

## Day 1 and Day 2: U.S. Virgin Islands, Living Shorelines/Green Infrastructure Working Session Case Study

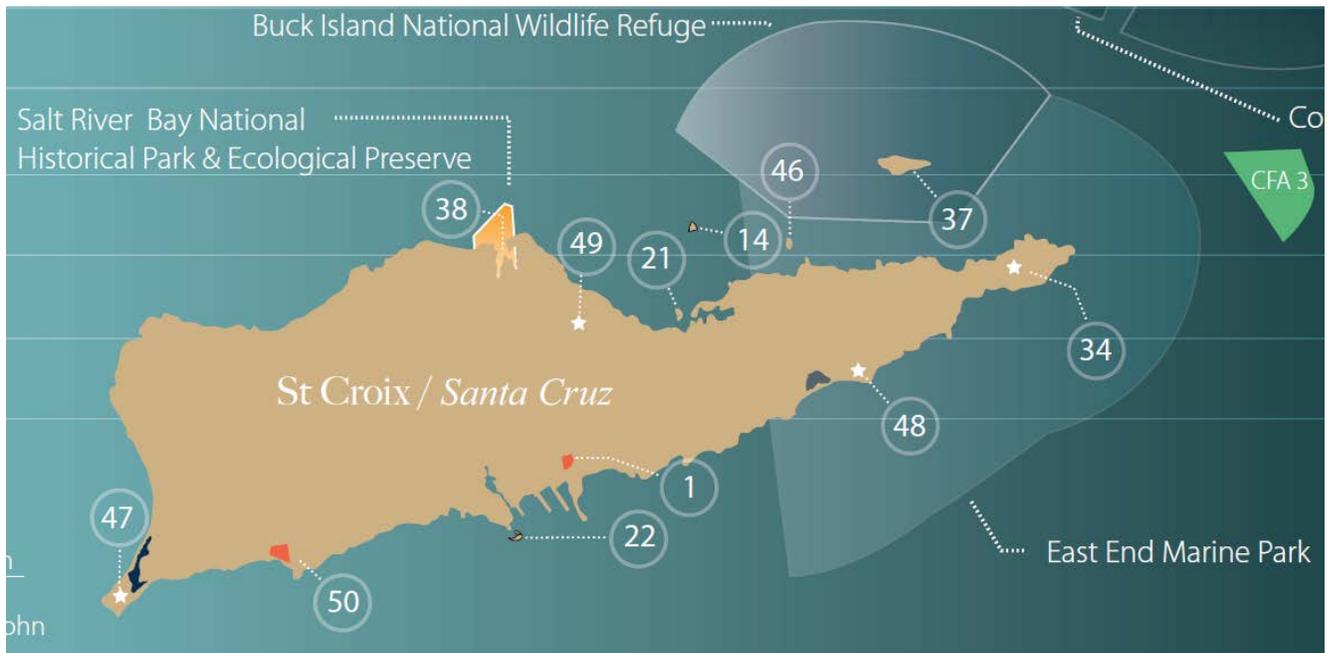
### LONG POINT – SOUTH SHORE, ST. CROIX

#### Issue: Erosion and runoff of private properties and sea turtle nesting beaches

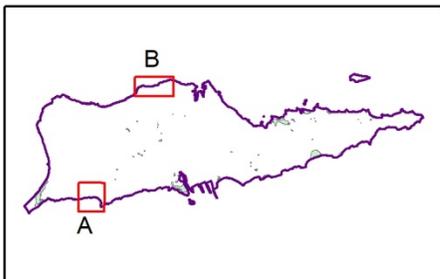
The shoreline of Long Point borders on historically residential areas on the south side of St. Croix. Anecdotal accounts indicate the area used to have mangroves, but property owners have been eliminating mangroves over time leading to slow shoreline erosion. Along shore, there is a lot of terrestrial-based sediment that is resuspended regularly during storms and swells.

There is no stormwater management in the area. Stormwater takes the form of sheet flow from the hills north of the area to the Hope and Carlton homestead lands along the shoreline.

There is a remaining small stand of mangroves and Fish and Wildlife has been looking into ways to protect and improve this wetland. The remaining mangroves are part of the privately owned Long Point Preserve.



