

Map Unit Properties Table: Buck Island Reef National Monument

Gray-shaded rows indicate units not mapped within Buck Island Reef National Monument. *MMU = minimum mapping unit, which is 0.4 ha (1 ac) at a scale of 1:6,000 (Kendall et al. 1999). Geologic units mapped as "land (l)" on benthic habitat layer.

Age	Map Unit (Symbol)	Geologic Description	Geologic Issues	Geologic Features and Processes	Geologic History and Park Connections	
QUATERNARY (Holocene)	Benthic Habitats	Submerged Vegetation Continuous Seagrass, ≥90% (sgc)	Submerged Vegetation: Greater than 10% cover of submerged vegetation in unspecified substrate type (usually sand, mud, or hardbottom). Continuous Seagrass: Seagrass covering 90% or more of the substrate. May include blowouts of less than 10% of the total area that are too small to be mapped independently, less than the minimum mapping unit (MMU*). This includes continuous beds of any shoot density (may be a continuous sparse or dense bed).	Damage by boat anchorage and vessel groundings. Physical baffling of sediment.	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. Habitat for juvenile queen conch (<i>Strombus gigas</i>) and Caribbean spiny lobster (<i>Panulirus argus</i>).	Part of the Holocene reef system.
		Submerged Vegetation Patchy Seagrass, 10%–30% (sgp1)	Submerged Vegetation: See description above. Patchy Seagrass: Discontinuous seagrass with breaks in coverage that are too diffuse or irregular, or result in isolated patches of seagrass that are too small (smaller than the MMU*) to be mapped as continuous seagrass (sgc).	Damage by boat anchorage and vessel groundings. Physical baffling of sediment.	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. Habitat for juvenile queen conch (<i>Strombus gigas</i>) and Caribbean spiny lobster (<i>Panulirus argus</i>).	Part of the Holocene reef system.
		Submerged Vegetation Patchy Seagrass, 30%–50% (sgp2)	Submerged Vegetation: See description above. Patchy Seagrass: See description above.	Damage by boat anchorage and vessel groundings. Physical baffling of sediment.	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. Habitat for juvenile queen conch (<i>Strombus gigas</i>) and Caribbean spiny lobster (<i>Panulirus argus</i>).	Part of the Holocene reef system.
		Submerged Vegetation Patchy Seagrass, 50%–70% (sgp3)	Submerged Vegetation: See description above. Patchy Seagrass: See description above.	Damage by boat anchorage and vessel groundings. Physical baffling of sediment.	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. Habitat for juvenile queen conch (<i>Strombus gigas</i>) and Caribbean spiny lobster (<i>Panulirus argus</i>).	Part of the Holocene reef system.
		Submerged Vegetation Patchy Seagrass, 70%–90% (sgp4)	Submerged Vegetation: See description above. Patchy Seagrass: See description above.	Damage by boat anchorage and vessel groundings. Physical baffling of sediment.	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. Habitat for juvenile queen conch (<i>Strombus gigas</i>) and Caribbean spiny lobster (<i>Panulirus argus</i>).	Part of the Holocene reef system.
		Submerged Vegetation Patchy Macroalgae, 10%–50% (map1)	Submerged Vegetation: See description above. Patchy Macroalgae: Discontinuous macroalgae with breaks in coverage that are too diffuse or irregular, or result in isolated patches of macroalgae that are too small (smaller than MMU*) to be mapped as continuous algae.	Stabilizes sediment but can be disrupted during storm events.	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. Representative Species: <i>Caulerpa</i> spp., <i>Dictyota</i> spp., <i>Halimeda</i> spp., <i>Lobophora variegata</i> , <i>Laurencia</i> spp.	Part of the Holocene reef system.
		Submerged Vegetation Patchy Macroalgae, 50%–90% (map2)	Submerged Vegetation: See description above. Patchy Macroalgae: See description above.	Stabilizes sediment but can be disrupted during storm events.	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. Representative Species: <i>Caulerpa</i> spp., <i>Dictyota</i> spp., <i>Halimeda</i> spp., <i>Lobophora variegata</i> , <i>Laurencia</i> spp.	Part of the Holocene reef system.
