NATIONAL PARK SERVICE • U.S. DEPARTMENT OF THE INTERIOR

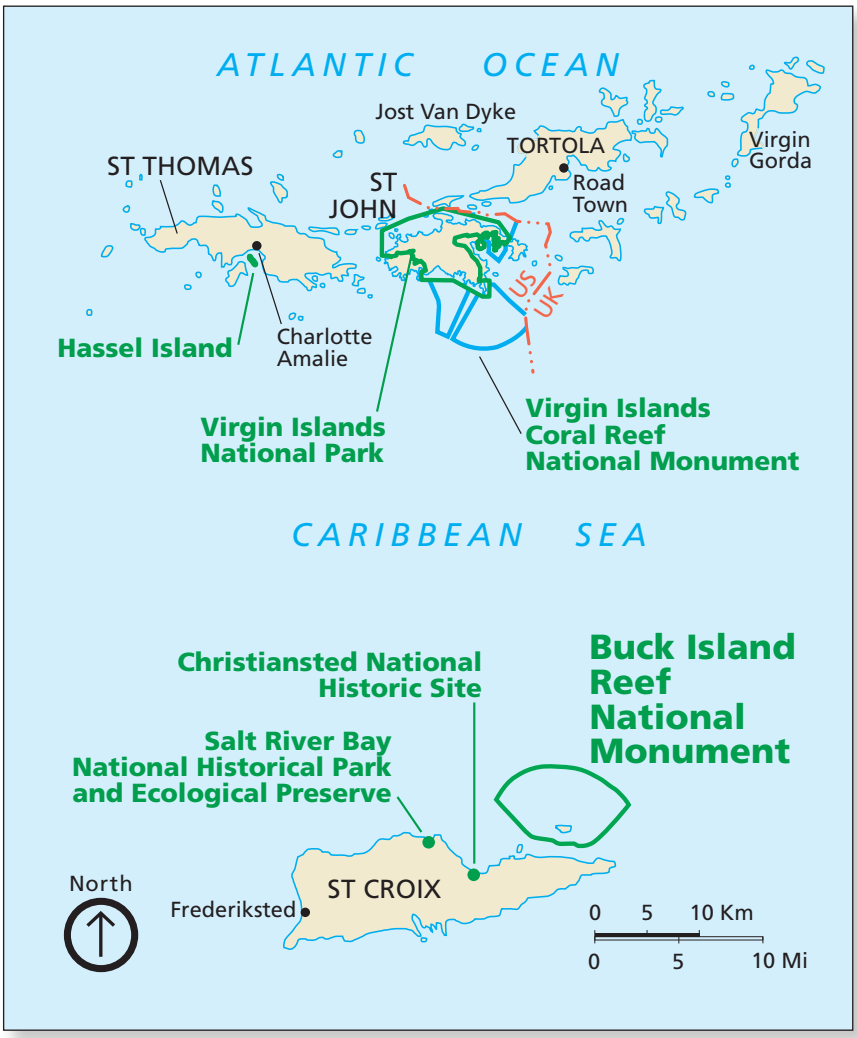
Foundation Document

Buck Island Reef National Monument

U.S. Virgin Islands

August 2017


Buck Island Reef National Monument Boundary
0 1 Km 2
0 1 Mi 2
Buck Island
St. Croix
CARIBBEAN SEA
WESTERN REEF
BARRIER REEF
Trail is steep and narrow with loose stones
Observation Point
West Beach
BUCK ISLAND
Designated Anchorage Area
Subject to changing conditions
Signal light 32ft 100m
Scuba Area, 1–2 moorings for public use
Underwater Trail, 8–10 moorings for public use
Pier
Diedrichs Point
LAGOON
Lagoon Entrance Channel
North
0 0.5 Kilometer
0 0.5 Mile
APPROXIMATE SCALE
Picnic Area
Toilets
Anchorage
Coral reef marker
Port buoy
Starboard buoy
Vessel approach from St. Croix
BUCK ISLAND CHANNEL


ATLANTIC OCEAN
Jost Van Dyke
TORTOLA
Road Town
Virgin Gorda
ST THOMAS
ST JOHN
US
UK
Hassel Island
Charlotte Amalie
Virgin Islands National Park
Virgin Islands Coral Reef National Monument
CARIBBEAN SEA
Christiansted National Historic Site
Buck Island Reef National Monument
Salt River Bay National Historical Park and Ecological Preserve
North
Frederiksted
ST CROIX
0 5 10 Km
0 5 10 Mi

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Mission of the National Park Service

The National Park Service (NPS) preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The National Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

The NPS core values are a framework in which the National Park Service accomplishes its mission. They express the manner in which, both individually and collectively, the National Park Service pursues its mission. The NPS core values are:

- **Shared stewardship:** We share a commitment to resource stewardship with the global preservation community.
- **Excellence:** We strive continually to learn and improve so that we may achieve the highest ideals of public service.
- **Integrity:** We deal honestly and fairly with the public and one another.
- **Tradition:** We are proud of it; we learn from it; we are not bound by it.
- **Respect:** We embrace each other's differences so that we may enrich the well-being of everyone.

The National Park Service is a bureau within the Department of the Interior. While numerous national park system units were created prior to 1916, it was not until August 25, 1916, that President Woodrow Wilson signed the National Park Service Organic Act formally establishing the National Park Service.

The national park system continues to grow and comprises more than 400 park units covering more than 84 million acres in every state, the District of Columbia, American Samoa, Guam, Puerto Rico, and the Virgin Islands. These units include, but are not limited to, national parks, monuments, battlefields, military parks, historical parks, historic sites, lakeshores, seashores, recreation areas, scenic rivers and trails, and the White House. The variety and diversity of park units throughout the nation require a strong commitment to resource stewardship and management to ensure both the protection and enjoyment of these resources for future generations.

The arrowhead was authorized as the official National Park Service emblem by the Secretary of the Interior on July 20, 1951. The sequoia tree and bison represent vegetation and wildlife, the mountains and water represent scenic and recreational values, and the arrowhead represents historical and archeological values.

Introduction

Every unit of the national park system will have a foundational document to provide basic guidance for planning and management decisions—a foundation for planning and management. The core components of a foundation document include a brief description of the park as well as the park's purpose, significance, fundamental resources and values, other important resources and values, and interpretive themes. The foundation document also includes special mandates and administrative commitments, an assessment of planning and data needs that identifies planning issues, planning products to be developed, and the associated studies and data required for park planning. Along with the core components, the assessment provides a focus for park planning activities and establishes a baseline from which planning documents are developed.

A primary benefit of developing a foundation document is the opportunity to integrate and coordinate all kinds and levels of planning from a single, shared understanding of what is most important about the park. The process of developing a foundation document begins with gathering and integrating information about the park. Next, this information is refined and focused to determine what the most important attributes of the park are. The process of preparing a foundation document aids park managers, staff, and the public in identifying and clearly stating in one document the essential information that is necessary for park management to consider when determining future planning efforts, outlining key planning issues, and protecting resources and values that are integral to park purpose and identity.

While not included in this document, a park atlas is also part of a foundation project. The atlas is a series of maps compiled from available geographic information system (GIS) data on natural and cultural resources, visitor use patterns, facilities, and other topics. It serves as a GIS-based support tool for planning and park operations. The atlas is published as a (hard copy) paper product and as geospatial data for use in a web mapping environment. The park atlas for Buck Island Reef National Monument can be accessed online at: http://insideparkatlas.nps.gov/.

Part 1: Core Components

The core components of a foundation document include a brief description of the park, park purpose, significance statements, fundamental resources and values, other important resources and values, and interpretive themes. These components are core because they typically do not change over time. Core components are expected to be used in future planning and management efforts.

Brief Description of the Park

Preserving "one of the finest marine gardens in the Caribbean Sea," Buck Island Reef National Monument was established by President John F. Kennedy in 1961 through Presidential Proclamation No. 3443. Recognizing the importance of the extensive tropical marine resources surrounding the original monument, it was expanded in 2001 by more than 18,000 marine acres and all extractive uses prohibited within the monument's waters (e.g., fishing, taking whelk, conch, lobster), making it the first and one of only a few fully protected "no-take" marine protected areas in the entire national park system. Today, Buck Island Reef National Monument manages more than 19,000 acres of mostly submerged land north of the island of St. Croix, U.S. Virgin Islands. St. Croix is the largest of the four islands comprising the U.S. Virgin Islands, which also includes St. John, St. Thomas, and Water Island, and is located inside the sweep of the Lesser Antilles arc, roughly 45 miles south of the other islands. Geographically separated from Puerto Rico and the northern U. S. Virgin Islands by the 14,700-foot-deep (~4,500-meter-deep) Virgin Islands Basin, the Anegada Passage, and the St. Croix Basin, St. Croix and its surrounding waters are an important crossroad for species diversity and migration.

Originally designated because of the unique coral barrier reef system surrounding Buck Island and unusual elkhorn coral "haystack" formations, Buck Island Reef National Monument now protects extensive Caribbean marine and terrestrial habitats for numerous species. The monument's tropical marine ecosystems are a continuum of shallow coral reefs (barrier, patch, spur and groove), seagrass beds, octocoral hardbottom, sand, algal plains to shelf edge, Mesophotic to deep reefs, and open ocean to depths of 3,000 feet (~915 meters) provide habitats essential for sustaining diverse communities of marine life. Only 176 acres in size, Buck Island is a crucial refuge for many native terrestrial species such as the globally endangered St. Croix ground lizard. Several threatened and endangered species can be found in the protected waters within the monument including hawksbill, green, loggerhead, and leatherback sea turtles, dolphins, brown pelicans, and migratory least terns; seasonally, humpback whales and pilot whales move through park waters.

Buck Island also contains evidence of more than 2,000 years of human interactions with the surrounding marine environment. Archeological research documents prehistoric use of the island (ceramic and shell middens). During the Danish colonial period, a homestead was constructed above the beach and a military signal station was built on the island's peak in an effort to warn ships of the dangers of the coral barrier reef. Still, the hazards of navigating around the island took its toll, and an array of submerged archeological resources including wrecks of two significant slave ships reflect the rich maritime heritage protected by the national monument.

Located in the clear, warm waters of the Caribbean Sea, Buck Island Reef National Monument provides unique opportunities for long-term scientific research into the tropical marine environment in the eastern Caribbean, substantive educational experiences, and recreational activities and immersive experiences. As a national monument and marine protected area, there are a variety of appropriate activities for visitors to enjoy at Buck Island Reef including swimming, bathing, snorkeling, SCUBA diving, daily boat trips from St. Croix to the island, hiking, bird-watching, sunbathing, and picnicking. A visit to the island offers outstanding views of land and sea, and natural sounds. An underwater snorkel trail, the first of its kind in the national park system, provides an immersive experience during which visitors can explore and appreciate the coral barrier reef that is the focal point for many visitors to Buck Island Reef National Monument.

Park Purpose

The purpose statement identifies the specific reason(s) for establishment of a particular park. The purpose statement for Buck Island Reef National Monument was drafted through a careful analysis of its enabling legislation and the legislative history that influenced its development. The monument was established by presidential proclamation on December 28, 1961 (see appendix A for presidential proclamation and legislative acts). The purpose statement lays the foundation for understanding what is most important about the park.

Buck Island Reef National Monument in St. Croix, U.S. Virgin Islands, preserves, protects, studies, and interprets diverse marine and terrestrial tropical ecosystems, fish, wildlife, and significant submerged and terrestrial cultural and historical resources in one of the first marine protected areas in the Caribbean Sea.

Park Significance

Significance statements express why a park's resources and values are important enough to merit designation as a unit of the national park system. These statements are linked to the purpose of Buck Island Reef National Monument, and are supported by data, research, and consensus. Statements of significance describe the distinctive nature of the park and why an area is important within a global, national, regional, and systemwide context. They focus on the most important resources and values that will assist in park planning and management.

The following significance statements have been identified for Buck Island Reef National Monument. (Please note that the sequence of the statements does not reflect the level of significance.)

- Designated as a national monument, Buck Island and its surrounding coral bank barrier reef formations are regarded as one of the first marine protected areas in the Caribbean Sea; this protected tropical coral reef and island ecosystem provides refuge for a diversity of marine and terrestrial species including Caribbean coral reefs, fishes, sea turtles, lizards, sea birds, marine mammals, and marine invertebrates and plants.
- The first marine protected area in the national park system, Buck Island Reef National Monument safeguards a wide spectrum of marine habitats that range from a shallow 7,000-year-old bank barrier coral reef where unusual elkhorn coral (haystack) formations are found, to open ocean corridors that plummet to abyssal depths along a vertical shelf edge containing deep coral species and rare marine life.
- Uninhabited, Buck Island is an important sanctuary for the biological diversity of many terrestrial plant and animal species that live, forage, breed, nest, or rest within the safety of the monument including four species of sea turtle, sea birds, and the only completely protected habitat that supports the globally endangered St. Croix ground lizard.
- The archeological record on Buck Island bears witness to more than 2,000 years of human history. The earliest inhabitants used the island as a fishing camp. During the historic colonial period the surrounding reefs proved treacherous to mariners, resulting in numerous shipwrecks. Of these submerged archeological resources, the most notable are the wrecks of two 18th-century transatlantic slave ships, the *Mary* and *General Abercrombie*.
- For 50 years Buck Island has been one of the most accessible and studied coral bank barrier reef systems in the Caribbean. Buck Island Reef National Monument continues to foster outstanding opportunities for scientific research and scholarship, inspiring scientists and students as well as the public to explore the monument's many natural and cultural resources.
- Buck Island Reef National Monument's coastline represents a gradient of geological processes from coral sand beaches to vertical sedimentary rock cliffs. The rock cliffs, composed from ancient volcanic materials, are layered with calcite, exposing the island's buried geological history of tectonic plate movement and uplift.

Fundamental Resources and Values

Fundamental resources and values (FRVs) are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance. Fundamental resources and values are closely related to a park's legislative purpose and are more specific than significance statements.

Fundamental resources and values help focus planning and management efforts on what is truly significant about the park. One of the most important responsibilities of NPS managers is to ensure the conservation and public enjoyment of those qualities that are essential (fundamental) to achieving the purpose of the park and maintaining its significance. If fundamental resources and values are allowed to deteriorate, the park purpose and/or significance could be jeopardized.

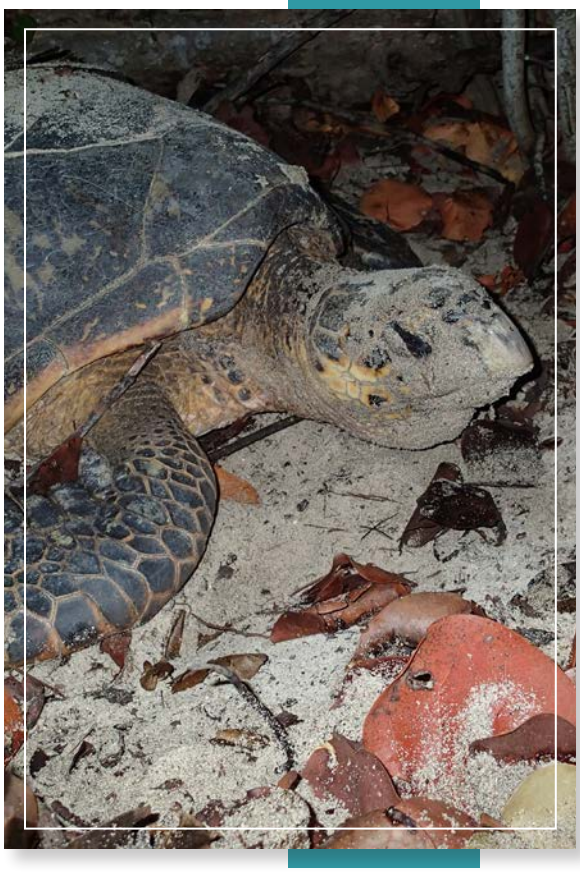
The following fundamental resources and values have been identified for Buck Island Reef National Monument:

- **Water Clarity.** Buck Island Reef National Monument is surrounded by clear waters that are essential to a wide variety of tropical marine life ranging from shallow coral reefs, seagrass beds, and myriad fishes to uncountable invertebrate marine lifeforms. Because of its low turbidity and nutrient-poor quality, these clear waters provide optimal light penetration for coral and seagrass growth, which in turn supports diverse and abundant marine life populations. Given their pristine nature, the waters surrounding the monument are designated as class A under U.S. Virgin Islands water quality standards, which emphasizes the preservation of natural phenomena and is the most stringent of the three water quality classes. The clear turquoise to deep ocean blue waters surrounding Buck Island provide great scenic beauty and outstanding recreational opportunities such as snorkeling and SCUBA diving with visibilities often exceeding 50 feet.

