortola. In Alternative 3, permitting these vessels to pass on the south side of Henley/Ramgoat Cays would reduce the additional trip length to 2-3 minutes. During storm events and emergencies, these restrictions would be routinely waived. The times added to the trip length would not affect passenger demand nor round-trip scheduling and would have a minor economic impact on ferry services.

Designating Salomon/Caneel Bay as an additional anchorage for private vessels 125-210 feet in length would financially benefit Caneel Bay Resort through increased day use visitation.

Requiring vessels 60 feet or less in length to use moorings if available and requiring larger (and typically more expensive) vessels to anchor could be viewed as economic discrimination. However, the difference in treatment is a function of the mooring system's engineering capacity rather than socioeconomic. Should larger moorings be installed at some time in the future, all vessels of a size that could be accommodated by the moorings would be required to use them if available.

No new business opportunities would be created in any of the alternatives. Rather than contracting out, park staff and concessionaires would be assigned responsibility for mooring/buoy installation and maintenance. However, future contracting would not be precluded if determined to be more cost-effective. Through its Recreational fee Demonstration Program authority, the park intends to contract out for mooring fee collection, however that action is being taken independently of this Plan. Private operation of the Red Hook dock and operation of a pumpout facility on NPS property were previously identified as concession opportunities in the Commercial Services Plan. Short-term employment opportunities would be limited to construction of a new NPS dock facility in Cruz Bay Creek in Alternative 2. An undetermined number of additional park employees to install/maintain moorings and other facilities, monitor and enforce Plan provisions, and otherwise implement the Plan would represent longer-term employment opportunities in Alternatives 2 and 3; no short or long-term employment opportunities would occur in Alternative 1.

No other elements of the range of alternatives, e.g., mooring and anchoring provisions, would be expected to have measurable socioeconomic effects.

E. EFFECTS ON PARK OPERATIONS

1. CAPACITY AND USE LIMITATIONS

With the exceptions of length of stay limitations and restrictions on commercial transit through park waters in Alternatives 2 and 3, there would be no changes to current capacity and use limitations and thus no measurable new demands on park operations. Increased vessel use of park waters, like other park visitation growth, would create additional administrative, maintenance, interpretative, monitoring and enforcement demands on VINP.

Implementation of a length of stay limitation, whether it be 14 days annually (Alternative 1) or 30 days annually (Alternatives 2 and 3), would continue to be difficult to monitor and enforce given a lack of law enforcement rangers until such time as a mooring fee collection program is established. That program would monitor all vessel use in park waters for purposes of fee collection and could readily be designed to both inform boaters of length of stay limitations and park staff of violators.

Successful implementation of restrictions on passenger ferry, commercial cargo vessel, cruise ship and mini-cruise ship transit through park waters would necessitate direct communication with the affected parties followed by a very visible enforcement presence. Both Alternatives 2 and 3 would provide a period of 120 days before the restrictions became effective to allow for notification and staff training. It is expected that Protection Division staff could include monitoring and enforcement as part of their normal water patrols and that no additional staff would be required.

2. ANCHORING AND BEACH ACCESS

The designation in Alternative 2 of a smaller swim area at Trunk Bay through the use of portable markers would significantly benefit NPS lifeguards by reducing the area that they would need to patrol. A smaller and flexible swim area that could be adjusted based upon conditions would both facilitate lifeguarding and improve visitor safety. In Alternatives 1 and 3, the entire boat exclusion would continue to serve as a swim area.

Implementation of new anchoring restrictions, most notably the requirement in Alternative 2 that vessels 60 feet or less in length use moorings if available, would necessitate a significant increase in law enforcement patrols, especially in the late afternoon and early evening as cruising boaters arrive in anchorages. Similarly, a requirement that all anchoring occur seaward of mooring fields would require additional monitoring and enforcement efforts, particularly on holiday weekends. Extensive public education efforts would be needed, especially with Puerto Rican boaters who often seek to raft numerous boats together as close to shore as possible. Mooring fee collection contractors could assist park staff in monitoring vessel use and advising boaters of anchoring regulations. Over time, monitoring and enforcement efforts could be reduced as boaters become accustomed to the new regulations.

In Alternative 2, prohibiting all boats (including non-motorized inflatables) from entering boat exclusion areas would reduce confusion and ensure consistency in regulation. At the same time, it would increase monitoring, enforcement and public education demands as the current restriction is routinely violated. In Alternative 3, exempting both non-motorized inflatables and kayaks could increase confusion about allowable activities.

3. MOORINGS AND BUOYS

Based upon an average cost of $___ per mooring, proposed new moorings in Alternative 2 would cost $___. The park's costs would be reduced by requiring the charter industry to finance the installation of moorings for vessels 60-75 feet in length; a one-time, long-term maintenance fee would also be assessed. In Alternative 3, the expenditure would increase to $___ and there would be no contribution by the charter industry. Annual mooring maintenance costs would increase by approximately $___ in Alternative 2 and $__ in Alternative 3. The costs of relocation of boat exclusion buoys at Salomon Beach and dinghy channels at Maho and Francis bays in Alternatives 2 and 3 would be minimal as new buoys would not be required. Mooring and buoy installation and maintenance costs would have to be absorbed by the park's operating budget unless special allocations or private funding could be obtained.

Ongoing monitoring, enforcement and public education efforts on the use of moorings would increase in Alternatives 2 and 3 with the installation of additional moorings. The workloads of existing staff would increase in order to accomplish these tasks; additional personnel would not be justified by the installation of additional moorings alone.

Removal of unauthorized private moorings in Alternative 2 would require a targeted enforcement effort that could be labor intensive in the short term given the expected resistance to this action.

4. FACILITIES AND SERVICES

In Alternative 1, no action would be taken to provide additional, secure docking for park vessels. Park vessels would continue to be docked/stored along the Visitor Center bulkhead and the finger pier. This would continue to expose park vessels to the threat of damage from the operations of large commercial vessels in the Creek. Park vessels have repeatedly been damaged by barges and other large vessels maneuvering in this limited space. Ongoing damage incidents would result in thousands of dollars in repairs and hundreds of lost vessel operation hours.

In Alternative 2, construction of an NPS docking facility in Little Cruz Bay would provide the park with a secure, readily accessible operations center for its fleet of vessels. Long-term docking/storage of park

vessels at this dock would also significantly reduce marine fouling of vessel bottoms, resulting in increased fuel efficiency and reducing the frequent need to haul vessels for cleaning and painting.

Land storage of park vessels at the boat launch area in Little Cruz Bay in Alternative 3 would require that, with the exception of one or two vessels, all vessels would need to be launched to access the water and trailered upon their return. This would require a considerable amount of planning, manpower and time. Land-based storage is limited and convenient access to all vessels would be difficult to ensure. Personnel safety would be impacted by the large size of many of the park's boats and the safety aspects of repeatedly hauling and launching boats. Park staff would be unable to respond timely to emergencies requiring a number of vessels.

NPS-led hikes on the Reef Bay Trail would be improved, both in terms of safety and convenience, with the construction in Alternatives 2 and 3 of a dock for loading/unloading of passengers and equipment. The cost of dock construction has not been estimated and no monies have been allocated.

The installation of additional dinghy tethers in Alternative 3 would result in increased costs to the park's mooring/buoy maintenance program. Dinghy tethers require a relatively high level of maintenance due, in part because they tend to regularly be used by oversized boats (as evidenced by the Waterlemon Cay tether).

The effects on park operations of other proposed Plan elements would be minimal as these are all existing facilities and services.

