

# Baseline Inventory & Rapid Assessment Of The South Coast Marine Park, St.Vincent And The Grenadines

JANUARY 20 – 28, 2014

Conducted by NBSAP project



**SOUTH COAST  
MARINE PARK**

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## AICHI TARGETS

**5** Reduce Loss Of Habitat

**11** Conservation  
Of Marine Areas

**15** Biodiversity To Carbon  
Stocks Enhanced

# Approach

A collaborative approach amongst the relevant sectors, government agencies and users of the area was applied

- Rapidly gather comprehensive ecosystem-based information
- Information to be used as baseline data and a monitoring tool(indicator)
- Appropriately address local issues & needs
- Educate relevant stakeholders of importance of managing marine resources sustainably
- Develop fair & acceptable plan for the management of the area





# Cross-sectoral collaboration

- Ministry of Health, Wellness & Environment
    - ▣ National Biodiversity Project
  - National Parks
  - Fisheries
  - Forestry
  - Tourism
  - Planning (Central & Physical)
  - Land & Surveys
  - Coast Guard
  - CWSA
- 



# Schedule – Week 1

## Monday:

- Overview of SCMCA area
- Data review

## Tuesday

- Stakeholder identification
- Data collection planning

## Wednesday – Friday

- Primary field data collection



# Schedule – Week 2

## Monday

- Data entry & analysis
- Draft recommendations
- Preparation of final report



## Tuesday

- Prepare stakeholder presentation
- Presentation of results (2 meetings)
  - Government & community




# Objective of Surveys

## 1. **Take inventory and map the existing habitats, resources, space-uses & threats**

- Conduct a baseline assessment of South Coast MPA

## 2. **Develop & conduct monitoring programme**

- Ecological (Marine Habitats, Mangroves, Water Quality)
  - Social (Inventory Hotels, Restaurants, Coastal & Marine Resource Users, Businesses, Residences)
  - Economic (Quantify livelihoods generated from area)
- 

# 6 Teams / 24 persons

- **Marine Surveys**
  - Fisheries, Coast Guard
- **Mangrove Surveys**
  - Forestry, National Parks
- **Water Quality / Pollution**
  - National Parks, Health
- **Social / Economic**
  - Tourism, National Parks, Fisheries, Health
- **GIS Mapping**
  - Planning, Surveys





# South Coast Marine Park Boundaries



# South Coast MPA

- 3 MAJOR BAYS
- 5 COMMUNITIES
- 2 RIVERS, 1 WATERSHED, 4 STREAMS

***FLOOD ZONE, EROSION,  
SEDIMENTATION***





# Previous Studies

Identified issues with:

- Pollution / Sedimentation
- Coastal developments
- Flooding, Erosion



# Marine activities

Dense local population & high human activities



## Largest tourism area on mainland

- Hotels, restaurants and tourism operators
- Blue Lagoon Marina /Yachting
- Young Island Resort

## Six bathing beaches

- Indian Bay, Villa, Canash, White Sand, Blue Lagoon, Young Island Calliaqua Fisheries Centre



## Calliaqua Playing field & Hard court

### Industrial Uses

- Coast Guard Base/Howard Marine
- Fuel tanks, oil, boat servicing, garages
- Bakeries, Shops & Businesses



# South Coast MPA

- **Representative reef ecosystem**
  - Reefs, seagrass, mangroves
- **Fish nursery**
- **Sea turtles**
- **Seabirds / shorebird areas**
  - Rock Fort, Canash, White Sand
- **Historical / cultural resources**
  - Fort Duvernette
  - Villa (petroglyphs)
  - Ratho Mill (the petroglyphs, Lime kiln, Sugar mill)