- **Coral Reef Communities.** An extraordinary range of coral species and reef types is protected by Buck Island Reef National Monument. Serving as breeding grounds, nurseries, feeding grounds, and refugia, coral reef systems are among the most productive ecosystems on the planet. Coral species can be found from the surface of the bank barrier reef to depths of more than 4,200 feet (~1,300 meters) in the waters surrounding Buck Island. A magnificent barrier reef system formed by large stands of endangered elkhorn coral wraps around the eastern shoreline for almost two-thirds of the island, creating an extensive shallow lagoon. Mesophotic reefs are some of the healthiest coral within the monument. These reefs start at depths of more than 90 feet (30 meters) and consist of stony corals, octocorals, sponges, macroalgaes, and soft corals. The monument's coral reefs support incredible marine biodiversity including seven listed species of coral of which elkhorn and staghorn corals are the most significant.

- **Island Environment.** The isolated offshore environment at Buck Island provides a strong contrast to St. Croix and the other developed and inhabited U.S. Virgin Islands. Like St. Croix, the island (176 acres and rising to a single ridge 340 feet above sea level) is the result of volcanic ash that was deposited on the sea floor and then thrust upward, creating a rugged, rocky coastline composed of a variety of geological substrata. A narrow sandy beach on the southwestern side of Buck Island fluctuates in size due to wave action eroding and depositing coral sands on the shore. Less than two miles from St. Croix, Buck Island provides critical nesting habitat for four species of listed sea turtle as well as a rookery for the formerly listed brown pelican. The open beach provides seasonal nesting for the migratory least tern. Past human activity, from tree removal, introduction of nonnative plants and animals (mongoose, rats, mice), goat grazing, burning, and several severe hurricanes has impacted island vegetation, resulting in a remnant subtropical dry forest dominated by scrub thicket with cactus to semideciduous dry woodland.

- **Terrestrial and Marine Wildlife Including Fish.** The diverse marine and terrestrial habitats within Buck Island Reef National Monument provide home and refuge to a wide variety of wildlife including fishes. Within the monument all extractive uses such as fishing are prohibited by Presidential Proclamation 7392 (2001). This prohibition provides protection for a diverse fish community including reef fish, barracuda, sharks, rays, and range of pelagic species (wahoo, dolphin, tuna, swordfish) as well as healthy, key marine invertebrate groups such as queen conch and spiny lobster. The monument also provides suitable habitat for four species of sea turtle, including the hawksbill, green, loggerhead, and leatherback, to nest, hatch, forage, and mate. Buck Island is now the most secure island refuge for the globally endangered St. Croix ground lizard. Translocated and reintroduced in 2007, the ground lizard has colonized most of the island and is thriving. A diverse range of terrestrial invertebrate species including snails, crabs, spiders, scorpions, centipedes, millipedes, and more than 126 species of beetle, four of which are endemic to Buck Island, have been found on the island. Both native and migratory bird species use the monument. There is a brown pelican rookery above the north cliffs and a seasonally migratory least tern's nest on the beach. Other megafauna species including humpback whales, pilot whales, and swordfish pass through the monument, and others including bottlenose dolphins, tiger sharks, spotted eagle rays, and manta rays use the monument waters.



- **Maritime Heritage Resources.** Primarily found in the archeological record, the rich maritime heritage resources protected by Buck Island Reef National Monument illustrate the dynamic relationship between humans and the marine environment. Prehistoric Amerindian use is documented by conch middens, pottery, and fire pits from fishing camps. The ruins of the Danish signal station and signal keeper's residence are tangible links with the role of navigation in the maritime heritage of Buck Island. The reefs and surrounding waters contain several shipwrecks and submerged archeological resources that reflect the importance of maritime trade in the development of St. Croix and its role in a global economy. Two of the most significant shipwrecks, of the slave ships *Mary* and *General Abercrombie*, provide powerful connections to the transatlantic slave trade and the colonial legacy of St. Croix. Museum collections are an important part of the maritime heritage resources and include materials and artifacts from prehistoric archeological collections as well as natural history specimens, plants, lizards, beetles, reef fishes, and archival materials documenting the earliest marine research work in the monument.

- **Scientific Research and Education.** First established to protect the elkhorn coral bank barrier reef around Buck Island and later expanded more than 2,000%, Buck Island Reef National Monument has a rich legacy as a place of scientific interest and study. With its complex coral reef communities and diverse marine and terrestrial ecosystems, the monument continues to provide outstanding opportunities for scientific research. Collaboration with many partners, including the NPS South Florida / Caribbean Inventory and Monitoring Program, U.S. Geological Survey, National Oceanic and Atmospheric Administration, universities, and territorial and nonprofit organizations, on long-term critical resource monitoring and resource studies of terrestrial and marine resources promotes scientific and education objectives. Educational programs encourage conservation and stewardship of the marine environment for the Buck Island ecosystem, St. Croix, the northern Virgin Islands, Puerto Rico, and throughout the Caribbean. Scientific research efforts are critical in collecting baseline data toward recovery and understanding of Caribbean tropical marine/coral reef systems, monitoring fish populations, hawksbill and green sea turtle nesting and foraging populations, and studying effectiveness of the marine protected area and beneficial impacts on the Buck Island and St. Croix East End marine ecosystems and ultimately a sustainable fishery for the island of St. Croix.

- **Experiencing a Caribbean Coral Reef.** St. Croix, the largest of the U.S. Virgin Islands, is 1,100 miles from Miami, Florida, and the southeasternmost point of the United States. Buck Island Reef National Monument, located off the north shore of St. Croix, is St. Croix's number one visitor destination. It offers an immersive visitor experience at one of the first marine protected areas in the Caribbean Sea. The clear, tropical waters provide opportunities for a wide range of appropriate recreational activities, including sailing, boating, sea kayaking, swimming, snorkeling, and SCUBA diving. The monument has the first underwater snorkel trail in the national park system where visitors can explore a coral reef and swim through elkhorn coral grottos just 45 minutes from Christiansted by sailboat or motorboat. Buck Island coral sand beaches and shallow turquoise waters offer opportunities for bathing, swimming, and sunning. Visitors may also take a short but steep climb up through the rugged tropical dry forest to the north side of the island. Overlooks provide sweeping views of the extensive and complex coral reef system and beyond to the northern Virgin Islands 45 miles to the north. Buck Island is a tropical marine setting that provides a hands-on experience on an undeveloped Caribbean island where visitors can snorkel a protected coral reef and be surrounded by marine life, hike a rugged trail to scenic overlooks, and wonder about the people who visited the island 2,000 years ago.

Other Important Resources and Values

Buck Island Reef National Monument contains other resources and values that are not fundamental to the purpose of the park and may be unrelated to its significance, but are important to consider in planning processes. These are referred to as "other important resources and values" (OIRV). These resources and values have been selected because they are important in the operation and management of the park and warrant special consideration in park planning.

The following other important resources and values have been identified for Buck Island Reef National Monument:

- **Natural Sounds and Visual Resources.** Outstanding views and natural sounds at Buck Island Reef National Monument provide a serene sensory experience for visitors. From the hiking trail overlooks, expansive uninterrupted views of the coral reef and deep turquoise-colored tropical waters give visitors a sense of the vastness of the open ocean surrounding Buck Island and St. Croix. The visual contrasts from the sparkling blue waters, windblown green forest, white sandy beaches, and rocky shoreline are all important parts of this sensory experience. Dark night skies at Buck Island expose the Milky Way stretching out of the northern sky. Sounds of water, waves, wind, and bird songs contribute to the natural setting and individual experiences possible at Buck Island.

- **Natural History Collections.** Extensive field work and research collections have been undertaken at Buck Island Reef National Monument. Many have focused on the coral reefs, sea turtle genetics, reef fish populations, as well as the inventory of terrestrial flora and fauna. This work has generated important natural history specimen collections for scientific research and analysis. The most important natural history collection from the monument consists of almost 18,000 specimens of tropical reef fish, which are currently curated by the University of Florida and housed at the Florida Museum of Natural History in Gainesville. Additional collections include 800 individual species of beetle fauna, vascular plants, and lizards.

Interpretive Themes

Interpretive themes are often described as the key stories or concepts that visitors should understand after visiting a park—they define the most important ideas or concepts communicated to visitors about a park unit. Themes are derived from, and should reflect, park purpose, significance, resources, and values. The set of interpretive themes is complete when it provides the structure necessary for park staff to develop opportunities for visitors to explore and relate to all park significance statements and fundamental and other important resources and values.

Interpretive themes are an organizational tool that reveal and clarify meaning, concepts, contexts, and values represented by park resources. Sound themes are accurate and reflect current scholarship and science. They encourage exploration of the context in which events or natural processes occurred and the effects of those events and processes. Interpretive themes go beyond a mere description of the event or process to foster multiple opportunities to experience and consider the park and its resources. These themes help explain why a park story is relevant to people who may otherwise be unaware of connections they have to an event, time, or place associated with the park.

The following interpretive themes have been identified for Buck Island Reef National Monument:

- **Resiliency and Recovery of Natural Diversity.** Functioning as a refuge for diverse flora and fauna, Buck Island Reef National Monument is a place where natural processes illustrate the dynamic relationships between marine and terrestrial ecosystems, reflecting potential resilience and recovery of the complex interdependency of all natural systems.
- **History and Culture.** Buck Island has witnessed 2,000 years of interplay between humans and its dynamic natural environment. This is evident in the rich archeological, historical, and continuing legacy between the people and the environment that sustains them.
- **Enjoyment.** Located just 2 miles off the island of St. Croix, Buck Island Reef National Monument, the island and the surrounding seascape, has stirred the imagination of countless visitors, students, and scientists by providing an immersive experience for outstanding scientific, aesthetic, and educational importance for the enjoyment of the people.
- **Conservation Legacy.** Protected as a national monument and designated the first marine protected area in the National Park Service, Buck Island Reef National Monument and its conservation are a shared responsibility of each generation to provide continued stewardship and ensure the ongoing legacy of this special place.

Part 2: Dynamic Components

The dynamic components of a foundation document include special mandates and administrative commitments and an assessment of planning and data needs. These components are dynamic because they will change over time. New special mandates can be established and new administrative commitments made. As conditions and trends of fundamental and other important resources and values change over time, the analysis of planning and data needs will need to be revisited and revised, along with key issues. Therefore, this part of the foundation document will be updated accordingly.

Special Mandates and Administrative Commitments

Many management decisions for a park unit are directed or influenced by special mandates and administrative commitments with other federal agencies, state and local governments, utility companies, partnering organizations, and other entities. Special mandates are requirements specific to a park that must be fulfilled. Mandates can be expressed in enabling legislation, in separate legislation following the establishment of the park, or through a judicial process. They may expand on park purpose or introduce elements unrelated to the purpose of the park. Administrative commitments are, in general, agreements that have been reached through formal, documented processes, often through memorandums of agreement. Examples include easements, rights-of-way, arrangements for emergency service responses, etc. Special mandates and administrative commitments can support, in many cases, a network of partnerships that help fulfill the objectives of the park and facilitate working relationships with other organizations. They are an essential component of managing and planning for Buck Island Reef National Monument.

Special Mandates

The interim rule (36 CFR 7.73 "Buck Island Reef National Monument") that was published in the *Federal Register* (effective May 2003) prohibits all extractive uses (e.g., fishing, taking whelk, conch, lobster) and anchoring except in areas of deep sand, in the event of emergencies, or for administrative purposes (all other anchoring subject to permit). The interim rule remains in effect until final regulations are adopted upon completion of the Buck Island Reef National Monument general management plan expected in 2017. For more information about special mandates under the interim rule, please see appendix B.

Administrative Commitments

For information about the existing administrative commitments for Buck Island Reef National Monument, please see appendix C.

Assessment of Planning and Data Needs

Once the core components of part 1 of the foundation document have been identified, it is important to gather and evaluate existing information about the park's fundamental and other important resources and values, and develop a full assessment of the park's planning and data needs. The assessment of planning and data needs section presents planning issues, the planning projects that will address these issues, and the associated information requirements for planning, such as resource inventories and data collection, including GIS data.

There are three sections in the assessment of planning and data needs:

1. analysis of fundamental and other important resources and values
2. identification of key issues and associated planning and data needs
3. identification of planning and data needs (including spatial mapping activities or GIS maps)

The analysis of fundamental and other important resources and values and identification of key issues leads up to and supports the identification of planning and data collection needs.

Analysis of Fundamental Resources and Values

The fundamental resource or value analysis table includes current conditions, potential threats and opportunities, planning and data needs, and selected laws and NPS policies related to management of the identified resource or value.

Fundamental Resource or Value	Water Clarity
Related Significance Statements	• Designated as a national monument, Buck Island and its surrounding coral bank barrier reef formations are regarded as one of the first marine protected areas in the Caribbean Sea; this protected tropical coral reef and island ecosystem provides refuge for a diversity of marine and terrestrial species including Caribbean coral reefs, fishes, sea turtles, lizards, sea birds, marine mammals, and marine invertebrates and plants. • The first marine protected area in the national park system, Buck Island Reef National Monument safeguards a wide spectrum of marine habitats that range from a shallow 7,000-year-old bank barrier coral reef where unusual elkhorn coral (haystack) formations are found, to open ocean corridors that plummet to abyssal depths along a vertical shelf edge containing deep coral species and rare marine life.
Current Conditions and Trends	**Conditions** • Waters in the monument are currently identified as class A under current U.S. Virgin Island Water Quality Standards. Class A water standards are the most stringent of the three classes because of its pristine or near-pristine state. Water quality in the monument is assumed to meet U.S. Virgin Islands Department of Planning and Natural Resources (DPNR) class A standards for swimmable and human contact conditions. • Buck Island Reef National Monument is recognized for its clear water. Visual assessments characterize the water clarity as good; average visibility ranges from 30–50 feet. • The International Convention for the Prevention of Pollution from Ships (MARPOL) regulates waste discharges from boats and ships; this convention is in effect in the monument and meets international and U.S. Coast Guard standards. • Water quality for various toxics and pollutants is unknown. • A natural resource condition assessment was initiated in 2017. • Park water quality data can be found in the Environmental Protection Agency storage and retrieval database for 1940–2016. **Trends** • Water temperature trends are currently monitored on an ongoing basis. The trend is indicating higher water temperatures over time. In the last two decades sea surface temperature has exceeded the normal threshold for coral health. • Water clarity is considered stable. • Environmental Protection Agency and U.S. Virgin Islands Department of Planning and Natural Resources (DPNR) conduct ambient water quality monitoring at the park quarterly to ensure class A water conditions are maintained and reported.
Threats and Opportunities	**Threats** • The potential for oil spills, shipwrecks, and solid waste discharges is a constant threat to water quality in the park. • The use of sunscreens, tanning lotions, and oils by swimmers and beachgoers can impact water quality and clarity. • Elevated levels of phosphorous have been documented in sediments near the underwater trail mooring area. • Due to limited watershed management and upland development near East End Marine Park on St. Croix, runoff primarily during storm events is causing nonpoint source pollution issues, that could potentially reach Buck Island in extreme weather conditions. • Accidental discharges from recreational boats, sloughing of anti-fouling bottom paint, and MARPOL marine discharge violations can impact water quality. • Vessels anchoring can increase turbidity.

