

as a potentially high risk to either the Coral World dolphins or wild marine mammals, a plan is implemented by the attending veterinarian, in concert with federal and territorial wildlife agencies, to prevent disease transmission between the two populations. Coral World believes that the risk of disease transmission is very low and because the animals are so well medically managed, presents a much lower risk than the domestic and feral dog and cat populations on the island.

#### **5.01a Purpose of the Project**

The purpose of the dolphin encounter exhibit is to enhance the ecotourism experience by creating a state-of-the art venue. It is anticipated that this new venue will attract and educate more than 25,000 to 35,000 new visitors per year, while creating a need to employ an additional 25 staff members with a monthly payroll of \$54,000. The additional revenues projected to be generated from the exhibit will generate additional revenues to the Government of the US Virgin Islands and will enhance the overall tourism project for St. Thomas. It is further expected that the annual operating budget of the new exhibit will be \$3,999,500.

#### **5.01b Presence and location of any critical areas and possible trouble spots**

Coral World is requesting a new submerged lands lease that will adjoin the existing lease and will provide a 40 foot buffer zone surrounding the enclosure, similar to the exiting buffer zone surround the observation tower. Dolphins are very acoustic and rely on their hearing for most of their sensory input. They are very adaptable to boat traffic so the buffer should not have to encompass any more space than the 40 foot area. This project should not impact users of Water Bay including jet skiers who will only need to obey existing guidelines for operation. The facility will have navigation lighting which will help local fishermen navigate the bay at dark. Coral World will maintain its existing submerged land lease on the west side of the enclosure to help protect the grass beds in that area even though this area has no current economic benefit to Coral World.

The area of Water Bay that will be encompassed by the dolphin exhibit and the 40 buffer zone is less than 5% of the surface are of Water Bay from Coki Point to the Renaissance Beach. Coral World has an existing buffer around the underwater observatory to protect the viewing of fish by visitors. This area is enforced by a simple buoy line and staff presence during daylight hours. Coral World would enforce the buffer around the dolphins by a buoy line and through the use of security guards in the off hours.

The project area is located in Water Bay on the north side of the island of St. Thomas. Water Bay was highly impacted by dredging activity which occurred in 1961, 1965 and again in 1968. A study of the area suggest wide spread coral mortality in the bay as a result of this activity. There are still dense grass beds in the center of the bay in areas that were not dredge, there is a scattered cobble/rock shoreline community which fringes the southern side of the point and there is a hard rock bottom community surrounding the terminus of Coki Point. The hard substrate areas enjoy moderate coral colonization and

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process (for estimating pest risk associated with the introduction of nonindigenous organisms). Animal and Plant Health Inspection Service, U.S. Department of Agriculture, Beltsville, MD.

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Water Bay enjoys good water quality. The project has the potential to impact water quality both during construction and operation. During upland construction soils will be disturbed and a potential for sedimentation and erosion will be created. Sediment and erosion control measures will be implemented and maintained during all upland construction activities. The marine construction will consist of the driving of piles and the placement of docks and fencing. The direct pile driving or utilizing a vibra-hammer will have a minimal potential for creating turbidity. However if rock is encountered it is possible that piles may need to be socketed. Pile socketing greatly increases the potential for turbidity, and creates large volumes of rock flour. Base on observations in the field and the construction of the existing dock, the only a very limited number of piles may require socketing. These piles would probably be in the hard bottom area west of the dock. Turbidity barriers (silt curtains) will be installed surrounding all pile driving/socketing activities. The curtains will serve not only to maintain turbidity created by pile driving but will also contain floating debris within the project area. The turbidity barriers will be properly installed and will extend to within 1 ft. of the seafloor where piles are driven. Curtains will extend to the seafloor if piles require socketing. There are several *Acropora palmata* located to the east of the proposed structure. It is imperative that turbidity be controlled with these endangered species only 150 ft. to the east of the proposed activity.