5. OPERATING REQUIREMENTS

To implement speed limits throughout park waters would necessitate additional Protection Division staff and equipment. Most high-speed boats weave in and out of park waters as they transit between Tortola, BVI and St. Thomas, creating jurisdictional complications with the Territorial and British Virgin Island governments. Few high-speed boats are visiting park waters per se. Many of the smaller powerboats need speed to get onto plane; at lower speeds, they create larger wakes with attendant resource damage and effects on other boaters. To cite speed limit violators would necessitate officers witnessing the speeding vessel and apprehending it within park waters. It would also necessitate the purchase of faster vessels in order to apprehend violators. Some type of signing would likely be required, which could cause unacceptable visual clutter given the multitude of entrance points into park waters. Cultural sensitivities would also need to be considered, as many West Indians perceive the water as a barrier to be crossed as expediently as possible. Park staff generally believes that while speed limits would be a useful management tool, they would be impractical to implement. Existing prohibitions against operating a boat in a reckless or negligent manner or in a manner that endangers a person or property (36 CFR 3.6) would be expected to provide law enforcement the latitude to cite a vessel if a listed species were being adversely affected due to excessive speed.

Additional research is proposed in Alternatives 2 and 3 on appropriate noise limitations for "go fast" boats that tend to create high noise levels over long distances. Special and expensive noise measuring equipment would be required. Limitations would be difficult to implement for many of the same reasons applicable to speed limits.

Successful implementation of prohibitions on the use of spotlights to attract baitfish and halogen deck lights would require routine night patrols by law enforcement rangers.

6. OTHER

A Bay Host program would be of significant benefit to park operations in that it would place additional "eyes and ears" in the park's most popular anchorages, reducing demands on park personnel. These volunteers could assist the park in providing visitor information, monitoring resource health, conducting cleanups and other resource protection/restoration projects, and other similar services.

Adopting procedures for responding to and assessing damage caused by boats running aground, inappropriate anchoring, or other incidents would provide park staff with standard operating procedures for responding to such incidents.

7. SUMMARY

All alternatives would increase administrative, maintenance, interpretative, monitoring and enforcement demands on VINP. In Alternative 1, the increase in demand for NPS services would be associated with general growth in vessel use. In Alternatives 2 and 3, additional facilities and services and new regulations would require additional personnel and equipment at an unknown cost. The greatest demands on and costs to the park would be for expanded law enforcement and the installation of additional moorings, with slightly higher costs in Alternative 2 with the construction of a Little Cruz Bay dock facility and enforcement of no anchoring restrictions for vessels 60 feet or less in length.

F. CUMULATIVE EFFECTS

Cumulative effects include the impacts of past, current and reasonably foreseeable actions that would potentially affect the park's commercial services program. Key among these would be the recent National Monument designation, institution of mooring fees, effects of September 11, trends in resource health and abundance, economic factors, other planning efforts, and changing government policies and regulations.

In January 2001, the Virgin Islands Coral Reef National Monument was established. Consisting of 12,708 marine acres of federal submerged lands off of St. John and adjacent to VINP, the Monument is to be managed by VINP to protect its tropical marine ecosystem values. The Presidential Proclamation establishing the Monument requires VINP to develop a General Management Plan (with vessel management a specific issue to be addressed) within three years. A prohibition on anchoring would be expected to have the greatest direct effect on VINP with a diversion of vessels to the park that historically have anchored within the Hurricane Hole portion of the Monument. This would be expected to increase the demand for use of south shore moorings and divert some commercial day sail excursions to north and south shore destinations. While the Monument would be a separate NPS unit, management by VINP would increase administrative, maintenance, interpretative, monitoring and enforcement demands on the park and thereby directly affect the implementation of this Vessel Management Plan. Development of a Vessel Management Plan for VINP would be expected to expedite vessel management planning for the Monument and provide an opportunity for coordination of regulations.

Through funding provided by Friends of Virgin Islands National Park and the National Oceanic and Atmospheric Administration, NPS is planning to install hurricane moorings in four bays with Hurricane Hole within the Monument. It is anticipated that these moorings would meet most if not all of the

island's demand for hurricane moorings and negate the need for installation of a hurricane mooring system within the park.

Through its Recreational Fee Demonstration Program authority, the park intends to initiate fees for the overnight use of moorings in park waters beginning in Spring/Summer 2002. Use of park moorings has been free to date and some boaters would be expected to balk at paying. Coupled with a requirement that vessels 60 feet or less in length use moorings if available, a mooring fee would be expected to cause some boaters to avoid park waters and redirect their activities to St. Thomas and the British Virgin Islands. VINP has the largest program of overnight moorings within the Caribbean. Instituting a mooring use fee here would likely cause other jurisdictions to consider instituting fee programs or increasing existing fee levels.

In the wake of the September 11, 2001 terrorist attacks in New York and Washington, declines in tourism have been experienced throughout the Caribbean, including in the U.S. Virgin Islands. However, to date, effects to VINP and vessel uses within the park have been minimal. The crewed charter industry in particular has been little affected (Bareuther 2001). Various tourism promotion plans are expected to benefit the marine tourism sector.

The use of VINP has grown dramatically over the last two decades and is expected to continue to increase. Assuming "healthy" scenic, natural and cultural resources, VINP will continue to be a prime Caribbean attraction, irrespective of the management direction established for vessel uses within the park. While all types of uses are expected to increase, growth in cruise ship passenger visitation to the park is of particular note. Recent agreements between the Territory and the Florida-Caribbean Cruise Ship Association promise annual growth in cruise ship visitation through the next decade. Increasing visitation would continue to exceed the park's infrastructure capacity and outstrip its ability to provide a quality visitor experience.

In part because of the recent growth in disposable income, the value of St. John real estate has escalated at a rate higher than most areas in the country. One-acre north shore parcels have recently sold for as much as $1.6 million. Given these highly inflated sale prices, there is a very strong incentive to sell private in-holdings within the park boundary. The effects of either full or partial development of these in-holdings on terrestrial, marine and cultural resources could be devastating, permanent and far-reaching. The park's underlying purpose and significance could be compromised if significant scenic, marine, terrestrial and cultural resources are either lost or seriously degraded and if public use and interpretation of these resources is lost or limited. These resources are the basis both for the park's significance and for its attraction to visitors. If the park's "attractions" become less attractive, visitation could begin to decline in the long term.

The availability of leisure time is, and will continue to be, an important socioeconomic factor in recreation demand. Recent evidence suggests that leisure time is declining somewhat. This may be attributed to the increase of women in the workforce, where the reduced time outside of work is taken up with the day-to-day business of living. With reduced leisure time, some data suggest people are taking shorter, but more frequent trips. At the same time, the baby boomer generation is moving into retirement age, and with more discretionary time available to this group, the potential exists for using more time for leisure activities, including boating.

As discussed in Section III.E.2, a slow to moderate decline in the health of the park's marine resources is projected due to a variety of natural and human causes. Similarly, the scenic values for which the park was originally established are being adversely affected by private development of in-holdings and lands adjacent to the park. While a management priority, the protection and restoration of cultural resources

have and can be expected to continue to suffer from inadequate funding and staffing. As noted above, if the resources that attract visitors to the park are lost or seriously degraded, the attractiveness of the park would be expected to decline.

All alternatives would generate direct and indirect economic benefits to the local economy through additional income, employment, fees, and visitor spending. While these benefits represent an important contribution to a Virgin Islands economy dominated by and dependent upon tourism, factors such as the health of the national and global economies, available disposable income, Territorial tax policies, the costs of airline travel, and tourism promotion programs more substantively affect the local economy than would VINP's vessel management program. Because the majority of both commercial and recreational vessels visiting the park are based out of St. Thomas, vessel uses direct more money off-island than on-island.

VINP intends to begin an update of its 1983 General Management plan in Fiscal Year 2002. Issues such as zoning; resource management needs, including the appropriateness of an anchorless park; visitor services; and fiscal priorities will be assessed in that plan and could affect vessel uses within the park.