		Mangrove (m)	Emergent habitat composed of red, black, or white mangroves, or some combination thereof. Mangroves must be part of an open tidal system to be mapped. This habitat type is found only in the shoreline/intertidal, back reef, or barrier reef crest zone.	Generally found in areas sheltered from high-energy waves, but hurricane winds can damage.	Representative Species: <i>Rhizophora mangle</i> , <i>Avicennia germinans</i> , <i>Laguncularia racemosa</i>	None within the national monument.

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Age	Map Unit (Symbol)	Geologic Description	Geologic Issues	Geologic Features and Processes	Geologic History and Park Connections	
QUATERNARY (Holocene)	Benthic Habitats	Artificial Habitat (a)	Artificial habitats such as submerged wrecks, large piers, submerged portions of rip-rap jetties, and the shoreline of islands created from dredge spoil.	Coral species affected by bleaching, disease, and predation.	Colonization by live coral. Representative coral species: <i>Acropora palmata</i> , <i>Acropora cervicornis</i> , <i>Diploria</i> spp., <i>Millespora complanata</i> , <i>Montastrea</i> spp., <i>Porites</i> spp., <i>Siderastrea</i> spp.	The Shipwreck lies off the northwest corner of Buck Island in approximately 5 m (17 ft) of water (National Park Service 1983).
		Unknown Habitat Type (u)	Unknown: Unable to interpret bottom type due to turbidity, cloud cover, water depth, or other interference.	Unknown.	Unknown.	Unknown.
		Unconsolidated Sediment Mud (mu)	Unconsolidated sediment covered by <10% submerged vegetation. Mud: Fine sediment often associated with river discharge and buildup of organic material in areas sheltered from high-energy waves and currents.	Heavy boat and human traffic can cause turbidity.	Burrowing shrimp (<i>Callinassa</i> spp.). Mangroves.	None within the national monument.
		Unconsolidated Sediment Sand (s)	Unconsolidated sediment covered by <10% submerged vegetation. Sand: Coarse carbonate sediment typically found in areas exposed to currents or wave energy.	Heavy boat and human traffic can cause turbidity. Source of carbonate sand. Potential anchorage and buoy-placement areas. Transported by seasonal wind and wave patterns.	Primary habitat type along with submerged vegetation, and coral reef and hardbottom.	Along with submerged vegetation, makes up 22% of habitat at Buck Island Reef National Monument (Pittman et al. 2008).
		Coral Reef and Hardbottom Uncolonized Hardbottom Reef Rubble (hbr)	Coral Reef and Hardbottom: Hardened substrate of unspecified relief formed by the deposition of calcium carbonate by reef building corals and other organisms (relict or ongoing) or existing as exposed bedrock. Uncolonized Hardbottom: Hard substrate composed of relict deposits of calcium carbonate or exposed bedrock. Reef Rubble: Dead, unstable coral rubble often colonized with filamentous or other macroalgae. This habitat often occurs landward of well developed reef formations, along the reef crest or in the backreef.	Damage from physical force of waves during hurricanes.	Sparse or no colonization by live coral.	Part of the Holocene reef system.
		Coral Reef and Hardbottom Uncolonized Hardbottom Uncolonized Bedrock (hub)	Coral Reef and Hardbottom: See description above. Uncolonized Hardbottom: See description above. Uncolonized Bedrock: Exposed bedrock contiguous with the shoreline that has sparse coverage of macroalgae, hard coral, gorgonians, and other sessile invertebrates that does not obscure the underlying rock.	Unknown.	Sparse or no colonization by live coral. Continuous with the shoreline, consisting of rocky shores and small, submerged rocky outcrops.	Part of the Holocene reef system.
		Coral Reef and Hardbottom Uncolonized Hardbottom Uncolonized Pavement (hbup)	Coral Reef and Hardbottom: See description above. Uncolonized Hardbottom: See description above. Uncolonized Pavement: Flat, low relief, solid carbonate rock that is often covered by a thin sand veneer. The pavement's surface often has sparse coverage of macroalgae, hard coral, gorgonians, and other sessile invertebrates that does not obscure the underlying carbonate rock.	Source of carbonate sand. Pavement indicates low wave energy and high hurricane frequency.	Sparse or no colonization by live coral. Pavement is composed of dead coral, which provides substrate for other organisms.	Part of the Holocene reef system.
