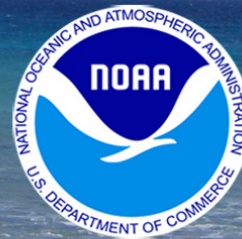


# Coral Reef Habitat Assessment for U.S. Marine Protected Areas: U.S. Virgin Islands

National Oceanic and Atmospheric Administration  
NOAA's National Ocean Service  
Management & Budget Office  
Special Projects



February 2009



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## Project Overview

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### About this Effort

The United States Coral Reef Task Force (USCRTF), in both its National Action Plan to Conserve Coral Reefs (2000) and its National Coral Reef Action Strategy (2002), established a key conservation objective of protecting at least 20% of U.S. coral reefs and associated habitat types in no-take marine reserves. NOAA's Coral Reef Conservation Program has been supporting efforts to assess current protection levels of coral reefs within Marine Protected Areas (MPAs) and quantify the area of U.S. coral reef ecosystems protected in no-take reserves. The official federal definition of an MPA, signed into law by Executive Order 13158, is "any area of the marine environment that has been reserved by federal, state, tribal, territorial, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein." A significant source of information for these assessments has been the National MPA Center's Inventory of Marine Managed Areas (MMAs) in the U.S (2006a)<sup>1</sup>. This report provides a preliminary assessment of the areal extent of coral reef habitat and associated habitat types within MPAs, as well as the level of protection afforded them, by using GIS-based MPA boundaries from the MMA Inventory–MPA Classification System (2006a,b), and U.S. Coral Jurisdiction benthic habitat data developed by NOAA's National Centers for Coastal Ocean Science Biogeography Team (2001).

More information on the state and territory sites included in this assessment, including their goals and objectives and how they are established and managed is available in the NOAA Coral Reef Conservation Program Technical Memorandum, *Report on the Status of Marine Protected Areas in Coral Reef Ecosystems of the United States: Volume 1 Marine Protected Areas Managed by U.S. States, Territories and Commonwealths* (Wusinich-Mendez, D and C. Trappe. 2007). This document (pdf, 5.26 MB) is available for download at <http://www.coralreef.noaa.gov/Library/Publications/cr%5Fmpa%5Freport%5Fvol%5F1.pdf>.

### NCCOS Habitat Mapping Effort

The National Oceanic and Atmospheric Administration (NOAA) National Ocean Service (NOS) initiated a coral reef research program in 1999 to map, assess, inventory, and monitor U.S. coral reef ecosystems (Monaco et al. 2001). These activities were implemented in response to requirements outlined in the Mapping Implementation Plan developed by the Mapping and Information Synthesis Working Group (MISWG) of the Coral Reef Task Force (CRTF) (MISWG 1999). NOS's National Centers for Coastal Ocean Science (NCCOS) Biogeography Team was charged with the development and implementation of a plan to produce comprehensive digital coral-reef ecosystem maps for all U.S. States, Territories, and Commonwealths within five to seven years. In response to Executive Order 13089 and the Coral Reef Conservation Act of 2000, NOS is conducting research to digitally map biotic resources and coordinate a long-term monitoring program that can detect and predict change in U.S. coral reefs and their associated habitats and biological communities (Monaco et al. 2001).

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## Acknowledgments

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The Nature Conservancy  
The Ocean Conservancy  
USVI / Department of Planning and Natural Resources  
USVI / University of the Virgin Islands / Conservation Data Center

National Park Service  
NOAA / Coral Reef Conservation Program  
NOAA / National Marine Fisheries Service  
NOAA / NOS / Special Projects  
NOAA / NOS / NCCOS / Biogeography Team  
NOAA / NOS / Ocean and Coastal Resource Management  
NOAA / NOS / National Marine Protected Areas Center

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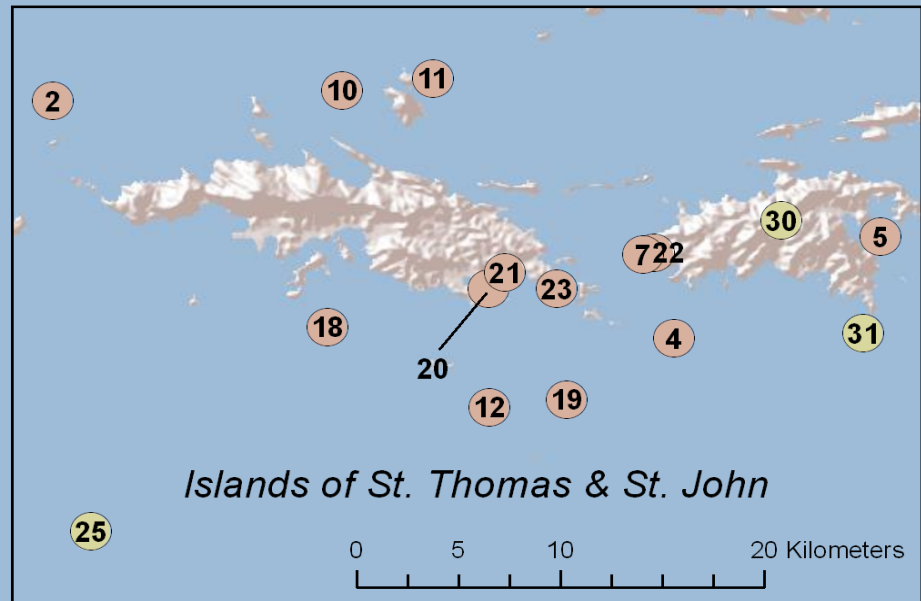
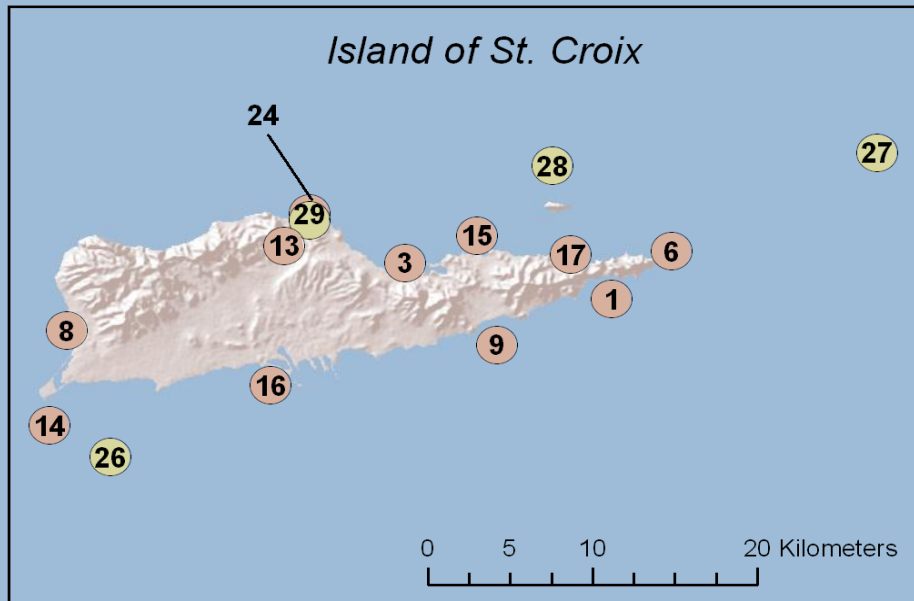
<sup>1</sup> Data for the MMA Inventory were collected by many individuals from a variety of sources. As a result, the content and level of detail of the overview text may vary from site to site.



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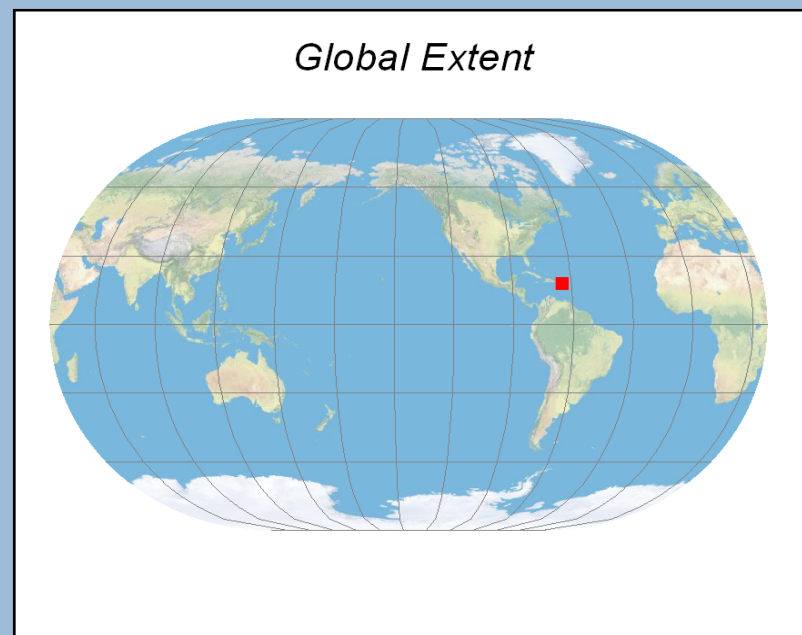
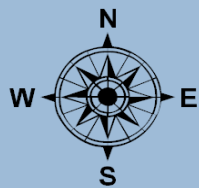
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## United States Virgin Islands: Locations of MPAs

- Federal MPA
- Territory MPA



*Note: MPA numbers correspond to list in table of contents.*

# U.S. Virgin Islands

## Introduction

The U.S. Virgin Islands (USVI) is composed of the three main islands of St. Croix, St. John, and St. Thomas, and 54 small islands and keys. Several types of coral reefs, including patch, bank, barrier, and fringing reefs can be found in the waters surrounding this island system. Spur and groove formations dominate many forereefs. Other prevalent components of the USVI's coral reef ecosystem include non-coraline hardbottom, mangrove systems represented by four different mangrove species, salt ponds created by the growth of coral reefs across the mouths of enclosed bays, large algal plains, and extensive seagrass beds (Wusinich-Mendez and Curtis. 2007). Currently there are 31 MPAs established in USVI (see map on page 1) with 11 sites designated as No-take areas (Appendix B)<sup>1</sup>. No-take MPAs allow human access and even some potentially harmful uses, but totally prohibit the extraction or significant destruction of natural or cultural resources.

The table below shows the total area of each biological benthic cover type: 1) for all of USVI, 2) for all MPAs in USVI, and 3) for only No-take MPAs in USVI. The percentages of the mapped benthic habitat within USVI's MPAs and USVI's No-take MPAs are also listed. Approximately 64% of the 464 square kilometers of mapped coral reef ecosystem (defined below) in USVI is within MPAs and 13% is within No-take MPAs. To view the totals for individual sites, see Appendix C.

<sup>1</sup> In this report, "No-take" MPAs are MPAs that have one of the following "Levels of Protection" under the U.S. MPA Classification System: 1) No Take, 2) No Impact, 3) No Access, or 4) Zoned Multiple-Use With No-Take Area(s). Out of 12 'Zoned Multiple-Use With No-Take Areas' in the U.S. Coral Jurisdictions only 4 had delineated No-take zones and thus were the only sites from this category to be included in the "No-take" calculations: East End Marine Park (VI), Kealakekua Bay MLCD (HI), Lapakahi MLCD (HI), and Molokini Shoal MLCD (HI).

## Cover Types and Characterization

<i>Coral reef / Colonized Harbottom</i>	Substrates formed by the deposition of calcium carbonate by reef building corals and other organisms. Habitats within this category have some colonization by live coral, unlike the Uncolonized Harbottom category.
<i>Emergent Vegetation</i>	Composed of red, black, or white mangroves, or some combination thereof. Mangroves are generally found in areas sheltered from high-energy waves.
<i>Macroalgae</i>	An area with 10% or greater coverage of any combination of numerous species of red, green, or brown macroalgae. Usually occurs in deeper waters on the bank/shelf zone.
<i>Seagrass</i>	Habitat with 10% or more cover of <i>Thalassia testudinum</i> , <i>Syringodium filiforme</i> , <i>Halodule wrightii</i> , <i>Halophila baillonis</i> , or some combination thereof. Examples include seagrass, patchy seagrass, and macroalgae.
<i>Unclassified</i>	Areas differentiated from other biological cover types because the major geomorphological structure is primarily terrestrial or artificially created (i.e., artificial).
<i>Uncolonized</i>	Substrates not covered with a minimum of 10% of any of the above biological cover types. This habitat is usually on sand or mud structures.
<i>Unknown</i>	Bottom type unknown due to turbidity, cloud cover, water depth, or other interference.

Benthic Cover Type	Total Mapped Benthic Habitat (km <sup>2</sup> )	Total Mapped within All MPAs (km <sup>2</sup> )	Percent of Mapped Area within all MPAs	Total Mapped within No-take MPAs (km <sup>2</sup> )	Percent of Mapped Area within No-take MPAs
Coral Reef / Colonized Harbottom	299.014	189.456	63.36%	41.886	14.01%
Emergent Vegetation	3.502	2.147	61.32%	0.532	15.19%
Macroalgae	77.223	43.468	56.29%	0.269	0.35%
Seagrass	84.102	60.466	71.90%	16.671	19.82%
Unclassified	349.310	104.532	29.93%	1.835	0.53%
Uncolonized	25.259	19.583	77.53%	1.871	7.41%
Unknown	963.779	438.430	45.49%	115.606	12.00%
<b>Coral Reef Ecosystem*</b>	<b>463.841</b>	<b>295.537</b>	<b>63.72%</b>	<b>59.358</b>	<b>12.80%</b>

\* Coral Reef Ecosystem is defined as mapped coral reef/colonized hardbottom, emergent vegetation, macroalgae, and seagrass.

# U.S. Virgin Islands

## Methods

The Coral Reef Habitat Assessment for U.S. Marine Protected Areas in the U.S. Virgin Islands was conducted between August 2005 and August 2007 through the following actions:

1. *Created a Coral Jurisdiction MPA GIS Database utilizing the U.S. Marine Managed Areas Inventory*

The Marine Managed Areas (MMA) Inventory contains information on more than 1,500 sites, and is the only such comprehensive dataset in the nation. The term “marine managed area,” which was defined through a public comment process, generally refers broadly to an area of the marine environment with a marine resource conservation purpose. The MMA Inventory data collection is a joint collaboration between the National Oceanic and Atmospheric Administration (NOAA) and the Department of the Interior that began in 2001. Its purpose is to gather and make publicly available comprehensive information on place-based marine conservation efforts under U.S. federal, state, territorial, local, and tribal jurisdiction. For more information on the MMA Inventory, visit [http://www.mpa.gov/helpful\\_resources/inventory.html](http://www.mpa.gov/helpful_resources/inventory.html).

2. *Identified which MPAs are No-Take Reserves utilizing the MPA Classification System*

The National Marine Protected Areas Center has developed a Classification System that provides agencies and stakeholders with a straightforward means to describe MPAs in purely functional terms using five objective characteristics common to most MPAs:

Conservation Focus – legally established goals, conservation objectives and intended purpose(s).

Level of Protection – level and type of legal protections afforded to the site’s natural and cultural resources and ecological processes.

Permanence of Protection – length of time protections remain in effect.

Constancy of Protection – year-round, seasonal or rotating.

Ecological Scale of Protection – range from entire ecosystems and their associated biophysical processes, to focal habitats, species, or other resources deemed to be of economic or ecological importance.

For most MPAs in the U.S. and elsewhere, these five functional characteristics provide an accurate picture of why the site was established, what it is intended to protect, how it achieves that protection, and how it may affect local ecosystems and local human uses.

3. *Used GIS software to identify area of spatial overlap between benthic habitat data and Coral Jurisdiction MPA boundaries*

The National Oceanic and Atmospheric Administration (NOAA) National Ocean Service (NOS) initiated a coral reef research program in 1999 to map, assess, inventory, and monitor U.S. coral reef ecosystems (Monaco et al. 2001). These activities were implemented in response to requirements outlined in the Mapping Implementation Plan developed by the Mapping and Information Synthesis Working Group (MISWG) of the Coral Reef Task Force (CRTF) (MISWG 1999). NOS’s Biogeography Team was charged with the development and implementation of a plan to produce comprehensive digital coral-reef ecosystem maps for all U.S. States, Territories, and Commonwealths within five to seven years. In response to Executive Order 13089 and the Coral Reef Conservation Act of 2000, NOS is conducting research to digitally map biotic resources and coordinate a long-term monitoring program that can detect and predict change in U.S. coral reefs and their associated habitats and biological communities. For more information on benthic habitat data produced by the NOS Biogeography Team, visit [http://ccma.nos.noaa.gov/about/biogeography/proj\\_theme.html](http://ccma.nos.noaa.gov/about/biogeography/proj_theme.html).

4. *Calculated areal extent of benthic habitat data within Coral Jurisdiction MPA GIS boundaries*

The areal extent of benthic habitat data within MPAs was calculated in the Eckert IV WGS84 projection, using the polygon area calculation operation in XTools Pro 3.2.0 extension for ArcMap™ 9.1 GIS software.



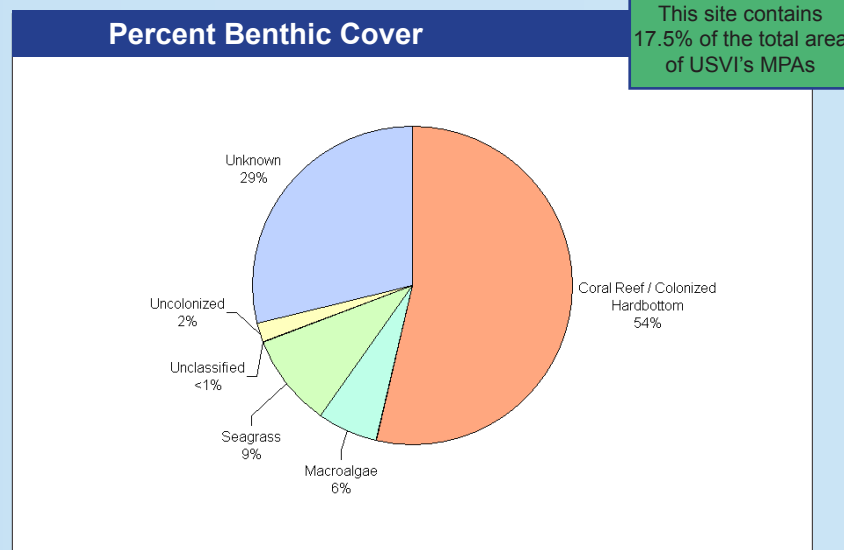
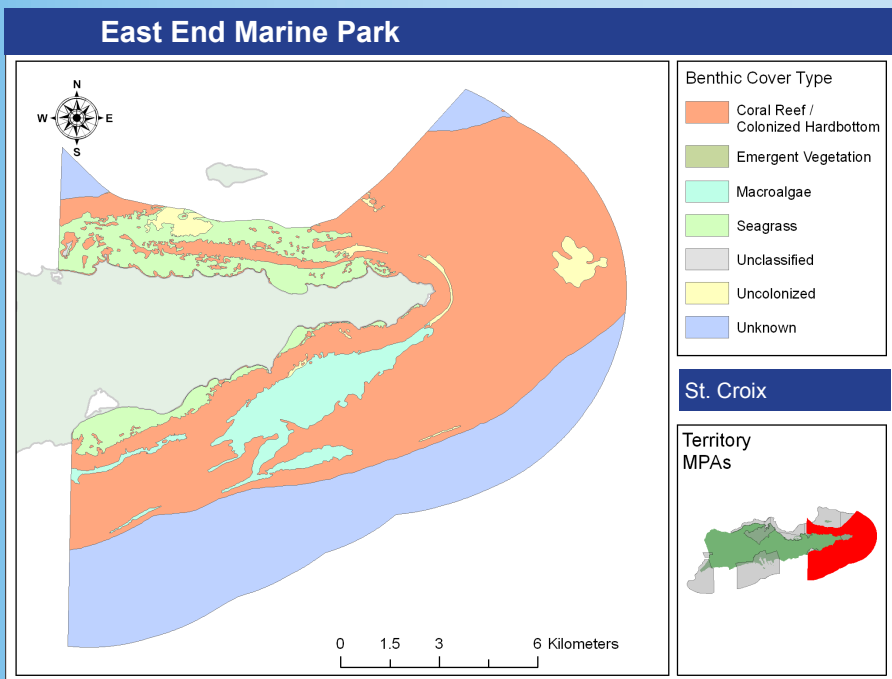
# East End Marine Park

Management Agency: USVI Department of Planning & Natural Resources

## Overview

The East End Marine Park surrounds the entire east end of the island of St. Croix, the largest and most southern of the U.S. Virgin Islands. The park is bound by Milord Point in the south, Punnett Point in the north, and has a seaward boundary that extends to and follows the three-nautical mile territorial boundary. With a length of 23 miles, the coral reef system surrounding St. Croix is one of the largest and most developed in the Caribbean.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