Fundamental Resource or Value	Water Clarity
Threats and Opportunities	**Threats (continued)** • Water clarity is poor during October/November storm surge and also can be affected by hurricanes and December/January winds. **Opportunities** • Expand water quality monitoring to include additional metrics and parameters to provide additional data to better inform resource management. • Educate visitors about the effects of sunscreen on water quality and providing information on alternatives to sunscreen (sun protection shirts or rash guards). • Work with concessioners to market specific products to minimize impacts of oils and sunscreens. • Explore opportunities to increase the number of Caribbean Coastal Ocean Observing System water quality and meteorological buoys, administered by a regional branch of the National Oceanic and Atmospheric Administration (NOAA) ocean observing system to collect additional ocean condition and water-quality data. • Educate private vessels and the public about MARPOL regulations. • Work with the U.S. Virgin Islands Department of Planning and Natural Resources and the Environmental Protection Agency to ensure the monument continues to meet class A water quality standards.
Data and/or GIS Needs	• Comprehensive water quality monitoring. • Oceanographic baseline study.
Planning Needs	• Resource stewardship strategy. • Visitor use management plan. • Vessel management and mooring buoy plan (PMIS # 141631).
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Clean Water Act of 1972 • Endangered Species Act of 1973, as amended • Lacey Act, as amended • National Environmental Policy Act of 1969, as amended • National Invasive Species Act • Executive Order 12088, "Federal Compliance with Pollution Control Standards" • Executive Order 13089, "Coral Reef Protection" • Executive Order 13158, "Marine Protected Areas" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (§1.6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (§4.1) "General Management Concepts" • NPS *Management Policies 2006* (§4.4.1) "General Principles for Managing Biological Resources" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate" • NPS *Natural Resource Management Reference Manual 77*

Fundamental Resource or Value	Coral Reef Communities
Related Significance Statements	• Designated as a national monument, Buck Island and its surrounding coral bank barrier reef formations are regarded as one of the first marine protected areas in the Caribbean Sea; this protected tropical coral reef and island ecosystem provides refuge for a diversity of marine and terrestrial species including Caribbean coral reefs, fishes, sea turtles, lizards, sea birds, marine mammals, and marine invertebrates and plants. • The first marine protected area in the national park system, Buck Island Reef National Monument safeguards a wide spectrum of marine habitats that range from a shallow 7,000-year-old bank barrier coral reef where unusual elkhorn coral (haystack) formations are found, to open ocean corridors that plummet to abyssal depths along a vertical shelf edge containing deep coral species and rare marine life. • For 50 years Buck Island has been one of the most accessible and studied coral bank barrier reef systems in the Caribbean. Buck Island Reef National Monument continues to foster outstanding opportunities for scientific research and scholarship, inspiring scientists and students as well as the public to explore the monument's many natural and cultural resources. • Buck Island Reef National Monument's coastline represents a gradient of geological processes from coral sand beaches to vertical sedimentary rock cliffs. The rock cliffs, composed from ancient volcanic materials, are layered with calcite, exposing the island's buried geological history of tectonic plate movement and uplift.
Current Conditions and Trends	**Conditions** • The loss of long-spined black sea urchin in the 1980s was devastating to reef health. • In the 1960s, 70% of corals were considered healthy. Between 1970 and 2010, coral condition and overall reef health has degraded along the bank barrier reef, patch reefs, spur and groove, and north bar due to multiple diseases, bleaching events, and hurricane damage. In the 1970s, white band disease reduced live elkhorn coral dramatically, leaving only 5% to 10% of the population alive. From the 1990s to 2016, the South Florida / Caribbean Network long-term monitoring of coral, South Fore Reef and Western Spur and Groove Reef identified 2% to 5% live cover. • Seven listed species of coral and more than 5,000 acres of critical habitat for elkhorn and staghorn corals are in the monument, as well as Boulder Star Coral (*Orbicella franksi*) - dominated areas. • In 2012, the National Park Service and National Oceanic and Atmospheric Administration Biogeography completed a coral reef (hard bottom), sea grass (submerged aquatic vegetation), sand (soft bottom) mapping and habitat base map for the monument. • Coral recruitment on the North bank barrier reef is low. • Coral recruitment on the South bank barrier reef is high. • In 2015-2016 the South Florida / Caribbean Network Inventory and Monitoring team documented a high percentage of live coral coverage (30%) on the mesophotic reef along the north bar drop-off between 90 and 130 feet. • A natural resource condition assessment was initiated in 2017. **Trends** • Since 2007 there has been a small but statistically significant increase in elkhorn coral (Acropora palmata) live cover along the South Fore Reef. • The south forereef portion of the coral barrier reef shows signs of resilience and regrowth after major disease, hurricanes, and bleaching events. • Water temperature increase and water quality condition concerns (high phosphorus at underwater trail) warrant increased temperature/water quality monitoring and analysis to ensure coral system health.

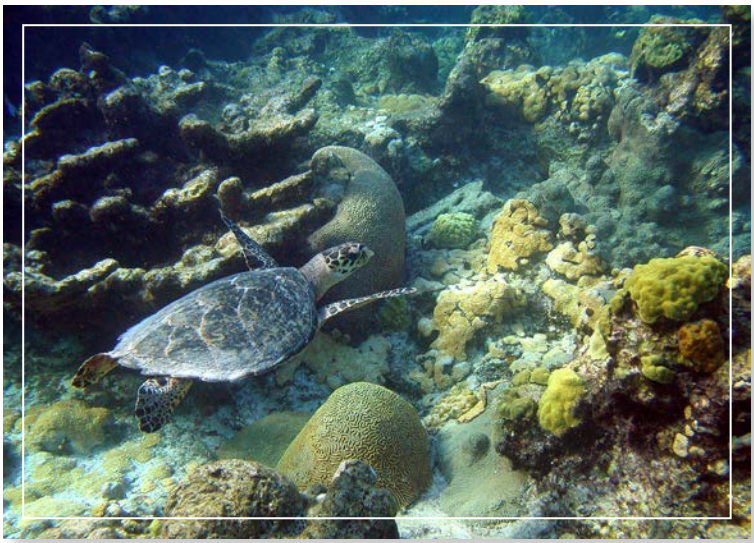
Fundamental Resource or Value	Coral Reef Communities
Threats and Opportunities	**Threats** • Coral diseases including yellow band, black band, and plague diseases have occurred or are currently present in the monument and may occur in the future. • The invasive seagrass *Halophila stipulacea* is spreading. It is present now and was recently identified at Buck Island Reef National Monument. It must be monitored and mitigated if possible. • Vessel groundings and unauthorized anchoring can significantly damage coral reefs. • Coral bleaching, coral disease events, hurricanes, sea level rise, increased sea surface temperatures, and ocean acidification significantly impact coral reef communities. • There is an increased potential for oil spills due to increased recreational boating, shipping traffic, and the reopening of the oil refinery on south shore of St. Croix. • Accidental visitor contact with corals, including kicking, standing on, or touching, can damage and destroy fragile coral reef colonies. • Large storms and hurricanes are natural processes that threaten coral reef communities. This threat is likely to be exacerbated by climate change. • Water quality studies by the National Oceanic and Atmospheric Administration identify high phosphorous content at the underwater trail. • Other toxins were discovered in marine invertebrates collected at the underwater trail. • Long-range transport of dust from Africa containing viable bacteria and fungi, nutrients, metals, and persistent organic pollutants (e.g., pesticides, PAHs, PCBs) can impact the marine ecosystem. **Opportunities** • Conduct additional studies of mesophotic reefs to verify their condition and determine overall reef health and to monitor status and trends over time. • Continue studies to identify management actions necessary to mitigate and reverse the effects of coral disease. Continue coral disease mitigation study with star coral (Orbicella) and begin disease mitigation and reproductive health study for elkhorn (Acropora) coral. • Continue to work in partnership with the National Oceanic and Atmospheric Administration on employing remotely operated vehicles to video and document reef conditions at depths greater than human dive capabilities. • Formalize partnership monitoring programs for Buck Island deep reef areas with South Florida / Caribbean Network Inventory and Monitoring and University of the Virgin Islands including technical dives and closed-circuit rebreathers to safely monitor deeper reef areas within the monument. • Continue to urge the National Oceanic and Atmospheric Administration to establish Buck Island Reef as a Caribbean Coastal Ocean Observing System research node as part of its larger regional program for oceanographic condition assessments. • Increase public education and outreach regarding the significance of coral reefs by providing interpretation through NPS concessioners, Friends of the St. Croix USVI National Parks, nonprofit organizations, K–12 schools, University of the Virgin Islands, and Virgin Islands Tourism. • Start a citizen-scientist volunteer group with local residents who frequent Buck Island Reef National Monument. • Develop educational programs and interpretive materials that illustrate the various impacts to coral reefs from collecting, touching, anchoring, kicking, and use of sunscreen, and encourage behavior changes (e.g., changing from a sunscreen culture to cover-up clothing). • Continue to collaborate and work with the Territorial St. Croix East End Marine Park to improve understanding of the shared coral reef ecosystem. • Explore opportunities for coral species within the monument to serve as a source for reintroduction of corals in other protected areas with suitable habitat in the U.S. Virgin Islands and Eastern Caribbean region.

Fundamental Resource or Value	Coral Reef Communities
Data and/or GIS Needs	• Climate change vulnerability assessment. • Finalize Buck Island Reef National Monument general management plan / environmental impact statement. • Comprehensive coral and marine invertebrate community composition study. • Coral accretion study. • Deep wall mesophotic reef survey. • Elkhorn coral population survey. • Sea urchin survey/study. • Update and develop comprehensive GIS mapping of the entire monument. • Oceanographic baseline study. • Comprehensive water quality, pollutants, chemicals, bacteria assessment.
Planning Needs	• Communications plan. • Lionfish control strategy / implementation plan. • Programmatic coral restoration plan. • Resource stewardship strategy. • Update the contingency response plan. • Vessel management and mooring buoy plan (PMIS # 141631).
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Clean Water Act of 1972 • Clean Air Act of 1977 (42 USC 7401 et seq.) • Endangered Species Act of 1973, as amended • Lacey Act, as amended • National Environmental Policy Act of 1969, as amended • National Invasive Species Act • Executive Order 13089, "Coral Reef Protection" • Executive Order 13158, "Marine Protected Areas" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (§1.6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (§4.1) "General Management Concepts" • NPS *Management Policies 2006* (§4.4.1) "General Principles for Managing Biological Resources" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate" • NPS *Natural Resource Management Reference Manual 77*

Fundamental Resource or Value	Island Environment
Related Significance Statements	• Uninhabited, Buck Island is an important sanctuary for the biological diversity of many terrestrial plant and animal species that live, forage, breed, nest, or rest within the safety of the monument including four species of sea turtle, sea birds, and the only completely protected habitat that supports the globally endangered St. Croix ground lizard. • Buck Island Reef National Monument's coastline represents a gradient of geological processes from coral sand beaches to vertical sedimentary rock cliffs. The rock cliffs, composed from ancient volcanic materials, are layered with calcite, exposing the island's buried geological history of tectonic plate movement and uplift.
Current Conditions and Trends	**Conditions** • Buck Island remains uninhabited. Historic homesite and signal station are in ruins; only limited public facilities (100-ft cement pier, shelter/storage room, two picnic areas [tables and grills], vault toilets, rustic hiking trail) available for visitor day use and administrative use only. • White and black mangroves are present at the salt pond on south side; red mangroves have been absent since Hurricane Hugo in 1989. • A nontidal, rain-fed salt pond is on the south side of Buck Island. • The shoreline, open beach, and beach forest areas provide 1.5 km of critical sea turtle nesting area. • No amphibians have been documented on Buck Island. • There have been significant management efforts to control nonnative invasive (exotic) animal and plant populations on Buck Island. Exotic mongoose have been eradicated (1990s); tree rats are under control (2001); and the European house mouse is still found on the island. • Weekdays see fewer visitors than the weekend and offer the greatest opportunities for visitors to experience solitude. • Most visitation is diurnal; day trips and day use activities dominate. • The territorial government considers the island a refuge for many rare native animal and plant species, including cactus, agave, orchids, lignum vitae tree, birds (brown pelican, white crown pigeon, migratory least tern), the St. Croix ground lizard, and endemic beetles. • The South Florida / Caribbean Inventory and Monitoring Network created an islandwide vegetation map in 2009. • A natural resource condition assessment was initiated in 2017. **Trends** • There are increasing and noticeable visitor impacts on the island including picnic trash, human waste, bottles, cans, and lost items (e.g., beach towels). • The increasing number of boats and visitors anchoring at West Beach and picnic areas has the potential to impact the isolated island and affect resources, solitude, and visitor capacity (e.g., crowding, noise, unacceptable behavior). • The width and length of the coral sand beach area fluctuates over time, even from one day to the next, due to the season, storms, and erosion. In the last 25 years (post-1989), the loss of shoreline is increasing due to erosion on the north and southwest ends of the island. This trend is impacting the visitor use area, sea turtle nesting habitat, archeological sites, and historic Tamarind trees. • Where nonnative invasive plants have been treated, monitoring indicates the 10 target nonnative invasive species are under control and native plant community is improving. However, diversity is lower than what will provide resilience for climate change impacts resulting from drought, fire, windstorm, and potential reintroduction of nonnative invasive species.

Fundamental Resource or Value	Island Environment
Threats and Opportunities	**Threats** • Increasing beach use by private individuals during high-visitation periods, weekends, and cruise ship days results in crowded beaches and limited anchoring/mooring opportunities. • Increasing visitation numbers may be impacting threatened and endangered species habitat. • The capacity of the vault toilets is often exceeded. Vault can overflow, causing negative impact to the environment and to visitor experience. This can also create mosquito breeding habitat and human health issues. • Beach aesthetics, natural shoreline setting, and visitor experience can be impacted when visitors move picnic tables from designated picnic areas on the beach. This impacts the arrival scene and the overall beach experience. • Geological hazards such as rock slides can occur in steeper areas of the island and along the rocky shoreline from the pier to West Beach, and along the rocky shoreline from the end of Turtle Bay to the eastern point of the island. • Shoreline erosion, although a natural process, is accelerating due to a combination of factors (hurricanes, reduced coral reef health, loss of fishery, loss of vegetation, and sea level rise). Erosion is reducing the size of the available visitor use area at West Beach, the most popular visitor use area, causing crowding, as well as natural resource and visitor use conflicts. • Climate change may increase extreme storm and heat events, drought, flooding, shoreline erosion, sea level rise, salt water inundation, invasive species, and a shift in native species habitats. • Due to erosion, the recreational area on Buck Island's most popular beach is shrinking, shoreline vegetation is disappearing and large trees are being lost, creating a hazardous tree problem. • The designated anchoring area is losing sand. "Deep sand" required by the interim regulations is disappearing, resulting in significant reduction in good anchoring area. Anchoring is damaging newly exposed hard bottom or pavement habitat. • Buck Island is "pack it in, pack it out" for all trash. Increase in trash on the shoreline and in vault toilets could occur due to poor adherence to the regulation. • There is a lack of ADA access to the island. The only access is from boat to shore or boat to pier. **Opportunities** • Enhance opportunities for solitude or natural experience. • Explore limiting the number of boats allowed to anchor. Buck Island will implement a mooring system to reduce beach impacts, improve visitor conditions such as swimmer safety and reduced noise, and improve nearshore habitat, seagrass beds, and protect cryptic fishes and marine invertebrates living in rubble, pavement, and sand habitats within anchoring area. • Increase law enforcement presence to discourage disorderly behavior on boats and the beach. Increased visitor contact can also result in increased educational opportunities and outreach. • Install a wave crest gauge to model wave energy over the reef crest to collect information on wave energy and forces. • Install a remote web camera on the island to increase awareness and promote virtual visitation to the monument. • Expand educational programs and community outreach to inform visitors that the island is a refuge for native plants, animals, and marine life. Work with park concession operators and Friends of the St. Croix USVI National Parks on messaging. • Add minimal signage, numbered wayside stops at beach picnic areas and along hiking trail to provide information through software application (virtual tour). Use numbers on short 4x4 post to indicate stop for information.