		Coral Reef and Hardbottom Colonized Hardbottom Colonized Bedrock (rcb)	Coral Reef and Hardbottom: See description above. Colonized Hardbottom: 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 Hardbottom category. Colonized Bedrock: Exposed bedrock contiguous with the shoreline that has coverage of macroalgae, hard coral, gorgonians, and other sessile invertebrates that partially obscures the underlying rock.	Coral species affected by bleaching, disease, and predation.	Colonization by live coral. Representative coral species: <i>Acropora palmata</i> , <i>Acropora cervicornis</i> , <i>Diploria</i> spp., <i>Millespora complanata</i> , <i>Montastrea</i> spp., <i>Porites</i> spp., <i>Siderastrea</i> spp.	Part of the Holocene reef system.

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QUATERNARY (Holocene)	Benthic Habitats	Coral Reef and Hardbottom Colonized Hardbottom Colonized Pavement (rcp)	Coral Reef and Hardbottom: See description above. Colonized Hardbottom: See description above. Colonized Pavement: Flat, low-relief, solid carbonate rock with coverage of macroalgae, hard coral, gorgonians, and other sessile invertebrates that are dense enough to partially obscure the underlying carbonate rock.	Coral species affected by bleaching, disease, and predation. Pavement indicates low wave energy and high hurricane frequency.	Colonization by live coral. Representative coral species: <i>Acropora palmata</i> , <i>Acropora cervicornis</i> , <i>Diploria</i> spp., <i>Millespora complanata</i> , <i>Montastrea</i> spp., <i>Porites</i> spp., <i>Siderastrea</i> spp.	Part of the Holocene reef system.
		Coral Reef and Hardbottom Colonized Hardbottom Colonized Pavement with Sand Channels (rcpc)	Coral Reef and Hardbottom: See description above. Colonized Hardbottom: See description above. Colonized Pavement with Sand Channels: Habitat having alternating sand and colonized pavement formations that are oriented perpendicular to the shore or bank/shelf escarpment. The sand channels of this feature have low vertical relief compared to spur and groove (rsgr) formations. This habitat type occurs in areas exposed to moderate wave surge such as that found in the bank/shelf zone.	Coral species affected by bleaching, disease, and predation. Pavement indicates low wave energy and high hurricane frequency. Source of carbonate sand.	Colonization by live coral. Representative coral species: <i>Acropora palmata</i> , <i>Acropora cervicornis</i> , <i>Diploria</i> spp., <i>Millespora complanata</i> , <i>Montastrea</i> spp., <i>Porites</i> spp., <i>Siderastrea</i> spp. Pavement is composed of dead coral, which provides substrate for other organisms.	Part of the Holocene reef system.
		Coral Reef and Hardbottom Coral Reef and Colonized Hardbottom Linear Reef (rlr)	Coral Reef and Hardbottom: See description above. Coral Reef and Colonized Hardbottom: 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 Hardbottom category. Linear Reef: Linear coral formations that are oriented parallel to the shore or the shelf edge. These features follow the contours of the shore/shelf edge. This category covers such commonly used terms as forereef, fringing reef, and shelf-edge reef.	Affected by bleaching, disease, and predation. Damage by snorkelers, primarily repeated use as a standing/resting platform but also fin kicks and touching with hands. Damage by boat anchorage and vessel groundings. Damage by waves during hurricanes. Source of carbonate sand.	Holes and grottos provide habitat for reef species. Colonization by live coral. Representative coral species: <i>Acropora palmata</i> , <i>Acropora cervicornis</i> , <i>Diploria</i> spp., <i>Millespora complanata</i> , <i>Montastrea</i> spp., <i>Porites</i> spp., <i>Siderastrea</i> spp.	Part of the Holocene reef system. Monitoring transects since 1976.
