

Marker Buoy Maintenance Plan for St. Croix East End Marine Park

GOVERNMENT OF THE UNITED STATES VIRGIN ISLANDS
DEPARTMENT OF PLANNING AND NATURAL RESOURCES

Coastal Zone Management Program

St. Croix East End Marine Park

No. 5005 Estate Great Pond

Christiansted, VI 00820

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Introduction

The St. Croix East End Marine Park (STXEEMP), established in 2003 through Act No. 6572, encompasses a wide variety of marine habitats and covers approximately 60 nautical miles. The STXEEMP is a multi-use park including areas designated for recreational use, no take-zones, open use areas and a wildlife preserve. In 2011, 18 marker buoys were installed around and within the park, designating boundaries of each zone (Figure 1). Due to lack of maintenance, some buoys have been lost over the past 3 years. Currently, only approximately 8 of the marker buoys are still in the water, and these are in need of repair. The STXEEMP is now proposing to restore and/or reinstall all 18 marker buoys with a clear and defined marker buoy maintenance plan detailed in this document. The main objectives of the STXEEMP marker buoys are to raise awareness of the park itself and to provide stakeholders and users with clear and visible boundaries to the zones within the park.

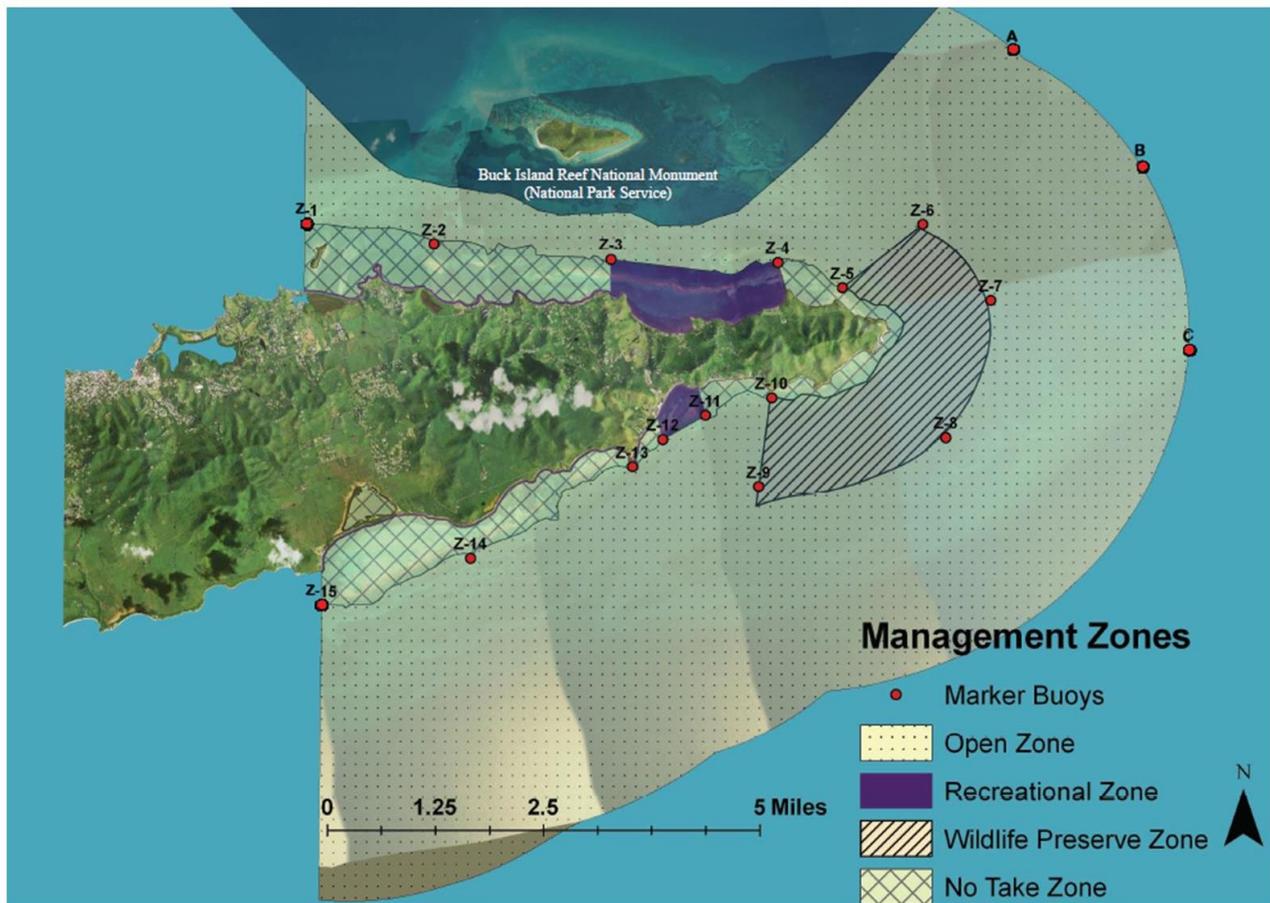


Figure 1: St. Croix East End Marine Park with zones and boundary buoy locations

Installation

Anchored bases for all 18 buoys were installed in September and October of 2011 when the original marker buoy installation was completed by Ken Shull of Deep Breath Diving and Mooring Services. To minimize impact to the benthic habitat, bases were either lowered slowly from a boat into shallow water where the bottom was visible or guided to the bottom using lift bags and a dive team on SCUBA. These anchored bases are still present at each location and will be re-used in this second installation. Descriptions and GPS locations of all 18 marker buoy locations can be found in Table 1. Buoy Installation will take place in November and December of 2014, led again by Ken Shull and STXEEMP Ranger Jose Sanchez.