Fundamental Resource or Value	Island Environment
Data and/or GIS Needs	• Beach profile study to model future beach condition and shoreline access. • Climate change vulnerability assessment including sea level rise, erosion, and storm impacts. • Collect baseline soundscape and night sky condition data. • Mooring field study. • Visitor use survey. • Vascular plant inventory.
Planning Needs	• Long-range interpretive plan. • Resource stewardship strategy. • Tropical dry forest and native plant restoration plan. • Vessel management and mooring buoy plan (PMIS # 141631). • Visitor use management plan. • Long-term nonnative invasive plant and animal control plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Clean Water Act of 1972 • Clean Air Act of 1977 (42 USC 7401 et seq.) • Endangered Species Act of 1973, as amended • Federal Noxious Weed Act, as amended • Lacey Act, as amended • Migratory Bird Treaty Act • National Environmental Policy Act of 1969, as amended • National Invasive Species Act • Executive Order 12088, "Federal Compliance with Pollution Control Standards" • Executive Order 13112, "Invasive Species" • Executive Order 13158, "Marine Protected Areas" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (§1.6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (§4.1) "General Management Concepts" • NPS *Management Policies 2006* (§4.4.1) "General Principles for Managing Biological Resources" • NPS *Management Policies 2006* (§4.6.1) "Protection of Surface Waters and Groundwaters" • NPS *Management Policies 2006* (§4.7) "Air Resource Management" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate" • NPS *Management Policies 2006* (§4.9) "Soundscape Management" • NPS *Management Policies 2006* (§4.10) "Lightscape Management" • Director's Order 47: *Soundscape Preservation and Noise Management* • NPS *Natural Resource Management Reference Manual 77* • Director's Policy Memorandum 12-02, "Applying National Park Service Management Policies in the Context of Climate Change"



Fundamental Resource or Value	Terrestrial and Marine Wildlife Including Fish
Related Significance Statements	• Designated as a national monument, Buck Island and its surrounding coral bank barrier reef formations are regarded as one of the first marine protected areas in the Caribbean Sea; this protected tropical coral reef and island ecosystem provides refuge for a diversity of marine and terrestrial species including Caribbean coral reefs, fishes, sea turtles, lizards, sea birds, marine mammals, and marine invertebrates and plants. • The first marine protected area in the national park system, Buck Island Reef National Monument safeguards a wide spectrum of marine habitats that range from a shallow 7,000-year-old bank barrier coral reef where unusual elkhorn coral (haystack) formations are found, to open ocean corridors that plummet to abyssal depths along a vertical shelf edge containing deep coral species and rare marine life. • Uninhabited, Buck Island is an important sanctuary for the biological diversity of many terrestrial plant and animal species that live, forage, breed, nest, or rest within the safety of the monument including four species of sea turtle, sea birds, and the only completely protected habitat that supports the globally endangered St. Croix ground lizard. • For 50 years Buck Island has been one of the most accessible and studied coral bank barrier reef systems in the Caribbean. Buck Island Reef National Monument continues to foster outstanding opportunities for scientific research and scholarship, inspiring scientists and students as well as the public to explore the monument's many natural and cultural resources.
Current Conditions and Trends	**Conditions** • In 1961, the 230-acre Buck Island "Marine Garden" was established as the first marine no-take area. With the expansion of the entire park in 2001, adding 19,015 acres of submerged lands, Buck Island Reef National Monument became the first fully protected marine area in the national park system. All extractive use is prohibited. • A cooperative multiagency reef fish monitoring protocol was developed in 2013 between the National Oceanic and Atmospheric Administration and the National Park Service. Fish and habitat surveys inside and outside the marine protected area are conducted every two years. • The St. Croix ground lizard was translocated to Buck Island in 2007 and original 57 adults successfully reproduced and have been steadily colonizing the island. • Management actions have been taken toward control of nonnative invasive plants and animals including mongoose control (1980s); tree rat control (1999-2001); European house mouse population remains steady / no current threat (1999-2016); 10 target nonnative invasive plants (2004/ongoing); and lionfish invasion assessment (2010-2013). • A lionfish management plan is in development; lionfish removals from priority areas are ongoing.

Fundamental Resource or Value	Terrestrial and Marine Wildlife Including Fish
Current Conditions and Trends	**Conditions (continued)** • The monument established an acoustic marine life tracking array in 2012 to test marine protected area effectiveness for multiple species including hawksbill and green sea turtles, sharks, pelagic and reef fish species, conch, and lionfish. • Ongoing management actions for native plants and animals, threatened, endangered, and rare species including brown pelican and least tern annual monitoring (1980s-2016); sea turtle research and monitoring program for four species—hawksbill, green, loggerhead, and leatherback—(1988-ongoing); translocation and population monitoring of the St. Croix ground lizard (2007-2016); beetle fauna survey (1993-1997); islandwide vegetation map (2009); and re-introduction of native plants to increase diversity. • Sea turtle research and monitoring program (nesting and foraging populations) for four threatened and endangered species of sea turtle including hawksbill, green, loggerhead, and leatherback is ongoing. Nesting populations are currently stable; foraging population of hawksbills may be declining, and greens are improving. Four sea turtle species are listed as threatened or endangered but are recovering (leatherback, hawksbill, green, and loggerhead). • Coral reef ecosystem baseline condition assessments have been established through multiple research surveys and reports conducted by the National Park Service and Fairleigh Dickinson University West Indies Laboratory beginning in 1970 through the 1990s; coral reef assessment and mapping (1999-2012); National Oceanic and Atmospheric Administration fish/coral assessments are bi-annual). The South Florida / Caribbean Inventory and Monitoring Network conducts ongoing long-term coral reef assessments at three sites at Buck Island. • South Florida / Caribbean Network Inventory and Monitoring Program vascular plant and vertebrate surveys conducted baseline inventories in 1990; vegetation plots are re-surveyed annually. • A natural resource condition assessment was initiated in 2017. • Through a programmatic agreement with the NOAA National Marine Fisheries Service, Buck Island Reef National Monument is required to provide an annual report on protected marine species (2016). • The park is developing a programmatic agreement with the U.S. Fish and Wildlife Service for terrestrial activities and St. Croix ground lizard. • Buck Island maintains U.S. Fish and Wildlife Service Endangered Species Act permit to conduct sea turtle research and monitoring annually. In-water sea turtle research is conducted under National Marine Fisheries Service permit with U.S. Geological Survey research partner, K. Hart (2012-ongoing). **Trends** • Hawksbill and green sea turtle populations have increased 500% since project start in 1987; however, there is evidence that hawksbill populations are leveling off or beginning to decline; green turtle populations are improving. • The marine protected area was established in 2003; however, fish surveys conducted since then have yet to indicate substantial species recovery. Yellowtail snapper have shown an increase in numbers and sizes compared to inside the Buck Island Reef National Monument marine protected area. • Anecdotal reports, but insufficient data, indicate increases in Nassau grouper and other large parrotfishes. However, the three largest parrotfishes, Midnight, Blue, and Rainbow, are all missing from the park surveys. • St. Croix ground lizard population surveys indicate the population has increased from 57 to 1,800 +/- 600 between 2012 and 2016. The population has colonized over 75% of the island as of 2016. • Preliminary data from the National Oceanic and Atmospheric Administration indicate conch populations within the monument are increasing. • There are indicators of increasing apex predators such as sharks and rays since establishment of the marine protected area. • Climate change stressors are increasing: storm strength and frequency, erosion, habitat loss, and coral reef degradation for native populations of plants, animals, and fishes.

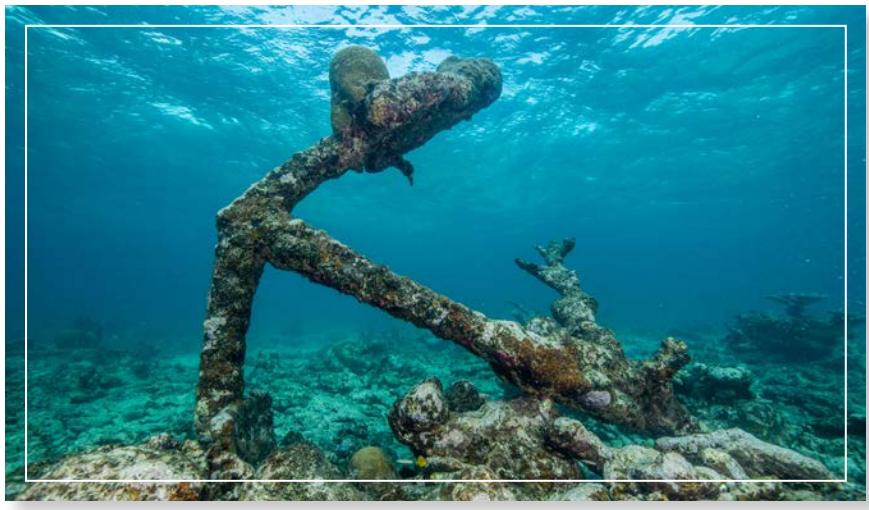
Fundamental Resource or Value	Terrestrial and Marine Wildlife Including Fish
Threats and Opportunities	**Threats** • Illegal fishing and poaching within the marine protected area continues to be an ongoing threat to population recovery within and without the marine protected area. No fishing gear is allowed in the monument. • Based on the lionfish assessment, there is a need to reevaluate and establish priority removal sites and conduct removal of this nonnative, invasive species of fish. • Boat strikes or other interaction between recreation users and threatened and endangered species, such as sea turtles, can occur. • Accidental reintroduction of rats back to Buck Island would have a devastating impact on native species. • Climate change may increase extreme storm and heat events, drought, sea level rise, habitat loss, invasive species, and a shift in native species habitats including ground cover. **Opportunities** • Expand the Buck Island / STX acoustic array project into a regional array by adding receivers and tags to improve understanding of species migration across ecosystems and identify hot spots for protection. Buck Island Acoustic Array will enable remote monitoring of various species interactions including apex predators and prey and potential conflicts with recreational use areas. This project could also monitor shark / sea turtle interactions and identify potential conflicts with recreational users. • Enhance educational opportunities and build community support by using local interns, university students, and citizen scientists to conduct coral reef monitoring. • Explore ways to improve sharing of data collected by the South Florida / Caribbean Network Inventory and Monitoring Program, universities, and other federal and territorial agencies. • Through the success of the translocated population of St. Croix ground lizards at Buck Island, provide opportunities for the Buck Island population to serve as a source for reintroduction of St. Croix ground lizards to protected areas with suitable habitat on St. Croix. • Develop a programmatic agreement with the U.S. Fish and Wildlife Service for terrestrial management actions to comply with protected species requirements, i.e., St. Croix ground lizard, sea turtles, threatened and endangered plants. • Improve enforcement strategies and fines related to illegal fishing or take within the monument. Develop a standard operating procedure for enforcement and resource staff regarding documentation of observed infractions to aid enforcement with prosecution. • Maintain control of nonnative invasive plants and animals; implement lionfish control at priority sites and explore potential partnerships for lionfish control in the monument. • Establish a standard operating procedure for use with any commercial work at Buck Island to ensure protection from accidental reintroduction of invasive plants or animals, especially tree rats. • Continue to monitor underwater listening station/hydrophone to record cetacean vocalizations and other underwater noises (manmade or natural). • Improve GIS mapping for enforcement infractions and accidents within the monument. • Inform/educate visitors regarding the marine protected area and the return of marine predatory species, apex predators, sharks, barracudas, and rays. Provide information on appropriate visitor interactions with marine life in the monument.
Data and/or GIS Needs	• Collect data on sea turtle / boating interactions. • Coral accretion study. • Deep wall mesophotic reef survey (greater than 98 feet). • Green sea turtle sea grass meadow foraging behavior / carrying capacity study. • Larval recruitment (corals and fishes) dispersal study. • Sea urchin survey/study. • Oceanographic baseline study. • Update and develop comprehensive GIS mapping of the entire monument.

Fundamental Resource or Value	Terrestrial and Marine Wildlife Including Fish
Planning Needs	• Communications plan. • Complete general management plan / environmental impact statement • Vessel management and mooring buoy plan (PMIS # 141631). • Lionfish control strategy / implementation plan. • Resource stewardship strategy. • Tropical dry forest and native plant restoration plan. • Long-term nonnative invasive plant and animal control plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Clean Water Act of 1972 • Endangered Species Act, as amended • Lacey Act, as amended • National Environmental Policy Act, as amended • National Invasive Species Act • Migratory Bird Act • Marina Mammal Protection Act • Executive Order 13089, "Coral Reef Protection" • Executive Order 13158, "Marine Protected Areas" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (§1.6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (§4.1) "General Management Concepts" • NPS *Management Policies 2006* (§4.4.1) "General Principles for Managing Biological Resources" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate" • NPS *Natural Resource Management Reference Manual 77* • Director's Policy Memorandum 12-02, "Applying National Park Service Management Policies in the Context of Climate Change"

Fundamental Resource or Value	Maritime Heritage Resources
Related Significance Statements	• The archeological record on Buck Island bears witness to more than 2,000 years of human history. The earliest inhabitants used the island as a fishing camp. During the historic colonial period the surrounding reefs proved treacherous to mariners, resulting in numerous shipwrecks. Of these submerged archeological resources, the most notable are the wrecks of two 18th-century transatlantic slave ships, the *Mary* and *General Abercrombie*. • For 50 years Buck Island has been one of the most accessible and studied coral bank barrier reef systems in the Caribbean. Buck Island Reef National Monument continues to foster outstanding opportunities for scientific research and scholarship, inspiring scientists and students as well as the public to explore the monument's many natural and cultural resources.
Current Conditions and Trends	**Conditions** • An archeological survey in accordance with section 110 of the National Historic Preservation Act has been conducted for 80% of the island's terrestrial area. • A section 110 survey of submerged archeological resources included100% magnetometer coverage from a depth of 60 feet and shallower. GPS locations for submerged cultural resource mapping were completed from magnetometer readings. Two-hundred-forty anomalies (metallic readings) have been verified. • Museum cultural resource collections are in good condition; however, storage space is limited and items should not be housed in a historic fortification. These collections are stored at Christiansted National Historic Site and the NPS Southeast Archeological Center. • There is high quality documentation (photos, videos, condition assessment, GPS locations) for all known/located submerged cultural resources gathered by the NPS Submerged Cultural Resource Center team in 2015 and 2016. There are historic ruins on Buck Island that are the remains of a signal station and the signal keeper's residence. The signal station was a part of the 18th- and 19th-century transportation and defense system used for signaling to the fort in Christiansted of approaching ships and warning those ships of coral reefs. A U.S. Coast Guard signal beacon was constructed in the 1950s in the vicinity of the former signal station. • Conch middens and fire pits are evidence of Amerindian temporary fishing camps at Buck Island over 1,800 years ago. **Trends** • Public interest and awareness about the history of Buck Island is increasing. • Interest in maritime archeology and submerged archeological resources is increasing. • The Transatlantic Slave Trade / Slave Wrecks Project has brought attention to the monument. This is a cooperative project with the National Park Service, the Smithsonian Institution, George Washington University, University of the Virgin Islands, and many other partners. Project funding is used for on-site training by the NPS Southeast Archeological Center and the NPS Submerged Resource Center to provide support for local groups, students, and to increase stewardship for submerged archeological resources in the Virgin Islands. • Interest in traditional maritime practices and vernacular craft including how to build and sail boats and other traditional maritime practices is increasing.

Fundamental Resource or Value	Maritime Heritage Resources
Threats and Opportunities	**Threats** • Resources to conduct cultural resource research and documentation and conduct community outreach and education are limited. • Severe storms (i.e., effects of climate change, sea level rise, and hurricanes) can result in loss of archeological sites. Eroding shorelines are resulting in the loss of important archeological sites, such as the north shore Amerindian site. • Looting and the unauthorized or illegal salvage of submerged and terrestrial archeological resources can result in the permanent loss of cultural resources. **Opportunities** • Promote dialogue between generations and engage youth by conducting facilitated community discussions and increased public outreach. Work with Friends of the St. Croix USVI National Parks. • Continue to partner with University of the Virgin Islands, the Smithsonian National Museum of African American History and Culture, and George Washington University for training opportunities for students in archeology. • Increase interpretation for some historic resources along the Buck Island hiking trail. Carefully plan access considering visitor safety, protection of cultural resources, and sensitive natural resources. • Use interpretive programming to provide opportunities for public understanding and appreciation of the maritime history of Buck Island Reef. • Establish standard operating procedure for guided tours to a few archeological sites (e.g., the Signal Station). This may require site stabilization and access trail maintenance. • Use GIS magnetometer data to identify and remove submerged trash from monument waters. • Collect oral histories on maritime heritage and practices from local communities. • Develop interpretive programs and exhibits about the maritime history, transatlantic slave trade, and shipwrecks, as well as associated events (auctions, sales, trades, etc.). • Establish a maritime exhibit in the Scale House at Christiansted National Historic Site. • Add maritime wayside at Christiansted National Historic Site for maritime history story that includes Buck Island. • Conduct a magnetometer survey of submerged resources deeper than 60 feet.
Data and/or GIS Needs	• Ethnographic study of historic uses at Buck Island • Cultural landscape inventory of the signal station. • Archeological investigation of signal station complex, Dietrich's homesite, and historic trail from beach to homesite. • Complete/verify underwater anomalies as submerged cultural resources (2016 survey). • Complete section 110 terrestrial surveys for archeological sites potentially eligible for National Register of Historic Places listing. • Survey of existing archival and graphic materials associated with the maritime heritage of St. Croix. • Underwater archeological study of brick wreck, historic chains and anchors.
Planning Needs	• Long-range interpretive plan. • Resource stewardship strategy. • Update the scope of collections statement. • Programmatic coral restoration and ship grounding response plan.