A water quality monitoring program will be implemented during construction, which will include daily monitoring of turbidity within the construction area.

Once the project is in operation, there will be between 5 and 10 animals within the enclosure. These animals will be feed and will defecate within the pen and therefore will have an impact on water quality. The dolphins will have an impact on total coliform and fecal coliform bacteria in the water column when they defecate. Coral World will implement a stringent water quality monitoring program to ensure that fecal coliform levels do not become elevated above the allowable limits. Based on existing data 5 dolphins should not result in significantly elevated readings, if it is determined that the dolphin are responsible for negatively impacting the water quality overfeeding or other contributing issues will have to be evaluated and corrected. DPNR will be informed and involved in the solution.

The placement of both the double row of fencing and the wave barrier will have impacts on water circulation around the facility itself. The shoreline is not one where there is a lot of transport of sediments along the shoreline so there should be no impact on longshore transport. The fencing will



Roatan Honduras has an open water program which houses 26 dolphins and currently has 5 pregnant dolphins. The water quality is excellent except when human influences cause water problems for the dolphins. The facility in Roatan has been in operation for 22 years.

The dolphins maintained by these organizations are very valuable and in the United States federally protected. The dolphins require good water quality. The programs all depend on humans entering the water with these animals so there is a self-serving interest to make sure that the water is clean in and outside of the enclosure for both the animals and the humans who pay to enter the water with them. Several facilities have their dolphin facilities at or adjacent to very popular swimming beaches with no negative impact to these beaches.

As noted at several of the facilities above, there is also the issue of the impact of ambient water quality on the dolphins. Discharge from the large drainage located near Pineapple Village, can be contaminated by faulty septic tanks and by leaks from the Pineapple Village sewage treatment plant. In the event that water quality significantly degrades within the bay in order to prevent illness in the dolphins they will be removed from the off shore enclosure into the temporary pools. Water will be filtered from the pools and the TPDES permit for the facility is being modified to include this discharge. The existing TPDES permit is provided in Appendix F.

There also exist the potential for animals being sick and in the even that this occurs the animals will be moved into one of the isolated pools and be placed under veterinary care.

The placement of both the double row of fencing and the wave barrier will have an impact on water circulation around the facility itself. The shoreline is not one where there is a lot of transport of sediments along the shoreline so there should be no impact on long shore transport. The fencing will reduce currents by as much as 25% and the wave barrier since it is solid will create an area of still water downstream of the current direction. This will reduce the flushing of the area. This will have less of an impact to the east, because surface currents in the area are usually to the west, there is a current to the east a depth but this will only be partially blocked since the wave barrier will only extend 5 ft. from the surface. The stiling of the current behind the wave barrier could result in slightly higher temperatures and buildup of nutrients and bacteria. The water quality monitoring will include testing both in and outside of the pens to ensure that negative impacts are not occurring.

Water Bay is a well-protected bay due to its shape and the protection of the off lying islands. This makes it an ideal location for the dolphin enclosure as far as protection under normal sea condition. The bay is highly impacted by run off and discharge into the bay from the large watershed which primarily discharges through the Renaissance/Pelican Cove property. Because tidal amplitude in the Virgin Islands is limited there is limited tidal exchange which is further reduced due to the openness of the bay. Surface currents were found to be to the west and are highly dependent on wave height and direction and wind. Drogues were found to move in a westerly or northwesterly direction and all were carried into the shallows of the dolphin enclosure layout.