Table 1: Specifications of 18 boundary marker buoys for St. Croix East End Marine Park

Buoy Code	Description	Type	Water Depth	Total anchors	Anchor Weights Used	latitude N	longitude W
Z01	West Boundary Marker	spar	32	3	100	17.77221	64.66805
Z02	No Take Zone	spar	35	3	100	17.76913	64.64552
Z03	West Recreation Zone	spar	42	3	100	17.7668	64.61448
Z04	East Recreation Zone	spar	37	3	100	17.7664	64.58512
Z05	East Sea Turtle Reserve	spar	16		1-200, 2-100	17.76234	64.57363
Z06	East Sea Turtle Reserve	spar	85	3	1-200, 2-100	17.77332	64.5597
Z07	Between Boiler NE & Jacks South	spar	78	3	1-200, 2-100	17.7605	64.54793
Z08	Between Boiler NE & Jacks South	spar	72	3	1-200, 2-100	17.73713	64.55507
Z09	West Sea Turtle Preserve	spar	69	3	1-200, 2-100	17.72853	64.58795
Z10	West Sea Turtle Preserve	spar	26	2	100	17.74372	64.58587
Z11	East Recreation Zone	spar	31	2	100	17.7407	64.59747
Z12	West Recreation Zone	spar	15	3	1-200, 2-100	17.73649	64.60501
Z13	No Take Zone	spar	30	3	100	17.73187	64.61024
Z14	No Take Zone	spar	28	3	100	17.71626	64.63889
Z15	West Boundary Marker	spar	31	2	100	17.70788	64.66479
A	East Boundary Marker	3CFR	93	3	300	17.80275	64.5442
B	East Boundary Marker	3CFR	90	3	300	17.78356	64.5215
C	East Boundary Marker	3CFR	76	3	300	17.75242	64.51289

Maintenance

Visual Inspections

After installation in 2014, all boundary marker buoys, lines and chain will be visually inspected and cleaned every 2-3 months. Visual inspection of buoys will be carried out as follows:

- Cleaning/scrubbing of marker buoy
- Cleaning/scrubbing of all lines
- Inspection of line integrity with focus on splices and thimbles
- Inspection of chain integrity
- Inspection of shackle integrity including pins, bales and mousing

If, during visual inspection, any piece of the marker buoy system is deemed compromised by the maintenance crew, a follow up maintenance date must be scheduled within 3 weeks to replace the damaged part. At all times a minimum of 5 extra sets of blank spar buoy systems must be on hand in the STXEEMP office so that maintenance needs can be responded to promptly. Ordering of replacement parts can be done at any time; however, the month of December has been designated as the month to focus on the procurement and storage of replacement sets (Table 2).

Table 2: Predicted schedule of St. Croix East End Marine Park boundary marker buoy maintenance schedule for the next 2 years. Following years are expected to repeat in this pattern.

	2014			2015											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Preparation	X														
Installation		X													
Secure extra sets (5 minimum)			X												X
Visual Inspection 1				X											
Visual Inspection 2						X									
Visual Inspection 3								X							
Line Replacement											X	X	X		
Line and Chain Replacement															
				2016											
				Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Installation															
Secure extra sets (5 minimum)															X
Visual Inspection 1				X											
Visual Inspection 2						X									
Visual Inspection 3								X							
Line Replacement															
Line and Chain Replacement											X	X	X		

In the event of a direct hit to the park by a hurricane, all boundary marker buoys will be inspected as soon as possible after the hurricane has past, even if a routine visual inspection is not scheduled for that time. All visual inspection and maintenance will be carried out by STXEEMP staff and is anticipated to take between 5 and 10 work days.

Replacement of Line and Chain

All the lines associated with the marker buoy system will be replaced on a yearly basis. This will be carried out by STXEEMP staff and is scheduled for the months of September and October. Lines will be replaced without removing marker buoys from the water. Replacement of all lines will be performed by STXEEMP staff and is anticipated to take between 15 and 20 work days.

Every 2 years the entire marker buoy system will be replaced. This excludes only the anchors and the buoys themselves. Replacement of line and chain has been scheduled to occur during the months of September and October. To replace the system, the system and buoy will be removed from the water and taken back to the STXEEMP office where they will be re-configured on land. At this time,

the buoys will be cleaned and re-painted. Once the assembly is complete they will be taken back out and restored to their proper location. No more than 5 buoys will be removed at any one time. The marker buoys themselves will be completely replaced on an as-needed basis. Replacement of the entire marker buoy system will be led by STXEEMP staff, potentially with the help of available Coastal Zone Management employees, and is anticipated to take between 20 and 30 work days.