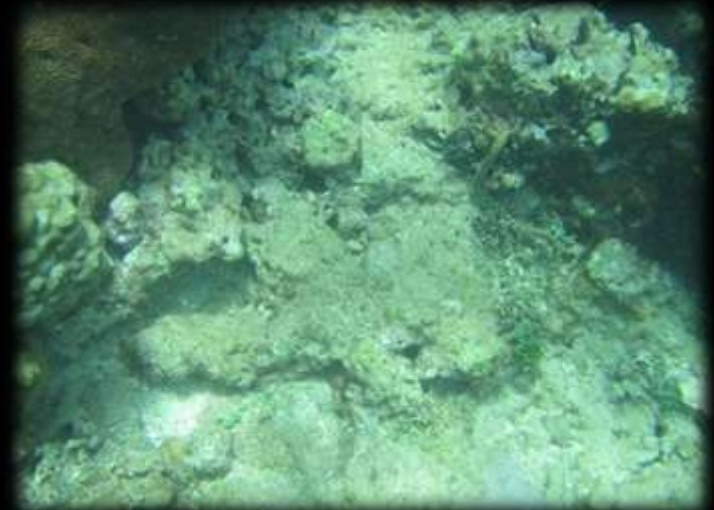


# Marine Surveys

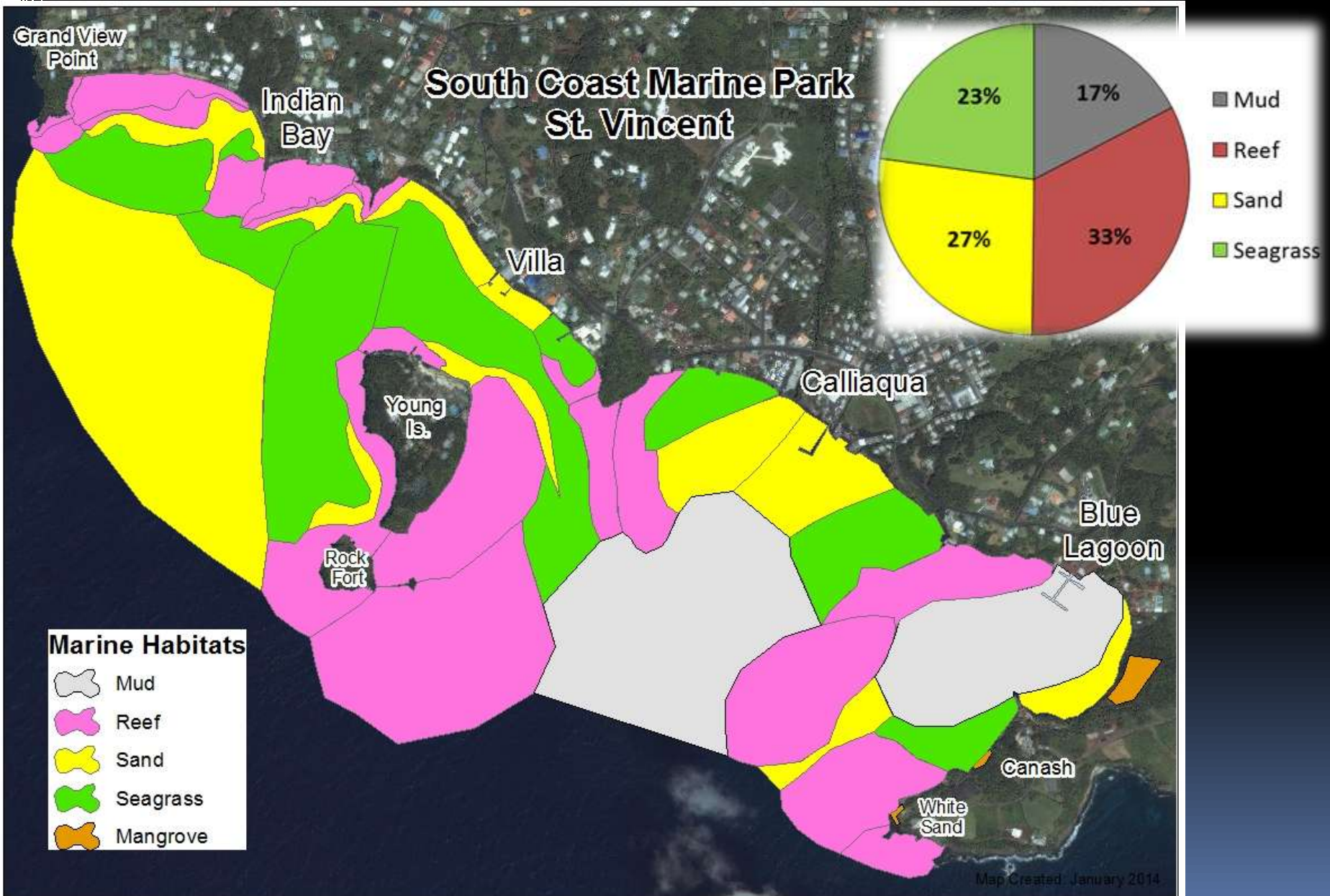
## Rapid Assessment using Indicators

- Habitat type
- Coral Health
  - Diversity, cover, rugosity, # recruits, disease, macroalgae
- Fish
  - Diversity, abundance, juveniles
- Invasive species
- Sedimentation
- Pollution / trash

\*Pictures & videos taken at all sites\*



# Results – Marine Habitat Map



# Blue Lagoon/White Sand = Grade D

## **\*\*Critical Reef Ecosystem\*\***

- Reef, Seagrass & Mangrove
- *Only* site on mainland
- Large amount of Elkhorn Coral (endangered coral)
- Possibly highest density for all of SVG