During dives currents mid-water and at the sea floor were noted both to the east and west. The westerly currents moving back into the channel where the water rejoins the westerly flow between the islands. While currents are not as strong as the offshore flow, there is movement within the bay. And water quality measurements by Coral World and by the Department of Planning and Natural Resources (DPNR) only show intermittent reduced water quality and the DPNR sampling site is in the area of the bay most



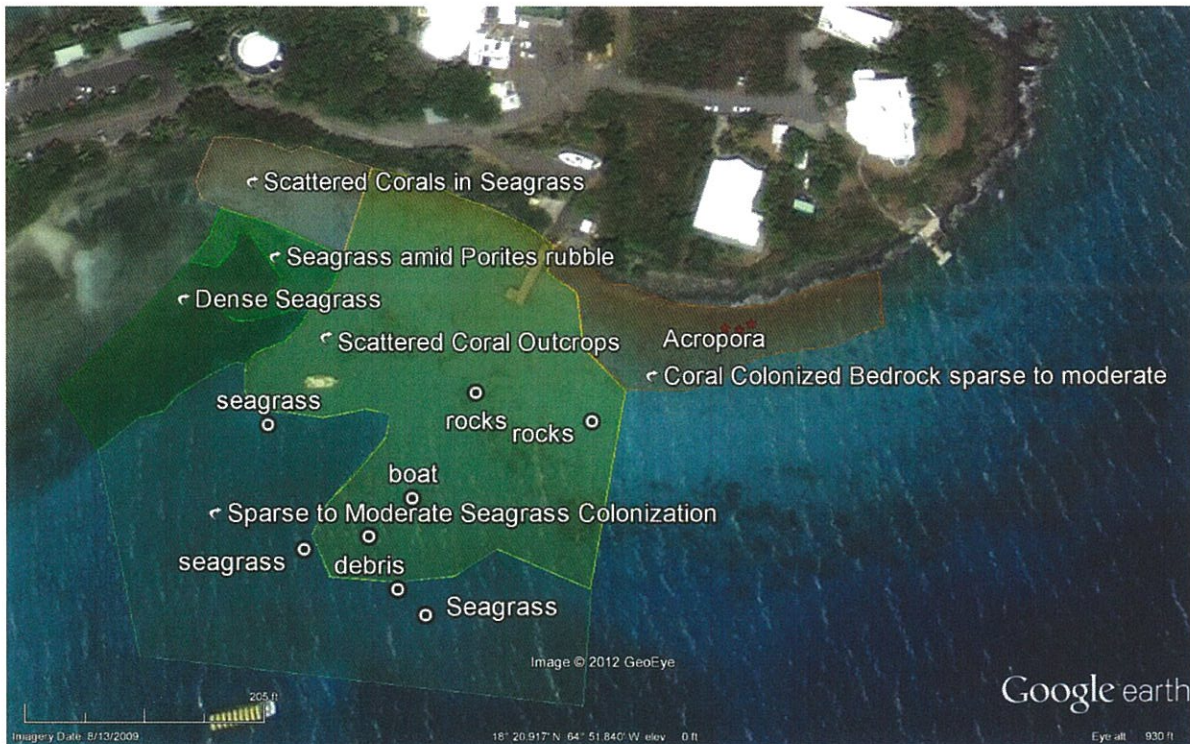


Figure 6.06.1 Benthic Habitats encountered during surveys 2004-2012.

## The Benthic Community

### Southern Side of Coki Point

During the surveys in 2004 an abundance of green algae, *Ulvaria*, *Ulva* and *Chaetomorpha*, was found in high abundance along the shoreline indicating an area of high nutrients. During the surveys in the summer of 2005 the algae was almost non-existent, but the algae was again patchily abundant in January of 2012, but was gone by February 2012. This indicates periodic introduction of nutrients into the bay.

The bay was dredged in 1961, 1965 and 1968. The dredging of 400,000 cubic yards of material was permitted to be dredged from below a depth of 27ft. This material was deposited in the salt pond where Pineapple Village was constructed and was used to nourish the beach. Most of the dredged areas contain a minimal amount of algal cover. The dredge area is located to the east of the project area. The dredging is describe has having resulted in the dead of corals throughout the bay in a 1969 study conducted by the Caribbean Research Institute, College of the Virgin Islands (1969).