# Botany Bay APC

Management Agency: USVI Department of Planning & Natural Resources

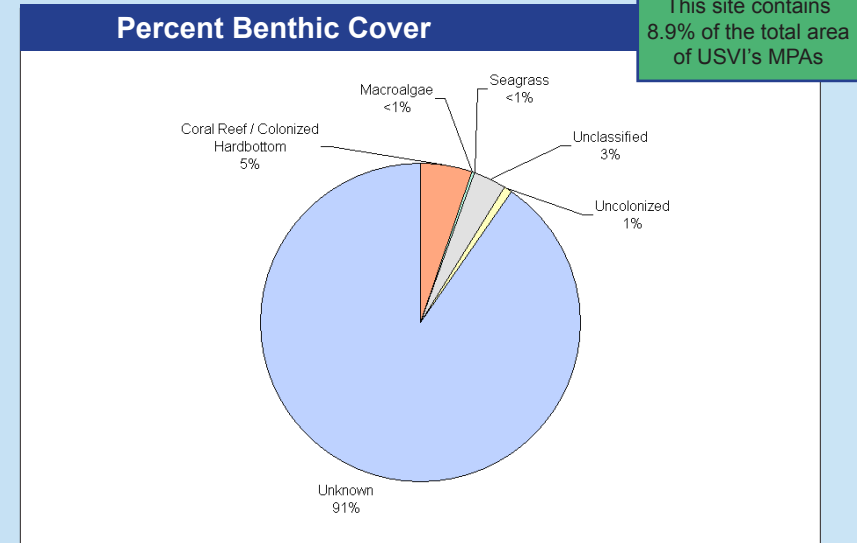
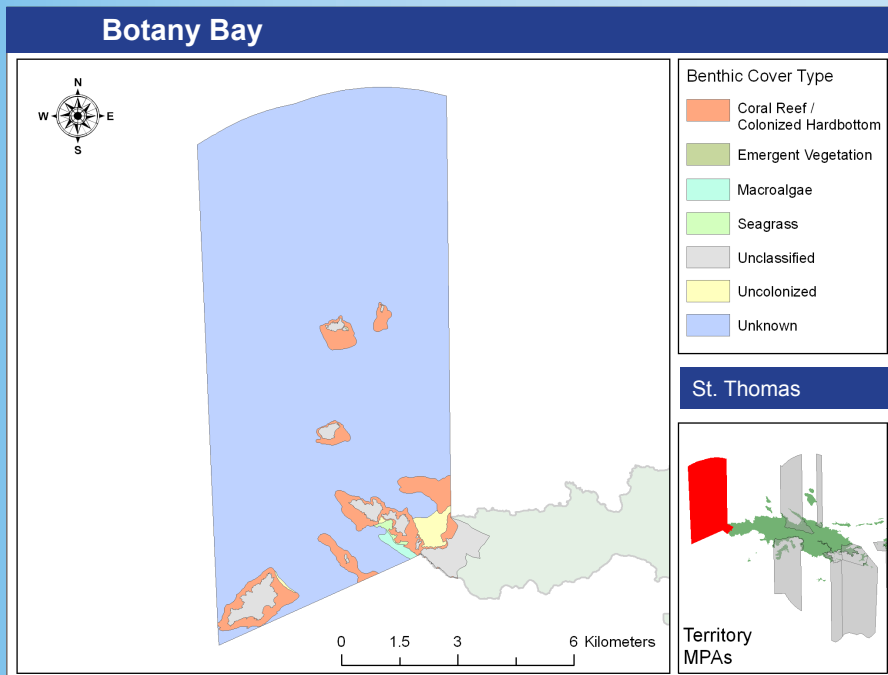
## Overview

The Botany Bay Area of Particular Concern (APC) is located at the westernmost end of the island of St. Thomas and includes Botany Bay, Sandy Bay, the isthmus of Little St. Thomas; Savan and Cockroach Islands; Salt, West, Kalkun, Sula, and Dutchcap Cays; and Saltwater Money, Drum, and Cricket Rocks. This APC includes mountains, forests, beaches, ocean cliffs, and open grazing lands, many areas of which are of natural, cultural, geological, recreational, and scenic importance. The Botany Bay APC is also a significant nesting area for Brown Boobies and Red-billed Tropicbirds.

Given the unusual combination of resources within this APC, the area has received other significant classifications as well. For example, two sites within the APC are listed on the National Register of Historic Places, four sites have been nominated as Significant Natural Areas (SNA's), and the

entire Botany Bay Estate has been designated as the "foundation" of the proposed Virgin Islands Territorial Park System.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



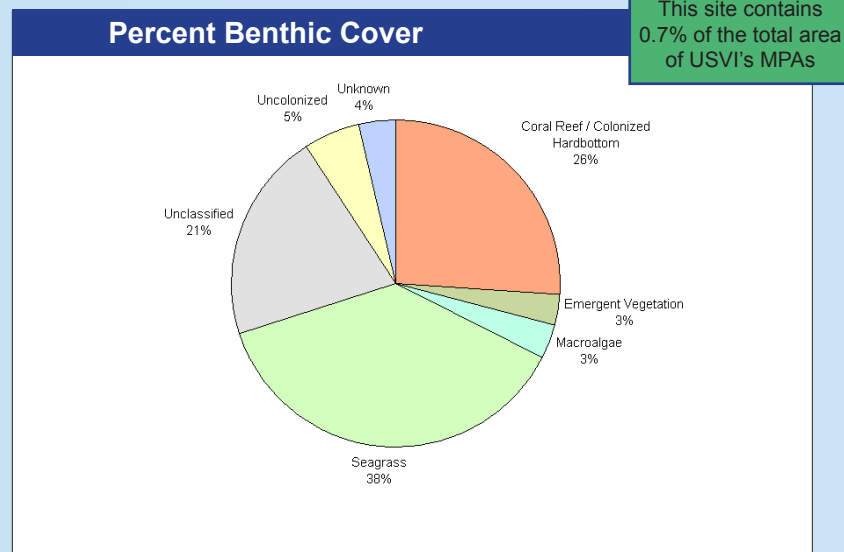
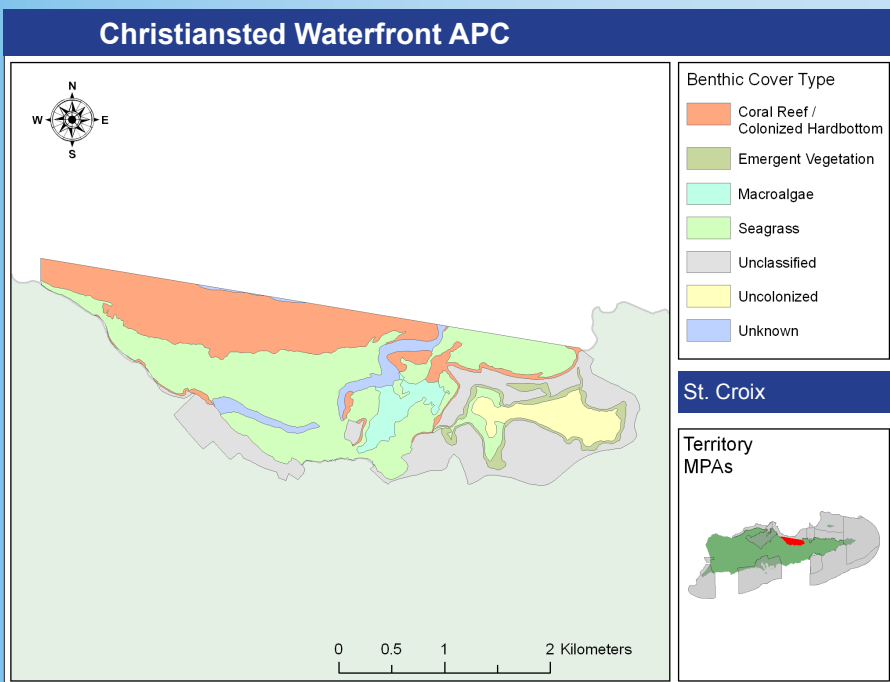
# Christiansted Waterfront APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

The Christiansted APC is located on the north central shore of St. Croix, and is composed of Christiansted Harbor and its surrounding embayment, Altona Lagoon, and Protestant Cay. Protestant Cay is one of only two known “natural” habitats for the endangered St. Croix Ground Lizard. Altona Lagoon is a significant breeding ground for 3 species of endangered birds, 8 species of herons and egrets, and 19 species of shorebirds. It also functions as an overwintering site for migrant bird species. Long Reef and Round Reef, both located just inside the seaward boundary of the Christiansted APC, are habitats for 59 species of fish.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.





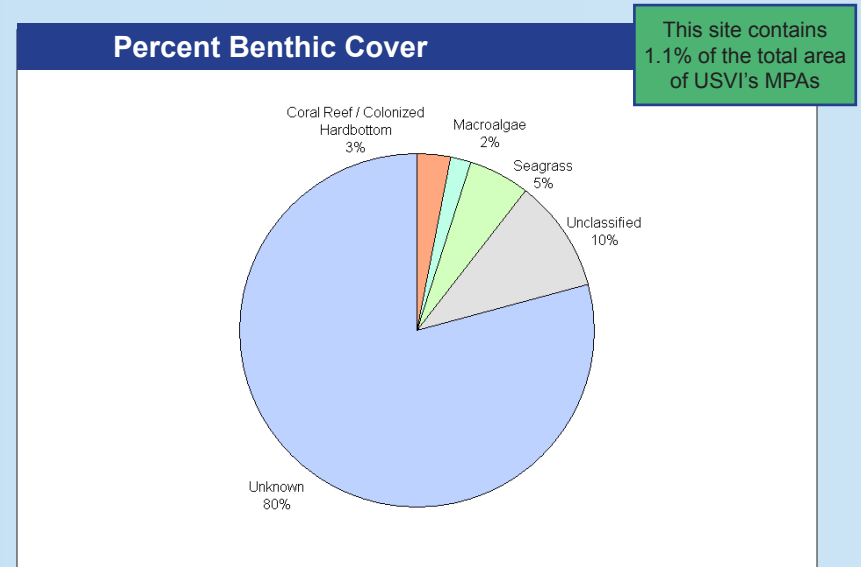
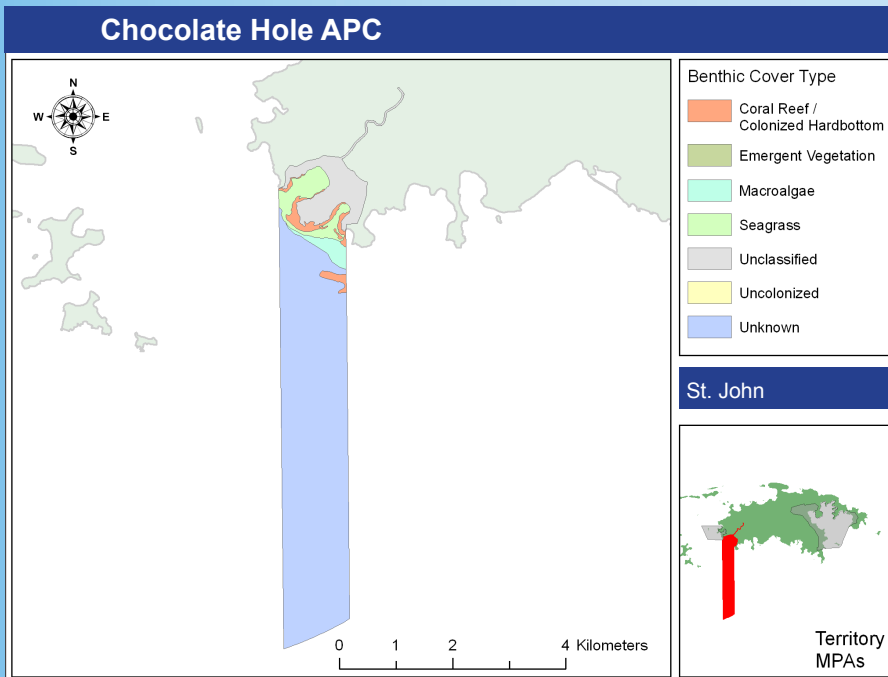
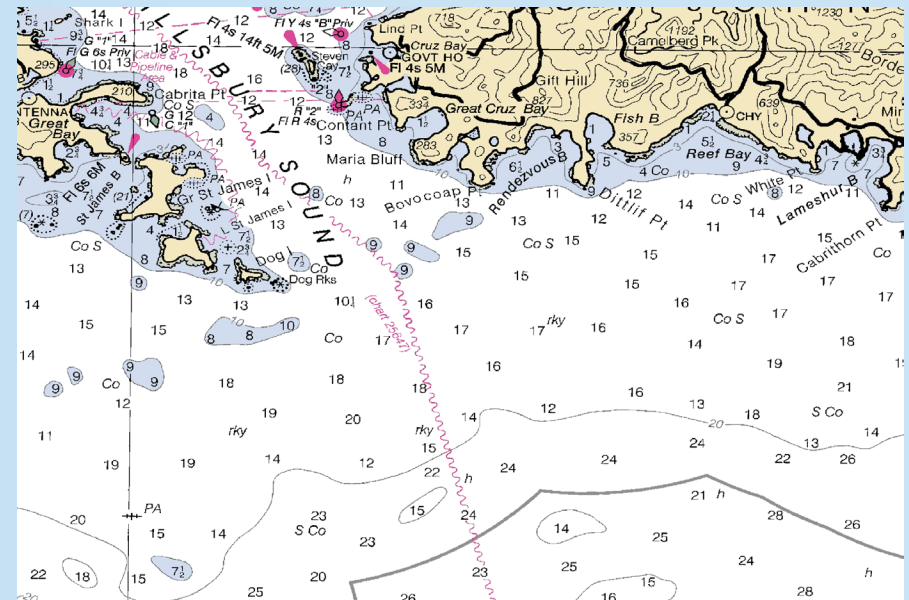
# Chocolate Hole APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

Located on the southwest coast of the island of St. John, the Chocolate Hole APC is a short car ride away from the population center at Cruz Bay. This APC is bound by Contant Point in the west, the western edge of Devers Bay in the east, and has a seaward boundary that extends directly south to the shelf edge or three-nautical mile territorial limit (whichever is closer). This area contains several natural resources and scenic attributes, including salt ponds, rocky cliff headlands, two enclosed bays, and scenic views of Pillsbury Sound and the east end of St. Thomas.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



# Coral Bay APC

Management Agency: USVI Department of Planning & Natural Resources

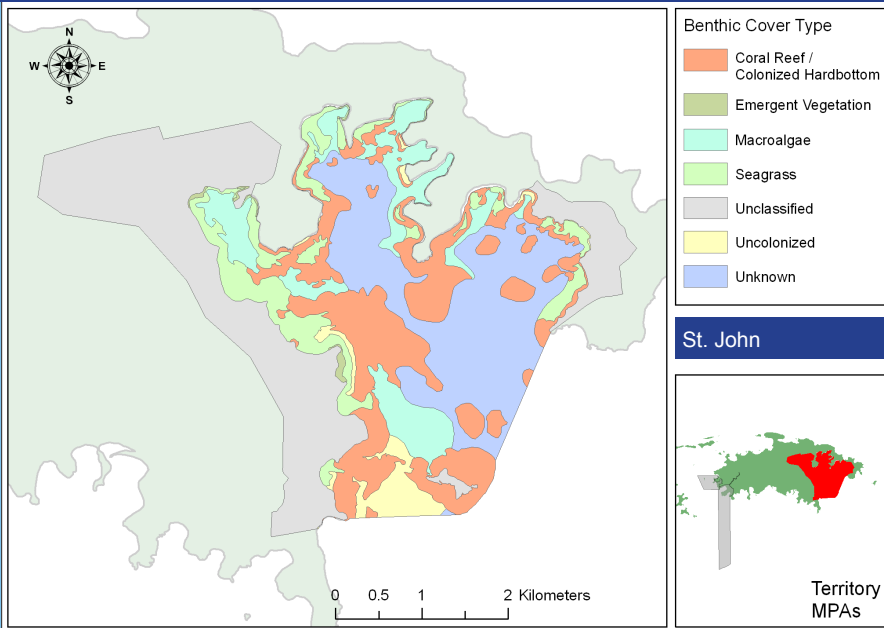
## Overview

The Coral Bay APC is located on the southeast shore of St. John, and is known as the most protected bay on the island. It is composed of several embayments whose backwaters support extensive mangrove communities. Home to 5 federally listed and 20 locally listed endangered animal species, Coral Bay is also the first area on St. John to host both prehistoric and historic human settlements.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.

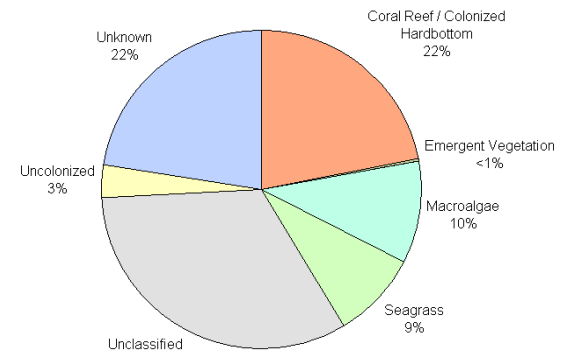


## Coral Bay APC



## Percent Benthic Cover

This site contains 1.9% of the total area of USVI's MPAs



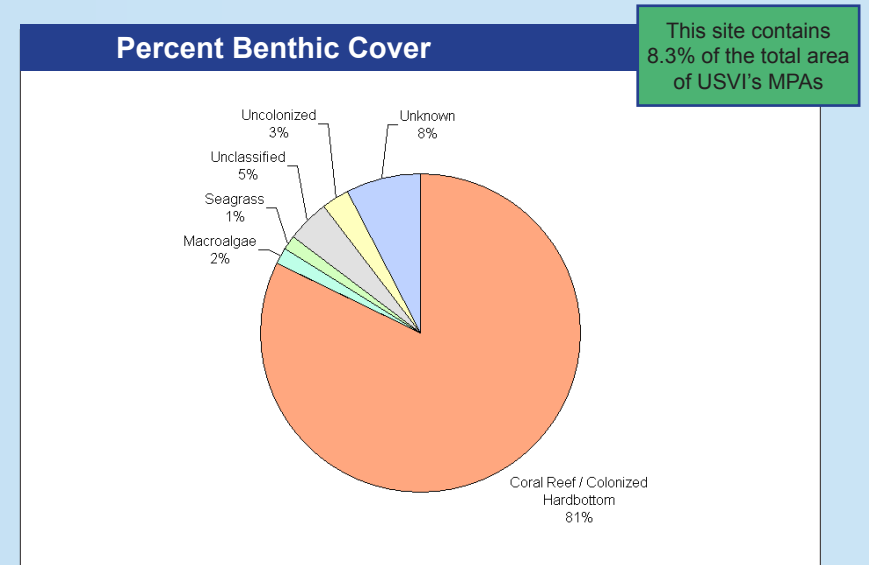
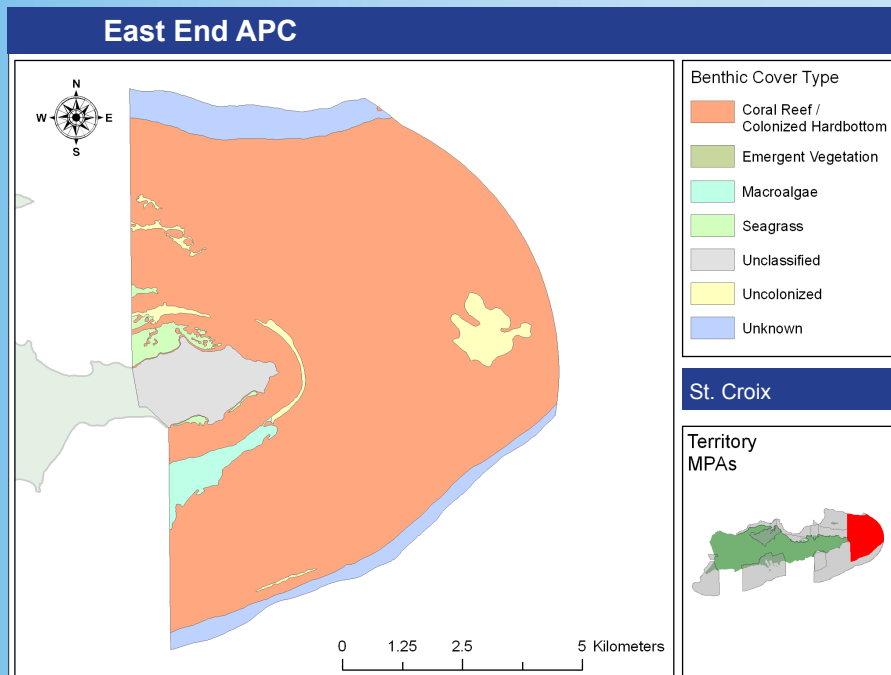
# East End APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

The East End APC is located at the east end of the island of St. Croix. This APC encompasses approximately 60 square miles, portions of which overlap the East End Marine Park. Resources protected in this area include: coral reef communities, Brown Pelican, Least Tern, 3 species of sea turtles, and 4 species of whales. The East End APC is also home to one of only three remaining mangrove systems on St. Croix.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.