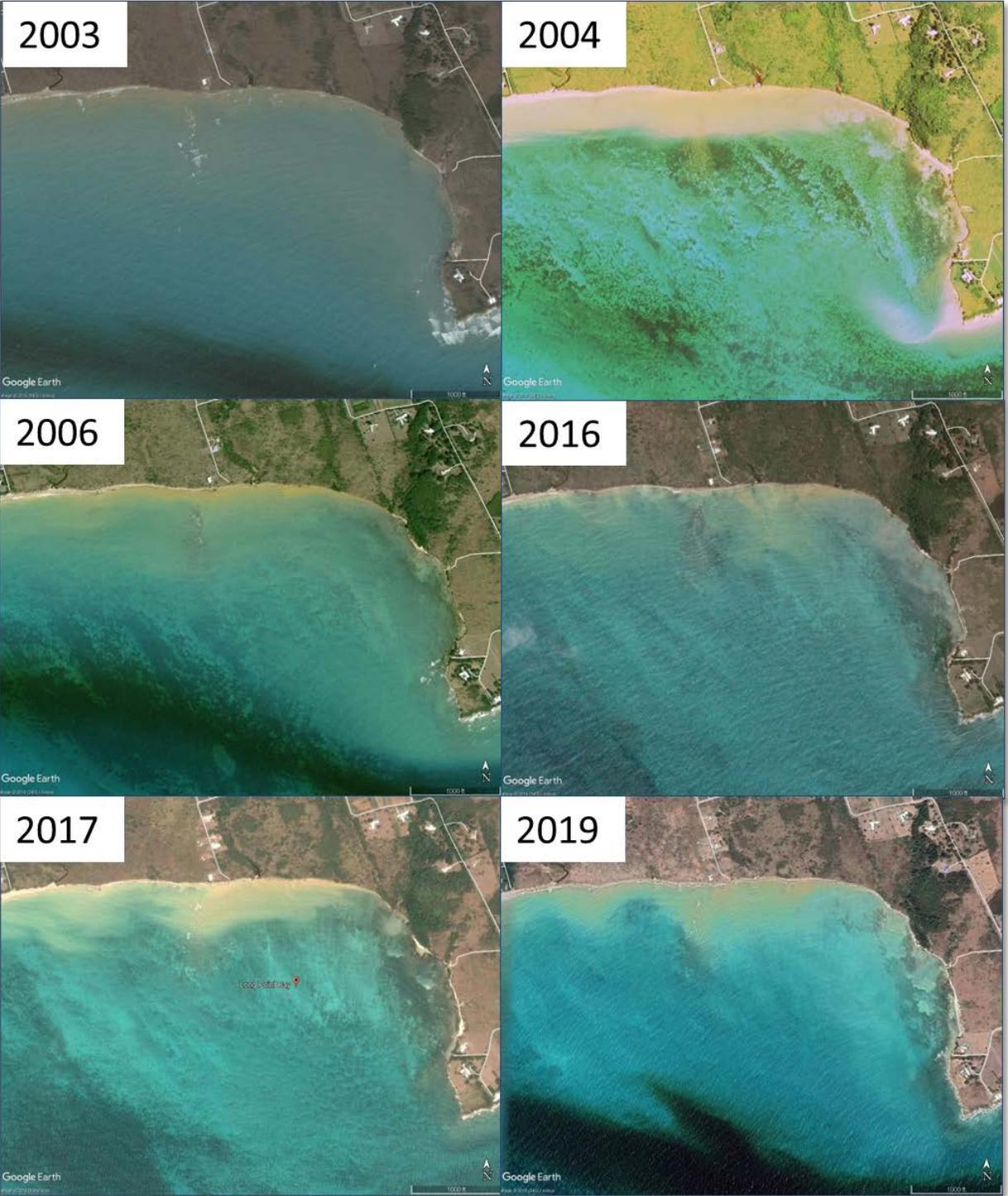
Long Point Preserve (Privately Owned) Site 50



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Map of the Location of Long Point Bay, St. Croix



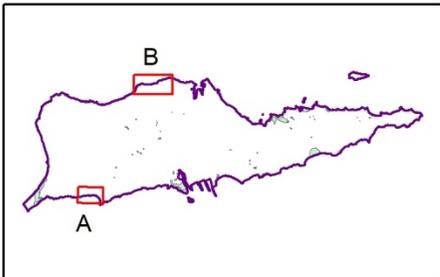
Images Showing Runoff over Time into Bay

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### **RUST OP TWIST – NORTH SHORE, ST. CROIX**

#### **Issue: Shoreline erosion**

The north shore of St. Croix is significantly different from the south shore due in part to high-energy waves and the small insular shelf along the north coast. Coastal erosion along the shoreline is severe. There is one site in particular where a private property owner has been losing land for last couple of years, but coastal erosion extends along this shoreline east and west of the property. Because of the history of coastal erosion in the area, at some point in time VIDPNR placed riprap along the shoreline. This riprap is to the east of the homeowner's property and appears to have exacerbated coastal erosion to the west of the riprap, which includes the homeowner's property. The property owner is very interested in green infrastructure options but needs help to decide on preferred options, as well as suggestions regarding the permitting process and what to consider. The nearshore area is characterized by a good coastal barrier system with reef flats and seagrass beds. The beach is rocky but the cliffs behind the beach are composed of erodible soils.