		Coral Reef and Hardbottom Coral Reef and Colonized Hardbottom Patch Reef Aggregated Patch Reef (rpra)	Coral Reef and Hardbottom: See description above. Coral Reef and Colonized Hardbottom: 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 Hardbottom category. Patch Reef: Coral formations that are isolated from other coral formations by sand, seagrass, or other habitats and have no organized structural axis relative to the contours of the shore or shelf edge. A surrounding halo of sand is often a distinguishing feature of this habitat type when it occurs adjacent to submerged vegetation. Aggregate Patch Reef: Clustered patch reefs that individually are too small (smaller than the MMU*) or are too close together to map separately. Where aggregate patch reefs share halos, the halo is included as part of the map unit.	Affected by bleaching, disease, and predation. Damage by snorkelers, primarily repeated use as a standing/resting platform but also fin kicks and touching with hands. Damage by boat anchorage and vessel groundings. Damage by waves during hurricanes. Source of carbonate sand.	Colonization by live coral. Representative coral species: <i>Acropora palmata</i> , <i>Acropora cervicornis</i> , <i>Diploria</i> spp., <i>Millespora complanata</i> , <i>Montastrea</i> spp., <i>Porites</i> spp., <i>Siderastrea</i> spp.	Part of the Holocene reef system.
		Coral Reef and Hardbottom Coral Reef and Colonized Hardbottom Patch Reef Individual Patch Reef (rpri)	Coral Reef and Hardbottom: See description above. Coral Reef and Colonized Hardbottom: See description above. Patch Reef: See description above. Individual Patch Reef: Distinctive single patch reefs that are equal to or larger than the MMU*. When patch reefs occur in submerged vegetation and a halo is present, the halo is included as part of the patch reef.	Affected by bleaching, disease, and predation. Damage by snorkelers, primarily repeated use as a standing/resting platform but also fin kicks and touching with hands. Damage by boat anchorage and vessel groundings. Damage by waves during hurricanes. Source of carbonate sand.	Colonization by live coral. Representative coral species: <i>Acropora palmata</i> , <i>Acropora cervicornis</i> , <i>Diploria</i> spp., <i>Millespora complanata</i> , <i>Montastrea</i> spp., <i>Porites</i> spp., <i>Siderastrea</i> spp.	Part of the Holocene reef system.

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Age	Map Unit (Symbol)	Geologic Description	Geologic Issues	Geologic Features and Processes	Geologic History and Park Connections	
QUATERNARY (Holocene)	Benthic Habitats	Coral Reef and Hardbottom	Coral Reef and Hardbottom: See description above.	Damage by snorkelers, primarily repeated use as a standing/resting platform but also fin kicks and touching with hands.	Colonization by live coral. Representative coral species: <i>Acropora palmata</i> , <i>Acropora cervicornis</i> , <i>Diploria</i> spp., <i>Millespora complanata</i> , <i>Montastrea</i> spp., <i>Porites</i> spp., <i>Siderastrea</i> spp.	
		Coral Reef and Colonized Hardbottom	Coral Reef and Colonized Hardbottom: See description above.	Damage by boat anchorage and vessel groundings.		
		Scattered Coral or Rock in Unconsolidated Sediment (rscr)	Scattered Coral or Rock in Unconsolidated Sediment: Primarily sand or seagrass bottom with scattered rocks or small, isolated coral heads that are too small to be delineated individually (i.e., smaller than an individual patch reef).	Damage by waves during hurricanes.	Part of the Holocene reef system.	
		Coral Reef and Hardbottom	Coral Reef and Hardbottom: See description above.	Affected by bleaching, disease, and predation.	Colonization by live coral. Representative coral species: <i>Acropora palmata</i> , <i>Acropora cervicornis</i> , <i>Diploria</i> spp., <i>Millespora complanata</i> , <i>Montastrea</i> spp., <i>Porites</i> spp., <i>Siderastrea</i> spp.	
		Coral Reef and Colonized Hardbottom	Coral Reef and Colonized Hardbottom: See description above.	Damage by snorkelers, primarily repeated use as a standing/resting platform but also fin kicks and touching with hands.		
		Spur and Groove Reef (rsgf)	Spur and Groove Reef: Habitat having alternating sand and coral formations that are oriented perpendicular to the shore or bank/shelf escarpment. The coral formations (spurs) of this feature typically have a high vertical relief compared to pavement with sand channels and are separated from each other by 1-5 meters of sand or bare hardbottom (grooves), although the height and width of these elements may vary considerably. This habitat type typically occurs in the fore reef or bank/shelf escarpment zone.	Damage by boat anchorage and vessel groundings.	Part of the Holocene reef system.	
				Damage by waves during hurricanes.		