Changing regulations would be another factor that could affect vessels operating within the park. Chief among these would be changes in Territorial business regulations and taxation, and changes in Coast Guard regulations, including the "6-pack" rules relating to vessel inspections.

G. COMPLIANCE WITH NEPA AND OTHER ENVIRONMENTAL LAWS AND POLICIES

All alternatives would fully comply with the requirements of Sections 101 and 102(a) of NEPA and other environmental laws and policies. As detailed in the Chapter II description of alternatives and in the assessment of environmental consequences above, all alternatives would meet the policy of NEPA to foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fullfill the social, economic and other requirements of present and future generations. The various elements proposed in the range of alternatives would provide VINP with the means to manage vessel uses in park waters to meet this policy and the six requirements of Section 101 of NEPA. As required by Section 102(a), a systematic, interdisciplinary approach was used in preparing this EA (see Section I.F), including an extensive program of agency and public input (see Section I.E.1).

Applicable environmental laws and policies are detailed in Section I.D and the process for consultation in Section I.F. Assessment of compliance of the alternatives with these laws and policies is included in the preceding analysis of environmental consequences. All alternatives would be in compliance with applicable environmental laws and regulations.

CHAPTER V: REFERENCES

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CHAPTER VI: LIST OF PREPARERS

NAME	POSITION	EDUCATION/EXPERIENCE	CONTRIBUTION
Russell Berry(1)	Former Superintendent, VINP	B.A., History. 32 years with NPS, including 3 years as VINP Superintendent	IDT Member
Rafe Boulon	Chief, Resource Management Division, VINP	B.A., Marine Environmental Science; M.S., Biological Oceanography. 18 years with DPNR, Division of Fish and Wildlife; 2 years with VINP.	IDT Member
Ginger Garrison	USGS - BRD	B.S./M.S. Chemistry. 12 years experience with private sector, 2 years with NPS, and 7 years with USGS-BRD.	IDT Member
Don Catanzaro	Chief, Inventory & Monitoring, VINP	B.A., Geography; PhD, Biological Sciences. 5 years experience with NPS.	IDT Member
John H. King	Superintendent, VINP	B.S., Business Administration. 30 years experience with NPS in progressively responsible administrative, operational, and managerial positions.	Recommends Decision to Regional Director
Jim Owens	VIP; Acting Park Planner, VINP	B.A., Political Science. 25 years experience in public involvement, land use planning, and environmental analysis. Specialize in managing NEPA projects for federal agencies. Partner in Portland, OR consulting firm of Cogan Owens Cogan.	Project Manager
Elba Richardson	Concessions Management Specialist	11 years with NPS.	IDT Member
Judy Shafer	Acting Superintendent, June-December 2000; Deputy Superintendent, VINP	M.A., Anthropology/Archaeology. 25 years of NPS experience focused in natural and cultural resources management, environmental planning and compliance, facility design and development, and park management.	Reviewer
Paul Thomas	Chief, Interpretation Division, VINP	B.S. Psychology. 29 years experience with NPS.	IDT Member
Troy Williams	Protection Division, VINP	B.S., Criminal Justice; graduate of Federal Law Enforcement Training Program. 7 years experience in law enforcement with NPS.	IDT Member

(1) Through June 2000; replaced first by Judy Shafer, later by John H. King
VIP = Volunteer in Park
IDT = Interdisciplinary Team
DPNR = Virgin Islands Department of Planning & Natural Resources

APPENDICES

APPENDIX A: THREATENED AND ENDANGERED SPECIES

APPENDIX B: VESSEL COUNTS BY MONTH, 1999 – 2001

BOAT COUNTS					ESTIMATED TOTALS		
Month	**North Shore**		**South Shore**		**North Shore**	**South Shore**	**Total**
	# of Vessels	**# of Counts**	**# of Vessels**	**# of Counts**			
1999							
January	1507	14	48	8	3337	186	3523
February	387	4	74	20	2710	104	2814
March	1642	26	148	29	1958	158	2116
April	1293	18	221	30	2155	221	2376
May	1195	19	27	7	1950	120	2070
June	854	13	21	23	1970	27	1997
July	749	19	18	23	1222	24	1246
August	93	7	19	26	412	23	435
September	0	0	0	0			1102
October	138	5	6	23	855	8	863
November	364	11	19	21	993	27	1020
December	253	6	123	27	1307	141	1448
TOTAL							**21,010**
2000							
January	1571	14	58	8	3480	225	3705
February	2840	28	218	23	2840	265	3105
March	1951	20	20	2	3025	310	3335
April	2612	25	107	5	3135	642	3777
May	1074	13	17	8	2560	65	2625
June	1055	17	18	20	1861	27	1888
July	2408	33	15	20	2408	23	2431
August	87	9	12	20	300	18	318
September	434	17	0	0	765	0	765
October	483	24	11	7	624	48	672
November	317	9	5	3	1057	50	1107
December	824	10	12	3	2554	124	2678
TOTAL							**26,406**

2001							
January	2659	28	44	8	2944	170	3114
February	2178	22	65	18	2772	101	2873
March	1134	13	72	6	2704	372	3076
April	3180	28	87	8	3407	326	3733
May	1570	20	49	9	2433	169	2602
June	2188	30	21	8	2188	79	2267
July	2307	31	18	8	2307	70	2377
August	436	28	15	28	483	17	500
September	1237	32	72	10	1237	202	1439
October	882	20	1	1	1367	31	1398
November	442	11	46	7	1205	197	1402
December	2261	17	35	2	4123	542	4665
TOTAL							**29,446**

APPENDIX C: SURVEY OF VESSEL MOORING PROGRAMS IN THE CARIBBEAN AND SELECTED U.S. NATIONAL PARKS (January 2002)

Introduction

A telephone survey of vessel mooring programs in the Caribbean and at selected U.S. national parks was conducted in Summer/Fall 2001. The survey was undertaken to assist the Virgin Islands National Park in planning for a mooring and anchoring fee program for recreational vessels visiting the national park. The survey was conducted by Elizabeth Ban, an intern for Friends of Virgin Islands National Park, on behalf of the Virgin Islands National Park. Questions about this report should be directed to: Jim Owens, Acting Park Planner, at 340/776-6201x247.

Bahamas

Contact: Lynn Gape, Public Relations and Education Officer
Bahamas National Trust
242-393-1317

Mooring Program: The Bahamian Dive Association recently installed 12 moorings at several of the popular dive sites around Exuma Cays Land and Sea Park. Fees are collected at Park headquarters and may be paid daily or in advance for extended stays. The fee schedule is as follows:

Boat Length	$US
Less than 45 ft	$15/day
Less than 55 ft	$20/day
Less than 70 ft	$30/day
Less than 90 ft	$50/day
90 ft or more	$100/day

There is an additional daily "cruising" fee ($5.00 per day) for all foreign, private vessels entering the Park. The fee for use of Park mooring includes this cruising fee.

Due to shallow depths, sailboats are encouraged to anchor in sand (no fee).

Friends of the Environment is currently trying to raise money to fund additional mooring buoys in Abaco near a reef research project.

Barbados

Contact: Richard Alleyne, Harbor Master
Barbados Port Authority
246-430-4700

Mooring Program: Barbados does not yet have a mooring program, but they are in the planning process to begin one. It will likely be modeled after the BVI program.

Bonaire

Contact: Bonaire Marine Park
Website: www.bmp.org/marine_park_management.html

Mooring Program: The Bonaire National Marine Park has 75 old mooring buoys managed by the Bonaire National Marine Park and 40 new moorings managed by the Harbour Village Marina.