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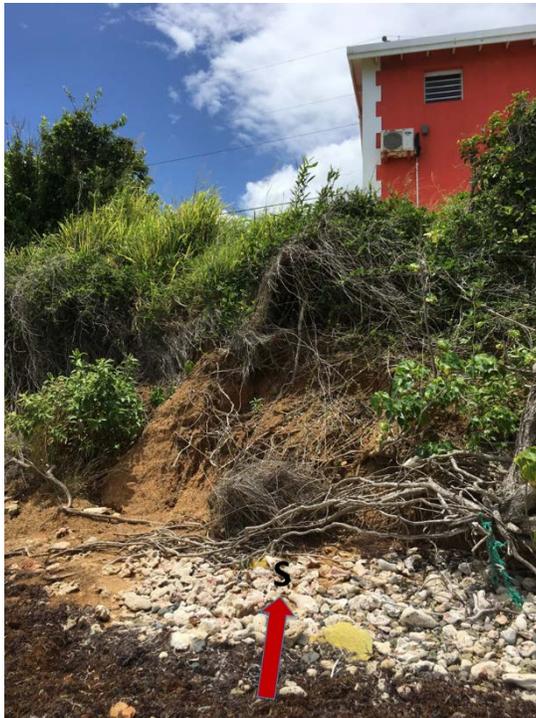


2006



2017





**Views to East, West, and South from Shore North of Homeowner's Property**

## **Day 1: U.S. Virgin Islands, Living Shorelines/Green Infrastructure Working Session Case Study**

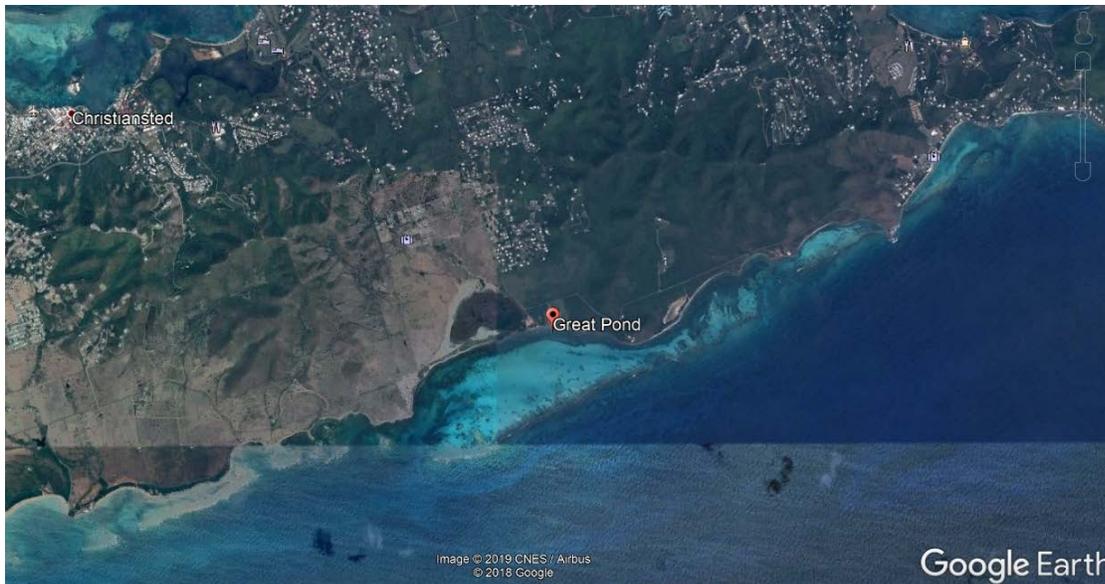
### **MANGROVES AT GREAT POND – ST. CROIX**

Great Pond is a 50-hectare (ha) mangrove-fringed, saline lagoon situated on the southeastern shore of St. Croix, U.S. Virgin Islands (USVI). Great Pond is contained on the south by a vegetated berm. The berm bar, approximately 1,100 m long with a maximum width of 105 m, separates Great Pond from Great Pond Bay. Pond level and area fluctuate as a result of rainfall and tidal flow. Groundwater discharge and runoff from the 470 ha of hills and pastures in the upland watershed result in a large influx of freshwater and sediment into Great Pond during and following heavy rainfall.