				Source of carbonate sand.		
		Surficial Deposits (Qal)	Recent surficial deposits (also referred to as alluvium). Includes beach sand, beach rock (sand and gravel cemented with calcium carbonate), and stream deposits.	Hurricanes alter beach dynamics. Flooding during hurricanes. Source of carbonate sand. Potential anchorage and buoy-placement areas. Streams are intermittent and run only after storm events.	Nesting areas for threatened and endangered species. Coral mounds and aboriginal sites. Beaches for sunbathing and swimming.	
NEOGENE (Lower Miocene)	Geologic Units	Kingshill Marl (MIkh)	Buff-to-white, moderately thick-bedded limestone, alternating with soft cream or white marl. Limestone has structureless appearance, and the bedding planes are obscure when composed of coral debris. Forms the surface of the coastal plain, except where covered by alluvium (Qal) . Thickness up to 180 m (600 ft). Subdivided into two members—La Reine and Mannings Bay—by Gill et al. (1989), McLaughlin et al. (1995), and Gill et al. (2002).	Karst cavities.	Planktonic foraminifera: <i>P. glomerosa</i> , <i>G. peripheroronda</i> , <i>G. fohsi fohsi</i> , <i>G. fohsi robata</i> , <i>G. fohsi robusta</i> , <i>G. mayerii</i> , <i>G. menardii</i> , <i>G. acostaensis</i> , <i>G. numerosa</i> , and <i>G. margaritae</i> . Corals.	
		Jealousy Formation (OLj)	Dark-colored clay and conglomerate. In places, the conglomerate is poorly stratified and consists of pebbles, cobbles, and boulders of the Judith Fancy Formation (Kj) and minor diorite; pockets of red and green clay up to 6 m (20 ft) long and 1.5 m (5 ft) deep; and a calcareous sandy matrix. Clay is about 90% montmorillonite and 10% angular fragments of quartz, plagioclase, hornblende, and hematite. Total thickness 426 m (1,398 ft).	Exposures are highly weathered (Gerhard et al. 1978).	Paleontological Resources—Thin oyster beds, corals, and fossil shell fragments. Planktonic foraminifera: <i>P. glomerosa</i> , <i>G. peripheroronda</i> , and <i>G. fohsi fohsi</i>	
			Southgate Diorite (TKdi)	Discordant, unfoliated intrusion into unmetamorphosed country rock, about 1.2 km (0.75 mi) wide at center of East End Range. Hornblende and plagioclase are essential minerals and occur in nearly equal amounts. Hornblende varies from completely anhedral to euhedral crystals averaging about 1 mm (0.4 in) long, strongly pleochroic from olive green to brownish green and poikilitically encloses other minerals, particularly small crystals of plagioclase. Augite, magnetite, and apatite are accessory minerals. Alteration products include chlorite, epidote, clinozoisite, prehnite, and saussurite. Small anhedral quartz grains in some rocks near the margin of the intrusion.	Easily weathered.	Probably intruded before folding of Cretaceous rocks. Buck Island Reef National Monument hosts no intrusions.
EARLY "TERTIARY"—UPPER CRETACEOUS						

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UPPER CRETACEOUS	Geologic Units Mount Eagle Group	Fountain Gabbro (Kg)	Two-pyroxene gabbro with accessory biotite, magnetite, apatite, and hornblende. Plagioclase (labradorite) and augite are the essential minerals. Hypersthene occurs in variable amounts and may be essential or accessory. Hypersthene granules are distinctly smaller than augite, 0.1 mm (0.004 in) in diameter. Exposed pluton—3.6 km (2.3 mi) long and a maximum of 2 km (1.3 mi) wide—shaped in plan view like a malformed letter "H." Sharp, steeply dipping (in many cases vertical) contact with adjacent metasedimentary rocks. Locally foliated, but most of the pluton is unfoliated and without lineation. Small dikes branch outward from the main pluton and intrude nearby sedimentary rocks. Discordant, almost completely lacking in foliation, and unmetamorphosed country rock surrounding the contact aureole indicate a shallow depth of intrusion.	Easily weathered.	Stocks and dikes on St. Croix.	Probably intruded before folding of Cretaceous rocks. Buck Island Reef National Monument hosts no intrusions.	