There is an existing dock extending from Coki Point and this dock serves as a dividing line between the coral colonized bedrock to the east and the scattered coral outcroppings to the west and colonized pavement. The coral colonized bedrock to the west extends off shore between 20' and 50' moving towards the point. There are a few *Acropora palmata* scattered within the shallows to the east of the dock. To the west of the pier within the shallows there are scattered boulders extending from the rocky shoreline and these enjoy sparse coral colonization. Within this area there are scattered coral

outcroppings primarily consisting of *Montastrea annularis*, which is being listed on the endangered species list in May of 2012. These outcroppings are scattered in uncolonized sand, and uncolonized coral rubble and vary in abundance and live tissue coverage. Moving westerly in the shallows there is patch dense colonization by the algae *Sargassum*. Farther to the west the sandy/cobbly bottom gives way to seagrass colonization, and the scattered coral colonies are found within sparse to moderately dense *Thalassia* beds. There is a large area of coral rubble (consist of primarily *Porites porites* rubble) toward the western end of the proposed enclosure and it has scattered *Thalassia* growing between the small fragments. An occasional live *Porites* fragment can be found within the rubble. Seagrasses become denser to the west and to the south as the water deepens. In the deeper water, seagrasses become denser to the west, but to the east there are areas where the grass becomes very sparse and in areas completely die off. There is scattered *Amphimedon compressa* within the seagrass beds. To immediate east of the dock coral colonization is minimal. Moving more westerly off the dock coral colonization increases for both hard and soft corals. Corals noted within the project area include *Montastrea annularis*, *Siderastrea siderea*, *Porites porites*, *Porites astreoides*, *Diploria strigosa*, *Siderastrea radians*, *Dendrogyra cylindrus*, *Agaricia agaricites*, *Diploria labyrinthiformis*, *Favia fragum*, *Pseudopterogorgia americana*, *Gorgonia ventalina*, *Plexaura flexuosa* and *Montastrea cavernosa*. Sponges within the area include *Amphimedon compressa*, *Ircinia felix*, *Aplysina cauliformis*, *Neofibularia nolitangere*, *Verongula rigida* and *Aplysina insularis*. There are numerous large *Siderastrea siderea* heads within the shallows immediately along the shoreline. Algae is abundant especially in the shallow coral areas, noted were *Caulerpa*, *Sargassum*, *Udotea*, *Halimeda*, *Penicillus*, *Dictyota* and *Laurencia*.



*Montastrea* is the most abundant coral within the area.



Scattered corals in the shallows.

Table 6.06.1 Result of quadrat analysis done along the transect lines.

Transect	Quadrat	Species	Percent Cover	Substrate	Note
T-1	1	<i>Montastrea annularis</i>	35	sand	
18° 20.938'N		<i>Amphimedon</i>	5	sand	
64° 51.864'W	2	<i>Montastrea annularis</i>	45	sand	
		<i>Halimeda</i>	35	sand	
	3	<i>Montastrea annularis</i>	40	sand/rubble	
		<i>Halimeda</i>	30	sand/rubble	
	4	<i>Montastrea annularis</i>	5	sand/rubble	
		<i>Porites astreoides</i>	10	sand/rubble	
		<i>Siderastrea siderea</i>	40	sand/rubble	
		<i>Halimeda</i>	25	sand/rubble	
	5	<i>Montastrea annularis</i>	10	sand/rubble	
		<i>Halimeda</i>	5	sand/rubble	
	6	<i>Dictyota</i>	5	sand/rubble	
	7	<i>Penicillus</i>	5	sand/rubble	
		<i>Halimeda</i>	5	sand/rubble	
	8	<i>Montastrea annularis</i>	5	sand/rubble	
		<i>Porites astreoides</i>	5	sand/rubble	
		<i>Siderastrea siderea</i>	5	sand/rubble	
		<i>Halimeda</i>	5	sand/rubble	<i>Diadema antillarum</i>
	9	<i>Porites astreoides</i>	15	sand/rubble	
		<i>Halimeda</i>	5	sand/rubble	
	10	<i>Diploria strigosa</i>	10	sand/rubble	
		<i>Halimeda</i>	35	sand/rubble	
	11	<i>Halimeda</i>	35	sand/rubble	
	12	<i>Sargassum</i>	10	rock	
	13	<i>Diploria strigosa</i>	25	rubble	
	14	<i>Porites astreoides</i>	15	rubble	
		<i>Montastrea annularis</i>	10	rubble	
	15	<i>Siderastrea radians</i>	5	rubble	
		<i>Udotea</i>	5	rubble	
	16	<i>Spheciospongia cuspidifera</i>	5	sand	
		<i>Halimeda</i>	5	sand	
		<i>Porites astreoides</i>	5	sand	
	17	<i>Diploria strigosa</i>	55	rubble	
		<i>Halimeda</i>	15	rubble	
	18	<i>Thalassia</i>	85	sand/rubble	120blades/m2
	19	<i>Thalassia</i>	100	sand/rubble	
	20	<i>Diploria strigosa</i>	5	sand/rubble	
		<i>Dictyota</i>	5	sand/rubble	
18° 20.959'N		<i>Thalassia</i>	15	sand/rubble	
64° 51.901'W		<i>Halimeda</i>	5	sand/rubble	