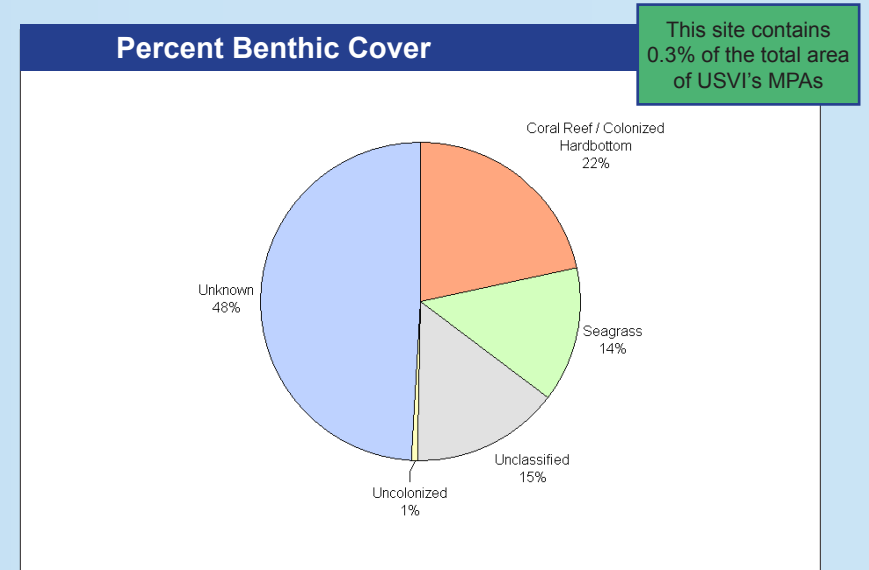
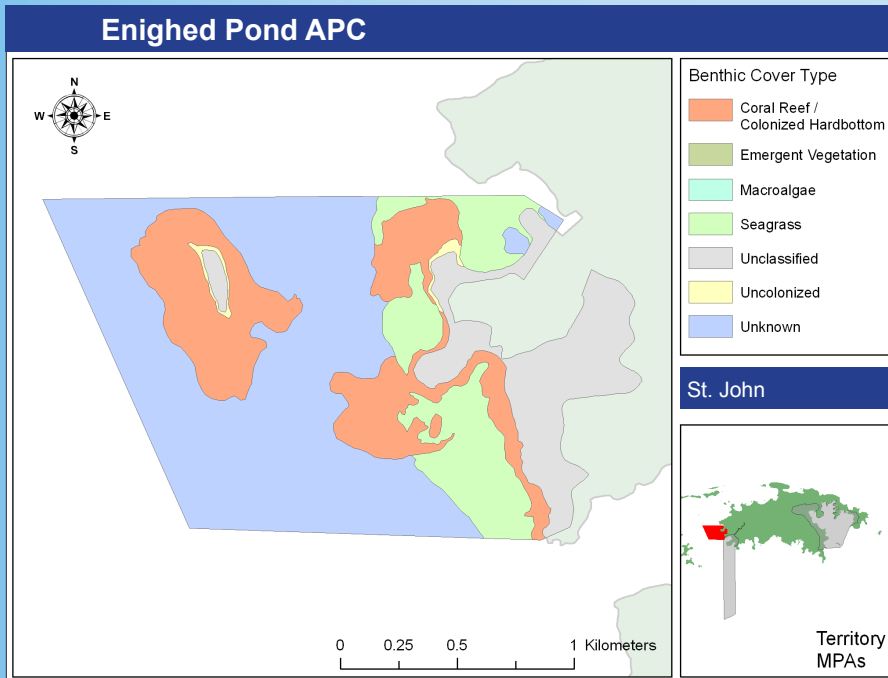
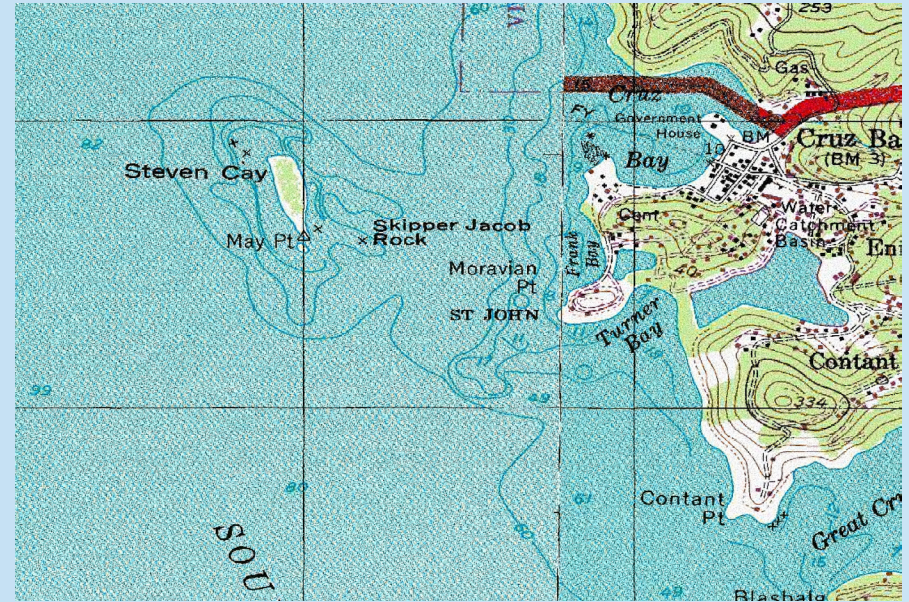
# Enighed Pond APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

The Enighed Pond APC is located on the west side of the island of St. John. It encompasses Cruz Bay Harbor, The Creek (Little Cruz Bay), a strip of land extending west and south to Enighed Pond, the whole of Enighed Pond, and a piece of shoreline extending south from Enighed Pond to Contant Point. This APC is home to 8 federally listed endangered species, and it contains a variety of habitats, including: rainforest, salt ponds, mangroves, salt flats, algal beds, seagrass beds, and coral reefs.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



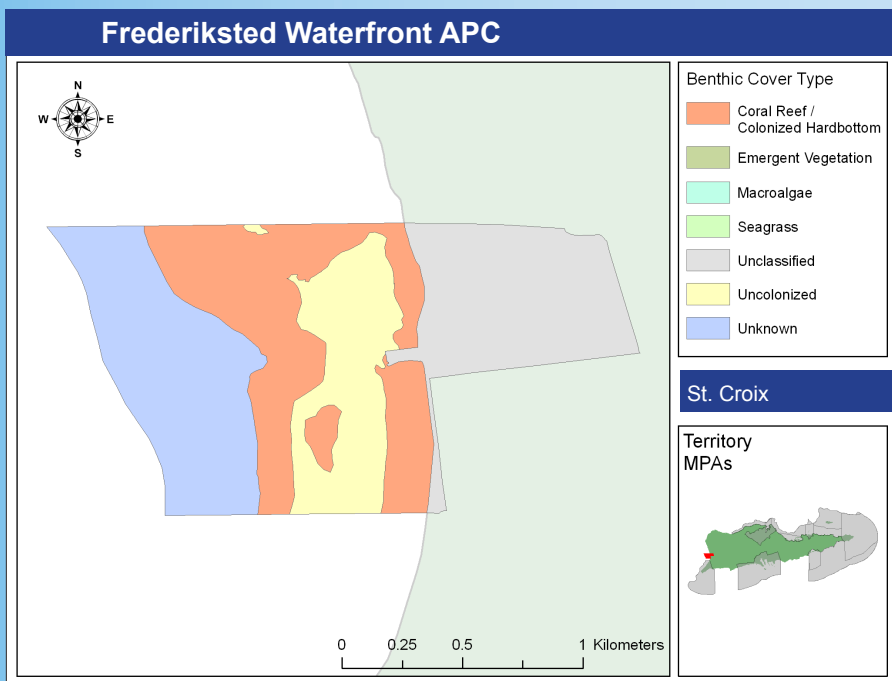
# Frederiksted Waterfront APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

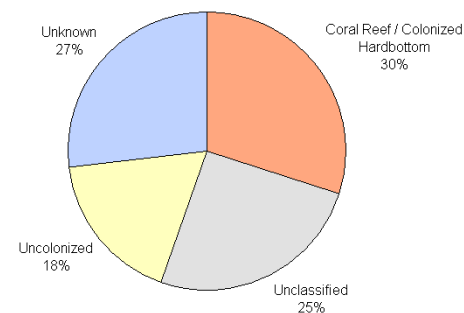
This Frederiksted Waterfront APC is located on the southwest coast of the island of St. Croix, north of Sandy Point and 5 miles west of Alexander Hamilton International Airport. This APC encompasses a portion of the La Grange Estate just north of town, and about 3,500 feet of shoreline and inshore submerged lands extending seaward to the edge of the submarine shelf. The resources protected within this area include: 4 prehistoric sites, a public beach, dive sites, and several endangered species (3 species of sea turtles, Brown Pelican, 2 species of egrets, 3 species of herons, and 4 species of whales).

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



## Percent Benthic Cover

This site contains 0.2% of the total area of USVI's MPAs





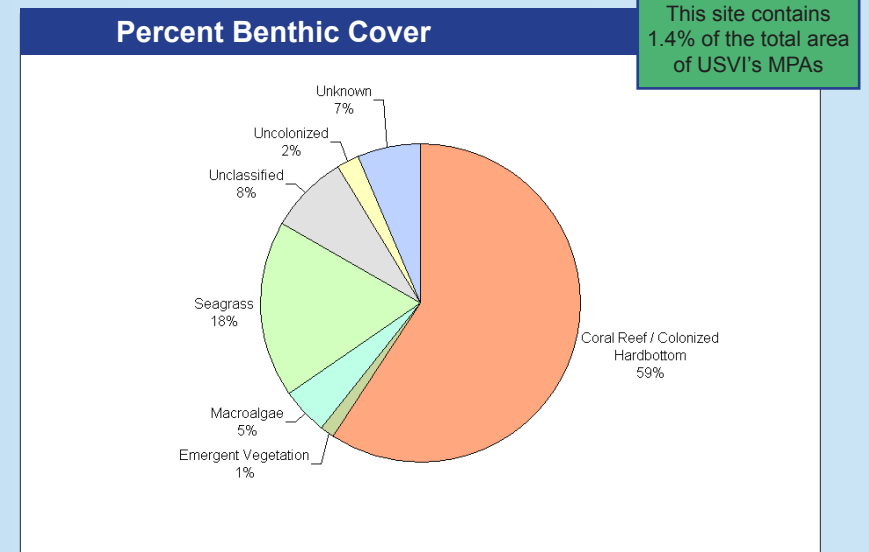
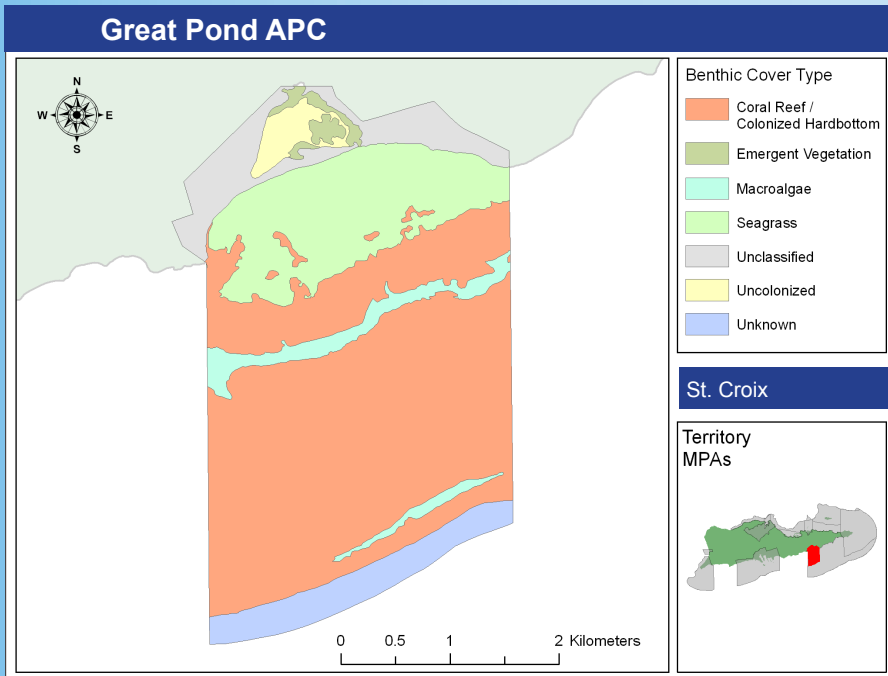
# Great Pond APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

The Great Pond APC is located on the southeast shore of the island of St. Croix, situated within the shallow-sloping plain between Mt. Fancy in the east and Milord Point in the west. Great Pond Bay, approximately 2-km long and 1-km wide, is confined seaward by a barrier reef and landward by the baymouth bar, which separates the bay from the Great Salt Pond. Great Salt Pond is the second largest salt pond in the Virgin Islands, with black Mangroves rimming most of the pond.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.





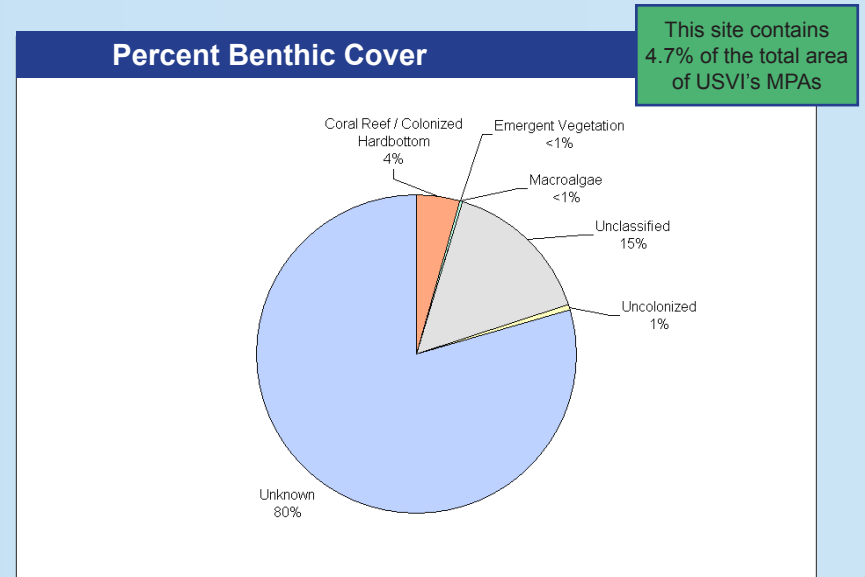
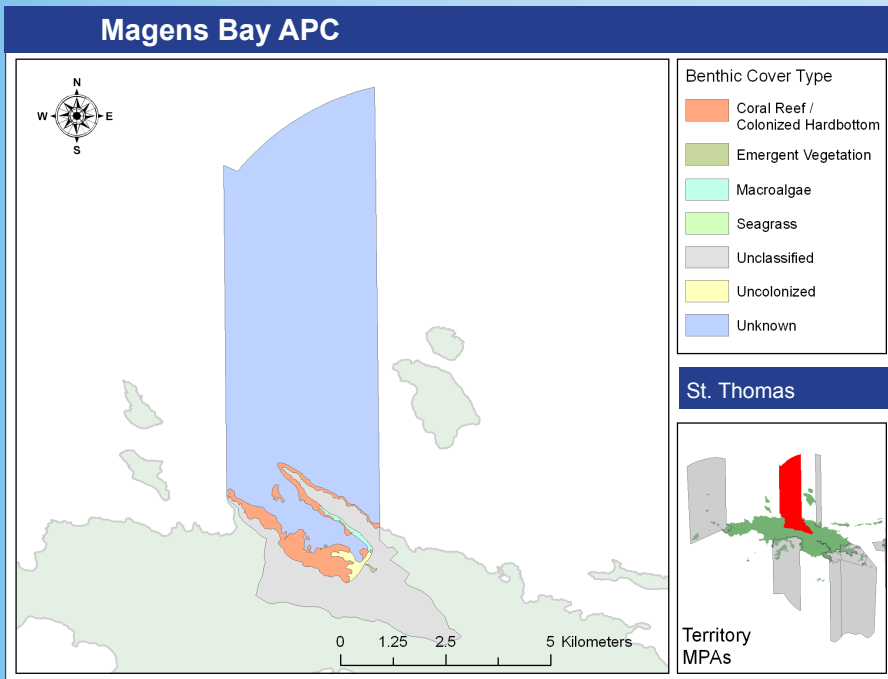
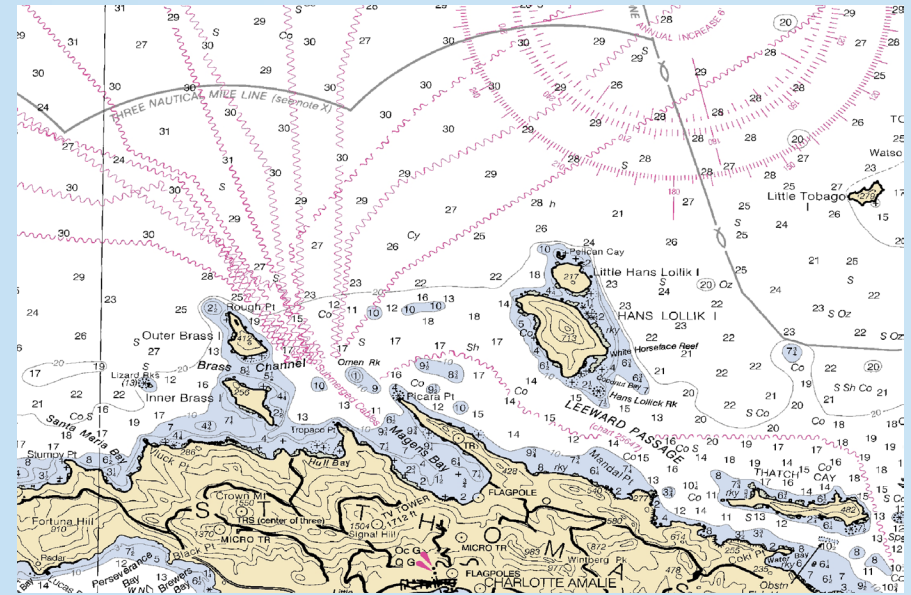
# Magens Bay APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

The Magens Bay APC is located on the north central side of the island of St. Thomas. This APC is bound by Tropaco Point in the west, the entire Peterborg peninsula in the east, and has a seaward boundary that extends directly north to the shelf edge or three-nautical mile territorial limit (whichever is closer). Valuable resources within this area include primary archaeological sites, several types of forest, fish nursery habitats, and 8 endangered species.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