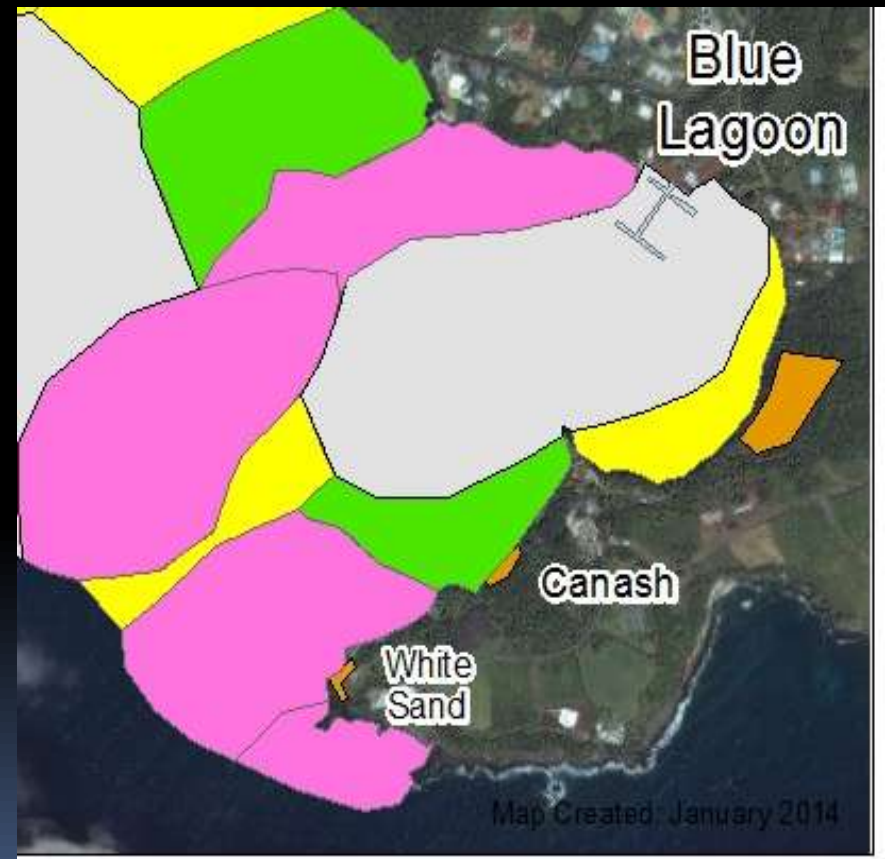
Reef Cover = Medium

# Fish = Low

Nursery grounds for fish

Poor water quality

- Presence of nutrient indicator algae, trash & sedimentation

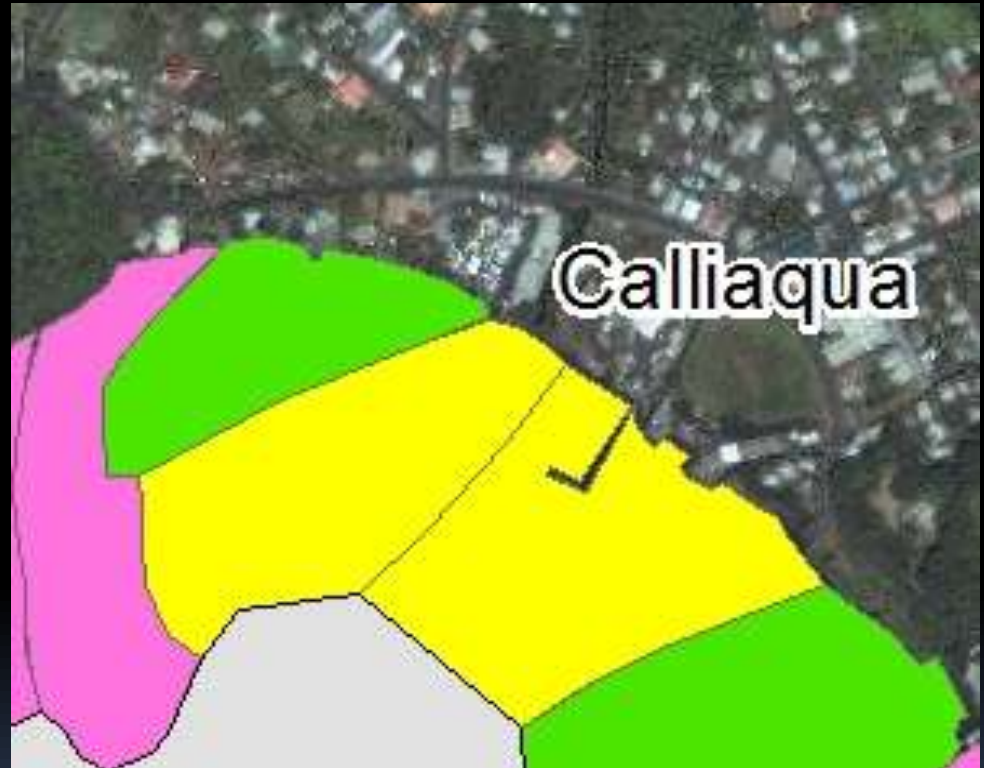




# Calliaqua = Grade F

## High Industrial Use Area

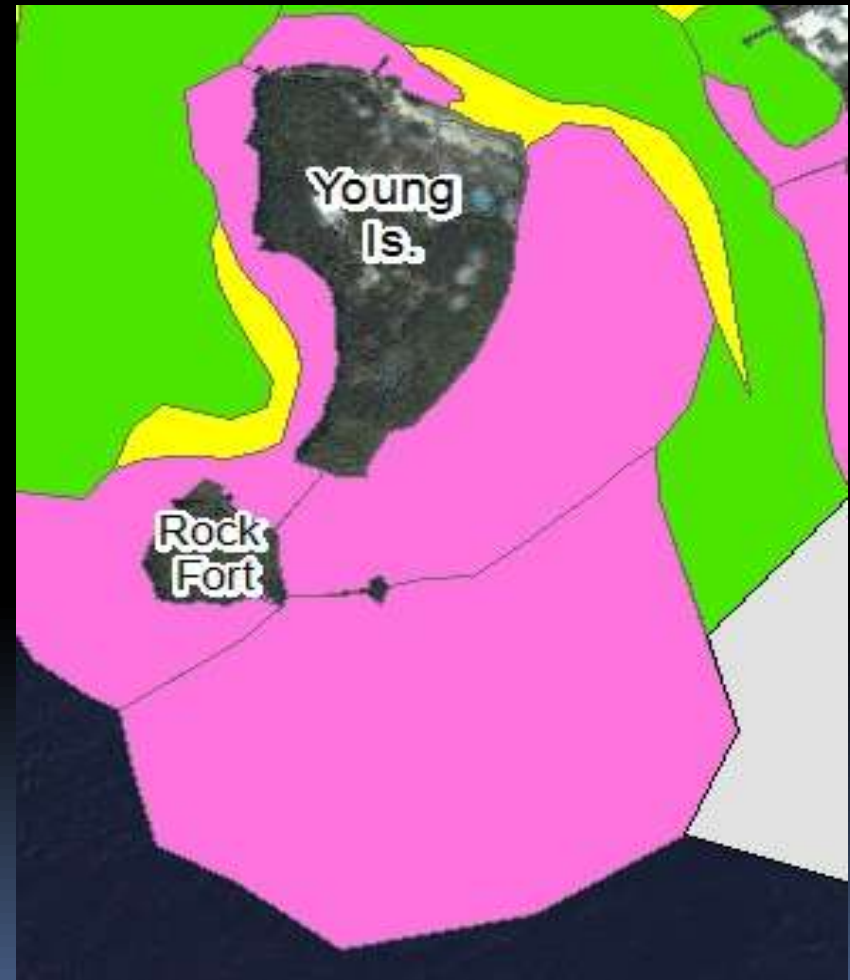
- (Coast Guard, Howard Marine, Fisheries, & many others)
- **High sedimentation**
- Very low visibility
- # Fish = Low
- Lionfish seen
- Existing reef under threat



# Back of Young Island / Rock Fort = Grade B

## Extensive Area of Reef

- Coral cover = High
- # & Types fish = High
- Turtles
- Fish nursery
- Sedimentation = Low
- Lionfish
- Area used for fishing