Mooring fees (for both old and new moorings) are collected at customs and immigration. Fees for mooring use are (approximately) $5.40 US per night for vessels 60 feet or smaller and (approximately) $8.09 US per night for vessels over 60 feet. No anchoring is allowed anywhere in Bonaire waters, with the exception of boats under 3 meters using a stone anchor in the Harbour Village Marina.

British Virgin Islands

Contact: Mike Adamson, Mooring Program Manager-Ports Authority
284-494-3904

Moore Seacure Limited
284-494-4488

Mooring Program: Two mooring programs have been in place for a number of years – a day use mooring program operated by BVI National Parks Trust for more than 11 years and an overnight mooring program operated by Moore Seacure Limited, a private company.

To protect popular snorkeling and dive sites from overuse, BVI National Parks Trust has installed and maintains approximately 80 day use moorings at 13 locations. To use Trust moorings, both a National Parks Trust Marine Conservation Permit and a cruising permit from Customs must be purchased. Buoys are color-coded for commercial and non-commercial dive boats, snorkel/day use and dinghies. If no buoys are available, vessels may anchor 150 yards from the buoys in a sandy bottom only. The area from Salt Island to Dead Man's Chest surrounding the Wreck of the Rhone is a no-anchor area. If moorings are unavailable, vessels must go outside of the area to find a sandy bottom or free mooring, then dinghy to the Rhone. Fees for the use of moorings may be paid at Customs or National Parks Trust offices. They are paid daily or in advance for longer stays. Trust moorings are not for overnight use.

Costs for mooring use are as follows:

Commercial	
BVI Based Charter Boats (5 guests or less)	$10.00/boat/week
BVI Based Charter Boats (more than 5 guests)	$15.00/boat/week
BVI Term Charter Annual Fee (5 guests or less)	$150.00/year
BVI Term Charter Annual Fee (6 guests or more)	$225.00/year
BVI & Foreign based Dive Boats	$1.00/person/day
BVI & Foreign based Sail Boats	$1.00/person/day
Foreign Based Yachts	$25.00/week
Foreign Term Charter Annual Fee	$375.00/year
Non-Commercial	
Foreign Boats (including USVI private vessels)	$50.00/year
BVI Boats	$25.00/year

Moor Secure Limited has installed and maintains moorings for overnight use in 12 locations, primarily in sheltered lagoons and bays. These moorings may be rented for $20.00/night; fees are collected by staff from onshore marinas, restaurants or resorts.

Cayman Islands

Contact: Scott Slaybaugh, Assistant Director
Department of Environment
345-949-8469
Scott.Slaybaugh@gov.ky

Mooring Program: There are about 300 permanent moorings installed for public use around the three Cayman Islands. Cayman receives far fewer visiting yachts than the eastern Caribbean, so only about ten of these are designated for overnight use. The others are installed at popular dive sites primarily for recreational dive companies, but available to the general public. The moorings are all stainless steel pins cemented into the seabed (Halas moorings). Most moorings are designed to accommodate vessel up to 50 tons, and about 10 percent are for vessels up to 100 tons.

The moorings are all installed and maintained the Department of Environment. All mooring lines are replaced annually and repaired as needed.

Presently, there is no charge for mooring use. The costs are covered by the department's annual recurrent budget. During the past 15 years that moorings have been provided, there has been considerable debate regarding whether or not to implement a fee system. Consideration is being given to assessing dive charter operations, the most direct beneficiaries of the moorings, a fee based on total feet of vessels operated by a company.

Use of moorings is based on a "first come" policy. Except for those designated for overnight use, use is limited to 3 hours.

Puerto Rico

Contact: Dr. Craig Lilyestrom
Department of Natural and Environmental Resources
craig@caribe.net

Mooring Program: Puerto Rico currently has 160 moorings around the island with plans to install an additional 100 in September/October. The moorings are restricted to daytime use for boats up to 55 feet.

Puerto Rico's mooring program is financed by federal funds through the Sportfish Restoration Funds and is managed by the Department of Natural and Environmental Resources (DNER). Installations of the moorings are contracted to a local company, but siting, permits and maintenance are performed by the DNER. There is no fee as the moorings are federally funded and any fee collected would be deducted from the program's funding.

In most areas, anchoring is permitted, but the DNER is working on marine zoning and a strategic plan for "no-anchoring" zones. The Luis Pena Channel Marine Reserve will become the first no-anchor zone once the next series of moorings are installed.

Saba

Contact: David Kooistra, Manager
Saba Marine Park/Saba Hyperbaric Facility
599-416-3295
smp@unspoiledqueen.com

Mooring Program: Saba National Marine Park has managed a mooring program since 1987. The Park currently has over 40 moorings. Fees for mooring use are $3.00 per dive boat or $3.00 per visitor on non-dive boats (All diving in Saba must be done through a dive shop.). Fees may be paid daily or in advance. In addition, an anchoring fee is assessed for anchoring when the

moorings are unavailable. That fee is $0.15/gross ton and $3/person/week. Fees are collected at the National Park Office located next to Customs.

Mooring use is available on a first-come/first-serve basis, and visiting boats may use moorings for up to a week. Saba has three types of moorings: orange buoys are for dive boats larger than 100 feet., white for dive boats less than 100 feet, and yellow for non-dive boats of up to 60 feet/50 tons.

St. Barthelemy
Contact: Ellen Lampert-Greaux
All At Sea (October 2001)

Mooring Program: Moorings have recently been installed at two popular anchoring spots within the island's Marine Reserve: Colombier and Forchue. At Colombier, 23 moorings have been installed for vessels up to 8 meters (white buoys) and up to 18 meters (yellow buoys). At Forchue, moorings have been installed to accommodate 20-25 meter catamarans coming from St. Martin for snorkeling, as well as bareboats, charter boats and other transient boats.

No anchoring is permitted within mooring fields.

St. Lucia
Contact: Park Ranger
Soufriere Marine Management Area
758-459-5500

Mooring Program: There are approximately 60 mooring buoys within the Soufriere Marine Management Area (SMMA). The mooring program is managed by the SMMA staff. Use of moorings requires the purchase of a Coral Conservation Permit, available through local dive shops or SMMA rangers. The fee goes toward coral conservation and funding of the SMMA. Fees (in U.S. dollars) are as follows:

Size	Up to 2 day	2 days – 1 week
Class 1 – up to 35 ft	$10.00/2days	$15.00/week
Class 2 – 35-65 ft	$15.00/2 days	$20.00/week
Class 3 – over 65 ft	$20.00/2 days	$25.00/week

St. Vincent & the Grenadines
Contact: Glenn Roy, Harbor Master
Mustique Company
784-458-4621
Kurt Cordice, Manager
Tobago Cays Marine Park
784-493-9907

Mooring Program: There are currently 34 mooring buoys off of Britannia Bay owned and operated by the Mustique Company. The fee breakdown is as follows:

Boat Length	$US
Up to 35 ft	$19
36-70 ft	$28
71-85 ft	$56
86-100 ft	$102
Over 100 ft	$139

These fees are based on conversion from $EC to $US based on an exchange rate of $2.70 EC = $1.00 US. The fees represent charges for a single overnight visit using either mooring buoys or anchoring within Britannia Bay. No other services are provided.

Other than the mooring field in Britannia Bay, all other areas are open to anchoring. Recently, boat owners have been putting their own moorings in the harbor (where they please, rather than as assigned by a harbor authority) and it has become very chaotic.

A mooring program is being considered for Tobago Cays Marine Park, but according to Mr. Cordice, it really isn't necessary since the Park has excellent sand anchoring. The expense of installing and maintaining moorings may outweigh the benefit.