Fundamental Resource or Value	Maritime Heritage Resources
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Abandoned Shipwreck Act • Antiquities Act of 1906 • Archeological and Historic Preservation Act • Archaeological Resources Protection Act • Historic Sites Act of 1935 • National Historic Preservation Act, as amended • Museum Properties Management Act, as amended • Paleontological Resources Preservation Act of 2009 • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" • "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 5) "Cultural Resource Management" • *The Secretary of the Interior's Standards for the Treatment of Historic Properties* • *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* • Director's Order 14: *Resource Damage Assessment and Restoration* • Director's Order 24: *NPS Museum Collections Management* • Director's Order 28: *Cultural Resource Management* • Director's Order 28A: *Archeology* • Director's Order 80: *Real Property Asset Management* • NPS *Damage Assessment and Restoration Handbook* • NPS *Guidelines for the Treatment of Cultural Landscapes* • NPS *Integrated Pest Management Manual* • NPS *Museum Handbook*, parts I, II, and III • Director's Policy Memorandum 12-02, "Applying National Park Service Management Policies in the Context of Climate Change" • Director's Policy Memorandum 14-02, "Climate Change and Stewardship of Cultural Resources"



Fundamental Resource or Value	Scientific Research and Education
Related Significance Statements	• The first marine protected area in the national park system, Buck Island Reef National Monument safeguards a wide spectrum of marine habitats that range from a shallow 7,000-year-old bank barrier coral reef where unusual elkhorn coral (haystack) formations are found, to open ocean corridors that plummet to abyssal depths along a vertical shelf edge containing deep coral species and rare marine life. • The archeological record on Buck Island bears witness to more than 2,000 years of human history. The earliest inhabitants used the island as a fishing camp. During the historic colonial period the surrounding reefs proved treacherous to mariners, resulting in numerous shipwrecks. Of these submerged archeological resources, the most notable are the wrecks of two 18th-century transatlantic slave ships, the *Mary* and *General Abercrombie*. • For 50 years Buck Island has been one of the most accessible and studied coral bank barrier reef systems in the Caribbean. Buck Island Reef National Monument continues to foster outstanding opportunities for scientific research and scholarship, inspiring scientists and students as well as the public to explore the monument's many natural and cultural resources.

Current Conditions and Trends	**Conditions**
	• Buck Island Reef National Monument provides access to local natural and cultural resources that can be used in school curriculum as a learning laboratory.
	• There is a legacy of scientific research at the monument and on St. Croix from the 1960s until today.
	• Multiagency, multiuniversity, multipartner science and research projects are ongoing at Buck Island Reef National Monument. These include:
	  • NPS resource management-led projects on sea turtles, native and exotic plant and animal control/restoration, coral, and fisheries.
	  • NPS South Florida / Caribbean Inventory and Monitoring Program long-term studies include coral, fisheries, water quality, vegetation/mapping, and climate change.
	  • NOAA National Centers for Coastal Ocean Science Biogeography Program is mapping and assessing coral and fisheries populations and habitat.
	  • NOAA Southeast Fisheries Science Center work on conch.
	  • U.S. Geological Survey Wetland and Aquatic Research Center research on sea turtles.
	  • The Nature Conservancy and University of Massachusetts research on fisheries and sharks.
	  • Mote Marine Laboratory research on coral diseases and disease mitigation.
	  • The University of the Virgin Islands research on coral, fisheries, and lionfish.
	• There is a memorandum of agreement with the University of the Virgin Islands to increase science and education curriculum opportunities in the parks for both natural and cultural resources.
	• Buck Island Reef offers field research experiences to fourth-, fifth- and sixth-graders through the Ticket to Ride program where every student receives in-class room presentation, goes to the park with a ranger, and then is debriefed. The program has been a great success with more than 4,000 students going to Buck Island Reef from 2014-2016.
	• Buck Island Reef sponsors up to four research interns each summer to work on the sea turtle research program, targeting Historically Black Colleges & Universities Internship (HBCUI). Secondary schoolteachers and university professors are encouraged to experience "night-on-the-beach" with the turtle team.
	Trends
	• High-quality scientific research in the monument is increasing. Local community awareness is increasing through social media, monthly presentations, and Friends of the St. Croix USVI National Parks.

Fundamental Resource or Value	Scientific Research and Education
Current Conditions and Trends	**Trends (continued)** • The Department of Interior Office of Insular Affairs-sponsored/supported Marine Research Education Center (2004–ongoing) and Coastal Studies Outpost (constructed in 2016) at Salt River Bay National Historical Park and Ecological Preserve will increase opportunities for research and education at Buck Island Reef. This center will support University of the Virgin Islands students on St. Croix and build stewardship capacity in the local community and provide semester-long university programs in marine, terrestrial, and cultural studies. • There are increasing linkages of science, technology, engineering, art, and math (STEM-STEAM) programs on St. Croix to foster intergenerational interest in science research and education are increasing.
Threats and Opportunities	**Threats** • Ability to enforce, monitor, and inform/educate visitors at a large marine protected area. **Opportunities** • Develop a Buck Island Reef National Monument virtual tour application to inform visitors about ongoing scholarly research and programs at the park. • Increase outreach and educational programs to the community and visitors through concessioners and Friends of the St. Croix USVI National Parks. • Identify, document, and share both the marine protected area's successes and failures to encourage its continued support and effectiveness. • Use social media and programming through the National Park Service, Friends of the St. Croix USVI National Parks, and University of the Virgin Islands to engage and reach diverse audiences. • Increase education and training of staff to stay current in scientific fields relevant to Buck Island Reef. • Continue to support Teacher-Ranger-Teacher Program and use the Ticket to Ride Program to enable St. Croix youth to experience Buck Island Reef National Monument firsthand. • Increase opportunities for student interns and Youth Conservation Corps to support science and research in the monument. • Explore additional collaborative opportunities with the Territorial Department of Planning and Natural Resources Coastal Zone Management's St. Croix East End Marine Park. • Regularly share public service announcements on science being conducted at Buck Island; collaborate with Friends of the St. Croix USVI National Parks and University of the Virgin Islands to reach larger public audience. • Organize and create a digital archive of historic research and data collected in the monument to provide researchers with access to this information. • Create Buck Island website access and virtual tour application for visitors that includes results of studies and ongoing studies. • Develop connection to Virgin Islands public school STEM-STEAM programs using Buck island research projects. Bring the park into the classroom. • Develop research programs at Buck Island Reef that support overall goals and curriculum for the Salt River Bay Coastal Studies Outpost. • Develop curriculum for Salt River Bay Coastal Studies Outpost that includes coral reef connection to estuary and mangrove system nursery.
Data and/or GIS Needs	• Archival survey and documentation of past scientific research and data collected on Buck Island Reef. • Traditional cultural property study. • Oceanographic baseline study. • Update and develop comprehensive GIS mapping of the entire monument terrestrial and marine habitats. • Administrative history.

Fundamental Resource or Value	Scientific Research and Education
Planning Needs	• Communications plan. • Long-range interpretive plan. • Update the scope of collections statement.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (§1.6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (§4.1.4) "Partnerships" • NPS *Management Policies 2006* (§4.2.1) "NPS-conducted or -sponsored Inventory, Monitoring, and Research Studies" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate" • NPS *Management Policies 2006* (§5.1) "Research" • NPS *Management Policies 2006* (§7.1) "Interpretive and Educational Programs" • Director's Order 6: *Interpretation and Education* • Director's Order 32: *Cooperating Associations*

Fundamental Resource or Value	Experiencing a Caribbean Coral Reef
Related Significance Statements	• Designated as a national monument, Buck Island and its surrounding coral bank barrier reef formations are regarded as one of the first marine protected areas in the Caribbean Sea; this protected tropical coral reef and island ecosystem provides refuge for a diversity of marine and terrestrial species including Caribbean coral reefs, fishes, sea turtles, lizards, sea birds, marine mammals, and marine invertebrates and plants. • The first marine protected area in the national park system, Buck Island Reef National Monument safeguards a wide spectrum of marine habitats that range from a shallow 7,000-year-old bank barrier coral reef where unusual elkhorn coral (haystack) formations are found, to open ocean corridors that plummet to abyssal depths along a vertical shelf edge containing deep coral species and rare marine life. • Uninhabited, Buck Island is an important sanctuary for the biological diversity of many terrestrial plant and animal species that live, forage, breed, nest, or rest within the safety of the monument including four species of sea turtle, sea birds, and the only completely protected habitat that supports the globally endangered St. Croix ground lizard. • The archeological record on Buck Island bears witness to more than 2,000 years of human history. The earliest inhabitants used the island as a fishing camp. During the historic colonial period the surrounding reefs proved treacherous to mariners, resulting in numerous shipwrecks. Of these submerged archeological resources, the most notable are the wrecks of two 18th-century transatlantic slave ships, the *Mary* and *General Abercrombie*. • Buck Island Reef National Monument's coastline represents a gradient of geological processes from coral sand beaches to vertical sedimentary rock cliffs. The rock cliffs, composed from ancient volcanic materials, are layered with calcite, exposing the island's buried geological history of tectonic plate movement and uplift.
Current Conditions and Trends	**Conditions** • Access to the monument is by boat only. By definition, boats include motor or sailboats, hobicats, windsurfers, canoes, kayaks, and paddleboards. Jetskis are prohibited. • Buck Island interim regulations require a permit for anchoring in the monument and for any overnight stay at anchor area. • There is one nearshore anchorage at West Beach which is the designated anchorage (Interim Regulations 2003). It is the only anchorage at Buck Island. The draft general management plan / environmental impact statement (2016) recommends that this area become a mooring area and that anchoring in the park be discontinued to protect all park submerged natural and cultural resources. • Buck Island's underwater trail is the number one tourist destination for the island of St. Croix. Buck Island has been cited as having one of the most beautiful beaches in the world.

Fundamental Resource or Value	Experiencing a Caribbean Coral Reef
Current Conditions and Trends	**Conditions (continued)** • Access to the underwater snorkel trail is only by boat through the entrance in the south forereef. There are eight boat moorings available for private and concession boat use. Anchoring is not allowed. Average depth in the lagoon is 8 feet. Vessels over 42 feet in length overall are not allowed and should take tender or dinghy to underwater trail mooring or SCUBA area. • There are two boat moorings for SCUBA diving in north lagoon for private and concession boat use. • Anchoring is not allowed. • Pack it in, pack it out for trash has been required since 1999. • One hiking trail on Buck Island provides sweeping views of the open ocean. It starts at picnic areas and returns to picnic areas. Trailside vegetation can be hazardous (thorny, toxic); visitors are urged to stay on the trail. The trail needs to be cut back quarterly depending on rainfall and growth. • Two picnic areas (West Beach and Diedrichs Point) provide picnic tables, grills, and restrooms/vault toilets. Diedrichs Point also has a picnic shelter. • An observation platform on the north side of the island has a scenic overlook of the reef from an elevation of 230 feet. • There are two informational kiosks on the island, one at each picnic area. Information on them needs to be updated. • A U.S. Coast Guard navigational light station on the top of the island at 300 feet elevation has a white flashing light with a period of 4 seconds and a range of 5 miles that provides an aid to mariners to avoid the reef. Administrative access only; U.S. Coast Guard owns/controls light structure. • There is one recreational beach area, West Beach. It is a light pink coral sand beach and provides an excellent beach experience with shallow clear waters and easy bathing and swimming. Designated anchoring area directly offshore from West Beach. • A hiking trail provides an excellent opportunity for native plant and wildlife viewing including seeing resident and migratory birds, pelicans, frigate birds, American kestrel, lizards, orchids, the island's only salt pond, and views of the surrounding coral reef and St. Croix. • Daily trips to the monument (both half-day and full day) are provided by six NPS-authorized commercial operators or concessions. Together, the six companies have 12 boats—sail and motor—to carry passengers to the monument. • Underwater snorkel trail waysides require maintenance and replacement; they are in poor condition at more than 20 years old. The NPS PMIS project statement is formulated for FY18 funding to support the removal and replacement of 29 of these signs (#219013). • Natural conditions, including an increase in rare native flora and fauna, have improved throughout the island through control of nonnative invasive plants and animals. **Trends** • Overall visitation to Buck Island Reef National Monument is increasing, including private boats, especially on weekends. Over 50,000 commercial/concession-supported visitors go to Buck Island every year. • An increasing number of smaller private vessels anchor at the beach and moor at the one of the eight underwater snorkel trail moorings. • In 2011, the monument produced "Buck Island Reef National Monument—Caribbean Gem," a 10-minute documentary to celebrate the monument's 50th anniversary. This video is available on the monument's website, through YouTube, and aboard cruise ships visiting the Virgin Islands and has increased visitor understanding of natural and cultural resources and programs in the monument. • There has been an increase in school groups to the island through educational programming such as the fifth grade program Ticket to Ride. • Shoreline trash has been reduced through visitors removing their own trash (pack it in, pack it out policy). The International Convention for the Prevention of Pollution from Ships (MARPOL) has reduced waste washing ashore from cruise ships.

Fundamental Resource or Value	Experiencing a Caribbean Coral Reef
Threats and Opportunities	**Threats** • There is the potential for conflicts between visitors and wildlife at the most popular beach, West Beach, particularly with nesting sea turtles, least tern seasonal nesting, and potential conflict with St. Croix ground lizard population expansion. • Loss of beach area from erosion and increasing visitor use could result in an overcrowded beach, damage to shoreline vegetation, and impact to STX ground lizard foraging and burrow habitat. • Because of accelerating shoreline erosion at picnic areas, people are moving picnic tables from designated picnic areas out onto the beach. This is adversely impacting the visitor experience on Buck Island. The monument is known as having one of the most beautiful beaches in the Caribbean because it is unsullied by clutter, trash, or tables. • Visitors being shuttled to the island by private boats and dropped off without immediate boat access is a safety issue. There is no support for emergencies and can lead to overcrowding on the beach (more people than boats). • Facilities, including grills, tables, and toilets, rapidly degrade due to the highly saline environment, high ultraviolet exposure in tropical sun, abuse, and loss to the eroding shoreline. • Anchoring outside the designated anchoring area or in hard bottom pavement or sea grass beds can significantly damage these resources and is prohibited. Due to loss of sand reserve in the monument, the "deep sand bottom" area designated at West Beach for anchoring is becoming depleted and has less than optimal depth of sand for anchoring, causing anchoring issues. • Boats at anchor, some with music playing, using air conditioners, generators, and loud groups of visitors, causes noise issues at the anchoring area. Music is supposed to "stay" aboard the vessel generating it; however, because sound carries easily across water this is unrealistic and multiple types of music conflict. The monument needs to determine appropriate noise levels for boats at West Beach. • Bow and stern anchoring at West Beach by smaller boats is a threat and endangers swimmers along the shoreline. Boats powering into the beach stern first to anchor and engine propellers operating in shallows where swimmers are recreating is dangerous. During crowded weekends more than 20 anchor lines can extend ashore from boats, causing tripping hazards for walkers. **Opportunities** • Improve signage and waysides for better wayfinding on the island, navigation, and interpretation/education. • Expand and promote awareness of the anchoring permit requirements. Educate the public about proper anchoring requirements and the need for a permit. • Increase access to the monument through virtual access. Show the 50th anniversary video at Christiansted National Historic Site, and create a maritime exhibit at Christiansted's Scale House to help promote and education visitors about the monument. • Complete the Buck Island Reef cell phone app (currently in beta version). Conduct in-house review and edit; promote completed app with partners; work with Friends of the St. Croix USVI National Parks to release. • Install hiking trail wayside markers at key viewpoints along the trail. • Develop NPS information posters to be installed at Henry E. Rohlson airport for Christiansted National Historic Site, Salt River Bay National Historical Park and Ecological Preserve, and the monument. Information could be for all conservation areas on St. Croix (National Park Service, Government of the Virgin Islands, St. Croix East End Marine Park, U.S. Fish and Wildlife Service, The Nature Conservancy). • Provide educational programming and outreach about available, authorized commercial services, access to monument day trips, special rates for local residents of St. Croix, and educational trips for the general public. Work with Friends of the St. Croix USVI National Parks. • Identify a recreational swim area at West Beach where boats would be excluded. Improve visitor safety for bathers and swimmers (proposed in *Buck Island Reef National Monument General Management Plan / Environmental Impact Statement Final Draft* 2016).