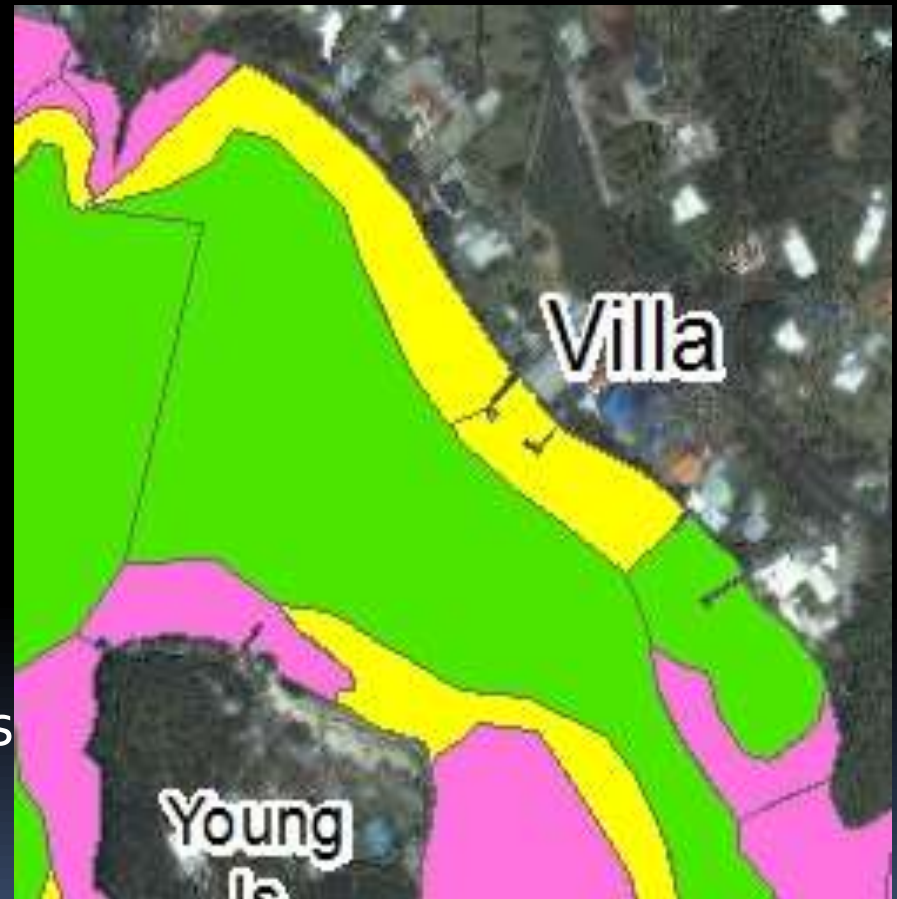




# Villa: Grade = F

## Largest # of marine uses

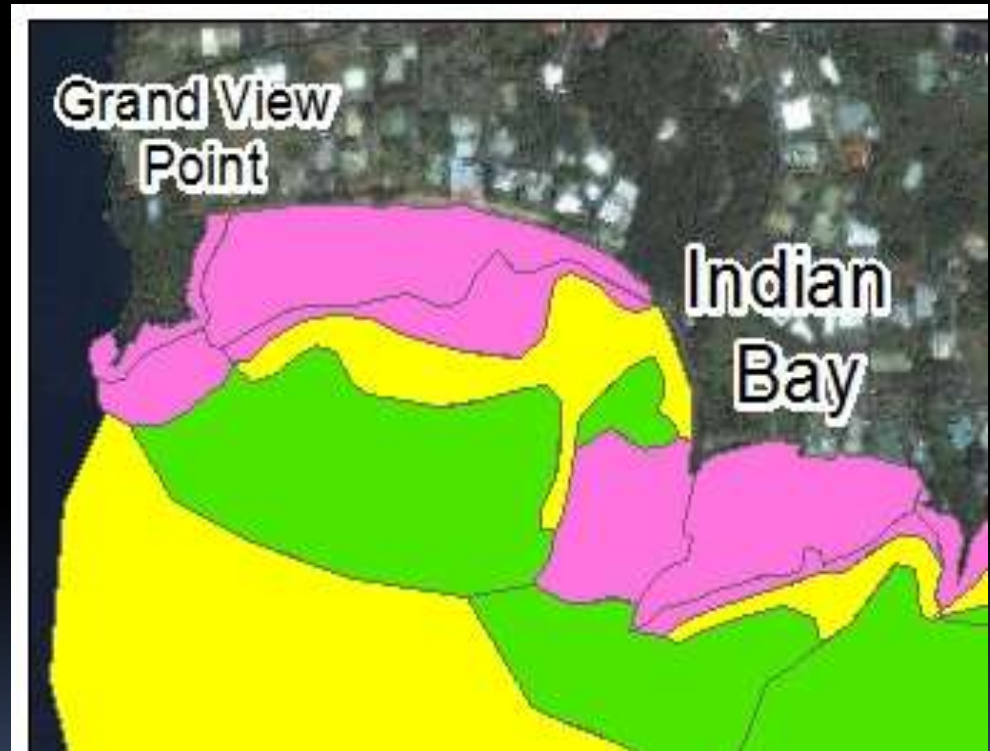
- Hotels, Yachts,
- Watertaxis, Divers,
- Bathing
- Seagrass = High
  - **Invasive species**
- # & Types Fish = Medium
- **Fish Nursery Area**
- Water quality = Poor
  - Trash, sewage pipes, drains yachts



# Indian Bay = Grade D

## Large amounts of reef & seagrass beds

- Fish nursery throughout
- # & Types Fish = Medium
- **Invasive seagrass**
- Poor water quality
  - Nutrient indicator algae
  - High sedimentation
  - High amount of trash



# Marine Surveys - Recommendations

- Training in marine assessment
- **Establishment of Monitoring sites  
(emphasis on endangered Elkhorn coral)**
- Monitoring of sedimentation rates
- Proper watershed management
- Educational outreach activities (signs and posters, school presentations, educational media)
- Improved law enforcement (land & sea)



# Overview of Mangroves in St. Vincent

## All mangroves on mainland surveyed

### Brighton mangrove

- 1.60 acres / White
- Trend: **Stable**

### Blue lagoon Mangrove\*

- 1.30 acres / White & Button
- Trend: **Declining**

### White sand mangrove\*

- .11 acres / Button
- Trend: **Declining**

### Canash mangrove\*

- .15 acres / Button
- Trend: **Declining**

### Sion Hill mangrove

- 0.08 acres / Button & White
- Trend: **Nearly Extinct**

**\*\*3 of 5 remaining in South Coast MPA\*\***





# Mangroves In Decline in SVG Mainland

Previous Survey : 4.12 acres  
Survey 2014: 3.24 acres

**Decline: 0.88 acres**



Yellow Crowned Night Heron using the  
White Mangrove Habitat  
Brighton, Saint Vincent



# Threats to Mangroves

- Coastal development
- Private land ownership
- Lack of community awareness
- Cutting of mangroves
- Invasive species
- Suppression of mangrove
- Grazing of animals



*Recently Cut White Mangrove*

# Recommendations - Mangrove

- **Purchase all private land with remnant mangroves.**
- Develop partnerships with private land owners.
- Fence remnant areas of mangrove.
- **Develop an interpretive trail /align with local livelihoods.**
- Remove introduced species.
- Establish a mangrove nursery.
- Create a field based team / Mgt / Enforcement.