T-2	1	<i>Thalassia</i>	65	sand/rubble	
18° 20.950'N		<i>Porites astreoides</i>	10	sand/rubble	
64° 51.905'W		<i>Halimeda</i>	5	sand/rubble	
	2	<i>Thalassia</i>	45	sand/rubble	
		<i>Montastrea annularis</i>	10	sand/rubble	
	3	<i>Halimeda</i>	15	rubble	
	4	<i>Thalassia</i>	35	rubble	Tripneustes
	5	<i>Thalassia</i>	95	sand	322blades/m2
		<i>Halimeda</i>	5	sand	
	6	<i>Halimeda</i>	10	rubble	
		<i>Dictyota</i>	5	rubble	
	7	<i>Thalassia</i>	30	rubble	
		<i>Halimeda</i>	10	rubble	
		<i>Penicillus</i>	2	rubble	
	8	<i>Thalassia</i>	75	sand	
		<i>Penicillus</i>	5	sand	
		<i>Halimeda</i>	5	sand	
	9	<i>Caulerpa</i>	5	coral rock	
		<i>Siderastrea radians</i>	5	coral rock	
		<i>Halimeda</i>	5	coral rock	
	10	<i>Thalassia</i>	50	sand	
		<i>Dictyota</i>	50	sand	
	11	<i>Thalassia</i>	40	sand	
		<i>Halimeda</i>	5	sand	
		<i>Penicillus</i>	5	sand	
	12	<i>Thalassia</i>	25	sand	
		<i>Laurencia papillosa</i>	5	sand	
		<i>Syringodium filiforme</i>	5	sand	
	13	<i>Thalassia</i>	40	sand	
		<i>Laurencia papillosa</i>	5	sand	
	14	<i>Aplysina fulva</i>	5	sand	
		<i>Thalassia</i>	85	sand	
		<i>Porites porites</i>	5	sand	
	15	<i>Thalassia</i>	35	sand	
		<i>Halimeda</i>	5	sand	
	16	<i>Thalassia</i>	35	sand	
		<i>Halimeda</i>	15	sand	
	17	<i>Thalassia</i>	25	sand	
		<i>Syringodium filiforme</i>	5	sand	
		<i>Halimeda</i>	30	sand	
	18	<i>Thalassia</i>	25	sand	
		<i>Halimeda</i>	5	sand	
	19	<i>Halimeda</i>	35	sand	
18° 20.900'N	20	<i>Halimeda</i>	25	sand	
64° 51.838'W		<i>Penicillus</i>	5	sand	