Sint Maarten

Contact: Andy Caballero, Marine Park Manager
Nature Foundation St. Maarten
naturesxm@megatropic.com
599-542-0267
Kevin Gavin, President
Marine Trade Association
fkg@megatropic.com

Mooring Program: St. Maarten currently has 25 mooring, all funded and managed by the Nature Foundation and Marine Park. There is no legislation preventing anchoring in delicate areas, so the Foundation has funded the installation of the buoys. There are three kinds of buoys: pin anchor, manta system and manual attachment on wrecks. There is no fee for the use of the moorings as this is a pilot program and the intent is to discourage anchoring. Dive operators choose the sites for the moorings. While the moorings were initially intended for the dive boats, any vessel may use them. Overnight mooring is not permitted.

Trinidad & Tobago

Contact: Yacht Services Association of Trinidad and Tobago
868-634-4938
Trinidad and Tobago Environmental Management Authority
868-628-8042

Mooring Program: There are a total of 36 mooring buoys in Trinidad and Tobago. Additional information on this program is to be obtained.

Turks and Caicos

Contact: Pierre Seymore
Department of Fisheries
649-946-2801 x10405

Mooring Program: There are "over 100" mooring buoys within Park waters in the Turks and Caicos. The Park oversees the program, but it is managed by the local dive operators. When a dive shop identifies the need for a new mooring, it contacts the Park. The Park supplies the mooring buoy and line and the dive operators installs the buoy. The dive operators are also responsible for monitoring the buoys. There is a fee of $0.50/person on each dive boat for use of moorings, which goes toward maintenance of the buoys. Use is limited to dive operators (They are not available for public use.).

U.S. Virgin Islands
Contact: Department of Planning and Natural Resources
340-774-3320

Reef Ecology Foundation
340-775-0097

Mooring Program: The installation and use of moorings within Territorial waters on St. Thomas, St. John and St. Croix are regulated by the Department of Planning and Natural Resources through *Rules and Regulations for Mooring and Anchoring Vessels in the U. S. Virgin Islands.* Specific bays on each island are designated as mooring and anchoring areas. Annual permits are required and fees are assessed for the private installation and use of moorings; permits are issued on a first-come, first-served basis. There are an unknown number of these privately installed moorings.

In an effort to protect coral reefs, beginning in 1994, the Reef Ecology Foundation has installed 45 moorings in sensitive diving/snorkeling sites and at outlying cays. These moorings are available for day use (3-hour limit) on a first-come, first-served basis; no fee is assessed.

Virgin Islands National Park/Coral Reef National Monument
Contact: Rafe Boulon, Resource Management Division
340-693-8950x224
Jim Owens, Acting Park Planner
340-776-6201x247

Mooring Program: There are 215 moorings within Park waters available for day and overnight use. Mooring use is restricted to vessels 60 feet or less in overall length. Anchoring within Park waters is subject to a variety of restrictions, including a prohibition on anchoring on the South Shore and within mooring areas. Moorings are available on a first-come, first-served basis; non-commercial vessels are currently limited to 14 days annually in park waters (this restriction is being re-evaluated).

Currently, no fee is assessed for mooring use, although the park intends to implement an overnight mooring fee program in Spring/Summer 2002. Day use of Park waters will not be subject to a user fee. Instructions on fee payment will be posted on all moorings within the Park. Any vessel moored in park waters between the hours of 5:00 pm and 7:30 am will be required to pay a $15 per day mooring fee.

The Park is also planning to install hurricane moorings in Hurricane Hole sometime in 2002.

Dry Tortugas National Park
Contact: Bob Howard, Management Assistant
305-242-7700

Mooring Program: There are currently 15-25 moorings within the boundaries of the Dry Tortugas National Park. They are managed by the park, free to the public, but vessels are required to obtain a permit prior to using the moorings. There is no charge for the permit at this time. A management plan currently being prepared for Dry Tortugas may revise mooring use regulations.

Everglades National Park
Contact: Bob Howard, Management Assistant
305-242-7700

Mooring Program: There is no mooring program in Everglades National Park.

Lake Mead National Recreation Area
Contact: Jim Vanderford, Chief of Maintenance
702-293-8907

Mooring Program: There is no mooring program in Lake Mead NRA.

Glen Canyon National Recreation Area (Lake Powell)
Contact: Kathy Fleming – Concessions
928-608-6340

Mooring Program: The mooring program on Lake Powell is managed by Glen Canyon's concessions, ARAMARK. No further information was available.

Florida Keys National Marine Sanctuary
Contact: John Halas
305-852-7717

Mooring Program: There are over 400 mooring buoys within the Sanctuary. They are for day use only, free of charge and used to prevent anchor damage. Mooring use is on a first-come basis.

A separate mooring program in Key West was established by the Federal government and is administered by the City of Key West. There are currently 81 moorings with plans to expand to 149. The mooring fee ($12.00/night or $120.00/month) includes cost of pumpouts.

John Pennekamp State Park
Contact: Michelle, Manager of Dive Facility
305-451-6322

Mooring Program: The Park manages a mooring program in Largo Sound. The fee for use of the mooring buoys is $17.50/night. The Park also has boat slips in the Park marina and charges $25.50/night. This fee includes electricity and water.

SURVEY OF MOORING PROGRAMS IN THE CARIBBEAN AND SELECTED US NATIONAL PARKS

Location Contacted	***# of moorings***	***Fee***	***Restrictions***	***Fee Collection***	***Comments***
Anguilla					No response
Antigua & Barbuda	0	--	--		--
Bahamas – Exuma Cays Land and Sea Park	12	Boat Length $US Up to 45' $15/day Up to 55' $20/day Up to 70' $30/day Up to 90' $50/day Over 90' $100/day Also daily $5 cruising fee for all foreign, private vessels entering the park.	Due to shallow water depth, sailboats are encouraged to anchor in sand (no fee).	Paid at Park headquarters. May be paid daily or in advance for extended stays.	Members of Bahamas National Trust and BNT service fleet have preferred access to moorings.
Barbados	0	--	--		Currently developing mooring program modeled after BVI.

Bonaire – National Marine Park	Total = 115 75 managed by National Marine Park; 40 managed by Harbour Village Marina	Boat Length $US Up to 60' $5.40/night Over 60' $8.09/night Also, park admission tag must be purchased.	No anchoring, except boats 3 meters of less with a stone anchor.	Paid at customs and immigration.	
British Virgin Islands	National Parks Trust moorings Private moorings installed by Moor Seacure	Commercial: BVI Charter Boats (≤5 guests) $10/wk BVI Charter Boats (≥6 guests) $15/wk BVI Charter (Annual) (≤ 5 guests) $150/yr BVI Charter (Annual) (≥6 guests) $225/yr BVI & Foreign Dive Boats $1/person/day BVI & Foreign Sailboats $1/person/day Foreign Yachts $25/wk Foreign Charter Annual Fee $375/yr Non-Commercial: Foreign Boats $50/yr BVI Boats $25/yr Trust moorings not available for overnight use. $20/overnight	Boats must purchase a cruising permit in addition to Marine Conservation Permit (mooring fee.) If no moorings available, may anchor 150 yds from moorings in sand. No anchoring around Wreck of the Rhone.	Paid at Customs, National Park Trust office or from marine patrol. May be paid daily or in advance for extended stays. Purchased on site with advance reservations.	
Cayman Islands	300, primarily for dive operations; only about 10 designated for overnight use.	No fee at this time. Consideration being given to assessing dive operations a fee based upon total feet of vessels operated by a company.	Moorings available on first-come/first-serve basis. Day use limited to 3 hours.	N/A	
Curacao					No response
Dominica					No response
Grenada					No response
Jamaica					No response