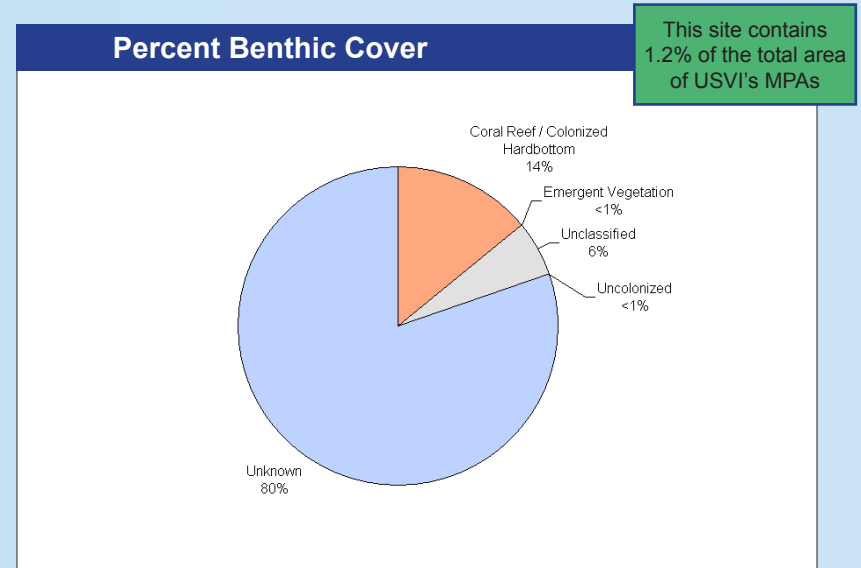
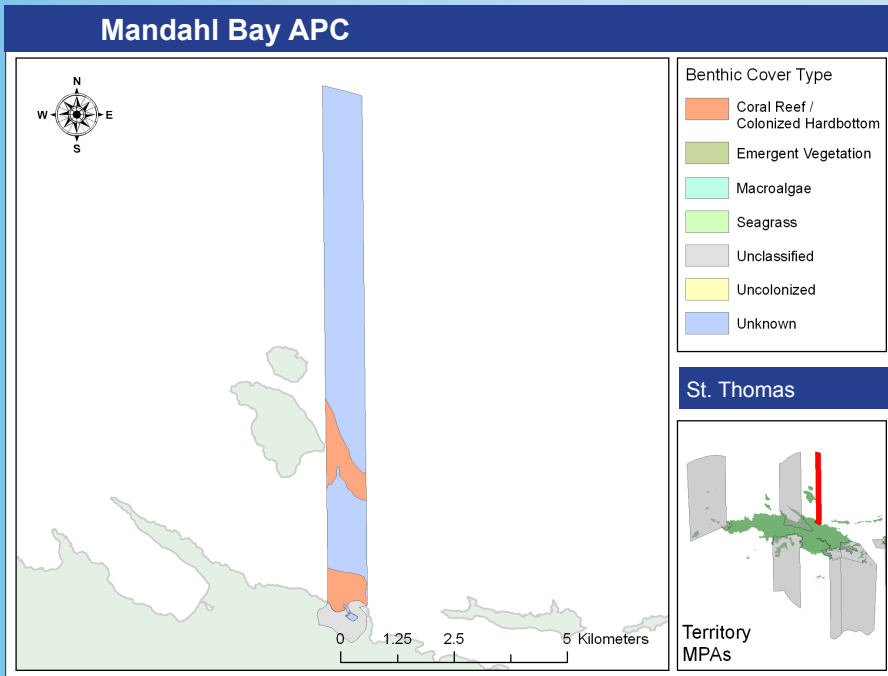
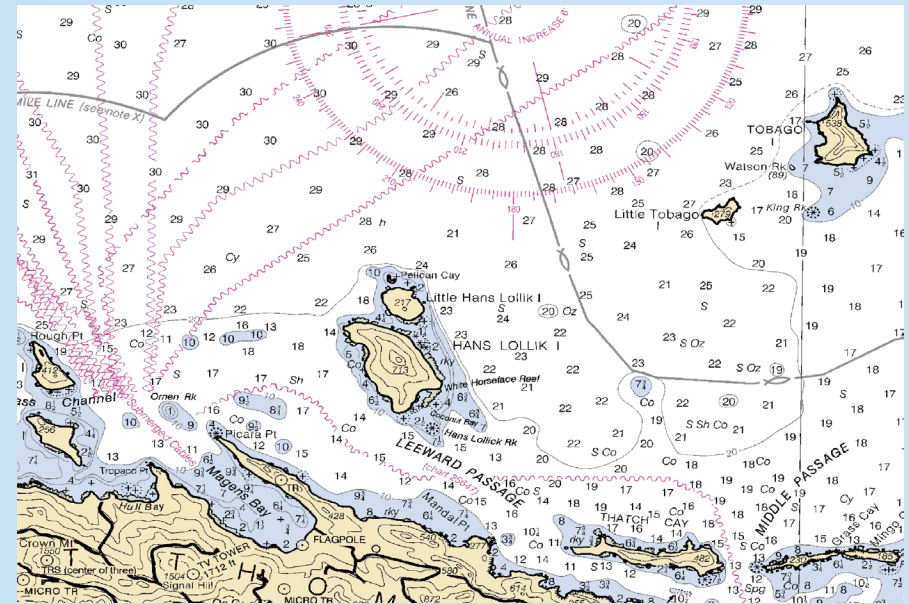
# Mandahl Bay APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

The Mandahl Bay APC is located on the northeast side of the island of St. Thomas. This APC is bound by Mandahl Point in the east, the west side of Mandahl Bay in the west, and has a seaward boundary that extends directly north to the shelf edge or three-nautical mile territorial limit (whichever is closer). This area is home to 13 endangered species—including the Humpback whale and Hawksbill sea turtle—and it contains a variety of habitats, including: salt ponds, mangrove lagoons, and catcus and woodland forests.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



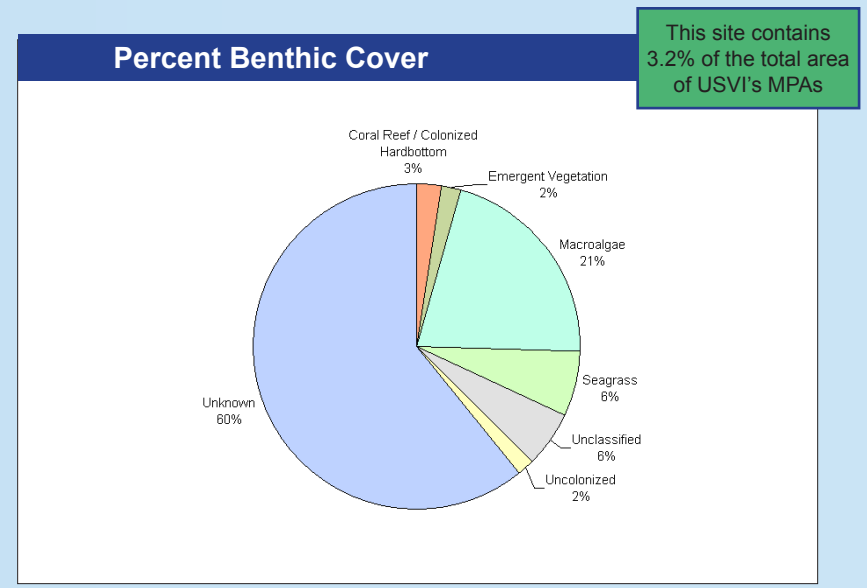
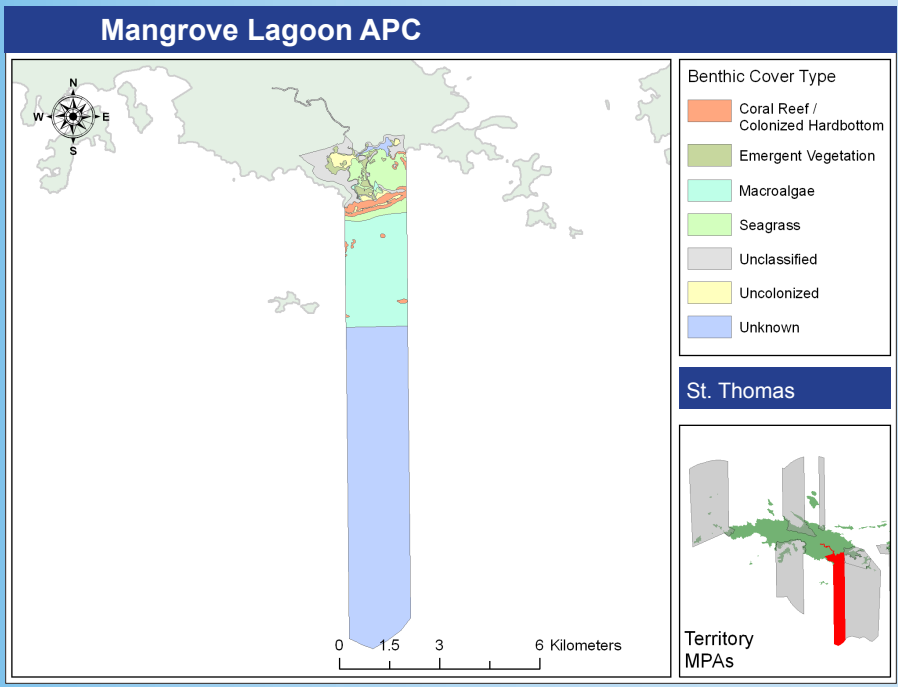
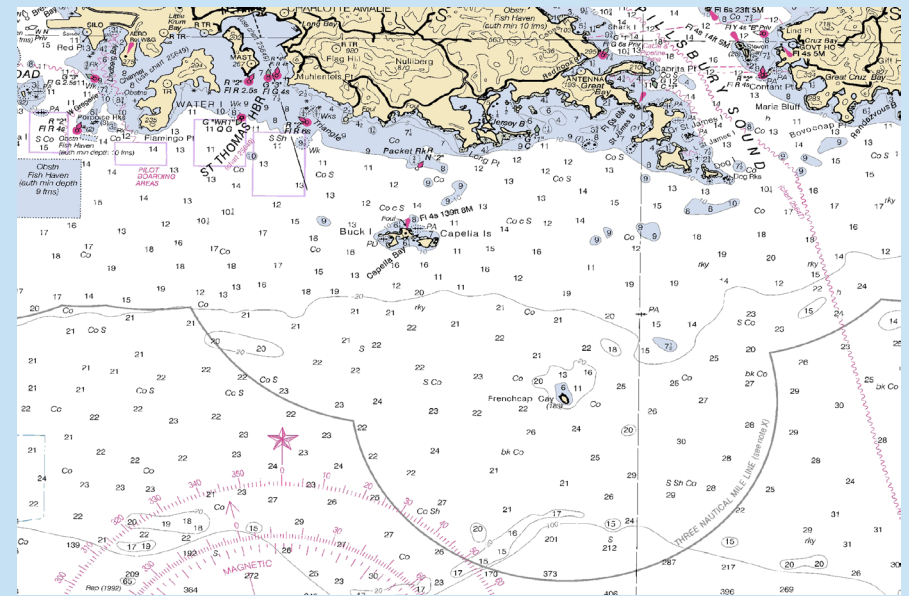
# Mangrove Lagoon APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

The Mangrove Lagoon APC is located on the southeast shore of the island of St. Thomas. This reserve area has Long Point as a western boundary, Nazareth as an eastern boundary, and a seaward boundary that extends south to the reef drop off. Many significant resources are found within the area, such as mangrove forests, 495 species of flora and fauna, 100 species of shorebirds, humpback whales, overwintering sites for 20 species of migratory birds, and prehistoric sites.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.





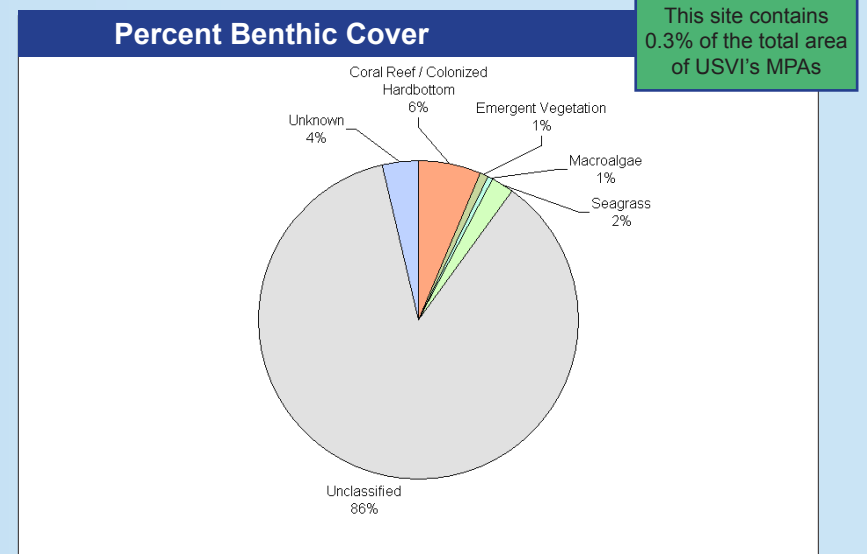
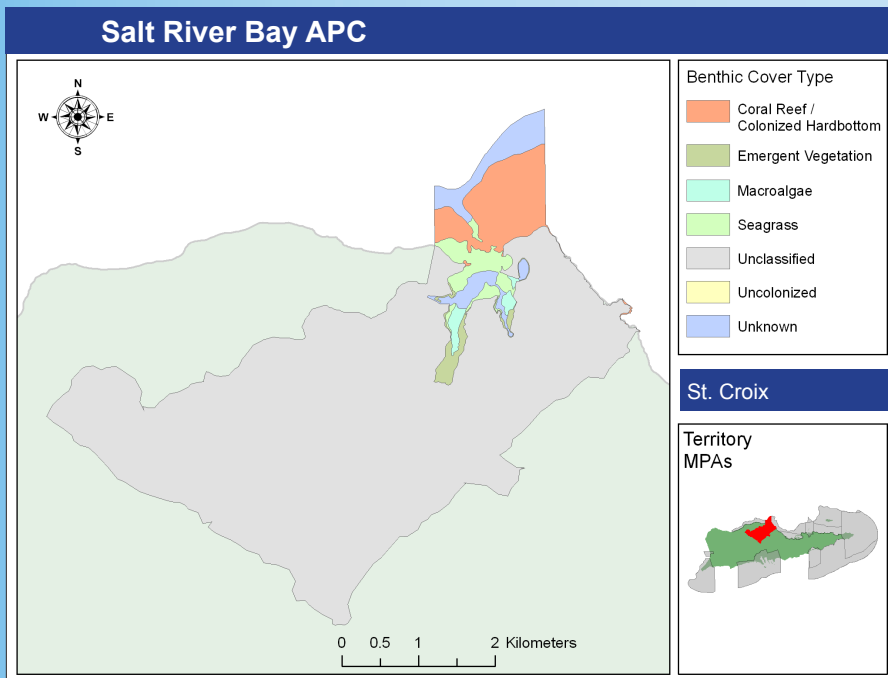
# Salt River Bay APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

The Salt River Bay APC is located on the north shore of the island of St. Croix, 4.5 miles west of Christiansted. This reserve encompasses the entire watershed of Salt River Bay. This area is home to the largest remaining mangrove forest in the U.S. Virgin Islands, which supports many algal and invertebrate species, including the valuable Mangrove and Flat Tree Oysters. The Salt River Bay APC also supports Pre-Colombian and Colombian archaeological resources; significant reef ecosystems; a submarine canyon; 108 species of birds; 17 locally listed endangered species; and 3 species of sea turtles.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



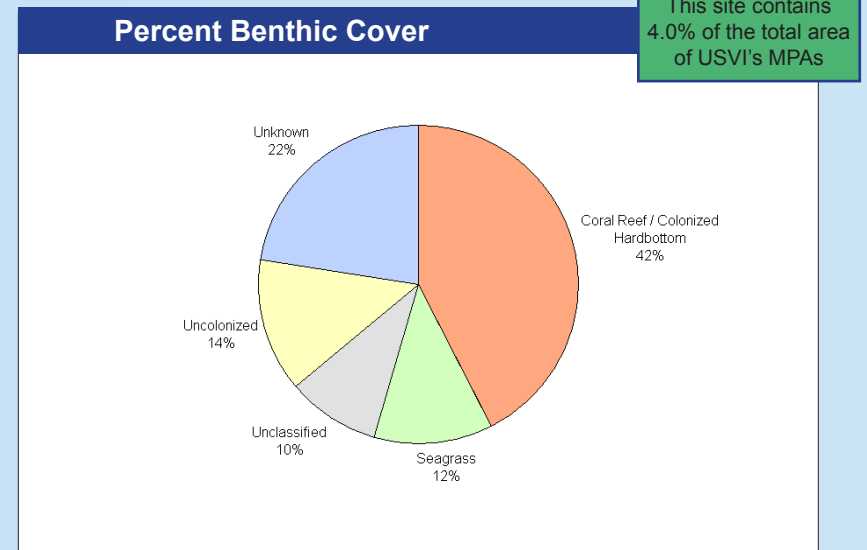
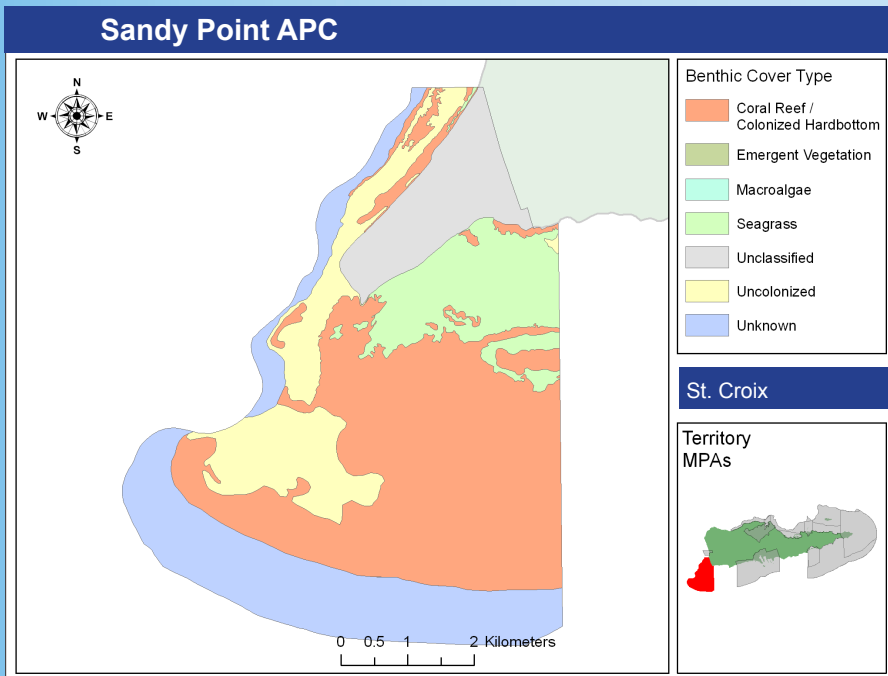
# Sandy Point APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

The Sandy Point APC encompasses an area of 500 acres at the southwestern tip of the island of St. Croix. The resources found in this area include: the West End Salt Pond, a 3-mile-long nesting beach for sea turtles (primarily Leatherback Sea turtles), 99 species of birds, 5 federally listed endangered species, 12 locally listed endangered species, and prehistoric sites.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



# Southgate Pond–Chenay Bay APC

Management Agency: USVI Department of Planning & Natural Resources

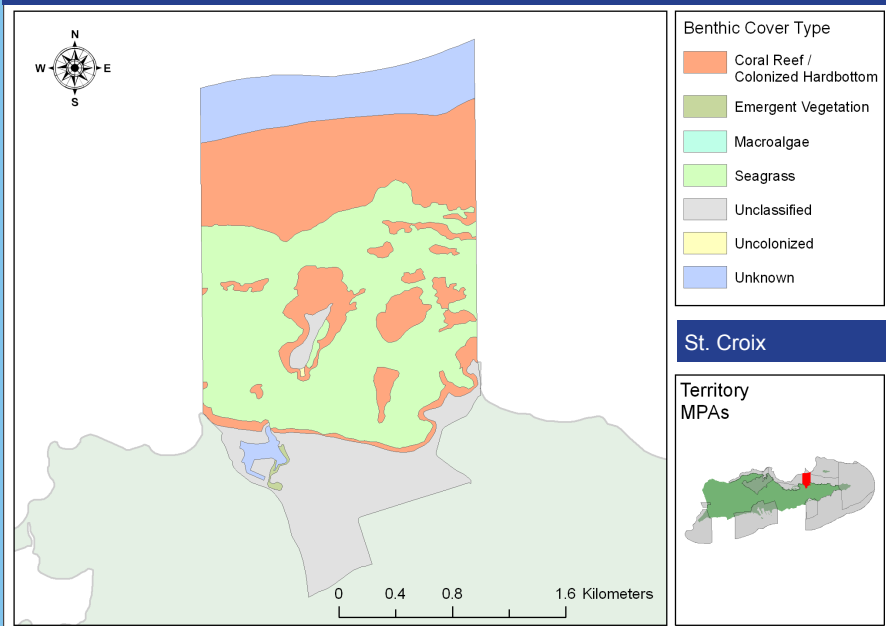
## Overview

The Southgate Pond–Chenay Bay APC is located on the north shore of the island of St. Croix, approximately 2.5 miles east of Christiansted. This reserve encompasses the shoreline and adjacent land areas from Punnett Point to Pull Point, and has a seaward boundary that extends north to the shelf edge or three-nautical mile territorial limit (whichever is closer). Southgate Pond is an important wetland and bird habitat, and Chenay Bay is a nesting ground for Hawksbill, Leatherback, and Green Sea Turtles.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.