T-3	1	<i>Aplysina fulva</i>	5	sand	
18° 20.916'N		<i>Thalassia</i>	5	sand	
64° 51.857'W	2	<i>Aplysina fulva</i>	5	sand	
	3	<i>Aplysina fulva</i>	5	sand	
		<i>Penicillus</i>	5	sand	
		<i>Halimeda</i>	5	sand	
	4	<i>Montastrea annularis</i>	35	sand	
		<i>Halimeda</i>	5	sand	
	5	<i>Porites astreoides</i>	10	coral rock	
		<i>Siderastrea siderea</i>	5	coral rock	
		<i>Montastrea annularis</i>	5	coral rock	
		<i>Halimeda</i>	5	coral rock	
	6	<i>Montastrea annularis</i>	35	coral rock	
		<i>Dicyota</i>	5	coral rock	
	7	<i>Montastrea annularis</i>	45	coral rock	
		<i>Halimeda</i>	35	coral rock	
	8	<i>Diploria labyrinthiformis</i>	25	coral rock	
		<i>Halimeda</i>	30	coral rock	
	9	<i>Montastrea annularis</i>	45	coral rock	
		<i>Laurencia papillosa</i>	15	coral rock	
		<i>Halimeda</i>	5	coral rock	
	10	<i>Siderastrea siderea</i>	30	coral rock	
		<i>Montastrea annularis</i>	10	coral rock	
		<i>Halimeda</i>	5	coral rock	
	11	<i>Halimeda</i>	5	sand	
	12	<i>Montastrea annularis</i>	20	sand/rubble	
		<i>Halimeda</i>	15	sand	
	13	<i>Diploria labyrinthiformis</i>	30	coral rock	
		<i>Porites astreoides</i>	10	coral rock	
		<i>Halimeda</i>	5	coral rock	
	14	<i>Siderastrea siderea</i>	65	sand	
		<i>Halimeda</i>	15	sand	
		<i>Penicillus</i>	5	sand	
	15	<i>Muriceopsis flavida</i>	5	coral rock	
		<i>Halimeda</i>	5	coral rock	
	16	<i>Montastrea annularis</i>	10	coral rock	
		<i>Calyx podatypa</i>	10	coral rock	
	17	<i>Agaricia agaricities</i>	5	coral rock	
		<i>Halimeda</i>	5	coral rock	
		<i>Penicillus</i>	1	coral rock	
	18	<i>Porites astreoides</i>	15	coral rock	
		<i>Halimeda</i>	5	coral rock	
	19	<i>Montastrea annularis</i>	25	coral rock	
		<i>Porites astreoides</i>	10	coral rock	



		<i>Halimeda</i>	5	coral rock	
	20	<i>Montastrea annularis</i>	15	coral rock	
		<i>Halimeda</i>	45	coral rock	
18° 20.919'N		<i>Agaricia agaricities</i>	15	coral rock	
64° 51.824'W		<i>Porites astreoides</i>	5	coral rock	