Puerto Rico	Currently 160, with plans for an additional 100 in Sept/Oct. 2001	No fee; financed through Sportfish Restoration Funds.	Restricted to day use by boats < 55'. Anchoring permitted in most areas, but no anchoring zones planned.	N/A	With installation of additional moorings, no anchoring will be permitted in Luis Pena Channel Marine Reserve.
Saba – National Marine Park	>40	Dive boats $3/boat Other boats $3/passenger Anchoring $0.15/gross ton +$3/pass./ week	Moorings available on first-come/first-serve basis. Anchoring fee when moorings are not available.	Paid at National Park Office located next to Customs. Paid daily or in advance.	Mooring program managed since 1987.
St. Barthelemy	23 at Columbier, unknown # at Forchue	Researching this information.	No anchoring within mooring fields.	Unknown	
St. Eustatius					No response
St. Lucia – Soufriere Marine Management Area (SMMA)	60	Boat Length 1-2 days 3 days-1 week Up to 35' $10.00 $15.00 35' – 65' $15.00 $20.00 Over 65' $20.00 $25.00		Collected at local dive shops or by an SMMA ranger.	Fees applied to coral reef conservation and funding of SMMA
St. Vincent & the Grenadines – Britannia Bay	34, owned and operated by Mustique Co.	Boat Length $US Up to 35' $19 36-70' $28 71-85' $56 86-100' $102 Over 100' $139 Fee for overnight mooring or anchoring.	All other areas open to anchoring.	Collected at Mustique Company Harbor Master's Office.	Investigating mooring program at Tobago Cays Marine Park.
Sint Maarten	25, funded and managed by Nature Foundation and Marine Park	No fee	No overnight use. No restrictions on anchoring.	N/A	
Trinidad & Tobago	36				Waiting for info.
Turks and Caicos	> 100	$0.50/person per dive boat	For dive boat use only; not open to public.	Collected by dive operators and used	Installed by local dive operators.

				for mooring maintenance.	
U.S. Virgin Islands	Unknown # of privately installed moorings. 45 installed by Reef Ecology Foundation.	Annual permit fee. No fee.	Siting approval required. Moorings available on first-come/first-serve basis. 3-hour limit.	Paid annually to Department of Planning & Natural Resources.	
Virgin Islands National Park/Coral Reef National Monument	215	Fee program to be instituted in Spring 2002.	Restricted to vessels <60 feet. Moorings available on first-come/first-serve basis. 14-day limit.	Daily fee collection to be contracted.	Fee collection program is currently being designed. Mooring maintenance by Park staff.
Channel Islands National Park	0	--	--		--
Dry Tortugas National Park	15-25	No fee	Vessels are required to obtain a permit prior to using the moorings (available at Park office)	N/A	Regulations are being finalized that may establish fees and use regulations.
Everglades National Park	0	--	--		--
Glen Canyon National Recreation Area (Lake Powell)		Managed by concessioaire			Waiting for info.
Gulf Islands National Seashore	0	--	--		--
Florida Keys National Marine Sanctuary	>400	No fee	Day use only. Anchoring permitted in sand. First-come/ first-served basis.	N/A	
City of Key West	81, plans to expand to 149	$12/night or $120/month (includes pumpout services)			Established by federal government; administered by

					City.
John Pennekamp State Park	?	$17.50/night for moorings $25.50/night for marina slips			
Lake Meade National Recreation Area	0	--	--		--
National Park of American Samoa	0	--	--		--

APPENDIX D_: STANDARD OPERATING PROCEDUES FOR MARINE RESOURCE DAMAGE ASSESSMENTS

INTRODUCTION

The purpose of this standard operating procedures (SOP) is to provide guidance in investigating damage to marine resources from vessels, anchors, and individuals touching or breaking the resources. In conjunction with Coral Reef Damage Standard Operating Procedures developed by the Southeast Regional Office, this SOP will assist Virgin Islands National Park personnel in conducting consistent damage assessments in an efficient and thorough manner. It is important to recognize that incidents of damage to marine resources need to be conducted as a criminal investigation that may go to court as either a criminal or civil case or both.

Damage to coral reefs, seagrass beds, and gorgonian plains in Virgin Islands National Park (VIIS) can be caused by individuals breaking coral, vessels dropping and/or dragging anchors, or vessels running aground. This SOP focuses on procedures for investigating damage caused by vessels running aground on near-shore fringing reefs or the prominent patch reef, Johnsons Reef. However, the procedures are similar for investigating anchor damage to other reefs and seagrass beds, or by individuals damaging resources while swimming/snorkeling.

LAWS

Applicable criminal laws include: 36 CFR 2.1(a)(1)(i) prohibits the destroying of living or dead wildlife; 36 CFR 3.6(a) prohibits reckless or negligent operation of a vessel; 36 CFR 3.6(b) prohibits operating a vessel under the influence of alcohol or controlled substances; and 36 CFR 3.4, failure to report an accident.

The Superintendent's Compendium includes a variety of closures, public use limits, permit requirements and other restrictions imposed under the discretionary authority of the Superintendent. Vessel-related requirements and restrictions address vessel size limitations, closures of areas to vessel access, anchoring and mooring restrictions, and prohibited water activities.

The VIIS Commercial Services Plan provides direction on commercial vessel uses within park waters. The Vessel Management Plan provides direction on authorized vessel uses, anchoring and mooring, beach access and operating requirements.

The National Parks Marine Resource Protection Act (Public Law 101-337) authorizes the National Park Service (NPS) to file civil cases in a United States District Court to recover costs associated with responding to an incident and to restore and replace damaged resources.

Standard Operating Procedures for Coral Reef Damage prepared by the Southeast Regional Office will be used as guidance for investigating damage to marine resources (on file in the Superintendent's Office). The direction detailed in this SOP will augment those procedures.

RESPONSIBILITY

The Division of Protection has the responsibility to initially investigate all boat accidents and file any criminal charges. All information from the investigation will be provided to the Superintendent, along

with recommendations on whether a civil case should be pursued. The investigation should be started as soon after the accident as possible. The Superintendent should be given a brief report within 24 hours. A final report will be submitted within one week of the incident.

Law Enforcement Rangers (LE Rangers) on daily boat patrols will randomly checks for anchor damage to marine resources. When possible, Resource Management Division staff will assist in checks. LE Rangers will keep snorkel gear and an underwater camera aboard Division vessels, and must be prepared at all times to enter the water to inspect anchor placement. When damage to marine resources is observed, the LE Ranger will decide what action to take. If other VIIS personnel discover damage, they will immediately contact the Protection Division.

REPORT OF INCIDENT

The following information will be provided for all damage incidents using Vessel Grounding Report and Report of Damage to Marine Resources forms available from the Protection Division or Resource Management Division:

- Are there any injuries to persons or damage to resources?
- Location of the incident.
- Did the vessel run aground or is an anchor causing the damage?
- Name, type, color, length/draft of vessel involved.
- Is the vessel rented or chartered? If yes, what company?
- Is the vessel still on the reef or submerged? Stationary or floating free?
- Is oil/fuel leaking? Estimate of amount onboard.
- Has the Coast Guard been notified?
- Name, address, and phone number of reporting individual.

The Chief of Protection, Chief of Resource Management, and the Superintendent's Office will then be notified. If there are injuries, appropriate emergency medical response will be administered or arrangements made to transport injured persons to the nearest emergency medical facility.

The responding LE Ranger(s) will notify the U.S. Coast Guard via radio or telephone (809—729--6817) that park personnel are responding top the incident. If the vessel involved is rented or chartered, the rental company will be notified.

FIRST LAW ENFORCEMENT RANGER ON SCENE

The first LE Ranger(s) responding should determine if there are any injuries. If so, the LE Ranger should contact the Park base station on St. John (KID—722), describe injuries, request assistance if necessary, give location, and plan of action. The base dispatcher will contact the ambulance, clinic, or hospita1 if the incident requires.

After proper medical care has been administered, floats or peanut buoys will be used to record the location of the incident/accident. If the vessel is in danger of sinking or capsizing, all personnel on board must be evacuated.