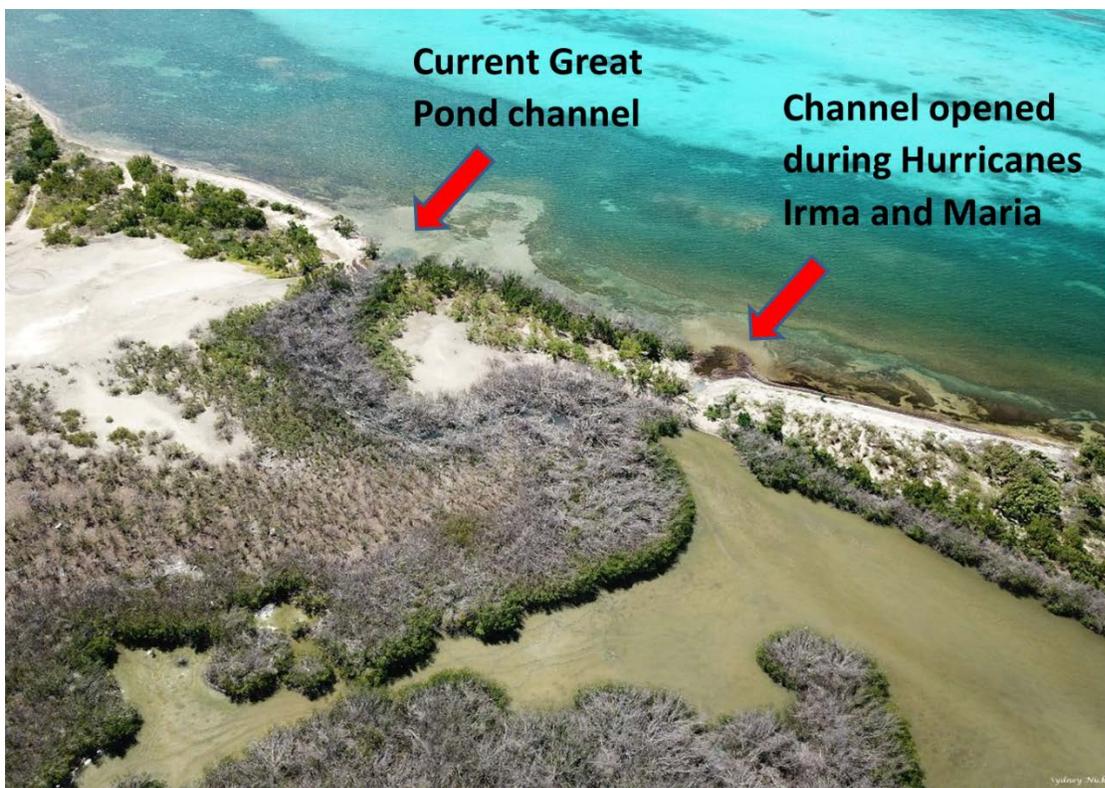
At low water levels, mudflats are exposed around much of the pond, particularly along the western border, and extend outward 30 - 100 m from the pond edge. Mudflats are surrounded on the west and north sides by gently sloping, fallow pastures of dry grassland with mixed thorny scrub. In some areas, rainfall runoff amplified by former cattle grazing has left shallow eroded gullies and ledges where the pasture meets the mudflats. A narrow channel with a maximum depth of 1.5 m connects the pond to Great Pond Bay at the pond's southeast corner. Surveys from 2002 to 2007 have confirmed 72 species of birds at Great Pond, including 39 migrants and 33 resident species; blue crab can occasionally be found in the pond, and land crabs are present in the area. Changes to the pond over time have led to fish species composition changes with cichlid species (tilapia) dominating.

A failing barbed wire fence intersects the mudflats on the north and west sides. A Boy Scout Camp is located to the southwest. A paved public road (Rt. 60), flanked by an electrical transmission line, is separated from the east side of the pond mudflats by a narrow row of black mangroves. Approximately 100 houses have been built in the upland watershed, primarily to the northeast. An open fishermen's shanty or camping kitchen and an outhouse built on the beach berm have been in use for years. When the western mudflats are not submerged, the beach and camp site are accessed by way of a temporary track along the pond's western edge and a well-worn road along the western end of the berm. A track through the southeast mudflats is used by fishermen launching small fishing boats from the shore into Great Pond Bay.