Fundamental Resource or Value	Experiencing a Caribbean Coral Reef
Data and/or GIS Needs	• Beach profile study to model future beach condition and shoreline access. • Update and develop comprehensive GIS mapping of the entire monument. • Visitor use survey. • Collect baseline soundscape and night sky condition data. • Visual resource inventory.
Planning Needs	• Communications plan. • Complete general management plan / environmental impact statement. • Vessel management and mooring buoy plan (PMIS # 141631). • Visitor use management plan. • Visual resource management plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Americans with Disabilities Act • Coral Reef Protection Act of 1998 • Architectural Barriers Act • Clean Water Act of 1972 • National Park Service Concessions Management Improvement Act • Rehabilitation Act • "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines" (36 CFR 1191) • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 7) "Interpretation and Education" • NPS *Management Policies 2006* (chapter 8) "Use of the Parks" • NPS *Management Policies 2006* (chapter 9) "Park Facilities" • NPS *Management Policies 2006* (chapter 10) "Commercial Visitor Services" • NPS *Transportation Planning Guidebook* • Director's Order 6: *Interpretation and Education* • Director's Order 42: *Accessibility for Visitors with Disabilities in National Park Service Programs and Services*

Analysis of Other Important Resources and Values

Other Important Resource or Value	Natural Sounds and Visual Resources
Current Conditions and Trends	**Conditions** • Sunsets/sunrises, night skies, soundscapes, and scenic views are beautiful at Buck Island. They are enhanced seasonally by a variety of conditions including summer bioluminescence, meteor showers, surf and waves, bird song, and wildlife on the island. • The monument is closed to the public from sunset to sunrise, year-round. Overnight anchoring at West Beach is allowed by permit. Overnight visitors are asked to keep lighting to a minimum during their stays to avoid disturbing wildlife and to protect night skies. • Masthead or anchor lights from vessels moored overnight at West Beach are not unusual, but should be kept to the confines of the boat. They are acceptable and considered part of the night landscape. • Scenic views are sometimes obscured by pollution-caused haze (Sahara dust, volcanic ash or vog, aggravated by high humidity during doldrums). Average natural visual range is reduced from about 125 miles (without the effects of pollution) to about 65 miles because of pollution at the monument. The visual range is reduced to below 40 miles on high pollution days. **Trends** • Light pollution from St. Croix is increasing and having impacts on night horizon and night sky. • Recreational noise from Cramer Park on the east end of St. Croix, approximately 1.5 miles away, impacts the soundscape in the monument. Party music with amplified bass carries over the water and can be heard at sea turtle nesting beaches in the monument. • The monument is experiencing an increase in in overnight anchoring at West Beach (the only area where anchoring is allowed under interim regulations). • Visibility/pollution-caused salt sea air haze is unchanged over the past decade.
Threats and Opportunities	**Threats** • Illegal after-hours entry into the monument for full moon parties occurs and is a life-safety concern. • Increasing numbers of anchoring boats can result in more noise, light, and viewshed impacts. • Crowded beaches, music from boats at anchor, and human activity impacts natural soundscape. • Large vessels (greater than 50 feet) with larger engines and generators (for HVAC, lights, and appliances) generate more noise as well as impact the sense of place and the viewshed at the anchoring area. • Low flying aircraft cause noise, affect wildlife, and impact the viewshed. • Air pollution-caused haze from anthropogenic sources diminishes visibility and visitor enjoyment of visual resources. Regional sources of air pollution include power plants, oil refinery, vehicle exhaust, agriculture, fire/open burning, and naturally occurring fine sea salt. In addition, long-range transport of dust from Africa and other areas periodically reduces visibility. At night, air pollution scatters artificial lights, increasing the effect of light pollution to the night sky. **Opportunities** • Educate visiting public about the importance of maintaining natural soundscape and views. • Work with the St. Croix Department of Sports, Parks and Recreation to reduce Cramer Park recreational activity impacts. • Provide additional education and outreach to the community on the importance of Buck Island as a refuge for natural communities and its importance to St. Croix heritage. Use Friends of the St. Croix USVI National Parks.

Other Important Resource or Value	Natural Sounds and Visual Resources
Threats and Opportunities	**Opportunities (continued)** • Partner with St. Croix northeast shore landowners, planners, and developers to increase awareness about the importance of park scenic views, natural sound, night sky, and air quality protection. • Improve park sustainability and environmental leadership through NPS Climate Friendly Parks certification and action plan.
Data and/or GIS Needs	• Collect baseline soundscape data. • Night sky condition assessment. • Visitor use survey. • Climate change vulnerability assessment. • Visual resource inventory. • Assess impact of boating at anchoring area to sea turtle nesting (noise, generators, lights, etc.). • Natural resource condition assessment (ongoing).
Planning Needs	• Communications plan. • Complete general management plan / environmental impact statement. • Resource stewardship strategy. • Vessel management and mooring buoy plan (PMIS # 141631). • Visitor use management plan. • Visual resource management plan.
Laws, Executive Orders, and Regulations That Apply to the OIRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the OIRV** • Clean Air Act of 1977 (42 USC 7401 et seq.) • Clean Water Act of 1972 • National Environmental Policy Act, as amended • NPS Concessions Management Improvement Act • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • Executive Order 12088, "Federal Compliance with Pollution Control Standards" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (§1.4) "Park Management" • NPS *Management Policies 2006* (§1.4.6) "What Constitutes Park Resources and Values" (identifying scenery as a resource subject to nonimpairment) • NPS *Management Policies 2006* (§1.6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (§4.1) "General Management Concepts" • NPS *Management Policies 2006* (§4.1.4) "Partnerships" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate" • NPS *Management Policies 2006* (§4.7) "Air Resource Management" • NPS *Management Policies 2006* (§4.9) "Soundscape Management" • NPS *Management Policies 2006* (§4.10) "Lightscape Management" • Director's Order 47: *Soundscape Preservation and Noise Management* • Director's Policy Memorandum 12-02, "Applying National Park Service Management Policies in the Context of Climate Change"

Other Important Resource or Value	Natural History Collections
Current Conditions and Trends	**Conditions** • The monument's natural history collection of reef fishes is held under a 25 year repository agreement with the University of Florida's Museum of Natural History. • There is currently no cost to the National Park Service to maintain the reef fish (cryptic fish) specimen collection. • Specimens are used for research and are accessible through a research permit request. • The collection has been used to document new species. • The St. Croix parks (Buck Island Reef National Monument, Christiansted National Historic Site, and Salt River Bay National Historical Park and Ecological Preserve) museum collection includes natural history specimens—sea turtle materials, genetic samples, bone, coral, scute, fishes, conch, manatee bone, and human remains (archeological specimens/ prehistoric Amerindian). **Trends** • The use of the collection for research is increasing. • An annual inventory is conducted, resulting in a use report and verifying rare specimen presence and condition.
Threats and Opportunities	**Threats** • Natural history collections stored in Christiansted National Historic Site museum collection storage at Fort Christiansvaern are vulnerable to storm damage, floods, and hurricanes. This threat is likely to be exacerbated by climate change. • The potential for theft exists with any museum collection. • Loss or damage to specimens can occur during the use of collection items without a permit for research. A security system and fire suppression system is required for Christiansted National Historic Site museum collection storage. **Opportunities** • Encourage continued study of reef fish diversity through the use of the reef fish specimen collection. • Create educational certification programs, professional development opportunities, and internships on archival and museum collections management to aid in the stewardship of these resources. • Use the natural history collection to develop new exhibits in the monument to increase public knowledge and expose people to Buck Island who may not be able to travel to the island or reef. • Find a museum collection storage facility at a safer location on St. Croix for natural history and cultural resources collections. As recommended by the Museum Emergency Operations Plan (2015), move collections out of threat of sea level rise, storm surge flooding, and poor environmental conditions in historic Fort Christiansvaern. • In 10 years, review and update the reef fish specimen collection loan agreement with University of Florida, Florida Museum of Natural History. • Explore options for providing online access to natural history collections records.
Data and/or GIS Needs	• Climate change vulnerability assessment. • 100% inventory of natural history specimen collection.
Planning Needs	• Update the scope of collections statement. • Museum facility plan / design. • Update museum emergency operations plan. • Update value analysis report for a museum storage facility. • Update museum fire and security plan.

Other Important Resource or Value	Natural History Collections
Laws, Executive Orders, and Regulations That Apply to the OIRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the OIRV** • Museum Properties Management Act, as amended • "Preservation, Arrangement, Duplication, Exhibition of Records" (44 USC 2109) • "Research Specimens" (36 CFR 2.5) • "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79) • "Preservation of American Antiquities" (43 CFR 3) • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • Director's Order 24: *NPS Museum Collections Management* • Director's Order 28: *Cultural Resource Management* • NPS *Museum Handbook*, parts I, II, and III • Director's Policy Memorandum 12-02, "Applying National Park Service Management Policies in the Context of Climate Change" • Director's Policy Memorandum 14-02, "Climate Change and Stewardship of Cultural Resources"

Identification of Key Issues and Associated Planning and Data Needs

This section considers key issues to be addressed in planning and management and therefore takes a broader view over the primary focus of part 1. A key issue focuses on a question that is important for a park. Key issues often raise questions regarding park purpose and significance and fundamental and other important resources and values. For example, a key issue may pertain to the potential for a fundamental or other important resource or value in a park to be detrimentally affected by discretionary management decisions. A key issue may also address crucial questions that are not directly related to purpose and significance, but which still affect them indirectly. Usually, a key issue is one that a future planning effort or data collection needs to address and requires a decision by NPS managers.

The following are key issues for Buck Island Reef National Monument and the associated planning and data needs to address them:

- **Relevancy and Community Engagement.** The challenges of being relevant to the community of St. Croix and engaging local stakeholders in a meaningful and proactive way are a monumentwide issue facing Buck Island Reef National Monument. Raising awareness about the designated purpose of the national monument, educating the community about the role of the "no-take" marine protected area as a resource management tool, and promoting the stewardship of natural resources on St. Croix are all key objectives in engaging the community in a meaningful and relevant dialogue. Through education and outreach programs the monument strives to connect and engage with the St. Croix community and beyond. Reaching out to local community groups such as The Nature Conservancy, the St. Croix Environmental Association, Friends of the St. Croix USVI National Parks, the Virgin Islands Fishery Management Council, the Sport Fishers "Golden Hook" Association and working with territorial government partners such as the Department of Planning and Natural Resources (DPNR), Coastal Zone Management (CZM), and St. Croix East End Marine Park are important strategies to increase awareness and relevancy. A communications plan was identified as an important planning tool that would provide outreach to the recreational and commercial fishing community to promote better understanding of the marine protected area and its associated rules and regulations. A visitor use survey and visitor use management plan was also identified as a tool to provide insights into how visitors and the local community access, use, and appreciate the monument.

- **Climate Change.** Buck Island Reef National Monument is a marine park protecting a diverse range of coral reef communities and terrestrial habitats and, as such, is particularly vulnerable to the potential impacts and effects of climate change. Studies conducted as part of the NPS South Florida / Caribbean Inventorying and Monitoring Program show that climate change has had major adverse effects on coral reefs. For example, coral cover declined by 61% at the study reefs in Buck Island Reef National Monument and Virgin Islands National Park as a result of disease and coral bleaching brought about by extremely elevated water temperatures in 2005. These effects are attributed primarily to increased water temperatures that result in the bleaching of reef-forming corals, followed by disease. Average annual temperature for the region is projected to increase 2.3 degrees Fahrenheit (°F) to 3.7°F by 2100, and average annual precipitation is projected to decrease 18% to 30%. These changes in climate could influence the existing terrestrial ecology. Sea level rise could significantly impact multiple monument resources that are below, at, or near sea level, especially coral. Climate change projections suggest that warming will cause tropical storms to be fewer in number globally, but stronger in force, with more Category 4 and Category 5 storms. Severe storm events such as hurricanes and tropical storms are becoming more common in the Caribbean and pose a serious threat to all monument resources. Given these threats, the park plans to integrate climate change adaptation into all existing planning processes, including the contingency response plan and the museum emergency operations plan. A climate change vulnerability assessment would provide insights into better understanding and planning for potential impacts to monument resources.

- **Management of Multiple National Park Units and Staff Retention on St. Croix.** Currently, St. Croix is home to three separate national park system units: Buck Island Reef National Monument, Christiansted National Historic Site, and Salt River Bay National Historical Park and Ecological Preserve. All three park units share dedicated park staff who are responsible for management, enforcement, maintenance of facilities, and stewardship of these parks and their diverse resources. This is particularly challenging for law enforcement and resource protection in the marine protected area at Buck Island Reef National Monument, where poaching and illegal harvesting continue to be issues and threaten monument resources. Also, long-term staff retention on St. Croix is challenging due to the high cost of living, and the monument continues to experience a high turnover rate in some key positions. This creates a barrier in building local community connections and support as monument staff turnover significantly disrupts these relationship-building efforts. An Office of Personnel Management special study to evaluate strategies for long-term staff retention could address some of these issues and address the locality pay versus cost of living allowance disparity. An administrative history was also identified to document and record the institutional knowledge of long-term staff who have served these parks for 10 – 50 years.

- **Visitor Safety and Accessing Buck Island.** Due to its scenic beauty and proximity to St. Croix, the clear waters and coral sand beaches at Buck Island continue to be a popular recreational destination for many visitors to St. Croix. Because the monument is only accessible by boat, most visitors access the monument through authorized commercial services that provide daily tours to Buck Island Reef National Monument. Visitors can also access the monument by private boats. In order to protect coral reefs and other marine resources, anchoring is allowed by permit only and is restricted to deep sand bottom areas at an authorized anchorage at West Beach. Due to the island's popularity, competition for anchoring and beach space is increasing. As a result, capacities for safe anchoring are being exceeded in areas where anchoring is currently allowed, especially on weekends, causing congestion and increased safety risks for visitors. The natural processes of beach erosion are significantly reducing accessible beach areas and result in increased visitor use in a smaller total beach area. As crowding and congestion increase, potential visitor use conflicts and visitor safety issues are an increasing concern for monument managers. Addressing these issues is a key objective of the monument's general management plan and completing this planning effort is a high priority for the monument. A mooring field study as well as a vessel management and buoy plan (PMIS # 141361) would build on recommendations from the general management plan and would be a critical next step in addressing issues related to visitor safety and access on Buck Island. A programmatic coral restoration and ship grounding response plan was also identified as a planning need to help address natural and cultural resource protection, visitor safety, and access in the waters managed by the monument. In addition, a programmatic agreement with the U.S. Fish and Wildlife Service is needed to address terrestrial threatened and endangered species and all management actions on the island.

Planning and Data Needs

To maintain connection to the core elements of the foundation and the importance of these core foundation elements, the planning and data needs listed here are directly related to protecting fundamental resources and values, park significance, and park purpose, as well as addressing key issues. To successfully undertake a planning effort, information from sources such as inventories, studies, research activities, and analyses may be required to provide adequate knowledge of park resources and visitor information. Such information sources have been identified as data needs. Geospatial mapping tasks and products are included in data needs.

Items considered of the utmost importance were identified as high priority, and other items identified, but not rising to the level of high priority, were listed as either medium- or low-priority needs. These priorities inform park management efforts to secure funding and support for planning projects.

Planning Needs – Where A Decision-Making Process Is Needed			
Related to an FRV, OIRV, or Key Issue?	**Planning Needs**	**Priority (H, M, L)**	**Notes**
Key Issue	General management plan / environmental impact statement (ongoing)	H	Completion of the general management plan and environmental impact statement is the highest priority for the park and will set the future management direction for Buck Island Reef National Monument. This ongoing planning effort is scheduled for completion in FY18 and will inform future planning projects at the park.
FRV, OIRV, Key Issue	Communications plan	H	A communications plan would focus primarily on community outreach regarding the importance of the marine protected area. This plan would target the local community and fishermen with the goal of educating the public on the role of the marine protected area as well as the enforcement of rules and regulations. It would also be a valuable tool in sharing and achieving objectives outlined in the monument's general management plan.
OIRV	Value analysis report for museum storage facility (update)	H	Originally conducted in 2006, this report needs to be updated to better reflect ongoing work at the park and explore new partnership opportunities to address museum storage needs at all three St. Croix NPS units.
FRV	Long-range interpretive plan	H	A long-range interpretive plan is needed to guide educational and interpretive programming at the monument. This plan would not only affirm the monument's interpretive themes, but would also provide guidance on appropriate interpretive media such as wayside signage and would also take into account the underwater trail and other existing interpretive tools at the monument. Outlining the interpretive message, this plan would be a valuable tool in working with concessioners who operate in the monument as well as in local community outreach to schools on St. Croix and social media outlets. This plan would identify maritime exhibits including Buck Island's role to be located at Christiansted National Historic Site's Scale House.
FRV, OIRV, Key Issue	Vessel management and mooring buoy plan (PMIS # 141631)	H	A vessel management and mooring buoy plan (PMIS # 141631) would build on recommendations from the monument's general management plan. With the popularity of Buck Island as a destination, there are increasing concerns about visitor safety and resource protection due to the number of boats anchoring on the beach. This plan would address these life safety issues and potential visitor conflicts related to anchoring and vessel traffic in and around Buck Island, and transit of large private vessels to very large commercial vessels (75 – 1,000 feet) such as cruise ships passing through the park waters, which threaten coastal and marine resources.