If available, the LE Ranger should use a video, Polaroid or digital camera to document the location of the incident. The area and extent of damage should be located as accurately as possible. If a Geographical Positioning System (GPS) unit is available, four readings at two minutes apart should be recorded. At least three 3 compass readings using land fixes must also be recorded. If flotation marker buoys have not

been deployed by this time, they should be used to mark the area. This will help relocate the area of damage in the future. Marker buoys will be attached to the bottom with polypropylene line tied to a weight or tied to a bottom feature in a way that will not further damage the resources. When a large area is damaged, two separate surface buoys and at least one subsurface buoy should be used.

INVESTIGATION

The responding LE Ranger(s) must ensure that:

- Personal injuries are attended to or treated appropriately.
- There is no immediate concern for further personnel injury, property damage, and/or release of hazardous materials.
- Appropriate agencies are notified.

The responding LE Ranger(s) must also determine the following. This information will be provided in the Report of Damage to Marine Resources.

- How much and what type of damage occurred to the natural resources?
- What type of damage occurred to the vessel?
- What factors were involved that caused the damage?
- Was carelessness or negligence of the operator a factor?
- That the vessel is salvaged, if necessary, with minimal additional damage to resources.

If salvage is needed, a company will be selected from a list of companies developed by the Concession Specialist and the Chief of Resource Management. The LE Ranger will coordinate the salvage operation with personnel from Resources Management and the company/person conducting the salvage operation. The salvage operator will be advised that the operation is occurring in a National Park and that all precautions possible must be taken to prevent additional resource damage. Operations will be halted if it is determined that they are causing excessive damage. Resource Management Division personnel will be present to monitor all salvage operations.

The responding LE Ranger(s) will maintain a time log of all personnel involved in the investigation and of all expenditures (i.e., equipment, boat costs, film, etc.). The responding LE Ranger(s) and/or Resource Management Division staff will conduct a visual inspection of the resource damage and determine what procedures are necessary to complete a damage assessment.

To assist in prosecution if warranted, the following procedures will be followed:

1. File a Vessel Grounding Report and a Report of Damage to Marine Resources.
2. Take witness(es) statements (privately if possible).
3. Note the condition of the vessel operator and administer sobriety tests if appropriate.
4. Determine what types of charts are aboard the vessel. Observe and record as evidence any nautical charts or other charts that show the marine resource, and any other navigational equipment in use (i.e., radar, GPS unit). Record the names of charts and navigational books. If a chartered or rental boat is involved, secure a copy of the contract and all information that indicates that the charter or rental company provided information on reef locations. Note any buoys or other navigational aids in the area.
5. Collect paint scrapings from the point of vessel contact to marine resources and any pieces of the vessel broken off which can be handled easily.
6. If an underwater camera is available and it is safe to do so, take underwater pictures.
7. Collect broken coral with paint scrapings if possible.
8. Inspect the vessel for all other physical evidence in relation to damages.
9. If damage is from an anchor, take pictures of the vessel, anchor, anchor line, and anchor damage.

Collect any physical evidence if feasible. All physical evidence collected will be dried and placed in a bag. The bag will be marked with an evidence sticker, the date, time, case **#,** location it was collected from (reef name and, if a GPS unit is available, approximate latitude and longitude, description of the vessel, and name and address of the boat operator.)

10. Make a sketch of the damaged area. The sketch can be done the same as for a traffic accident on land or any other method that provides a good idea of the damage. The sketch will also include overall area damaged, approximate size of individual coral damaged, the types of coral damaged, and all information necessary for a document that could be used in a court of law.

PHOTOGRAPHING AREA

VIDEO

If video is available, the make, model and serial number of the video camera used should be written down and included in the case incident report. While on the surface a slate with the following information should be videotaped: date, time, camera operator's name, case number, and location of incident. Mark the video cassette as evidence. Videotape landmarks surrounding the incident.

Underwater videotaping should be conducted if equipment is available. Once underwater videotaping has begun, the camera should not stop until all damage has been recorded. Videotape underwater damage at established reference points, either along the keel scar or anchor drag, or whatever situation is applicable. A measuring tape should be used for establishing reference points. Using a compass, indicate directions between each point. Videotaping should be done along the measuring tape between points of damage or the reference points. When showing areas of damage a compass should be used to show the direction. A meter stick marked off in centimeters should be used to show size comparison. Mark damaged areas as "A","B","C" etc.

STILL PHOTOS

Start from reference point #1 and photograph damage starting with area A. Photographs will show path of boat keel scar, width of path, and/or path of anchor and compass direction. Keep a photo log indicating film type, case number, photographer and area being photographed. Use a centimeter stick to show scale. Mark developed pictures with the date of the incident, time, case number, photographer's name and label describing photo.

HANDLING OF EVIDENCE

All evidence collected, including notes, tapes, and photographs, will be secured in a locked safe and a chain of custody will be established. No more than two people should have access to the safe. A form is kept in the safe with collected evidence indicating date and time items were received, who received items, and from whom items were delivered. Any time the safe is opened or evidence is removed or additional evidence is added, the date, time, name of person opening the safe and reason for opening the safe must be recorded. If any evidence is sent to a laboratory, a Chain of Custody receipt will be sent along with it. The evidence can be sent to the FBI or the USFWS lab. All evidence will be handled according to established and accepted procedures.

PROSECUTION

The LE Ranger(s) handling the case will determine what criminal charges to file. If the Ranger handling

the case believes that a civil case may also be filed, all information will be shared with the Chief of Resource Management. If the Chief of Resource Management believes that the damage warrants it, the Resource Management Division will further investigate the type of marine resource damaged and approximate cost of damage. If the investigating Ranger and Chief of Resource Management agree that the case should be pursued, all information will be provided to the Superintendent's Office for review. The Superintendent will have one week to review the case and recommendations and either concur with, modify or reject the recommendations. If a civil case is to be pursued, the appropriate information will be transmitted to the Southeast Regional Office for prosecution.

APPENDIX E: SURVEY OF VESSEL PUMPOUT PROGRAMS IN THE CARIBBEAN AND SELECTED U.S. NATIONAL PARKS (November 2001)

Introduction

A telephone survey of vessel pumpout programs in the Caribbean and at selected U.S. national parks was conducted in Summer 2001. The survey was undertaken to assist the Virgin Islands National Park in planning for a commercially-operated pumpout facility on St. John to serve recreational vessels visiting the national park. The survey was conducted by Elizabeth Ban, an intern for Friends of Virgin Islands National Park, on behalf of the Virgin Islands National Park. Questions about this report should be directed to: Jim Owens, Acting Park Planner, at 340/776-6201x247.

Summary

Although there is strong interest by most Caribbean islands and U.S. national parks in providing vessel pumpout programs, many of these entities are limited by lack of funds, lack of regulations on waste discharge, or lack of interest on the part of boaters. Recurring comments about the viability of pumpout programs include:

1) User fees tend to discourage use, unless the fee is included as part of an entrance fee or mooring fee. Boaters are more inclined to use pumpout facilities when they feel they have already paid for pumpout service as part of a multi-service fee.
2) Pumpouts that are hooked up to community sewage treatment systems generally do not have holding capacities, as they are constantly flushed into the sewage system. Conversely, portable pumpout facilities are often unattractive options due to limited holding capacities.
3) Pumpout facilities are most effective when placed on or near a fueling dock.
4) Boater education is essential to encourage pumpout facility use.

The Sea Grant Program at the University of Rhode Island offers a good website on pumpout "best management practices" at:

http://www.seagrant.gso.uri.edu/riseagrant/BMP/BMP.html
Click on the "Sewage" subsection link.