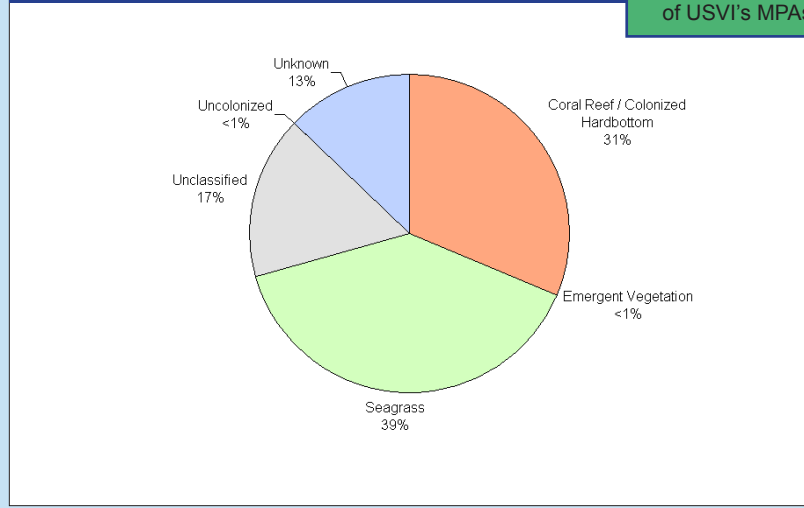


## Southgate Pond–Chenay Bay APC



## Percent Benthic Cover

This site contains 0.7% of the total area of USVI's MPAs





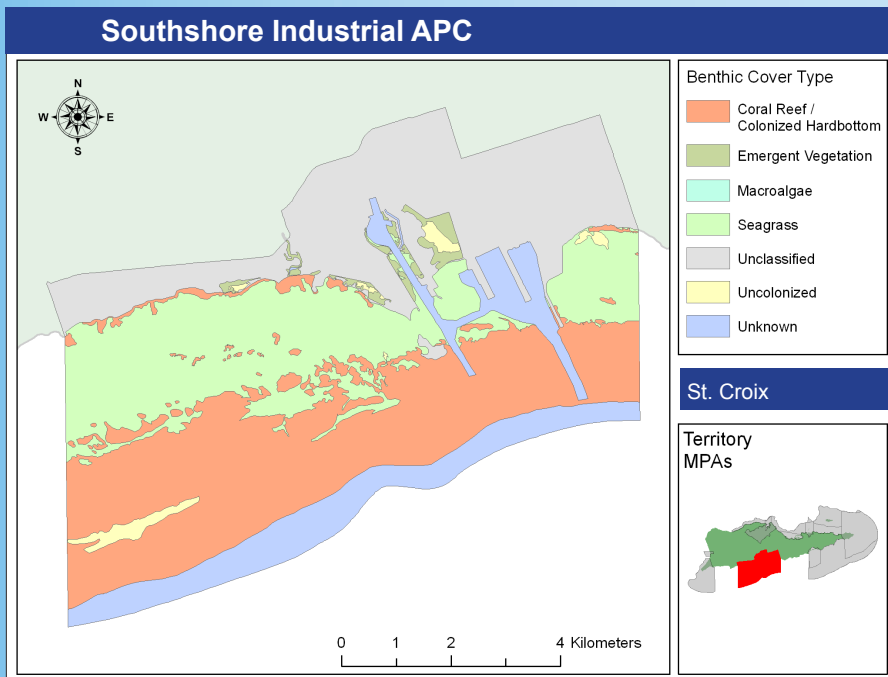
# Southshore Industrial APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

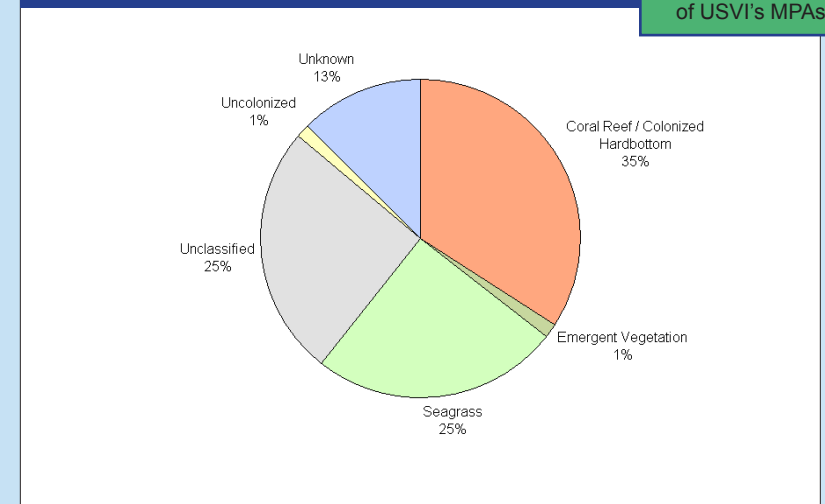
The Southshore Industrial APC is located approximately midway along the south shore of the island St. Croix, extending from Cane Garden in the east to Manning Bay in the west. This area contains the largest industrial complex in the U.S. Virgin Islands. The Southshore Industrial APC was established to reduce the negative impact that industrial pollution has on the marine environment.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



## Percent Benthic Cover

This site contains 7.1% of the total area of USVI's MPAs



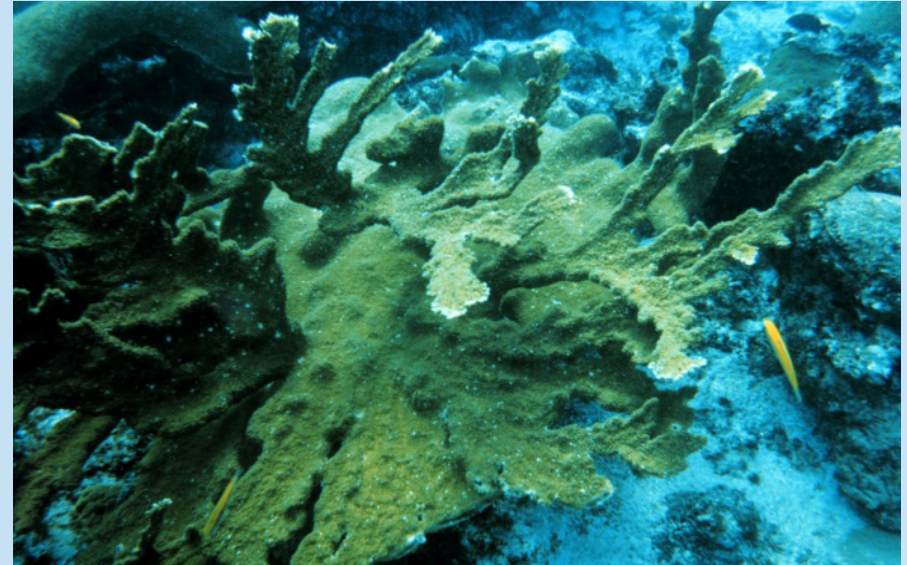
# St. Croix Coral Reef APC

Management Agency: USVI Department of Planning & Natural Resources

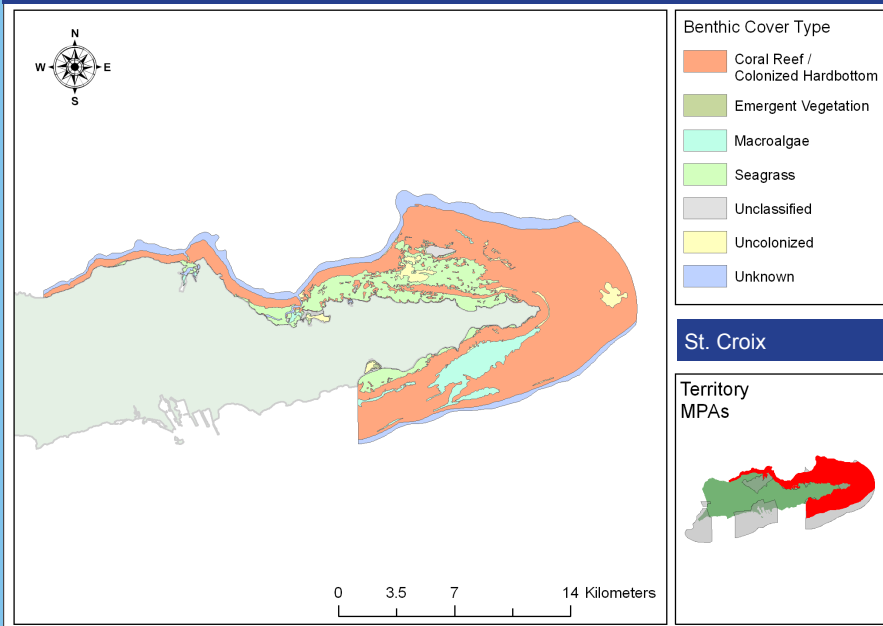
## Overview

The St. Croix Coral Reef APC is located just offshore of the island of St. Croix, running parallel to the shoreline from Coakley Bay in the north to Great Pond Bay in the south. This area is home to a diverse reef ecosystem, with 3 species of fire corals and 34 species of hard corals. This APC also supports sea turtles, the St. Croix Ground Lizard, and a variety of birds.

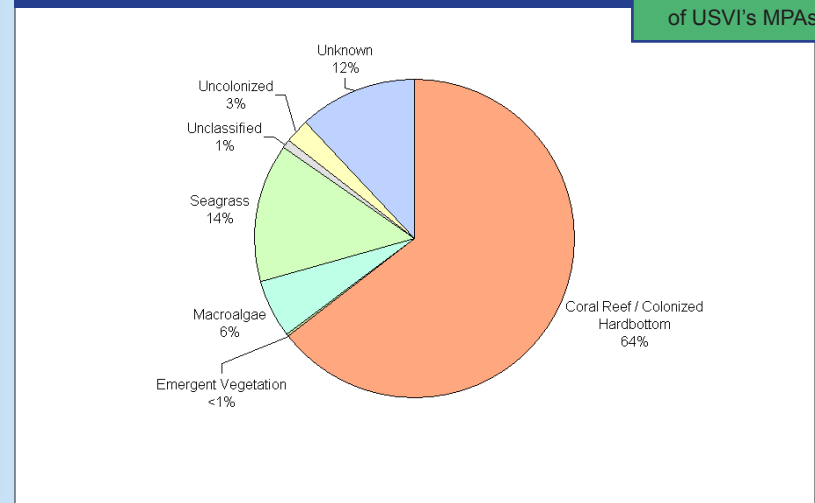
Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



## St. Croix Coral Reef APC



## Percent Benthic Cover



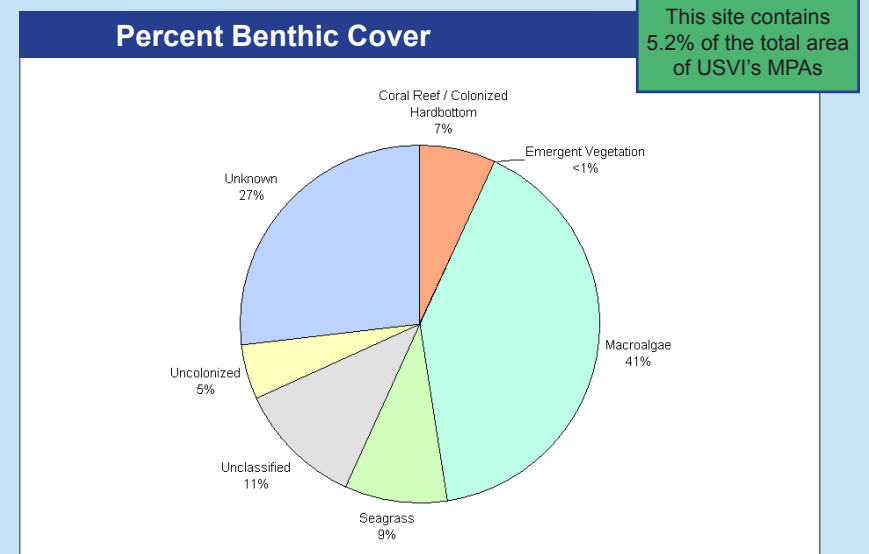
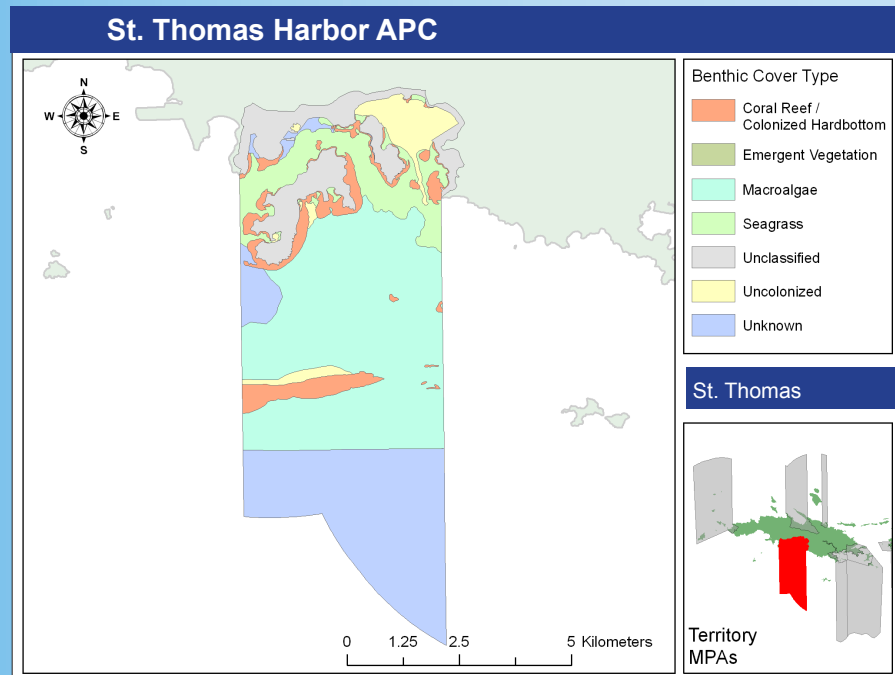
# St. Thomas Harbor APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

The St. Thomas Harbor APC is located on the south central shore of the island of St. Thomas. The harbor is scenic, sheltered, and one of the deep draft harbors in the Caribbean. It includes: Frenchtown, Water Island, Hassel Island, Crown Bay, Krum Bay, Frenchman's Reef to Havensight Point, and Long Bay and the downtown waterfront. The St. Thomas Harbor APC is home to several endangered species, among them: manatee, Humpback whale, and the Red-Billed tropicbird.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.





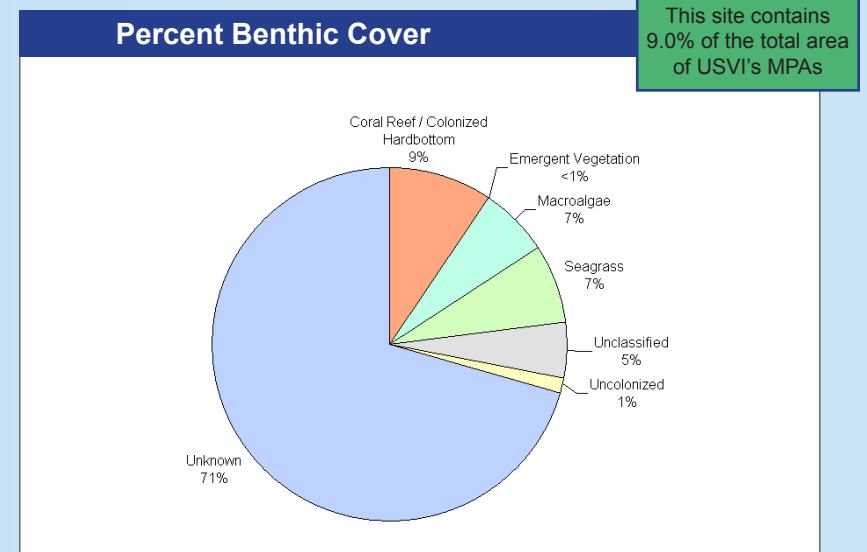
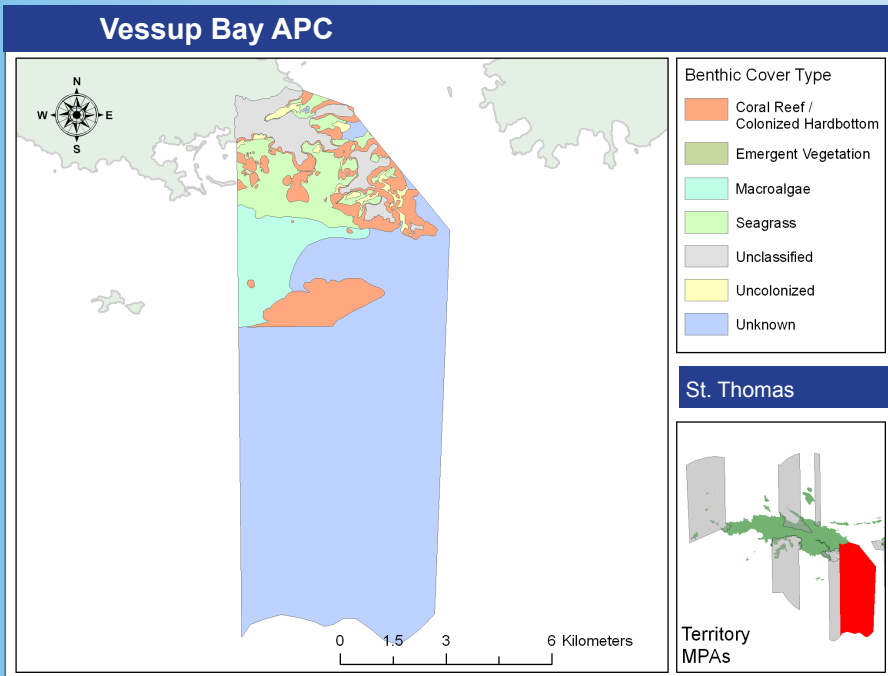
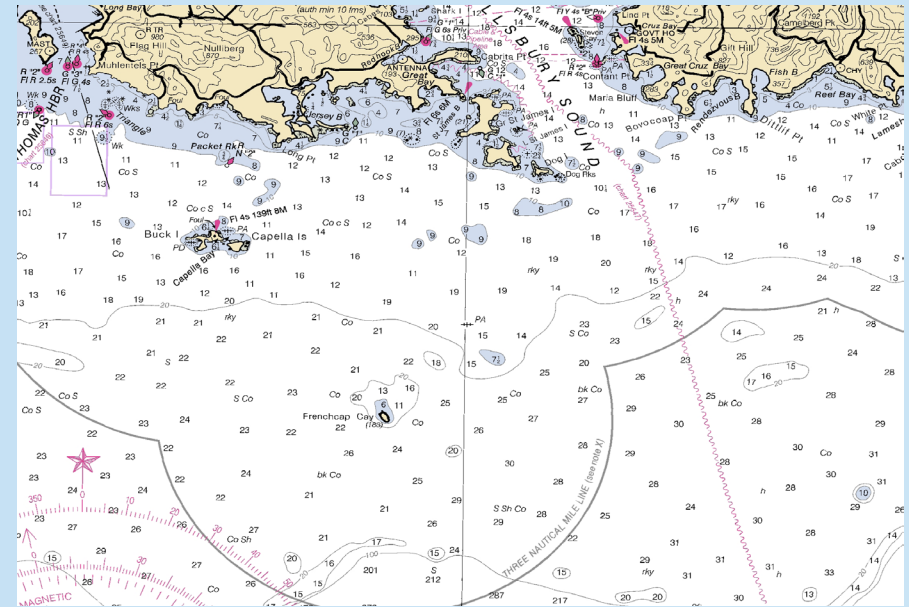
# Vessup Bay APC

Management Agency: USVI Department of Planning & Natural Resources

## Overview

The Vessup Bay APC is located at the southeast end of the island of St. Thomas. This APC is made up of three bays—Red Hook, Vessup, and Muller—that experience heavy marine traffic given the proximity of the neighboring island of St. John. The Vessup Bay APC was established to address this intense concentration of boating activity, particularly as it relates to three species of endangered sea turtles (Green, Hawksbill, and Leatherback) found in the area.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



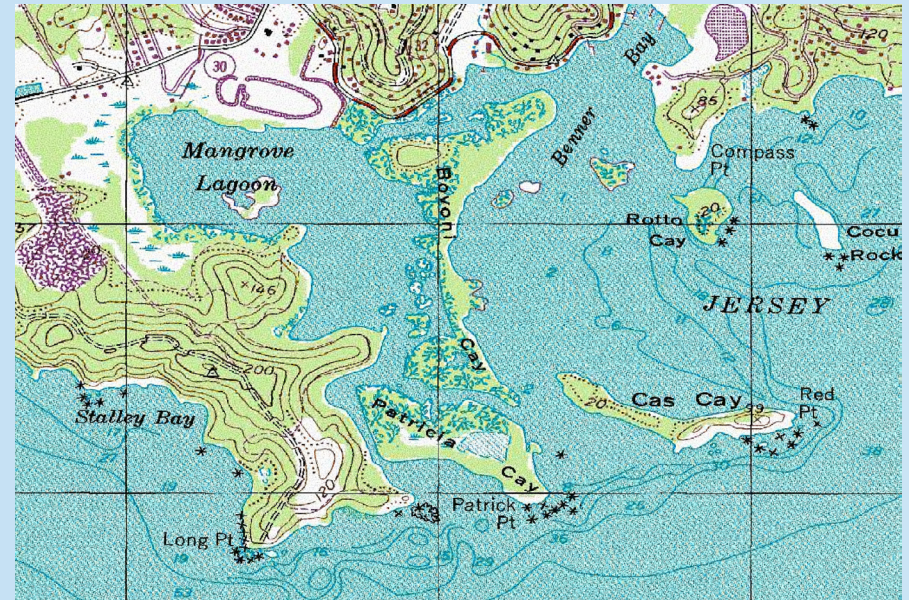
# Cas Cay–Mangrove Lagoon MRWS

Management Agency: USVI Department of Planning & Natural Resources

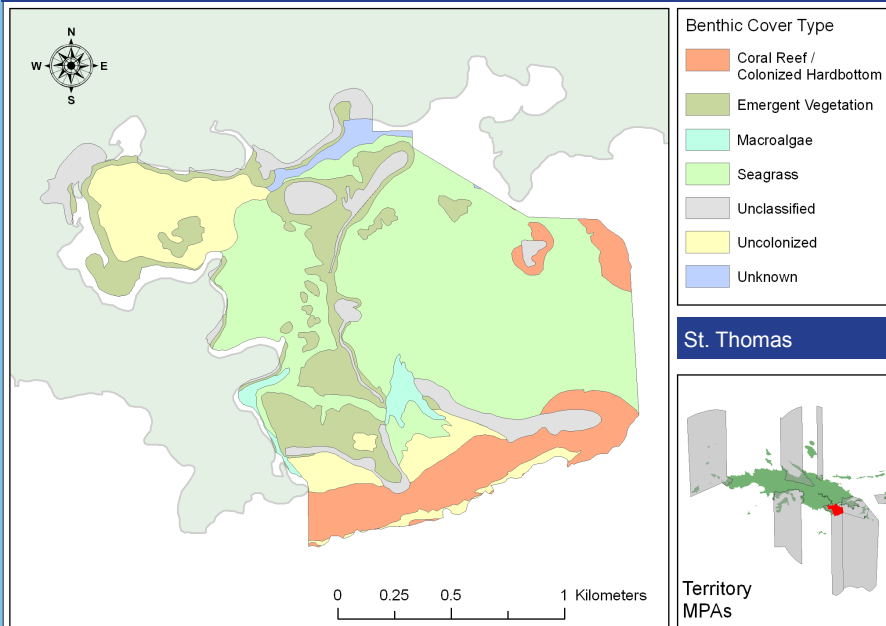
## Overview

The Cas Cay-Mangrove Lagoon Marine Reserve and Wildlife Sanctuary (MRWS) is located at the southeastern end of the island of St. Thomas. This diverse area of Salt Ponds, mangrove forests, lagoons, reefs, and cays supports a variety of organisms, and it is considered one of the most valuable wildlife nursery areas remaining in the U.S. Virgin Islands.