Planning Needs – Where A Decision-Making Process Is Needed			
Related to an FRV, OIRV, or Key Issue?	**Planning Needs**	**Priority (H, M, L)**	**Notes**
FRV, OIRV, Key Issue	Visitor use management plan	H	A visitor use management plan would provide insights into how the monument is currently accessed and used by visitors, both privately and concession transported. It would also explore strategies for engaging and informing visitors about Buck Island Reef on mainland St. Croix at the other two national park system units (Christiansted National Historic Site and Salt River Bay National Historical Park and Ecological Preserve). This plan could also inform the vessel and mooring field management plan as well as provide guidance on managing concessioners operating in the monument.
FRV	Lionfish control strategy / implementation plan	M	Lionfish are an invasive species throughout the Caribbean, and their impacts on the marine communities at Buck Island Reef need to be controlled. Finding solutions to this growing threat, while developing management strategies that respect the rules and regulations of the marine protected area, are key factors that need to be addressed through this planning effort.
OIRV	Museum fire and security plan (update)	M	Developed in 2005, the museum fire and security plan needs to be updated to better reflect current museum collections storage and collections management needs. This update would reevaluate and make recommendations regarding fire suppression and security systems that protect the park's museum collections.
FRV	Tropical dry forest and native plant restoration plan	M	A native plant restoration plan would identify management objectives for nonnative invasive plant species and outline strategies for the restoration of native plant communities on Buck Island. Such a plan would require a comprehensive approach to the ecology of the entire island.
FRV, OIRV	Scope of collections statement (update)	M	A scope of collections statement is needed to provide guidance for the future growth and development of the monument's museum collections. This plan would manage future acquisitions by identifying the types of objects that would be appropriate for current museum collections.
FRV, Key Issue	Contingency response plan (update)	M	The contingency response plan outlines the monument's management and response strategies to emergency / natural disaster scenarios such as oil spills, hurricanes, or severe storm events. Periodically updating this plan ensures that the identified response plan can be implemented given available resources and is understood by monument staff and ensures critical coordination with other natural resource response agencies.
FRV	Long-term nonnative invasive plant and animal control plan	M	A long-term nonnative invasive plant and animal control plan would focus on outlining strategies for monitoring as well as managing mongoose, rat, mice, and exotic plant populations on Buck Island and preventing reintroduction of species under control.

Planning Needs – Where A Decision-Making Process Is Needed			
Related to an FRV, OIRV, or Key Issue?	**Planning Needs**	**Priority (H, M, L)**	**Notes**
FRV, Key Issue	Programmatic coral restoration and ship grounding response plan	M	A programmatic coral restoration plan would provide guidance on the monument's response to potential boat groundings and their potential impacts on reef communities. This plan would outline coordination efforts between the National Park Service and other federal and territorial agencies to such incidents as well as agency roles in the recovery of impacted reefs.
FRV, OIRV, Key Issue	Museum emergency operations plan (update)	L	A museum emergency operations plan would provide guidance for the stewardship and safety of museum collections during emergencies such as severe storm events, hurricanes, or flooding. This plan would outline strategies for addressing threats caused by these natural disasters. The plan should be revised regularly.
FRV	Resource stewardship strategy	L	This strategy would identify the current status and related conditions of both natural and cultural resources at the monument. Based on these conditions, stewardship strategies would be developed to provide guidance for these priority resources. The development of the resource stewardship strategy would also influence other resource-specific planning and data collection objectives at Buck Island Reef.
FRV	Visual resource management plan	L	A visual resource management plan would collect information and document key viewsheds and visual resources at the monument. This analysis would then be used to develop goals, objectives, and long-term strategies for protecting important visual resources.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, OIRV, or Key Issue?	**Data and GIS Needs**	**Priority (H, M, L)**	**Notes**
Key Issue	Administrative history	H	An administrative history would document the institutional knowledge of the staff and would preserve an understanding of past management decisions and the implications of those decisions on current management. This would include an oral history, with interviews of NPS employees and other key individuals with knowledge of the monument's management and resources. Archive park research records.
FRV	Beach profile study to model future beach condition and shoreline access	H	Given the dynamic nature of the coral sand beaches on Buck Island, they will continue to experience significant erosion and change substantially in the near future. Because these beaches are the primary destination for nesting sea turtles and migratory birds, a focal point for visitors, and provide access to Buck Island, modeling their future conditions is essential to understanding this resource and managing visitor assess to the island.
FRV	Comprehensive water quality monitoring	H	Water quality can impact resource conditions throughout the entire monument; thus, ongoing monitoring is needed to identify trends or document any changes in overall water quality. By monitoring water quality before and after severe storms, intense weather events, or coral bleaching / disease events, the impacts these events may have on water quality and overall ecosystem health can be studied and better understood.
FRV	Larval recruitment (coral and fishes) dispersal study	H	A larval recruitment and dispersal study would generate data to provide insight into the effectiveness of the marine protected area, the role of the monument as fisheries nursery, and the larger impacts of the marine protected area on regional fish populations in the Caribbean.
FRV	Ethnographic study of historic uses at Buck Island	H	A traditional cultural place study would document and allow the monument to better understand traditional subsistence and fishing patterns related to Buck Island Reef. This history could provide new insights into the historic connections of different people to Buck Island Reef, as well as information on historic fish populations on the reef.
FRV	Oceanographic baseline study	H	An underwater glider study would collect valuable oceanographic baseline data, including monument expanded waters, such as seasonal and annual currents, sea surface temperature, light, conductivity, and bottom depths in order to understand current conditions and habitat types within the monument.
FRV	Update and develop comprehensive GIS mapping of the entire monument	H	Comprehensive GPS/GIS mapping with ground truthing the entire monument is needed and should include mapping of coral disease distribution (White Band Disease, Black Band Disease, Yellow Band Disease, plaques). Updating existing GIS data such as base ortho-photo maps, benthic habitat maps, seagrass bed maps, and deep sand area maps is also needed. This mapping data would also be used to inform anchoring and mooring field strategies in the future.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, OIRV, or Key Issue?	**Data and GIS Needs**	**Priority (H, M, L)**	**Notes**
FRV, OIRV, Key Issue	Visitor use survey	H	Baseline visitor information and recording the number of visitors to Buck Island Reef is needed to understand how the island is used by the public and who is accessing it (private, concession, or commercial). This information would inform the development of a visitor use management plan as well as a vessel and mooring field management plan.
FRV	Conduct carbon storage study as part of sea turtle / sea grass research project	H	Understanding the importance of seagrass beds in the storage and sequestration of carbon is crucial to making informed management decisions about the stewardship of this important resource and its larger role in the marine ecosystems of the monument.
FRV	Collect data on sea turtle / boating interactions	H	The collection of data on overlap between sea turtles and boaters would enable the monument to monitor any potential conflicts or areas of concern related to recreational use management and resource protection.
FRV	Green sea turtle sea grass meadow foraging behavior and carrying capacity study	H	A green sea turtle foraging study would provide valuable data on the behavior of green sea turtles in the monument and how they interact with other monument resources. It would inform future management decisions related to needed foraging habitat for green sea turtles.
Key Issue	Office of Personnel Management special study	H	There is a need for the Office of Personnel Management to review the cost-of-living allowances (COLAs) and locality pay for St. Croix as the higher-than-average prices of houses and non-housing goods and services encountered in the island have a negative impact in the retention of staff.
FRV	Elkhorn coral population survey	H	A survey of current Acroporid species (elkhorn and staghorn) corals within the monument is needed in order to better inform resource managers on trends with species populations over time.
FRV, Key Issue	Mooring field study	H	A mooring field study would provide important baseline data on the potential development of a long-term mooring field within the monument. It would inform the overall development of a vessel and mooring field management plan, which was identified as a high-priority planning need.
FRV	Coral accretion study	H	A coral accretion study would document coral recruitment, coral cover / coral accretion on north and south sides of the coral barrier reef. (This project is funded in 2018.)
FRV	Deep wall mesophotic reef survey (greater than 98 feet)	H	The mesophotic reef area to the north of Buck Island has potentially the highest percentage of live coral cover in the monument. Baseline survey is needed to document the mesophotic reef resources along with oceanographic data collection regarding the site. A deep wall mesophotic reef survey is needed to better understand and document deep wall reef resources in the monument. It would require advanced technical diving expertise and special equipment to survey resources deeper than 130 feet.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, OIRV, or Key Issue?	**Data and GIS Needs**	**Priority (H, M, L)**	**Notes**
FRV	Vascular plant inventory	M	This would include mapping and documenting both invasive and native plant species to assess the effectiveness of treatment strategies on Buck Island.
FRV, OIRV, Key Issue	Climate change vulnerability assessment	M	Due to the monument's location in the Eastern Caribbean, resources face many challenges from climate change. This climate change vulnerability assessment should address topics such as potential impacts to coral reefs and beaches in the monument, modeling potential impacts to resources from increased droughts, sea surface temperature, ocean acidification and study of the environmental factors between Africa and the Lesser Antilles.
FRV	Cultural landscape inventory of the Danish signal station and the homestead	M	This inventory would provide a physical history, site maps, analysis, evaluation of integrity, and a condition assessment for the colonial-era signal station and homestead. The information developed for the cultural landscape inventory would be used in planning, compliance, preservation, and interpretation and would be the first step in determining if a full cultural landscape report is needed for the site.
FRV	Sea urchin survey/study	M	A survey of black long-spined sea urchins would generate baseline documentation and needed data on current populations in the monument. It could be used to inform management regarding the impact of long spine sea urchin populations on success of coral recruitment and reef health. It could be beneficial to study the reintroduction of sea urchins in some reef locations.
FRV, OIRV	Collect baseline soundscape and night sky condition data.	M	Due to growing concerns about anthropogenic noise in the monument, the collection of baseline soundscape data is the first step in developing long-term acoustical monitoring of the natural soundscapes and establishing limits and controls.
FRV	Complete/verify underwater anomalies such as submerged cultural resources	M	Follow up of initial mapping and surveys of submerged cultural resources in the monument would identify underwater anomalies that might represent maritime heritage resources.
FRV, OIRV	Visual resource inventory	M	A visual resource inventory would generate baseline data and document important visual resources associated with the monument. This information would be used to inform the visual resource management plan.
FRV	Comprehensive water quality assessment	M	A comprehensive water quality assessment would provide valuable data on overall water quality throughout the monument. Water temperature, turbidity, acidity, pollutants, and other key factors would be measured and monitored as part of this assessment.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, OIRV, or Key Issue?	**Data and GIS Needs**	**Priority (H, M, L)**	**Notes**
FRV	Archeological investigation of signal station complex	L	An archeological investigation of the Danish colonial-era signal station complex would provide an assessment and baseline documentation of potential archeological resources at this site.
FRV	Archival survey and documentation of past scientific research and data collected on Buck Island Reef	L	Buck Island Reef has been the site of scientific research for over 50 years, and there is a need to conduct archival research to consolidate data and reports. Historical research and data collected in the past could provide valuable baseline information for future research projects on monument resources.
FRV	Complete section 110 terrestrial survey for potentially eligible archeological sites	L	Under section 110 of the National Historic Preservation Act, the monument is required to identify and nominate sites potentially eligible for listing in the National Register of Historic Places. Based on this legal requirement, a complete survey of potentially eligible archeological sites on Buck Island is needed.
FRV	Comprehensive coral community composition study	L	A comprehensive coral community composition study would identify, survey, and document all coral species in the monument including deep water / mesophotic corals. This data would also support required threatened and endangered species condition assessments.
OIRV	Night sky condition assessment	L	The potential impacts of light pollution from St. Croix are a growing concern. A night sky condition assessment would provide needed baseline data and documentation to inform future monitoring of night sky conditions over time.
FRV	Survey of existing archival and graphic materials associated with the maritime heritage of St. Croix	L	This study would include a detailed survey of the archives (including drawings and photographs) in both the U.S. Virgin Islands and in Denmark, such as at the Danish National Museum and Archives. Collaborative partnerships with scholars and academic institutions would be explored to complete the study. The study would inform the long-range interpretive plan and the maritime exhibit at Christiansted National Historic Site in the Scale House.
FRV	Underwater archeological study of brick wreck anchors	L	An underwater archeological study of the ballast-brick wreck and the historic anchors would record their current condition, providing valuable baseline documentation for monitoring any potential changes in their condition over time.
OIRV	100% inventory of natural history specimen collection	L	A full inventory of the natural history specimen collection is needed to prove baseline information on the current condition of this collection and its overall integrity which includes coral, plant, sea turtle genetics, fishes, beetles, and bone materials.
FRV	Natural resource condition assessment (ongoing)	Ongoing	This assessment will provide a snapshot-in-time assessment and report on current conditions, critical data gaps, and selected condition influences for a subset of the park's important natural resources. It will be conducted in fiscal year 2017 through a cooperative agreement with Florida International University, Miami, Florida.

Part 3: Contributors

Buck Island Reef National Monument

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Appendixes

Appendix A: Presidential Proclamation and Legislative Acts for Buck Island Reef National Monument

Proclamation 3443

ESTABLISHING THE BUCK ISLAND REEF NATIONAL MONUMENT IN THE VIRGIN ISLANDS OF THE UNITED STATES

By the President of the United States of America

A Proclamation

WHEREAS Buck Island, situated off the northeast coast of St. Croix Island in the Virgin Islands of the United States, was included in the public, government, or crown lands ceded to the United States by Denmark under the convention entered into August 4, 1916, and proclaimed by the President January 25, 1917 (39 Stat. 1706); and

WHEREAS all property thus acquired by the United States from Denmark, not reserved by the United States for public purposes prior to June 22, 1937, was placed under the control of the Government of the Virgin Islands by the act of June 22, 1936, 49 Stat. 1807 (48 U.S.C. 1405–1405c), with the legal title remaining in the United States; and

WHEREAS Buck Island was not reserved by the United States for public purposes prior to June 22, 1937, but has been owned by the United States continuously since the convention with Denmark in 1916; and

WHEREAS Buck Island and its adjoining shoals, rocks, and undersea coral reef formations possess one of the finest marine gardens in the Caribbean Sea; and

WHEREAS these lands and their related features are of great scientific interest and educational value to students of the sea and to the public; and

WHEREAS this unique natural area and the rare marine life which are dependent upon it are subject to constant threat of commercial exploitation and destruction; and

WHEREAS the Advisory Board on National Parks, Historic Sites, Buildings and Monuments, established pursuant to the act of August 21, 1935, 49 Stat. 666 (16 U.S.C. 463), impressed by the caliber and scientific importance of the coral reefs of Buck Island, has urged their prompt protection to prevent further despoliation; and

WHEREAS the Governor of the Virgin Islands, under the authority vested in him by the legislative assembly of the Virgin Islands by an act approved December 5, 1961, has relinquished to the United States, for the purposes of facilitating the establishment and administration of a national monument for the protection of the above-mentioned areas and objects of historic and scientific interest, such control as is vested in the Government of the Virgin Islands by the said act of Congress dated June 22, 1936, over the area hereinafter described; subject, however, to the condition that the United States, including any agency or instrumentality thereof, shall not adopt or attempt to enforce any rule, regulation or requirement limiting, restricting or reducing the existing fishing (including the landing of boats and the laying of fishpots outside of the marine garden), bathing or recreational privileges by inhabitants of the Virgin Islands, and shall not charge any fees for admission to the area.

WHEREAS it is in the public interest to preserve this area of outstanding scientific, aesthetic, and educational importance for the benefit and enjoyment of the people:

NOW, THEREFORE, I, JOHN F. KENNEDY, President of the United States of America, under and by virtue of the authority vested in me by section 2 of the act of June 8, 1906, 34 Stat. 225 (16 U.S.C. 431), do proclaim that, subject to valid existing rights, there is hereby reserved and set apart, as the Buck Island Reef National Monument, the area embraced within lines drawn between the coordinates of latitude and longitude recited as follows:

Beginning at latitude 17°47′58″ N., longitude 64°38′16″ W.; thence approximately 10,450 feet to latitude 17°47′30″ N., longitude 64°36′32″ W.; thence approximately 1,500 feet to latitude 17°47′15″ N., longitude 64°36′32″ W.; thence approximately 4,500 feet to latitude 17°47′00″ N., longitude 64°37′16″ W.; thence approximately 8,600 feet to latitude 17°47′35″ N., longitude 64°38′37″ W.; and thence approximately 3,075 feet to latitude 17°47′58″ N., longitude 64°38′16″ W., the place of beginning, embracing an area of approximately 850 acres.

WARNING is expressly given to all unauthorized persons not to appropriate, injure, destroy, deface, or remove any feature of this monument and not to locate or settle upon any of the lands reserved for the monument by this proclamation.