T-4	1	<i>Porites astreoides</i>	10	coral rock	
18° 20.922'N		<i>Montastrea annularis</i>	45	coral rock	
64° 51.826'W		<i>Halimeda</i>	10	coral rock	
	2	<i>Porites porites</i>	10	coral rock	
		<i>Aplysina fulva</i>	10	coral rock	
		<i>Agaricia agaricities</i>	15	coral rock	
	3	<i>Pseudopterogorgia sp</i>	10	coral rock	
		<i>Montastrea annularis</i>	10	coral rock	
		<i>Porites astreoides</i>	10	coral rock	
	4	<i>Montastrea annularis</i>	35	coral rock	
		<i>Agelas confiera</i>	5	coral rock	
	5	<i>Montastrea annularis</i>	30	coral rock	
		<i>Muricea pinnata</i>	5	coral rock	
		<i>Gorgonia ventalina</i>	10	coral rock	
	6	<i>Montastrea annularis</i>	25	coral rock	
		<i>Plexaurella nutans</i>	5	coral rock	
		<i>Porites astreoides</i>	5	coral rock	
	7	<i>Siderastrea siderea</i>	45	coral rock	
		<i>Montastrea annularis</i>	15	coral rock	
	8	<i>Montastrea annularis</i>	15	coral rock	
		<i>Plexaurella nutans</i>	5	coral rock	
		<i>Calyx podatypa</i>	5	coral rock	
	9	<i>Montastrea annularis</i>	15	coral rock	
		<i>Muricea sp</i>	5	coral rock	
		<i>Halimeda</i>	15	coral rock	
	10	<i>Diploria strigosa</i>	15	coral rock	
	11	<i>Diploria strigosa</i>	10	rock	
		<i>Porites astreoides</i>	5	rock	
		<i>Halimeda</i>	10	rock	
	12	<i>Siderastrea siderea</i>	15	rock	
	13	<i>Diploria strigosa</i>	35	rock	
		<i>Porites astreoides</i>	15	rock	
		<i>Calyx podatypa</i>	5	rock	
		<i>Siderastrea siderea</i>	5	rock	
	14	<i>Porites astreoides</i>	15	rock	
		<i>Halimeda</i>	15	rock	
	15	<i>Halimeda</i>	15	rock	
	16	<i>Diploria strigosa</i>	25	rock	
		<i>Halimeda</i>	25	rock	
	17	<i>Halimeda</i>	25	rock	

	18	<i>Siderastrea siderea</i>	25	rock	
		<i>Dictyota</i>	25	rock	
		<i>Halimeda</i>	25	rock	
	19	<i>Halimeda</i>	15	sand/rubble	
		<i>Udotea</i>	2	sand/rubble	
18° 20.935'N	20	<i>Montastrea annularis</i>	45	sand	
64° 51.864'W		<i>Halimeda</i>	25	sand	

## IMPACT OF DEVELOPMENT

The enclosure will have an impact on corals and seagrasses within the bay. Corals and seagrass lie within the foot print of the pilings and docks. The enclosure has been designed to avoid the areas of densest seagrass. There are a total of 158 pilings, 100 pilings lie with the area with scattered coral outcroppings, 9 pilings lie within areas with areas with scattered corals within sparse to moderate seagrass beds. And 38 pilings lie with areas with sparse seagrass to minimally colonized sand, 9 pilings lie within the hard bottom, and 3 piles lie within the seagrass *Porites* rubble area. ||

The pilings will directly impact seagrasses in their foot prints and will also create a halo due to wave turbulence. Each piling will directly affect 1 sq. ft. of seagrass and each piling will probably affect a maximum of 2 additional ft. due to water turbulence base on halos seen around rubble and debris within the area. The close placement of the pilings for the wave barrier will result in a continuous disturbance of the seafloor along its length. During storm event additional scouring could occur. The fencing will reach the seafloor and will also have an impact on benthic resources, and the dock will directly shade 0.4 acres (17,424 sq. ft.) of benthic habitat. It is probable that the enclosure will result in a loss of 0.05 acres (2178 sq. ft.) of seagrass. The structure will impact approximately 0.32 acres (13,929 sq. ft.) of scattered coral habitat, 0.01 acre (436 sq.ft.) of seagrass in *Porites* rubble, 0.01 acre (436 sq. ft.) of hard bottom and 0.02 acres (872 sq. ft.) of scattered seagrass and coral. ||

Coral colonized boulders and outcrops lie in the piling foot print as well as the foot print of the fencing and dock. These corals, boulders and outcrops must be relocated not only to protect the coral but also to actually install the facility. Most of the coral boulders, even of significant size are not attached to bedrock and therefore can be moved utilizing lift bags. The few corals which are attached to bed rock or that are too rocks or boulders too large to be moved will be removed from their substrate with a hammer and chisel and reattached to the hard bottom to the east. Where possible a portion of the rock will be broken free as well so that the colonizing corals do not have to be removed from their substrates. In order to minimize impacts from the construction these corals/boulders will be relocated a minimum of 20 ft. outside the proposed facility foot print. Corals and boulders will be relocated from an area of 10ft width along the length of the main docks and the enclosure areas. Based on the lay out of the docks and the enclosure approximately 250 corals will require moving, these corals include *Montastrea annularis*, *Siderastrea siderea*, *Diploria strigosa*, *Porites astreoides*, *Porites porites* and *Pseudopterogorgia americana*. The coral relocation plan is found in Appendix D. ||