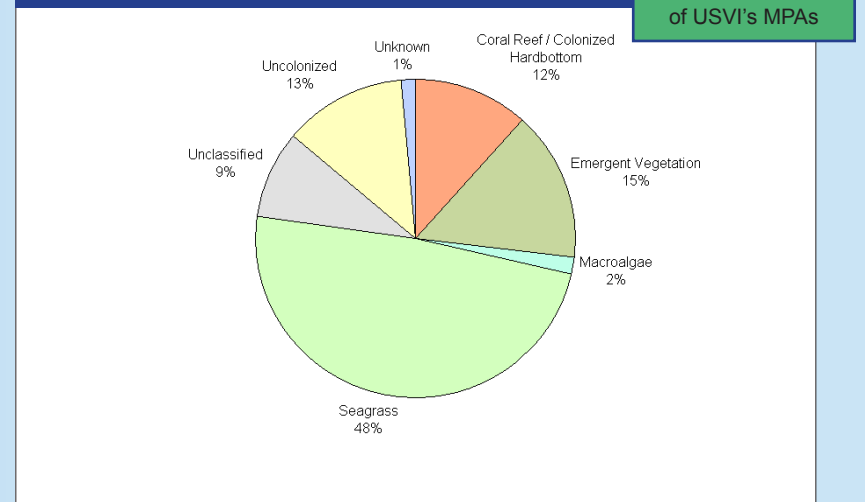
Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



## Cas Cay–Mangrove Lagoon MRWS



## Percent Benthic Cover



# Compass Point Pond MRWS

Management Agency: USVI Department of Planning & Natural Resources

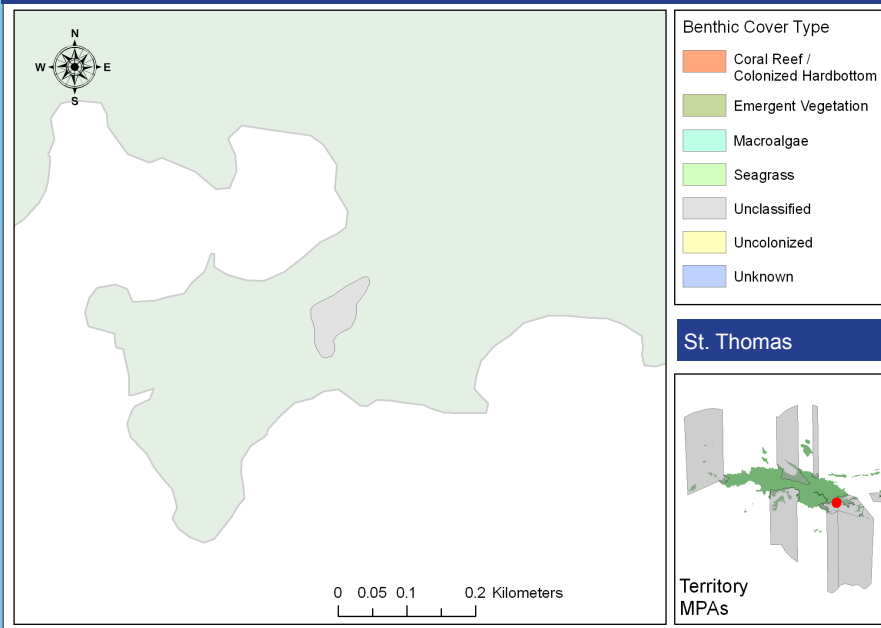
## Overview

The Compass Point Pond MRWS is located at the southeastern end of the island of St. Thomas, and contains salt ponds and mangrove forests that are prime habitats for juvenile fish. A variety of birds, such as the locally endangered Bahama Duck, also frequent this diverse area.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.

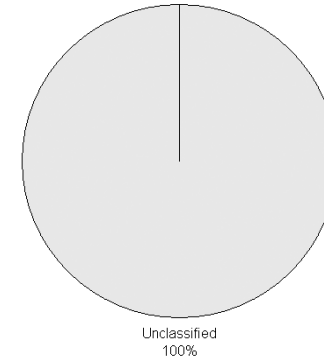


## Compass Point Pond MRWS



## Percent Benthic Cover

This site contains <0.1% of the total area of USVI's MPAs





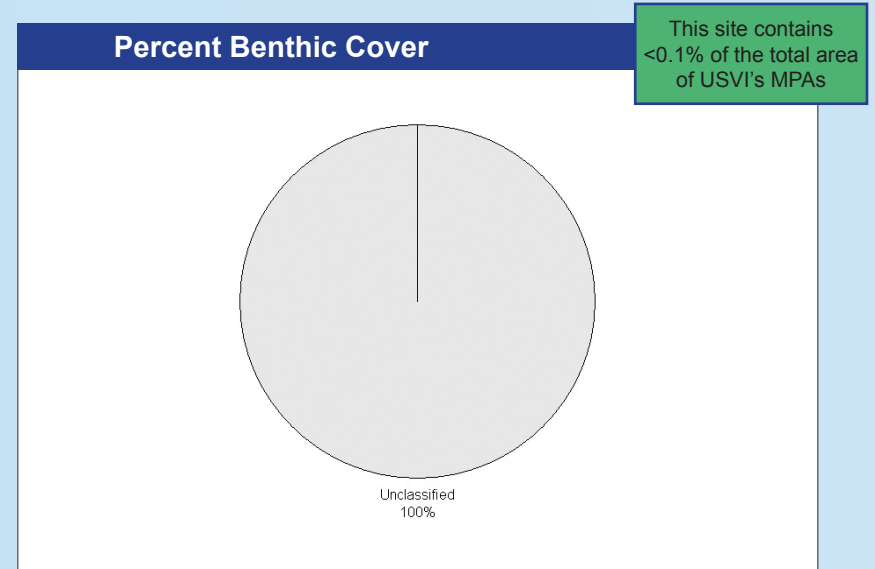
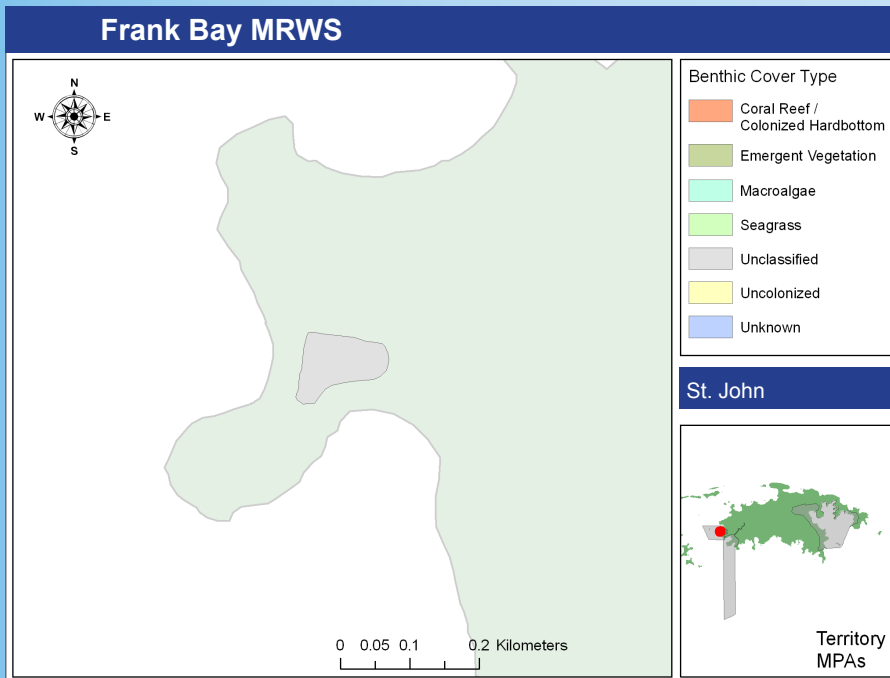
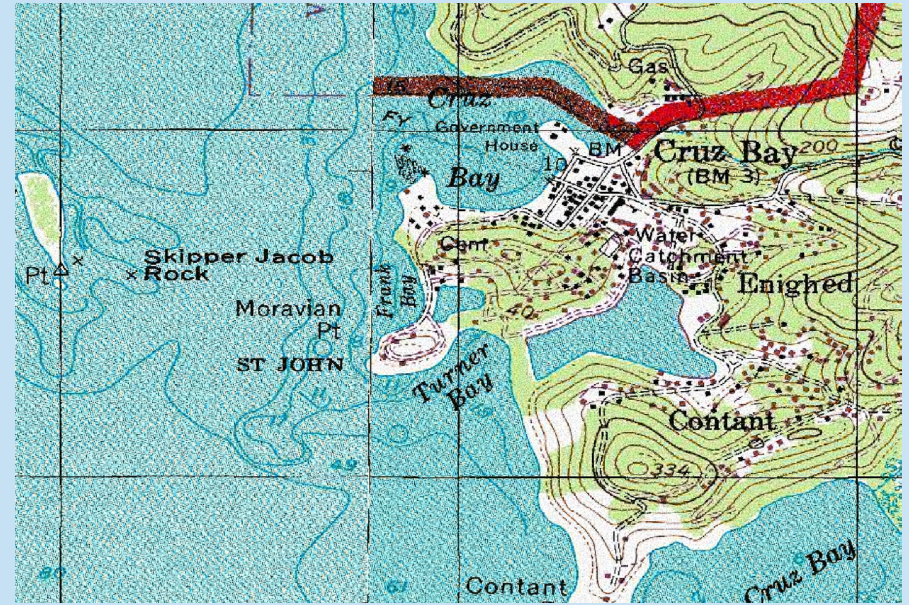
# Frank Bay MRWS

Management Agency: USVI Department of Planning & Natural Resources

## Overview

Located on the southwest coast of the island of St. John, the Frank Bay MRWS is a salt pond located one half mile southwest of the Cruz Bay Ferry Dock. The site was established to protect valuable fisheries resources and wildlife habitats. Many species of birds have benefited from this protection and are now frequently observed at this site. These include: warblers, sandpipers, Black necked stilts, Lesser Yellowlegs, herons, egrets, and Bahama Ducks.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



# St. James MRWS

Management Agency: USVI Department of Planning & Natural Resources

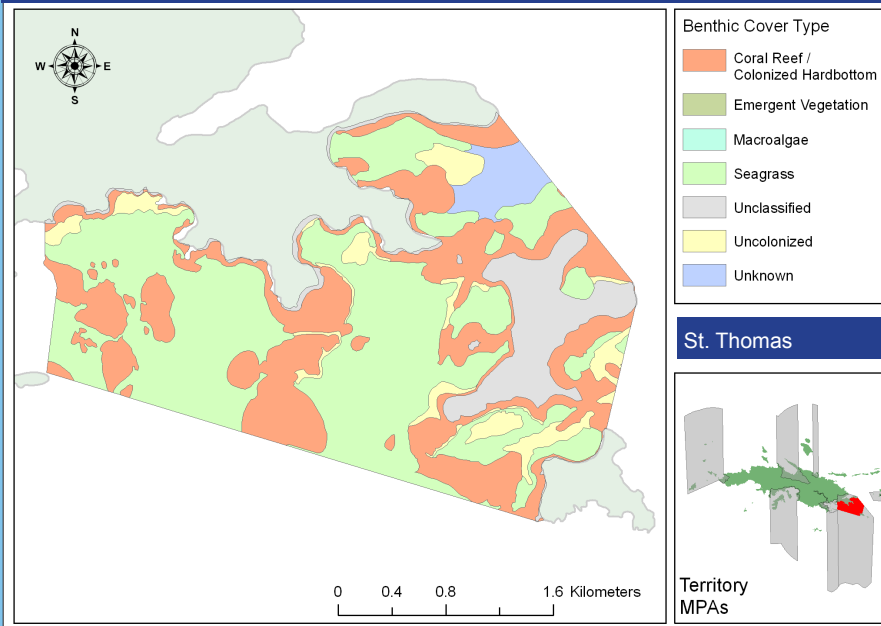
## Overview

The St. James MRWS is located at the east end of the island of St. Thomas. This reserve is made up of Jersey Bay and St. James Bay, with Cas Cay as its western boundary and Little St. James Island and Great St. James Island as its eastern boundary. This area of mangrove forests, coral reefs, and seagrass beds, is home to a variety of birds, invertebrates, and juvenile fish.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.

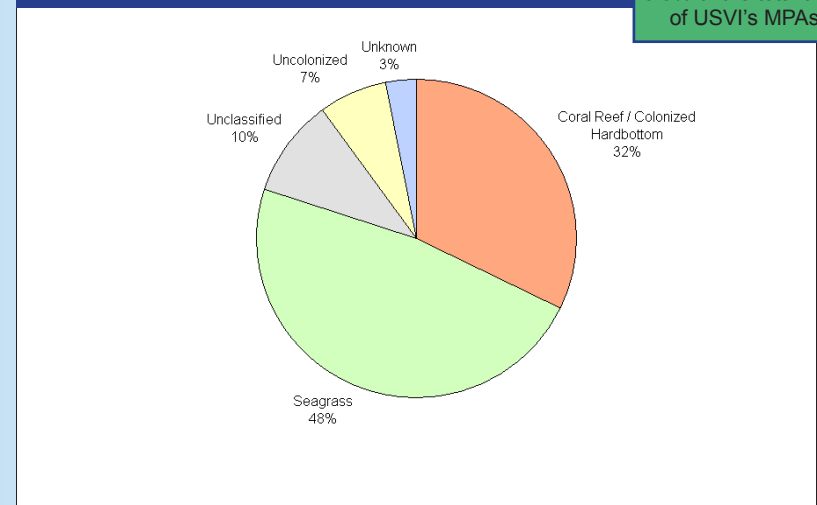


## St. James MRWS



## Percent Benthic Cover

This site contains 0.9% of the total area of USVI's MPAs





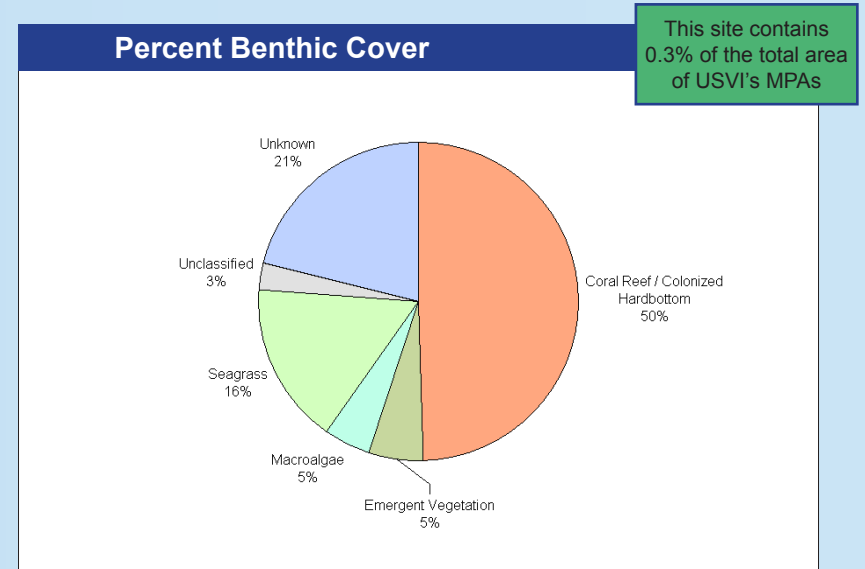
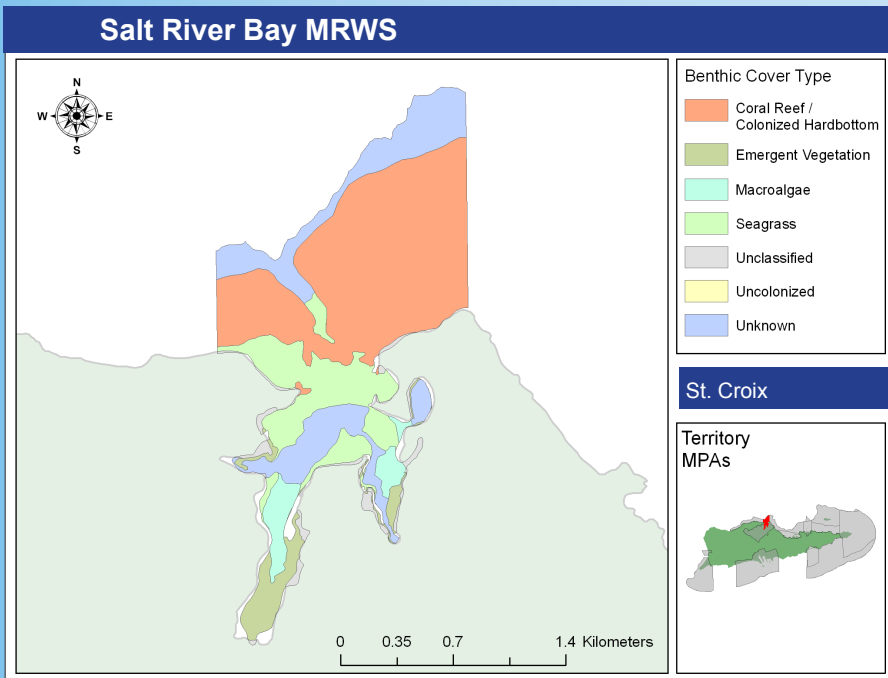
# Salt River Bay MRWS

Management Agency: USVI Department of Planning & Natural Resources

## Site Purpose

The Salt River Bay MRWS is located on the north shore of the island of St. Croix, 4.5 miles west of Christiansted. This reserve encompasses the entire watershed of Salt River Bay. The reserve is home to the largest remaining mangrove forest in the U.S. Virgin Islands, which supports many algal and invertebrate species, including the valuable Mangrove and Flat Tree Oysters. This site also supports extensive seagrass beds, and coral reef gardens. On a historical note, this is the only known land area in the United States visited by Christopher Columbus.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.