# Water Quality / Pollution Survey

## Water Quality (2012 & 2014)

- Rivers (2), Streams (3)
- Shoreline (7), Offshore (5)

## Beach profiling (6)

- White Sand, Blue Lagoon, Canash, Calliaqua, Villa beach, Indian bay

## Land-based pollution

- Mapped location & categorised pollution types





# Types of Pollution

## 1. Blue Lagoon

- **Pollution type-** commercial and residential (grey water, litter, sediments and derelict boats)
- **Water Quality \*Fair**

## 2. Calliaqua

### Pollution type-

- **Pollution type-** Commercial and residential ( brown water, grey water, litter, metal (vehicular), sediments)
- **Water Quality \*Very poor**





# Types of Pollution

## 3. Villa/Indian Bay-

Pollution type- mainly commercial (grey water)

- Water Quality \*Poor

## 4. Arnos Vale

Pollution type – commercial and residential (litter, grey water, sediments)

- Water Quality

\*Very Poor



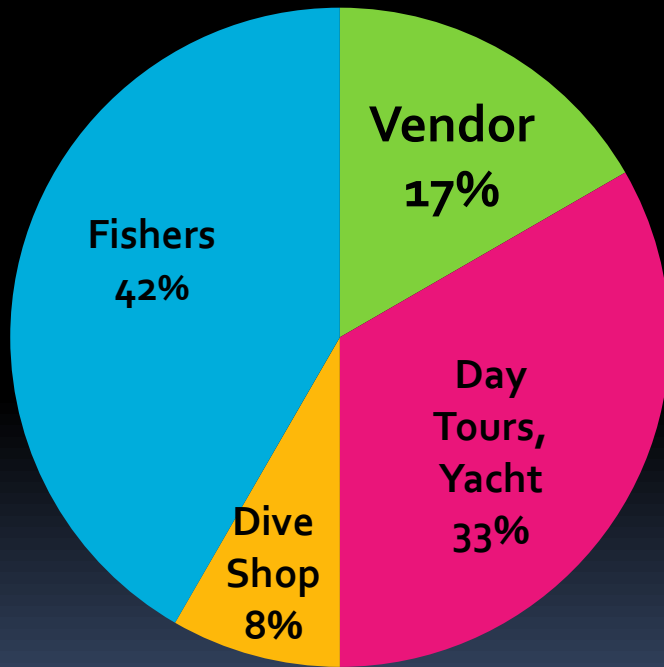


# Water Quality Recommendations

- Inspect septic tanks close to the beach & treatment of water before depositing into the sea
- Revegetation of watersheds
- Increase enforcement to reduce litter
- Regular removal of sediments to prevent pooling
- Set up recycling depot of wastes: oil (motor & cooking), plastics, grey water, etc.
  - Create alternative livelihood in area

# Social – Marine Users Surveys

**# Marine Users Interviewed = 12**



## Surveys & Mapping exercises

- **Uses**
  - (diving, kayaking, anchorages, snorkeling, BBQs, etc.)
- **Resources**
  - (Birds, sea turtles, fishing, )
- **Threats**
  - (sand mining, dredging, issues)

**45 Estimated # of livelihoods**

# Vendors

## Services:

- Drinks, Snacks, Crafts, Beach chairs



## Facilities needed

- Washrooms
- Showers
- Pipe borne water
- Waste disposal facilities



# Fishers

- **Types of gear used**

- Fishpots
- Spearguns
- Handline

- **Main Nursery Areas**

- Off Young Island
- Rock Fort
- Off Canash





# Resources

- **Bird Nesting Areas**
  - Forested area of Young Island
  - Top of Rock Fort
- **Turtle Nesting Areas**
  - Indian Bay (Hawksbill)



# Threats

36%

## MARINE USERS IDENTIFY POLLUTION AS THE GREATEST THREAT

### Other threats include:

- Sedimentation after heavy rains
- Bad coastal developments
- Invasive species (lionfish)
- Flooding
- Dredging
- Dumping
- Wrecks
- Mooring should be zoned (coral reef, seagrass)
- Theft



# Solutions Identified

- Proper drainage
- Removing wrecks
- Conducting EIA's and Surveys
- **Providing MONETARY incentives for the capture of Lionfish (per lb caught)**
- Zoning for moorings
- Park rangers (hiring individuals)





# Social - Tourism (Hotels / Restaurants)

The primary objectives:

- **Quantify # Livelihoods**
- **Environmental Practices**
  - Waste, Energy & Water Management and Hazardous Chemical use
- 21 Accommodations identified - 15 surveys
- 10 Restaurants identified - 6 surveys



# Findings

## ACCOMMODATIONS

**239 persons are employed (88 % full time / 12% Part time)**

## RESTAURANTS:

**56 persons are employed from 6 restaurants surveyed.**

**(96% are full time employees/4% are part time)**

- Some have grease traps, however some were unaware of whether or not the property had one.

## IDENTIFIED THREATS

- **A significant (70%) identified improper garbage disposal as the number #1 threat to the environment.**
- 10% think flooding and erosion pose a serious threat.
- 5 % identified sand mining
- 5% improper disposal of plastic.
- 5% claimed that the absence of holding tanks & improper sewerage disposal are major environmental concerns.
- **10% state a combination of all the above contribute to environmental degradation.**

# Accommodation Results:

**100%**

**Utilize some form of energy management and have regular disposal of solid waste.**

- 58 %- reuse material only
- 25 % reuse and recycle materials
- 8 % recycle only
- 8 % compost