Once the construction of the facility is complete and the fencing has been installed there will be a change in water current within the area. The installation of the double fencing will probably decrease current movement and flushing through the area by approximately 25%. The placement of the wave dampener will significantly serve to further reduce the water movement and flushing. Between 6 and 10 dolphins will be kept in the pen and will be feed and will defecate within the structure. This will

result in the introduction of nutrients. Similar facilities do not show an excessive buildup of fecal coliform bacteria as a result of maintaining the dolphins. The dolphin feces should be consumed by other fish within the area and should not result in the eutrophication of the area.

The facility will effectively enclose an area of 74,000 sq. ft. animals larger than the 3 inch mesh size will be trapped inside the enclosure and those outside excluded. Sea turtles occur within the area and when the facility is being built it will be imperative that these animals not be trapped within the enclosure. No turtle feeding plots were noted in the enclosure although turtles were noted within the proposed pen footprint. The enclosure will be periodically opened and closed and this will allow for some animal movement in and out of the pen. The pen will have an impact of the movement of fish within the area which are larger than the mesh size. There are no exclusive habitats within the mesh that are not found in abundance within the bay and surrounding areas.

The pilings will become colonized overtime and the fencing will become fouled. The fencing will have to be periodically cleaned to prevent the further reduction in water circulation. The Coral World Dolphin Habitat fence will be inspected daily and large debris removed immediately and the overgrowth on fencing material will be removed by hand by divers or from the surface with brushes as needed. The dolphins should not have an impact on corals or the seagrass within the enclosure. It is likely that the dolphins will eat any larger fish trapped within the enclosure. Any conch found within the enclosure will be relocated to the adjacent grass beds to reduce impacts on their foraging and migration.

Tarpon, snook, sting rays, eagle rays and barracuda have all been seen in the vicinity of the proposed enclosure during benthic and current studies conducted at the site. The pen will exclude all animals larger than the mesh size. The pens have been lain out to avoid the denser deeper seagrass beds. The same habitats which occur within proposed enclosure, sparse seagrass beds and scattered coral habitat occur to the east, west and south of the enclosure and the loss of 1.722 acres of habitat will not result in a significant impact to these animals. (

### 6.07 Terrestrial Resources

Coral World is an existing marine park located on Coki Point on the east end of St. Thomas, south of the Leeward Passage and Coki Bay and north of Water Bay. Coki Point is rocky peninsula surrounded by rocky shores and supporting a dry coastal environment.

#### 6.07 A FLORA

The Coral World facility is a mixture of buildings, parking, walkways, exhibits and extensive landscaping. Only the immediately shoreline supports a fairly unaltered terrestrial community. The boardwalk of the facility will be constructed within this area. The shoreline supports banyan trees (*Ficus microphyllacoconut* palms (*Cocos nucifera*), seagrapes (*Cocoloba uvifera*), West Indian almonds (*Terminalia catappa*), milk trees (*Plumeria alba*), scattered white mangroves (*Laguncularia racemosa*), manchineel (*Hippomane mancinella*), pendula (*Citharexylum caudatum*), Jamaican capers (*Capparis jamaicensis*), bread and cheese (*Pithecellobium unguis-cati*), hiati-hiati (*Thespesia populnealimber* caper (*Capparis flexuosa*), water mampo (*Pisonia fragans*), log wood (*Haematoxylum campechianum*), pencil bush (*Euphorbia tirucalli*), opuntia (*Opuntia moniliformis*), *Capparis indica*, dildo cactus (*Cephalocereus*