Bahamas

Contact: Lynn Gape, Public Relations and Education Officer
Bahamas National Trust
242-393-1317

Pumpout Facilities: There are privately owned pumpout facilities in Georgetown, Atlantis and Hurricane Hole. No information is available on the nature of these facilities.

Barbados

Contact: Richard Alleyne, Harbor Master
Barbados Port Authority
246-430-4700

Pumpout Facilities: The Island of Barbados is just starting the planning and development of a pumpout facility. The facility will be run by the Barbados Port Authority (a quasi-government organization) and there will be no fee for its use. It will be a stationary facility and will link into the main sewage facility on the island. As well as the stationary facility, the port will send a mobile pumpout tanker to individual vessels, which will then transport the wastewater to the main stationary facility. A fee will be assessed for this service. Information on the cost of the planned pumpout facility is not available.

Bonaire
Contact: Bonaire Marine Park
Website: www.bmp.org/marine_park_management.html

Pumpout Facilities: None. Regulations stipulate that wastewater be disposed of at least five miles from land.

British Virgin Islands
Contact: Kelvin Payne, Department of Conservation & Fisheries
284-494-5681 x5555

Pumpout Facilities: Currently, the BVI does not have any pumpout facilities, although there are plans for a facility to be located at Cane Garden Bay. Boating representatives surveyed by the department raised questions about demand for such facilities, given that more boaters are using dry (chemical) facilities, rather than holding tanks, on their vessels. Government representatives are very interested in working with the USVI to develop a regionwide pumpout program.

Cayman Islands
Contact: Scott Slaybaugh, Assistant Director
Department of Environment
345-949-8469

Pumpout Facilities: Currently, there are three pumpout options available in Grand Cayman (1 stationary and 2 mobile), one in Cayman Brac (mobile), and none in Little Cayman. All operations are privately owned. Waste ultimately is deposited in the public sewage treatment plan arriving either by pipeline or vacuum truck. There has been concern for some time that the facilities are not adequate for the growing numbers of vessels. A survey to establish need and suggest solutions was conducted several years ago, but a publicly-administered program has not yet been established. The department hopes to initiate such a program in 2002.

Puerto Rico
Contact: Mayra Garcia, Clean Vessel Act Coordinator
Email: ruiz@coqui.net
787-725-8619

Pumpout Facilities: EPA funding is available to the island through the Clean Vessel Act (CVA) program to develop pumpout facilities. There are a variety of types of pumpout facilities on the island, with the majority being fixed stations on gas docks. These are connected to marina sewage systems or to septic tanks. There are also portable pumpout tankers that service vessels moored away from a stationery facility. There are currently 10 fixed pumpout stations in seven marinas. Marinas manage the facilities, but are reimbursed for 75% of construction costs. To obtain funding, a marina must file a proposal and have an inspection by the CVA team. If the team feels that a pumpout is needed, the purchase of pumpout equipment is authorized. The marina must have, at minimum, three competitive bids for the project and supply proof-of-purchase. Once constructed, the CVA team returns for an additional inspection to ensure that the facility is installed and functioning properly. The marina then enters into a contract to keep the facility operational for five years. The marinas may charge no more than $5 per pumpout.

Saba
Contact: David Kooistra, Manager

Saba Marine Park/Saba Hyperbaric Facility
599-416-3295
smp@unspoiledqueen.com

Pumpout Facilities: None.

St. Lucia
Contact: Park Ranger
Soufriere Marine Management Area
758-459-5500

Pumpout Facilities: None. Boats must dump their wastewater prior to entering St. Lucia waters.

St. Vincent & the Grenadines
Contact: Glenn Roy, Harbor Master
Mustique Company
784-458-4621
Kurt Cordice, Manager
Tobago Cays Marine Park
784-493-9907

Pumpout Facilities: None. There are no plans to develop pumpout stations due to problems with sewage disposal on the islands. Vessels are not regulated as to where they may discharge their wastewater. There may be future wastewater disposal regulations via the Marine Parks Act.

Sint Maarten
Contact: Andy Caballero, Marine Park Manager
Nature Foundation St. Maarten
naturesxm@megatropic.com
599-542-0267
Kevin Gavin, President
Marine Trade Association
fkg@megatropic.com

Pumpout Facilities: None, although the Marine Trade Association is working with the government to develop a facility. The island currently has no regulations prohibiting dumping.

Trinidad & Tobago
Contact: Yacht Services Association of Trinidad and Tobago
868-634-4938
Trinidad and Tobago Environmental Management Authority
868-628-8042

Pumpout Facilities: There is one pumpout on Trinidad in a local marina.

Turks and Caicos
Contact: Pierre Seymore
Department of Fisheries
649-946-2801 x10405

Pumpout Facilities: None.

Dry Tortugas National Park
Contact: Bob Howard, Management Assistant
305-242-7700

Pumpout Facilities: None.

Everglades National Park
Contact: Bob Howard, Management Assistant
305-242-7700

Pumpout Facilities: There are 2 pumpout facilities in the community of Flamingo consisting of holding tanks. The facilities are run by a parks concessionaire. There is no fee for their use.

Lake Mead National Recreation Area
Contact: Jim Vanderford, Chief of Maintenance
702-293-8907

Pumpout Facilities: There are currently nine pumpout facilities managed by concessionaires. They are all located at fuel docks and are hooked into the municipal sewage system (which is dumped into lagoons). Three additional pumpouts (with restroom facilities) that will be anchored in the lake have been ordered. This will allow boaters to pumpout without coming to the docks. There is no fee for use of pumpout facilities.

Glen Canyon National Recreation Area (Lake Powell)
Contact: Dan Read, Facilities
928-608-6200
Pumpout Facilities: There are six pumpout facilities on Lake Powell. They are vacuum systems with 1,200 gallon holding tanks. The tanks are attached to a flex sewage line that automatically pumps out when full. The systems cost $100,000/unit. A "micro-flush" barge has recently been purchased to service boats that are not docked. It has a 1,500 gallon capacity and is pumped into one of the main vacuum systems after use. There is no fee for use of pumpout facilities.

From the Lake Powell Website (http://www.lakepowell.com/aboutus.html):

> "ARAMARK Sports& Entertainment, Inc. was selected as a recipient of the 2000 Department of Interior Environmental Achievement Award for 'outstanding efforts in partnership with the National Park Service in designing, construction and maintaining remote restrooms and pump-out units in 8 different locations in Glen Canyon National Recreation Area' which includes Lake Powell. These floating remote facilities include manual powered boat pump-out stations, porta-potti dump stations and restroom facilities. Solar power is used to operate solar Microphor toilets and night and anchor lighting. Waterless urinals reduce wastewater storage and pumping needs. Pump-outs are serviced by the use of two 10,000 gallon service barges. These facilities have increased awareness for Lake Powell boaters in the importance of keeping lake waters clean and provided a means for boaters to 'Do the Right Thing.'"

Florida Keys National Marine Sanctuary
Contact: Alan Cradick (pumpout in Key West)
305-872-8167
acradick@keywestcity.com
June Cradick, Assistant Director
305-743-2437 x24

Pumpout Facilities: All the waters in Monroe County are "no discharge" areas. The Sanctuary has received funding through the Clean Vessel Act to provide sufficient facilities to meet pumpout needs throughout the Keys. The majority of the pumpouts are 1,000 gallon tanks fixed on piers that are connected to the city sewage treatment system. The Sanctuary also offers a pumpout tanker to service vessels at a fee of $10.00/pumpout.

John Pennekamp State Park
Contact: Michelle, Manager of Dive Facility
305-451-6322

Pumpout Facilities: There is one pumpout facility located in the Park marina on the gas dock. It is managed by the Park and there is no fee for use. The facility is tied into the municipal sewer system, but there was no information on its holding capacity.