**ALL respondents expressed interest becoming eco-friendly!**

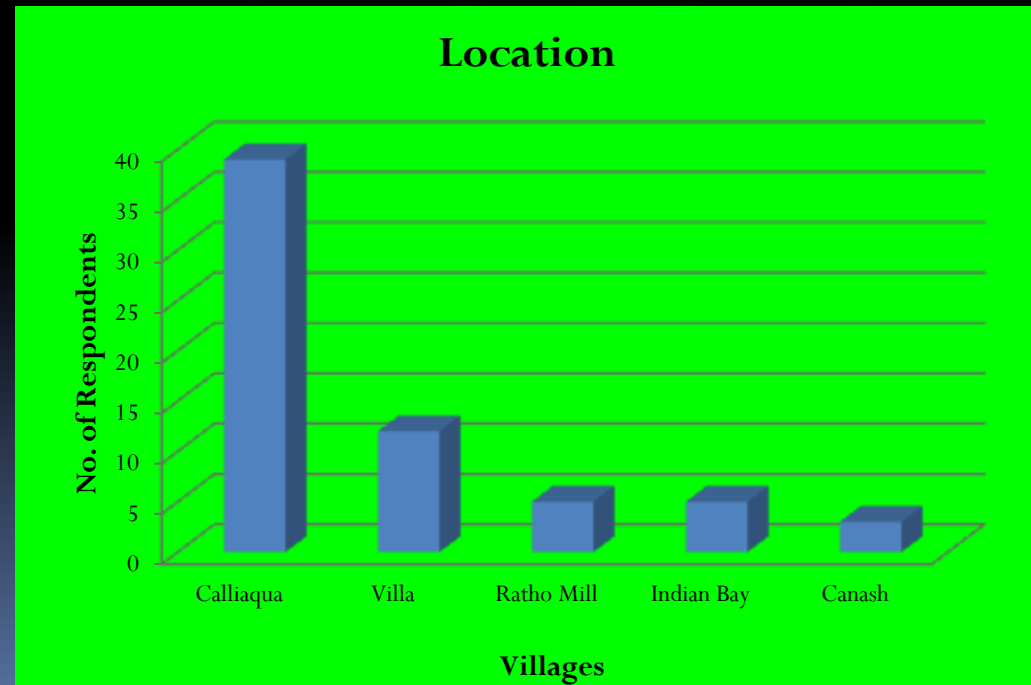




# Business / Residence Survey

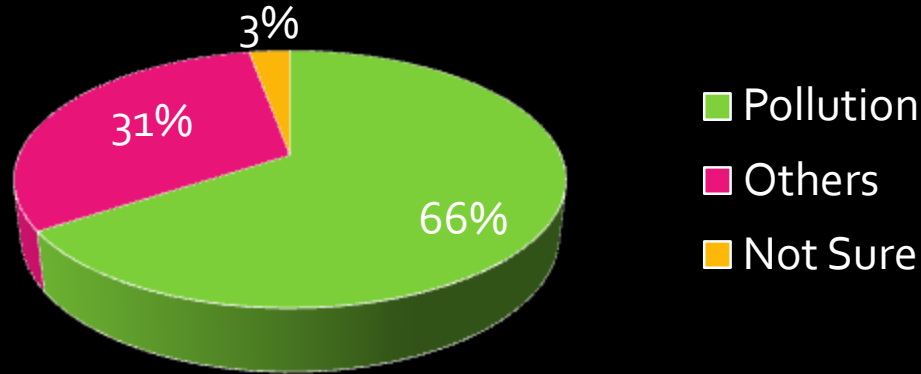
## 65 surveys conducted

- 37 Residents
- 28 Businesses
- Residents were surveyed on a convenience basis
- 90% of the businesses in the SCMPA were surveyed
- Businesses included Bakeries, mini-marts, grocers, garages, mariners and small shops.