The Secretary of the Interior shall have the supervision, management, and control of this monument as provided in the act of Congress entitled "An act to establish a National Park Service, and for other purposes," approved August 25, 1916, 39 Stat. 535 (16 U.S.C. 1–3), and all acts supplementary thereto and amendatory thereof: *Provided*, that neither the Department of the Interior, nor any other agency or instrumentality of the United States, shall adopt or attempt to enforce any rule, regulation or requirement limiting, restricting or reducing the existing fishing (including the landing of boats and the laying of fishpots outside of the marine garden), bathing or recreational privileges by inhabitants of the Virgin Islands, or charge any fees for admission to the area.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Seal of the United States of America to be affixed.

DONE at the City of Washington this twenty-eighth day of December in the year of our Lord nineteen hundred and [SEAL] sixty-one, and of the Independence of the United States of America the one hundred and eighty-sixth.

JOHN F. KENNEDY

By the President:

DEAN RUSK,
Secretary of State.

Proclamation 7392 of January 17, 2001

Boundary Enlargement and Modifications of the Buck Island Reef National Monument

By the President of the United States of America
A Proclamation

Buck Island Reef National Monument was established on December 28, 1961 (Presidential Proclamation 3443), just north of St. Croix in the U.S. Virgin Islands, for the purpose of protecting Buck Island and its adjoining shoals, rocks. and undersea coral reef formations. Considered

one of the finest marine gardens in the Caribbean Sea, the unique natural area and the rare marine life which are dependent upon it are subject to the constant threat of commercial exploitation and destruction. The monument's vulnerable floral and faunal communities live in a fragile, interdependent relationship and include habitats essential for sustaining the tropical marine ecosystem: coral reefs, sea grass beds, octocoral hardbottom, sand communities, algal plains, shelf edge, and oceanic habitats. The boundary enlargement effected by this proclamation brings into the monument additional objects of scientific and historic interest, and provides necessary further protection for the resources of the existing monument.

The expansion area includes additional coral reefs (patch, pur and groove, and deep and wall), unusual "haystacks" of elkhorn coral, barrier reefs, sea grass beds, and sand communities, as well as algal plains, shelf edge, and other supporting habitats not included within the initial boundary. Oceanic currents carry planktonic larvae of coral reef associated animals to the shallow nearshore coral reef and sea grass habitats, where they transform into their juvenile stage. As they mature over months or years, they move offshore and take up residence in the deeper coral reefs, octocoral hardbottom, and algal plains. Between the monument's nearshore habitats and its shelf edge spawning sites are habitats that play essential roles during specific developmental stages of many reef-associated species, including spawning migrations of many reef fish species and crustaceans. Several threatened and endangered species forage, breed, nest, rest, or calve in the waters included in the enlarged monument, including humpback whales, pilot whales, four species of dolphins, brown pelicans, least terns, and the hawksbill, leatherback, and green sea turtles. Countless species of reef fishes, invertebrates, plants, and over 12 species of sea birds utilize this area.

The ecologically important shelf edge is the spawning site for many reef species, such as most groupers and snappers, and the spiny lobster. Plummeting to abyssal depths, this habitat of vertical walls, honeycombed with holes and caves, is home to deepwater species and a refuge for other species.

The expansion area also contains significant cultural and historical objects. In March 1797, the slave ship Mary, captained by James Hunter of Liverpool, sank in this area, and its cargo of 240 slaves was saved and brought to Christiansted. In March 1803, the General Abercrombie, captained by James Booth of Liverpool, also wrecked in this area, and its cargo of 339 slaves was brought to Christiansted. Slave shipwrecks in U.S. waters are rare. The monument contains remnants of these wrecks. Other wrecks may also exist in the monument.

Section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

WHEREAS it appears that it would be in the public interest to reserve such lands as an addition to the Buck Island Reef National Monument:

NOW, THEREFORE, I, WILLIAM J. CLINTON, President of the United States of America, by the authority vested in me by section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), do proclaim that there are hereby set apart and reserved as an addition to the Buck Island Reef National Monument, for the purpose of care, management, and protection of the objects of historic and scientific interest situated on lands within the said monument, all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the map entitled "Buck Island Reef National Monument Boundary Enlargement" attached to and forming a part of this proclamation. The Federal land and interests in land reserved consist of approximately 18,135 marine acres, which is the smallest area compatible with the proper care and management of the objects to be protected.

All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument.

For the purpose of protecting the objects identified above, the Secretary shall prohibit all boat anchoring, provided that the Secretary may permit exceptions for emergency or authorized administrative purposes, and may issue permits for anchoring in deep sand bottom areas, to the extent that it is consistent with the protection of the objects.

For the purposes of protecting the objects identified above, the Secretary shall prohibit all extractive uses. This prohibition supersedes the limited authorization for extractive uses included in Proclamation 3443 of December 28, 1961.

Lands and interests in lands within the monument not owned or controlled by the United States shall be reserved as a part of the monument upon acquisition of title or control thereto by the United States.

The Secretary of the Interior shall manage the monument through the National Park Service, pursuant to applicable legal authorities, to implement the purposes of this proclamation. The National Park Service will manage the monument in a manner consistent with international law.

The Secretary of the Interior shall prepare a management plan, including the management of vessels in the monument, within 2 years that will address any further specific actions necessary to protect the objects identified above.

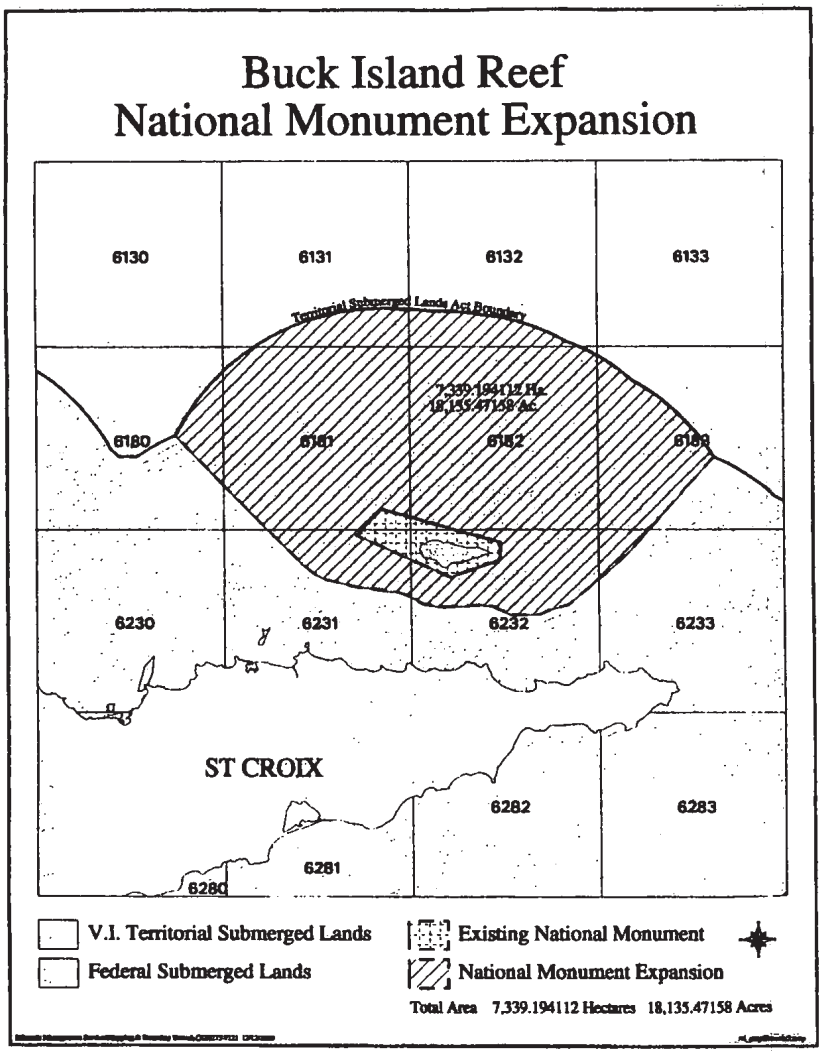
The enlargement of this monument is subject to valid existing rights.

Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this seventeenth day of January, in the year of our Lord two thousand one, and of the Independence of the United States of America the two hundred and twenty-fifth.

WILLIAM J. CLINTON



Appendix B: Special Mandates for Buck Island Reef National Monument

36 Code of Federal Regulations 7.73

(a) *Extractive uses.* All extractive uses are prohibited within the boundaries of the Monument, including but not limited to harvest or collection (on the land or in the water) of fish for any use, marine mammals, coastal migratory pelagic fish, baitfish, lobsters, conch, whelk, hermit crabs (soldier crabs), seashells, corals, dead coral, sea fans, sponges and all associated reef invertebrates, plants, fruits and seeds, firewood, driftwood, rocks, sand, gas, oil, and minerals.

(b) *Marine operations.* No dredging, excavating or filling operations of any kind are permitted, and no equipment, structures, byproducts or excavated materials associated with such operations may be deposited in or on the waters or ashore within the boundaries of the Monument.

(c) *Wrecks.* No person shall destroy molest, remove, deface, displace or tamper with wrecked or abandoned waterborne craft of any type or condition, or any cargo pertaining thereto, unless permitted in writing by an authorized official of the National Park Service.

(d) *Boats.*

(1) No watercraft shall operate in such a manner, nor shall anchors or any other mooring device be cast or dragged or placed, so as to strike or otherwise cause damage to any underwater features.

(2) Anchoring or maneuvering watercraft within the waters that contain underwater marked swimming trails and interpretive signs is prohibited.

(3) Anchoring is prohibited except by permit issued by the Superintendent for deep sand bottom areas or for administrative purposes.

(4) Anchoring will be allowed in emergency situations only to protect life and property.

(5) All watercraft, carrying passengers, for hire, shall comply with applicable regulations and laws of the U.S. Coast Guard and Territory of the Virgin Islands.

(e) *Fishing.*

(1) All forms of fishing are prohibited including, but not limited to, spearfishing, rod and reel, hand-line, nets, gill or trammel, traps or pots, snares, hooks, poison, cast nets, trawl, seine, and long-line.

(2) The use or possession of any type of fishing equipment or any of the items listed in paragraph (a) of this section is prohibited within the boundaries of the Monument.

[29 FR 17091, Dec. 15, 1964, as amended at 48 FR 30295, June 30, 1983; 68 FR 16435, Apr. 4, 2003]

Appendix C: Inventory of Administrative Commitments

Agreement Name	Type of Agreement	Start Date – Expiration Date	Responsible Party	Notes/Purpose
Research Agreement with University of the Virgin Islands	Memorandum of agreement	2014 – ongoing	University of the Virgin Islands	Defines research and monitoring programs related to monument's natural and cultural resources.
Law Enforcement and Search and Rescue – Concurrent Jurisdiction	Memorandum of understanding	In progress	U.S. Virgin Islands Police Department and Department of Planning and Natural Resources	Outlines roles and responsibilities related to law enforcement, regulatory jurisdictions, and search and rescue responsibilities between National Park Service and territorial government.
Relationship with the St. Croix East End Marine Park	Informal relationship	2003 – ongoing	National Park Service, St. Croix East End Marine Park	Bucks Island Reef National Monument management would like to explore formalizing its working relationship with the East End Marine Park, currently managed by the territorial government.
Buck Island Sea Turtle Research Program Research Intern Support	Housing and food agreement	Annual	The Buccaneer Hotel	The Buccaneer Hotel provides temporary housing (one room per intern plus two meals per day from July 15-Oct 10) for the monument's sea turtle summer internship program.
Jurisdictional Responsibilities and Law Enforcement National Park Service – U.S. Fish and Wildlife Service (USFWS)	Memorandum of understanding	-	U.S. Fish and Wildlife Service	Outlines roles and responsibilities related to law enforcement and regulatory control of federal lands managed by U.S. Fish and Wildlife Service and National Park Service.
Navigational Light on Buck Island	Lease agreement	-	U.S. Coast Guard	The U.S. Coast Guard maintains and operates a navigational light on Buck Island. The National Park Service owns the land, and the U.S. Coast Guard owns infrastructure associated with the navigational light.
Natural History Specimen Collection Long-Term Loan	Loan agreement	25-year loan	University of Florida	The monument's natural history reef fish specimen collection is on a 25-year loan to the University of Florida. It is currently stored at the Florida Museum of Natural History in Gainesville.

Agreement Name	Type of Agreement	Start Date – Expiration Date	Responsible Party	Notes/Purpose
South Florida / Caribbean Cooperative Ecosystem Studies Unit	Cooperative agreement	2000, amended 10/6/10 – As amended	Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Geological Survey, National Park Service, Natural Resources Conservation Service, U.S. Army Corps of Engineers – Civil Works, Office of the Deputy Undersecretary of Defense, National Oceanic and Atmospheric Administration, and University of Miami and its partner institutions	Establish and maintain South Florida / Caribbean Cooperative Ecosystem Studies Unit to provide research, technical assistance, and education to federal land management, environmental, and research agencies and their potential partners; and to develop an interdisciplinary program of research, technical assistance, and education needed to address resource issues at multiple scales and impact levels.
Salt River Bay Marine Research Education Center	Memorandum of understanding	1999 – No expiration date	U.S. Department of the Interior, Salt River Bay Marine Research Education Center	Aid in understanding of marine environment, including coral reef ecosystems; promote marine education and public awareness; and assist in development of appropriate public policy in Caribbean.
Commercial services	Concession contracts	Varies	Buck Island Reef National Monument	Commercial services are a vital component of park operations because many park visitors access the park via authorized park concessioner boats. Includes charter services to Buck Island, snorkeling, and SCUBA. In addition, Eastern National Parks & Monuments provides a bookstore/gift shop concession to the park under a national partnership agreement.
Special park uses	Special use permits	Varies	Buck Island Reef National Monument	Special park use events at the park include weddings, regattas, commercial filming, sailboat races, group activities, swim races, and other uses.

Appendix D: Past and Ongoing Park Planning and Data Collection Efforts

Document	Date
Buck Island Reef National Monument General Management Plan	1983
Interpretive Prospectus	1984
Statement of Interpretation	1991
Islandwide Rat Eradication – Environmental Assessment	1999
South Florida / Caribbean Network monitoring	2000 - present
USGS 2001 Buck Island National Monument Cryptic Reef Fish Survey	2001
Protocols for the Research and Monitoring of Sea Turtles in a Coral Reef Habitat	2001
Buck Island Sea Turtle Research and Monitoring Protocol	2002
Vascular Plant Inventory and Mapping of Buck Island	2003
Museum Collection Management Plan	2004
Ozone risk assessment for South Florida / Caribbean Network	2004
Buck Island Exotic Plant Management, Environmental Assessment	2004
Geological Resources Management Issues – Scoping Summary	2005
Collection and Reintroduction of Endangered Endemic St. Croix Ground Lizard to Buck Island Reef – Environmental Assessment	2008
South Florida / Caribbean Network Inventory and Monitoring Plan	2008
Digital Geologic Map of St. Croix and Buck Island Reef National Monument	2008
Buck Island Reef National Monument, U.S. Virgin Islands Vegetation Mapping Project, 2009	2010
South Florida / Caribbean Network Exotic Plan Management EIS	2010
South Florida / Caribbean Network paleontology report	2010
Buck Island Reef National Monument Geological Resources Inventory Report	2011
Evaluation of the sensitivity of inventory and monitoring national parks to nutrient enrichment effects from atmospheric nitrogen deposition: South Florida / Caribbean Network (SFCN)	2011
Evaluation of the sensitivity of inventory and monitoring national parks to acidification effects from atmospheric sulfur and nitrogen deposition: South Florida / Caribbean Network (SFCN)	2011
Scope of Collections Statement: Buck Island Reef National Monument (Multi-Park)	2011
A Cooperative Multiagency Reef Fish Monitoring Protocol for the U.S. Virgin Islands Coral Reef Ecosystem	2013
Museum Emergency Operations Plan	2015
List of Authorized Concessioners	2016
Buck Island Reef National Monument – General Management Plan/Environmental Impact Statement	Ongoing

Southeast Region Foundation Document Recommendation
Buck Island Reef National Monument

August 2017

This Foundation Document has been prepared as a collaborative effort between park and regional staff and is recommended for approval by the Southeast Regional Director.

8/17/17

RECOMMENDED
Joel A. Tutein, Superintendent, Buck Island Reef National Monument **Date**

8/24/17

APPROVED
Stan Austin, Regional Director, Southeast Region **Date**

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

BUIS 163/139889
August 2017

Foundation Document • Buck Island Reef National Monument

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