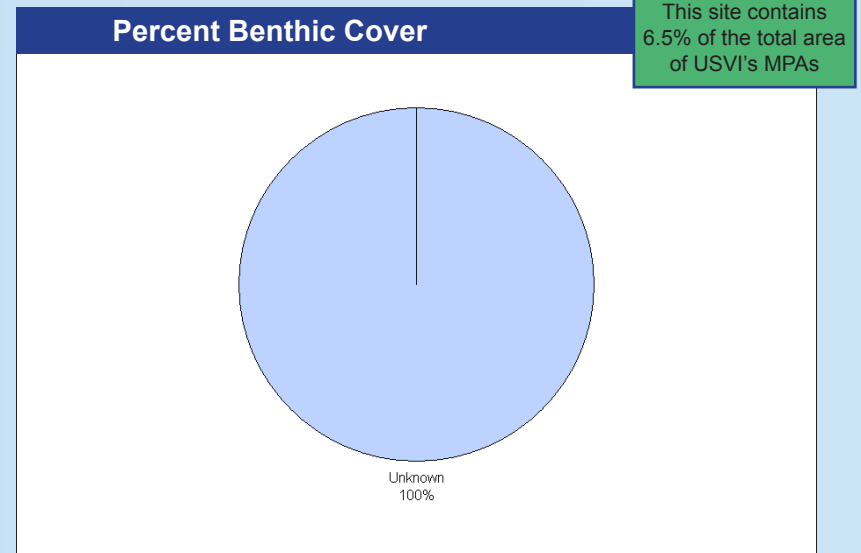
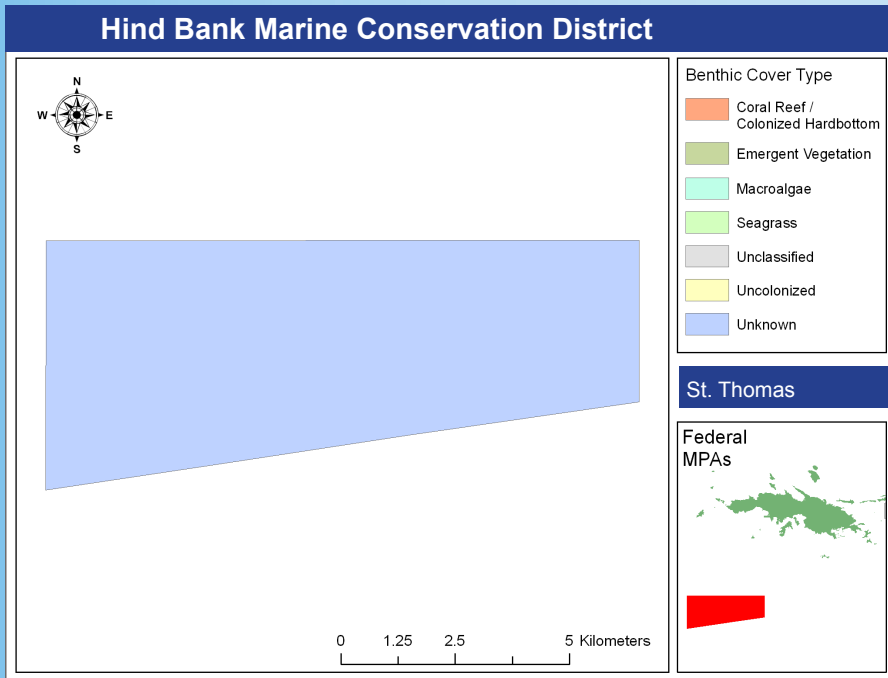
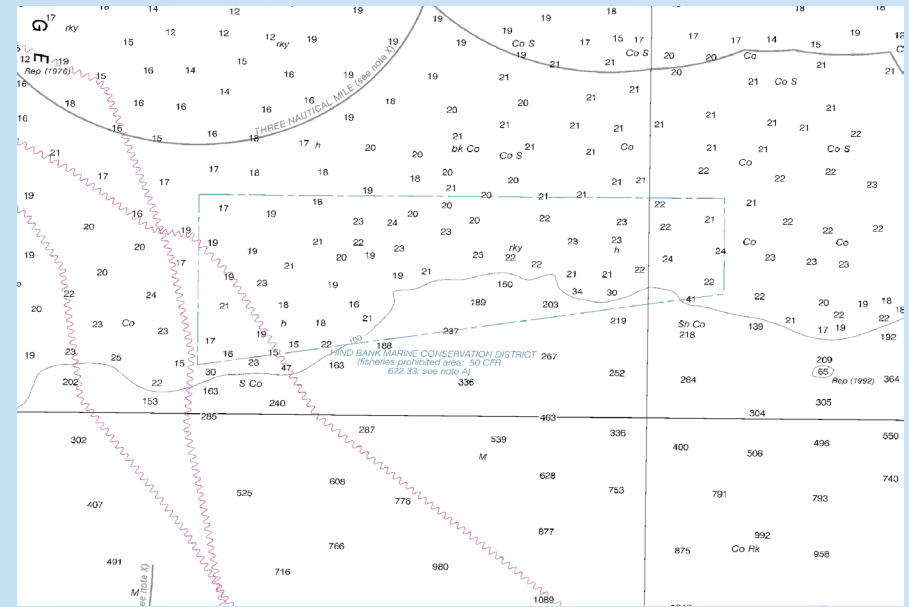
# Hind Bank Marine Conservation District

Management Agency: National Oceanic & Atmospheric Administration

## Overview

The Hind Bank Marine Conservation District is located to the southwest of the island of St. Thomas, on a coral bank that is roughly 20 fathoms deep. The bathymetry consists of a series of coral ridges interspersed with sandy depressions. This Conservation District is regulated as a “no-take” area in order to protect coral reef resources, such as the Red Hind—a commercially important fish that congregates for spawning on Hind Bank. The dominant coral on Hind Bank is the boulder star coral, *Montastrea annularis*. Observed colonies of this coral are roughly 1 meter in diameter and are at least 100 years old.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA’s National Marine Protected Areas Center.



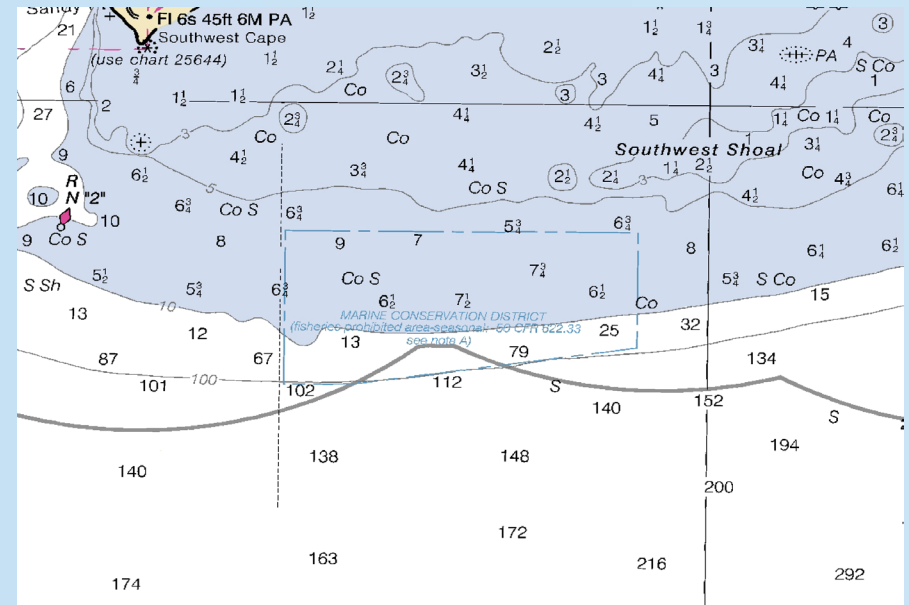
# Mutton Snapper Spawning Aggregation Area

Management Agency: National Oceanic & Atmospheric Administration

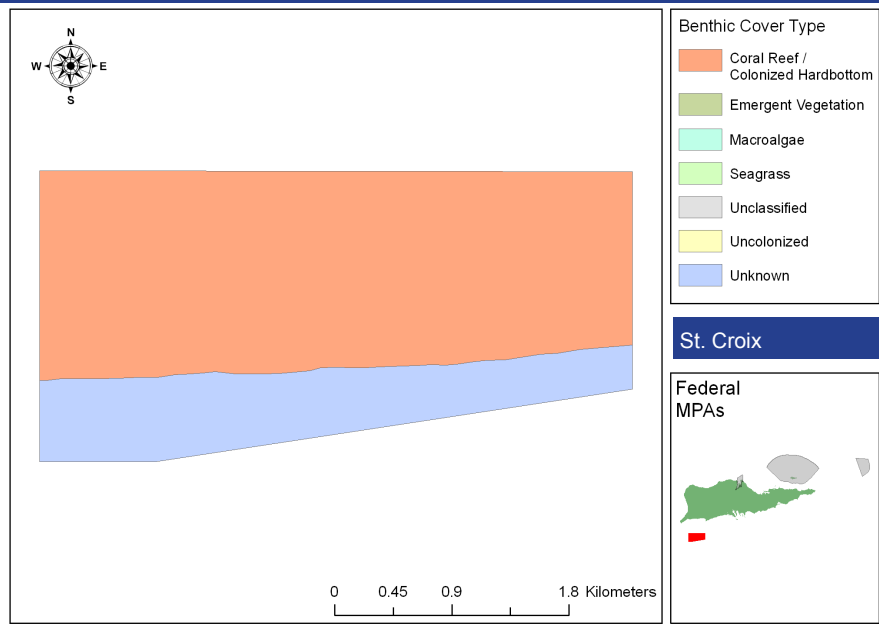
## Overview

The Mutton Snapper Spawning Aggregation Area is located in a coral reef ecosystem off the southwestern shore of the island of St. Croix, in waters as deep as 100 fathoms. This is a significant spawning area for Mutton Snapper, an important commercial and recreational species of fish. As such, fishing of any kind in this area is prohibited during Mutton Snapper spawning season (March 1 – June 30).

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.

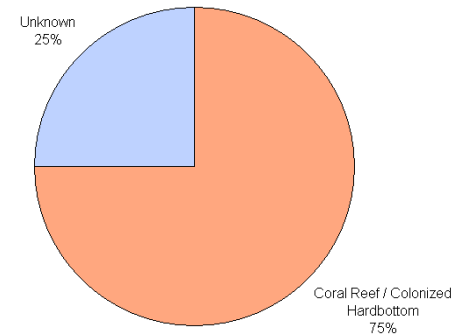


## Mutton Snapper Spawning Aggregation Area



## Percent Benthic Cover

This site contains 1.0% of the total area of USVI's MPAs



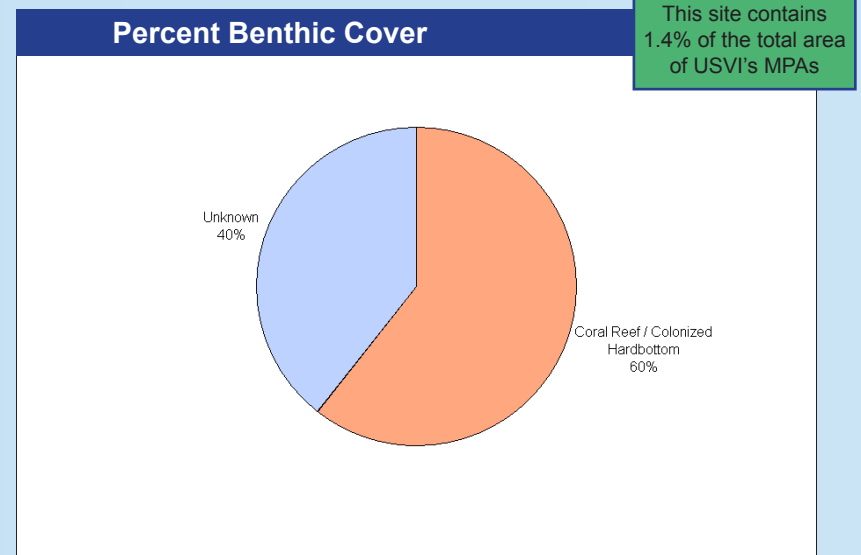
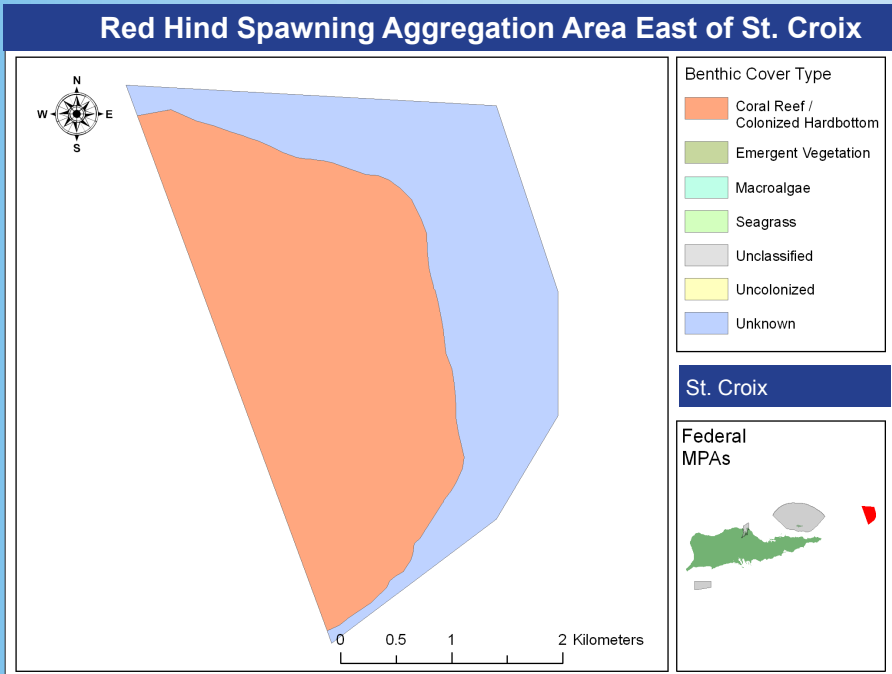
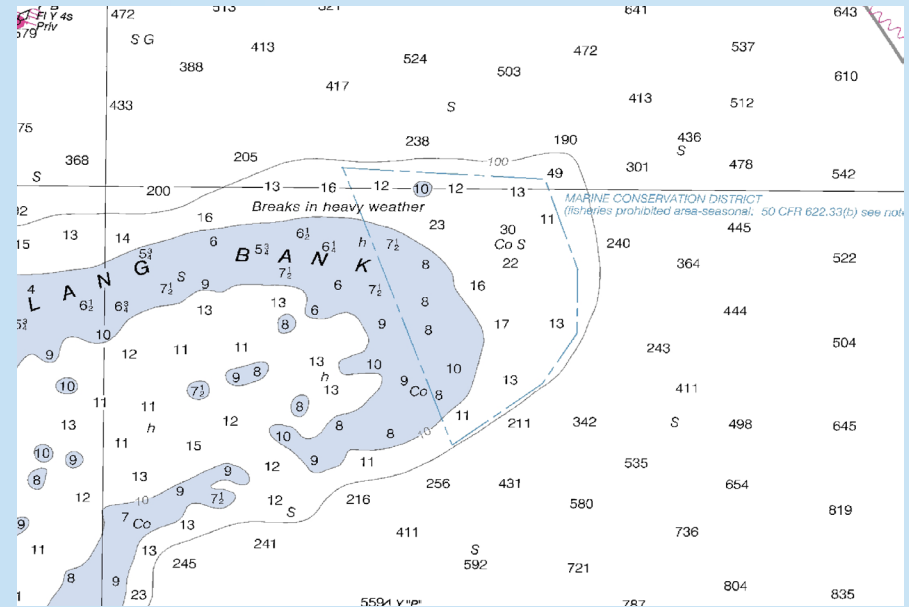
# Red Hind Spawning Aggregation Area East of St. Croix

Management Agency: National Oceanic & Atmospheric Administration

## Overview

This Red Hind Spawning Aggregation Area is located approximately 6.5 nautical miles east of the island of St. Croix. This bank is composed primarily of coral reef, which is used by a variety of fish species, including the commercially viable Red Hind for spawning. Red Hind became a commercially important species following the collapse of the Nassau Grouper fishery. This marine managed area is closed to fishing each year from December 1 to February 28. Collection of fish for the aquarium trade is also prohibited during the closure.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.





# Buck Island Reef National Monument

Management Agency: National Park Service

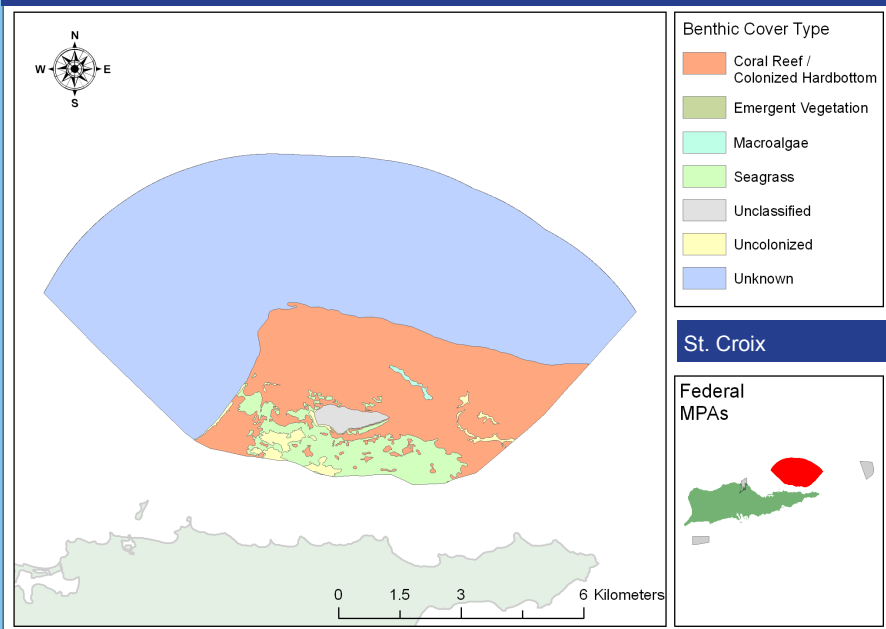
## Overview

The Buck Island Reef National Monument is located just northeast of the island of St. Croix. The monument is a 176-acre island surrounded by barrier coral reef, an inshore lagoon, and open ocean, totaling 19,015 acres. Buck Island Reef National Monument was established by Presidential proclamation in 1961, and expanded in 2001, in order to preserve "one of the finest marine gardens in the Caribbean Sea." The park is now one of only a few fully marine protected areas in the National Park System.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.

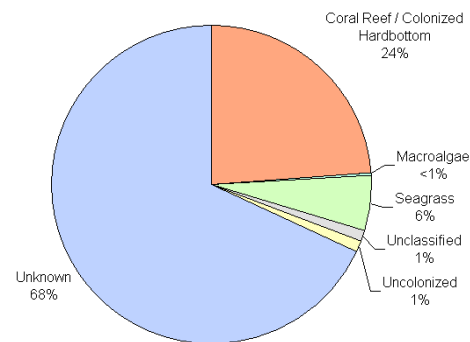


## Buck Island National Monument



## Percent Benthic Cover

This site contains 9.0% of the total area of USVI's MPAs



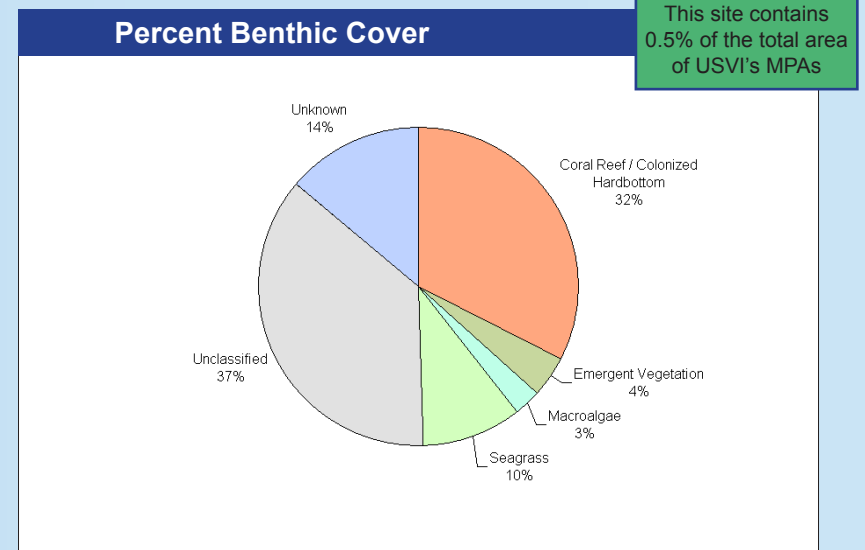
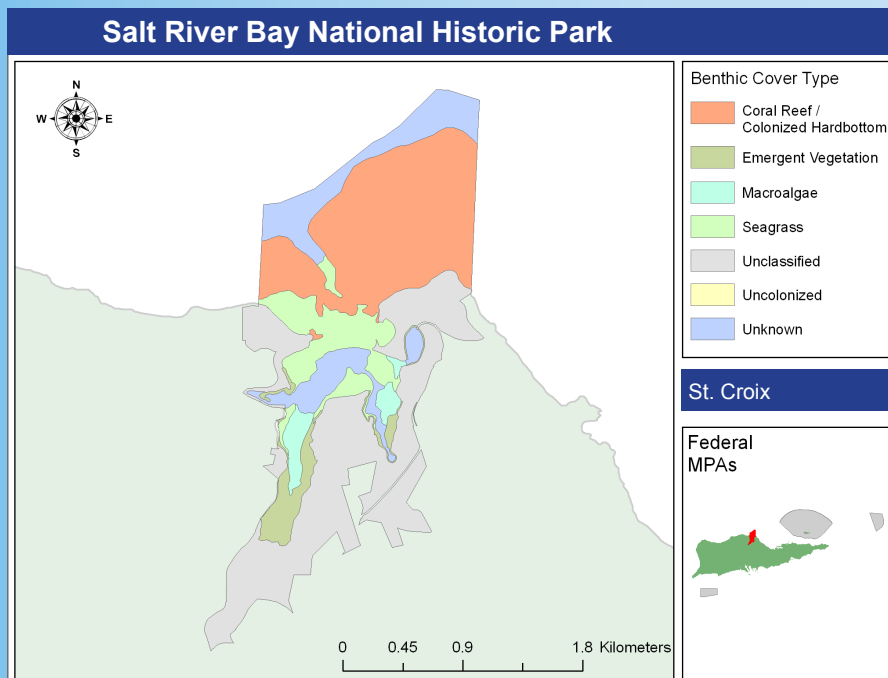
# Salt River Bay National Historic Park

Management Agency: National Park Service

## Overview

The Salt River Bay National Historic Park is located on the north shore of the island of St. Croix, 4.5 miles west of Christiansted. This area is home to the largest remaining mangrove forest in the U.S. Virgin Islands, which supports many algal and invertebrate species, including the valuable Mangrove and Flat Tree Oysters. There are a total of 27 threatened or endangered plants and animals that reside within the Salt River Bay watershed, including Swamp Fern, *Malphigia infestissima*, and Vahl's Boxwood.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.