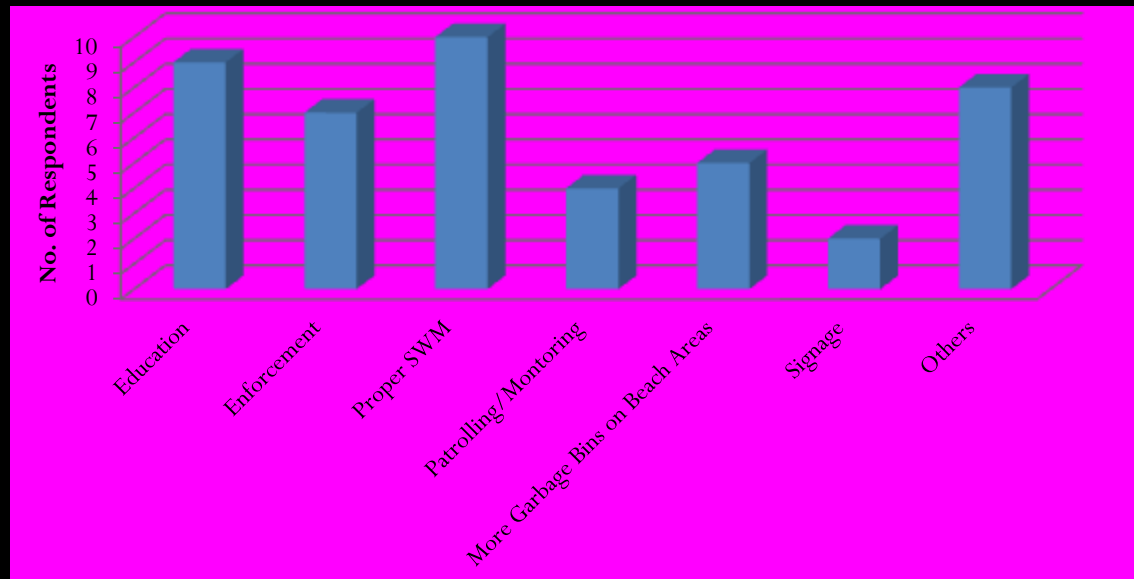
# Threats and Solutions

## Largest Threats to the Coastal and Marine Environment



- **Pollution was identified as the greatest threat to the overall area**

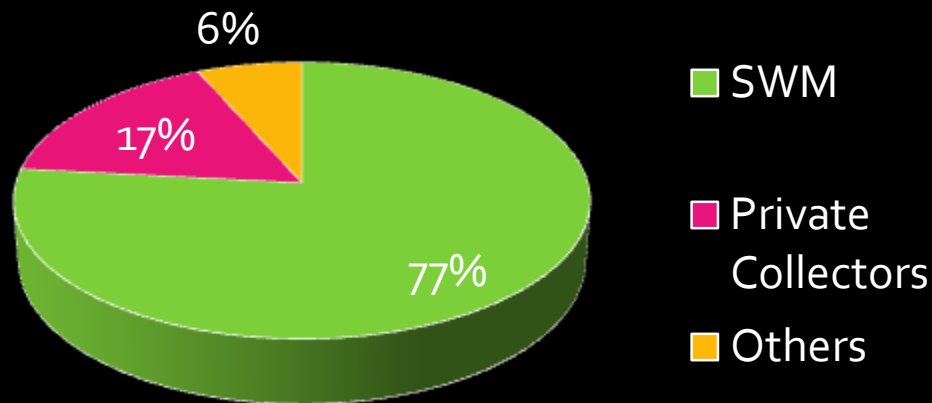
- Education, enforcement and Proper SWM were the key solutions.



# Disposal of Solid and Liquid/Hazardous Waste

## Solid Waste

- The majority of businesses use the Solid Waste Management (SWM) services.



## Liquid/Hazardous Waste

- Most business dispose of their liquid/hazardous waste by either a soak away or the drain .



# Public Awareness, Eco-Friendly Businesses & Alternative Livelihoods

- 82% of the respondents believe:
  - more public awareness is needed
  - are interested in making their business eco-friendly.

## Training

- Food handling
- Customer service/ relations
- Arts and Craft
- Tour guiding

## Activities

- Fish Night and Fish Fest
- Dive shops  
(snorkeling gear, sail boats)
- Kayaking.

# Management

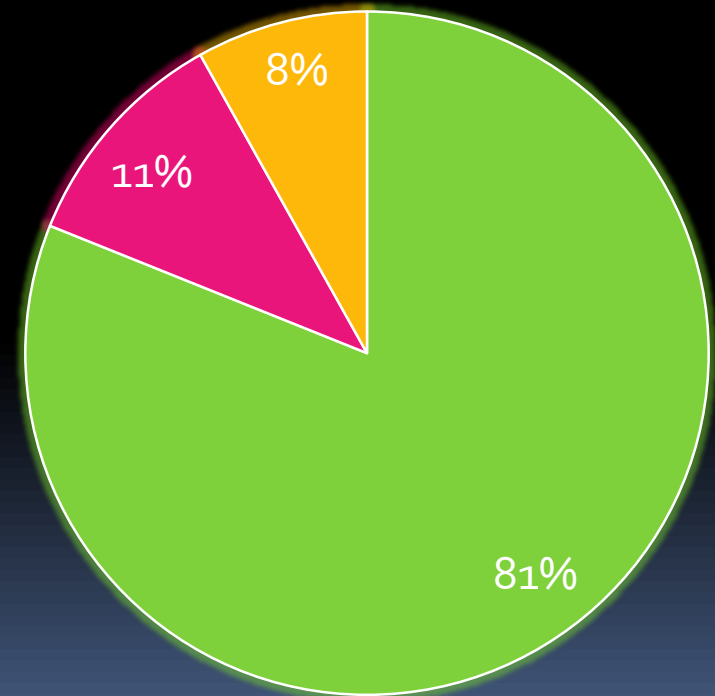
81% persons said South Coast should be managed better.

Some suggestions are;

- Monitoring, surveillance and enforcement
- Tree planting, beautification
- Signage
- On-site staff
- Infrastructure: office, restrooms, bins, boardwalk, jetty
- More Public Cooperation.
- Better Solid Waste Management.

## Better Management

■ Yes ■ No ■ Not Sure/Missing



# Overall Recommendations

- **Combating pollution & threats** - solutions identified
  - Alternative livelihood (Recycling of waste, lionfish patrol)
- **Further monitoring** / research required
  - Sedimentation, Reef / Seagrass monitoring sites
  - Survey equipment & training needed
- **Enforcement** (of ALL environmental laws & of development)
- **Rehabilitation of lost Mangroves**
- **Management approach** / structure of SCMCA
  - Co-management, Cross-sectoral approach
  - Infrastructure / facilities needed for park
  - Development of the SCMA stakeholder steering committee

Thank you! Questions / Comments