		Judith Fancy Formation (Kj)	Fine- to coarse-grained tuffaceous sandstone, breccia and lapilli tuff, or tuff and lapilli tuff. About 4,570 m (15,000 ft) thick. Largely undifferentiated but separated and mapped into members at various locations.	Easily weathered.	Fossils—A few thin beds of fossiliferous fragmental limestone interbedded with the tuffaceous rocks, corals, and foraminifera.	Originated in island-arc setting.	
		Judith Fancy Formation	Recovery Hill Member (Kjr)	Blue-gray mudstone and subordinate fine-grained tuffaceous sandstone. Estimated thickness 305 m (1,000 ft).	Easily weathered.	Fossils—A few thin beds of fossiliferous fragmental limestone interbedded with the tuffaceous rocks, corals, and foraminifera.	Originated in island-arc setting.
			Blue Mountain Member (Kjb)	Hard, resistant olive-green siliceous siltstone interbedded with fine-grained tuffaceous sedimentary rocks. Maximum thickness 1,130 m (3,700 ft).	Easily weathered.	Fossils—A few thin beds of fossiliferous fragmental limestone interbedded with the tuffaceous rocks, corals, and foraminifera.	Originated in island-arc setting.
			Clairmont Member (Kjc)	Resistant bed of limestone and volcanic pebble conglomerate 15 m (50 ft) thick or less.	Easily weathered.	Fossils—A few thin beds of fossiliferous fragmental limestone interbedded with the tuffaceous rocks, corals, and foraminifera.	Originated in island-arc setting.
		Cane Valley Formation	Springfield Member (Kcvs)	Mudstone and fine-grained tuffaceous sandstone. Approximately 180 m (600 ft) thick.	Easily weathered.	No fossils.	Originated in island-arc setting.
			Robe Hill Member (Kcvr)	Medium- and coarse-grained tuffaceous sandstone interbedded in a 3:1 ratio with mudstone. Thickness 120 m (400 ft) where best exposed.	Easily weathered.	No fossils.	Originated in island-arc setting.
			Hope Member (Kcvh)	Lower half: About equal amounts of green fine-grained tuffaceous sandstone and black mudstone. Upper half: Entirely mudstone. Total thickness 210 m (700 ft).	Easily weathered.	No fossils.	Originated in island-arc setting.
		Allandale Formation (Ka)	Tuffaceous sandstone and mudstone. Estimated thickness 610 m (2,000 ft).	Easily weathered. Displaced by faulting on St. Croix.	No fossils.	Originated in island-arc setting.	
		Caledonia Formation (Kc)	Volcaniclastic sandstone and mudstone and turbidites. Composed of a variety of rock types, including, in order of abundance, mudstone, sandstones, limestone, chert, and conglomerate. Thickness of any particular lithology is generally on a scale of inches, and most rock types are regularly repeated, giving a homogeneous aspect to the entire formation. Sedimentary structures in sandstone beds include graded bedding, current bedding, deformed bedding, load casts, and surface markings. Estimated maximum thickness 5,490 m (18,000 ft).	Erosion during heavy rains. Thin soils.	Representative terrestrial plant species: seagrape (<i>Coccoloba uvifera</i>), manchineel (<i>Hippomane manicinella</i>), and coconut palm (<i>Cocos nucifera</i>). Potential for fossils—marine invertebrates (foraminifera, rudists, corals, and gastropods). Trace fossils (bioturbation). Ammonite found along Tague Bay, southeast of Buck Island.	Originated in island-arc setting. Primary bedrock unit at Buck Island Reef National Monument.	
		Caledonia Formation East End Member (Kce)	Tuffaceous rocks (metamorphosed in places) in three subdivisions (from oldest to youngest): (1) volcanic breccia and tuffaceous sandstone, 50 m (175 ft) thick; (2) black mudstone, 60 m (200 ft) thick, thins to a feather edge; and (3) light-green coarse-grained tuffaceous sandstone, at least 90 m (300 ft) thick. Total thickness 275 m (900 ft).	Erosion during heavy rains.	Potential for fossils—Marine invertebrates (foraminifera, rudists, corals, and gastropods). Trace fossils (bioturbation). Ammonite found along Tague Bay, southeast of Buck Island.	Originated in island-arc setting.	