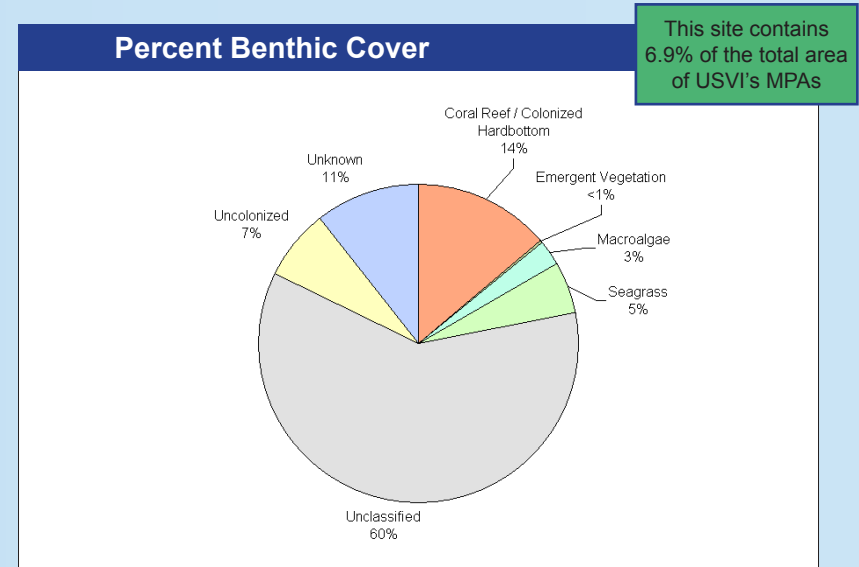
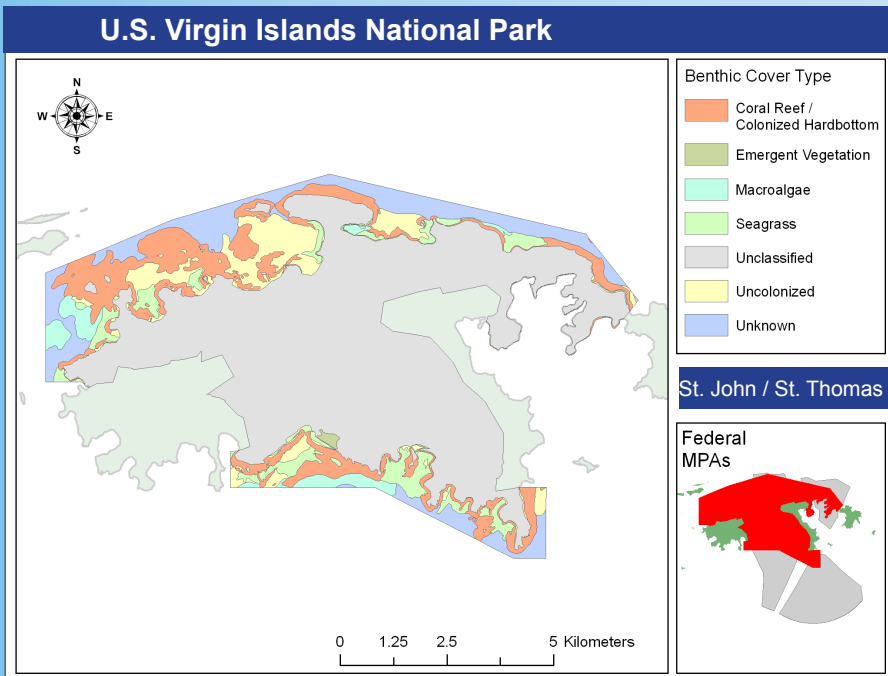
# U.S. Virgin Islands National Park

Management Agency: National Park Service

## Overview

The U.S. Virgin Islands National Park covers approximately 56 percent of the island of St. John, and nearly all of Hassel Island in the Charlotte Amalie Harbor of the island of St. Thomas. This area encompasses about 7,146 acres of land, including most of the St. John's beaches, the remains of centuries-old sugar plantations, large tracts of undeveloped tropical forest, and some 5,650 acres of surrounding waters.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.





# U.S. Virgin Islands Coral Reef National Monument

Management Agency: National Park Service

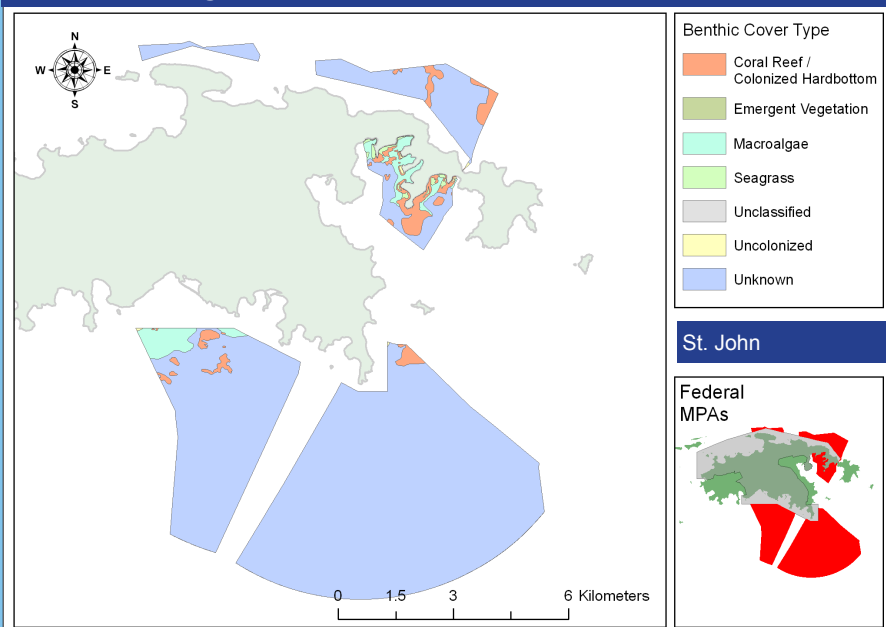
## Overview

The U.S. Virgin Islands Coral Reef National Monument is located in the U.S. Virgin Islands and includes 12,708 acres of federal submerged lands within the 3-nautical-mile territorial limit of the island of St. John, including Hurricane Hole (pictured at right) and areas north and south of St. John. This monument was established by President Clinton in 2001 to provide protection for the sensitive coral reef ecosystem of St. John, and to further the protection of marine resources included in the U.S. Virgin Islands National Park.

Source of Overview: U.S. Marine Managed Areas Inventory (2006a), NOAA's National Marine Protected Areas Center.

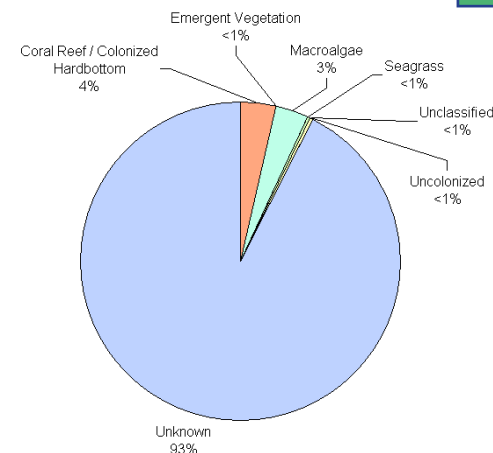


## U.S. Virgin Islands Coral Reef National Monument



## Percent Benthic Cover

This site contains 6.0% of the total area of USVI's MPAs



## Appendix A: National MPA Classification System

The National Classification System was developed by the National MPA Center in an effort to develop a “straightforward and consistent language to accurately describe the many types of MPAs occurring in our waters and to understand their effects on ecosystems and the people that use them” (NOAA National MPA Center, 2006b). A full description of the classification system is available at [www.mpa.gov](http://www.mpa.gov). The system describes MPAs in purely functional terms using five objective characteristics common to most MPAs:

- 1) Conservation Focus – each site was assigned one or more of the following three attributes:
  - a. *Natural Heritage* – established and managed to sustain, conserve, restore and understand the biodiversity, populations, communities, habitats, ecosystems, processes and services of an MPA or MPA zone
  - b. *Cultural Heritage* – established and managed to protect and understand submerged cultural resources
  - c. *Sustainable Production* – established and managed to support the continued extraction of renewable living resources
- 2) Level of Protection Afforded – each site was assigned one of the following six attributes:
  - a. *Uniform Multiple-Use* – Consistent level of protection and allowable activities throughout the MPA
  - b. *Zoned Multiple-Use* – Some extractive activities allowed throughout entire site, but use marine zoning to allocate specific uses to compatible places or times
  - c. *Zoned Multiple-Use with No-Take Areas* – Multiple-use MPAs that contain one or more zones where resource extraction is prohibited
  - d. *No-Take* – MPA sites that allow human access but prohibit resource extraction throughout the area
  - e. *No Impact* – MPAs that allow human access but prohibit all activities that could harm the site’s resources or disrupt the service they provide
  - f. *No Access* – MPAs that restrict all human access to the area unless specifically permitted for designated special uses
- 3) Permanence of Protection – each site was assigned one of the following three attributes:
  - a. *Permanent* – MPAs whose legal authorities provide protection in perpetuity
  - b. *Conditional* – MPAs that have the potential to persist over time but

- whose legal authority has a finite duration and must be actively renewed
    - c. *Temporary* – MPAs that are designed to address relatively short-term conservation and management needs by protecting a specific habitat or species for a finite duration with no expectation or mechanism for renewal
- 4) Constancy of Protection – each site was assigned one of the following three attributes:
  - a. *Year-round* – MPAs that provide constant protection throughout the year
  - b. *Seasonal* – MPAs that protected specific habitats and resources during fixed seasons or periods
  - c. *Rotating* – MPAs that cycle among a set of fixed geographic areas in order to meet short-term conservation and management goals
- 5) Ecological Scale of Protection – each site was assigned one of the following two attributes:
  - a. *Ecosystem* – MPAs whose legal authorities and management measures are intended to protect all of the components and processes of the ecosystem(s) within its boundaries
  - b. *Focal Resource* – MPAs whose legal authorities and management measures specifically target a particular habitat, species complex, or single resource

## Appendix B: U.S. Virgin Islands MPA Classification

Site Name	Conservation Goal	Level of Protection	Permanence of Protection	Constancy of Protection	Scale of Protection	Management Plan
<b>East End Marine Park*</b>	Natural Heritage	Zoned Multiple-Use with No-Take Areas	Permanent	Year Round	Ecosystem	Yes
<b>Botany Bay APC*</b>	Natural & Cultural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Christiansted APC*</b>	Natural & Cultural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Chocolate Hole*</b>	Natural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Coral Bay APC*</b>	Natural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>East End APC*</b>	Natural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Enighed Pond APC*</b>	Natural & Cultural Heritage & Sustainable Production	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Frederiksted APC*</b>	Natural & Cultural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Great Pond APC*</b>	Natural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Magens Bay APC*</b>	Natural & Cultural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Mandahl Bay APC*</b>	Natural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Mangrove Lagoon APC*</b>	Natural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Salt River Bay APC*</b>	Natural & Cultural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Sandy Point APC*</b>	Natural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Southgate Pond–Chenay APC*</b>	Natural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>Southshore Industrial APC*</b>	Natural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
<b>St. Croix Coral Reef APC*</b>	Natural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No



## Appendix B: U.S. Virgin Islands MPA Classification

Site Name	Conservation Goal	Level of Protection	Permanence of Protection	Constancy of Protection	Scale of Protection	Management Plan
St. Thomas Harbor APC*	Cultural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
Vessup Bay APC*	Natural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	No
Cas Cay–Mangrove Lagoon MRWS*	Natural Heritage	No Take	Permanent	Year Round	Ecosystem	No
Compass Point Pond MRWS*	Natural Heritage	No Take	Permanent	Year Round	Ecosystem	No
Frank Bay MRWS*	Natural Heritage	No Take	Permanent	Year Round	Ecosystem	No
St. James MRWS*	Natural Heritage & Sustainable Production	No Take	Permanent	Year Round	Ecosystem	No
Salt River Bay MRWS*	Natural Heritage & Cultural Heritage	No Impact	Permanent	Year Round	Ecosystem	No
Hind Bank Marine Conservation District**	Natural Heritage & Sustainable Production	No Take	Permanent	Year Round	Ecosystem	Yes
Mutton Snapper Spawning Aggregation Area**	Sustainable Production	No Take	Permanent	Seasonal	Focal Resource	Yes
Red Hind Spawning Aggregation Area East of St. Croix**	Sustainable Production	No Take	Permanent	Seasonal	Focal Resource	Yes
Buck Island Reef National Monument**	Natural Heritage & Cultural Heritage	No Take	Permanent	Year Round	Ecosystem	Yes
Salt River Bay National Historic Park**	Natural Heritage & Cultural Heritage	Uniform Multiple Use	Permanent	Year Round	Ecosystem	Yes
U.S. Virgin Islands National Park**	Natural Heritage & Cultural Heritage	Zoned with No-Take Areas	Permanent	Year Round	Ecosystem	Yes
U.S. Virgin Islands Coral Reef National Monument**	Natural Heritage & Cultural Heritage	Zoned Multiple Use	Permanent	Year Round	Ecosystem	Yes

\* Territory MPA

\*\* Federal MPA

## Appendix C: Benthic Cover (km<sup>2</sup>) by Site

	Coral reef / Colonized Hardbottom	Emergent Vegetation	Macroalgae	Seagrass	Unclassified	Uncolonized	Unknown	Total
East End Marine Park*	80.451	0.00	9.475	13.964	0.042	2.866	43.517	150.316
Botany Bay APC*	4.039	0.000	0.197	0.109	2.478	0.631	69.072	76.526
Christiansted APC*	1.675	0.193	0.213	2.393	1.335	0.341	0.239	6.389
Chocolate Hole*	0.289	0.000	0.203	0.526	0.993	0.000	7.659	9.673
Coral Bay APC*	3.512	0.071	1.632	1.417	5.307	0.538	3.599	16.075
East End APC*	58.854	0.000	1.248	0.899	3.239	1.907	5.433	71.580
Enighed Pond APC*	0.566	0.000	0.000	0.357	0.391	0.017	1.286	2.617
Frederiksted APC*	0.588	0.000	0.000	0.000	0.492	0.347	0.530	1.957
Great Pond APC*	7.014	0.162	0.545	2.141	0.972	0.242	0.771	11.846
Magens Bay APC*	1.744	0.015	0.128	0.000	6.112	0.216	31.888	40.102
Mandahl Bay APC*	1.407	0.004	0.000	0.000	0.564	0.005	8.036	10.017
Mangrove Lagoon APC*	0.683	0.529	5.749	1.734	1.560	0.419	16.618	27.311
Salt River Bay APC*	1.161	0.181	0.115	0.410	15.975	0.000	0.669	18.511
Sandy Point APC*	14.482	0.000	0.000	4.003	3.240	4.627	7.667	34.019
Southgate Pond–Chenay APC*	1.762	0.011	0.000	2.203	0.934	0.002	0.716	5.629
Southshore Industrial APC*	20.787	0.788	0.000	15.239	15.407	0.817	7.659	60.698
St. Croix Coral Reef APC*	109.531	0.205	9.900	24.208	1.080	4.620	20.062	169.606
St. Thomas Harbor APC*	3.132	0.002	18.030	4.153	5.073	2.179	12.087	44.656
Vessup Bay APC*	7.186	0.015	5.099	5.579	3.883	0.931	54.498	77.191
Cas Cay–Mangrove Lagoon MRWS*	0.310	0.400	0.044	1.283	0.233	0.334	0.035	2.638
Compass Point Pond MRWS*	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.005
Frank Bay MRWS*	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.008
St. James MRWS*	2.451	0.000	0.000	3.621	0.777	0.508	0.242	7.598
Salt River Bay MRWS*	1.193	0.132	0.110	0.397	0.068	0.000	0.508	2.407
Hind Bank Marine Conservation District**	0.000	0.000	0.000	0.000	0.000	0.000	55.467	55.467
Mutton Snapper Spawning Aggregation Area**	6.534	0.000	0.000	0.000	0.000	0.000	2.188	8.722

## Appendix C: Benthic Cover (km<sup>2</sup>) by Site

	Coral reef / Colonized Hardbottom	Emergent Vegetation	Macroalgae	Seagrass	Unclassified	Uncolonized	Unknown	Total
<b>Red Hind Spawning Aggregation Area East of St. Croix**</b>	7.076	0.000	0.000	0.000	0.000	0.000	4.623	11.699
<b>Buck Island Reef National Monument**</b>	18.539	0.000	0.115	4.396	0.702	0.968	52.543	77.263
<b>Salt River Bay National Historic Park**</b>	1.331	0.178	0.115	0.410	1.495	0.000	0.573	4.102
<b>U.S. Virgin Islands National Park**</b>	1.921	0.013	1.639	0.187	0.012	0.045	47.948	51.764
<b>U.S. Virgin Islands Coral Reef National Monument**</b>	8.157	0.179	1.550	3.069	35.755	4.189	6.281	59.181

\* Territory MPA

\*\* Federal MPA

Note: Area calculated in Eckert IV, WGS84 using XTools Pro 3.2.0 extension for ArcMap™ 9.1



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## References

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Mapping and Information Synthesis Working Group. 1999. Coral Reef Mapping Implementation Plan (2nd Draft). U.S. Coral Reef Task Force. Washington, DC, NOAA, NASA and USGS (Work Group Co-chairs). 17 pp.

Monaco, M.E., J.D. Christensen, and S.O. Rohmann. 2001. Mapping and Monitoring of U.S. Coral Reef Ecosystems. Earth System Monitor. Vol. 12(1):1-16.

NCRAS (National Coral Reef Action Strategy). 2002. A National Coral Reef Action Strategy: Report to Congress on implementation of the Coral Reef Conservation Act of 2002 and the National Action Plan to Conserve Coral Reefs in 2002-2003. NOAA. Silver Spring, Maryland. 120pp. + appendix.

NOAA National Centers for Coastal Ocean Science Biogeography Program. 2001. Benthic Habitats of Puerto Rico and the U.S. Virgin Islands (CD-ROM). Silver Spring, MD.

NOAA National Marine Protected Areas Center. 2006a. U.S. Marine Managed Areas Inventory. [http://www.mpa.gov/helpful\\_resources/inventory.html](http://www.mpa.gov/helpful_resources/inventory.html)

NOAA National Marine Protected Areas Center. 2006b. U.S. MPA Classification System. [http://www.mpa.gov/helpful\\_resources/fact\\_sheets.html](http://www.mpa.gov/helpful_resources/fact_sheets.html)

USCRTF (United States Coral Reef Task Force). 2000. The National Action Plan to Conserve Coral Reefs. USCRTF. Washington, D.C. 33pp. + appendices.

Wusinich-Mendez, D. and S. Curtis. 2007. USVI Coral Reef MPA Summary. pp. 117-129. In Wusinich-Mendez, D. and C. Trappe (ed.), 2007. *Report on the Status of Marine Protected Areas in Coral Reef Ecosystems of the United States Volume 1: Marine Protected Areas Managed by U.S. States, Territories and Commonwealths: 2007*. NOAA Technical Memorandum, NOAA Coral Reef Conservation Program. Silver Spring, MD.

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## For More Information

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NOAA Coral Reef Conservation Program  
1305 East-West Highway, 10th Floor  
Silver Spring, MD 20910-3281  
[coralreef@noaa.gov](mailto:coralreef@noaa.gov)