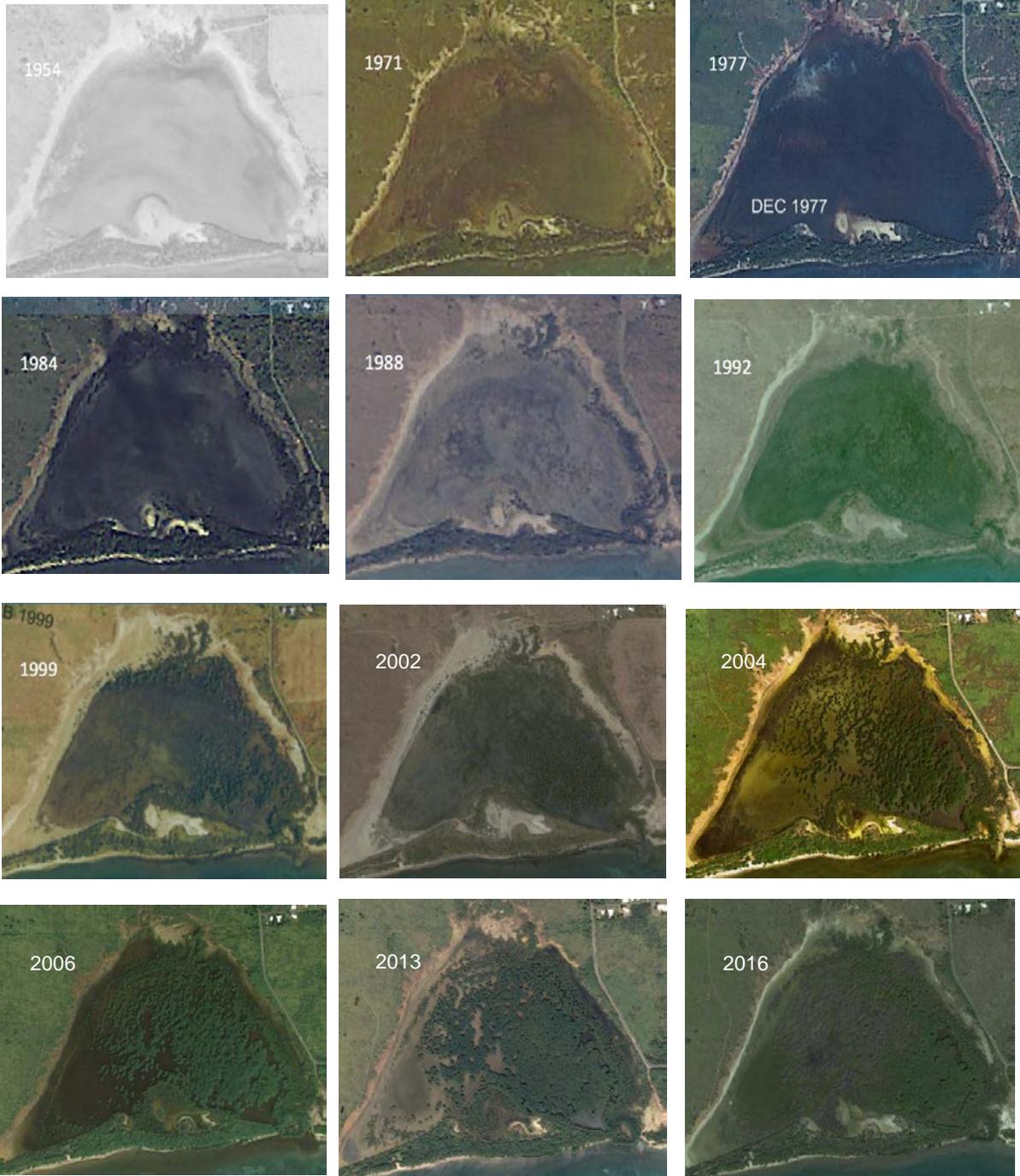
Like all lagoons in the U.S. Virgin Islands, Great Pond is owned by the Government of the U.S. Virgin Islands. Fishers historically used the pond to catch bait fish but changes to the pond over time have led to fish species composition changes with cichlid species (tilapia) dominating. Fishers have been calling for VIDPNR to reopen the channel and the Department is examining alternatives for reestablishing flow and restoring the fishery function of the lagoon.



Google Earth Image of a Portion of St. Croix Showing Location of Great Pond (Red Dot)



Aerial Image Showing Great Pond Mangrove Die-Off, Historic Channel, and Channel Opened During 2017 Hurricanes



**Aerial images of Great Salt Pond, St. Croix, USVI. Photos range from 1954 to 2016 in chronological order. Note the increasing abundance of mangroves trees fringing and within the pond basin across the time series. Also, note that the scale is consistent for all images.**