Addendum to Quick Scan Marine Environment

Ecosystem and Biodiversity Composition
in front of the Hilton Embassy Suites, at Eagle Beach.

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Introduction

This is an addendum to the Quick Scan Assessment Report published in July 2023 by Fundacion Parke Nacional Aruba (FPNA) of Ecosystem and Biodiversity Composition and Potential Negative Impacts of the beach development activities in front of the Hilton Embassy Suites, at J.E. Irausquin Blvd. 268, Eagle Beach. Over the past 2 years since the previous publication FPNA has rebranded to the Aruba Conservation Foundation (ACF).

This addendum is produced by the Aruba Conservation Foundation (ACF) and serves as an update of the biodiversity and ecological conditions. During the time since the previous report there has been no further human development of the beach to our knowledge.

This addendum and the necessary surveys were developed and executed by the Marine Conservation team of ACF to investigate the current marine biodiversity and ecosystem features. The specific area surveyed has remained an area of significant natural value that has been left relatively untarnished amidst heavy coastal development. This pristine little coastal sanctuary is the only remaining coast with seagrass reaching all the way up to the low tide line in the hotel zone, a unique habitat that is only seen in two sites in Aruba.

Methods

Since the previous publication, noteworthy observations of particularly rare or vulnerable species have been documented. Additionally, the visual assessments both on land and in the sea were repeated on March 2, 2025.

The shoreline was surveyed by conducting visual assessments of the flora and fauna currently present. Surveys in water were performed by conducting visual assessments (including photo analysis) and conducting a roving survey while snorkeling above seagrass meadows, corals, and present bottom cover. The roving survey covered the same areas as in June 2023, comprising of a nearshore shallow area (yellow) of approximately 635 square meters at a depth of 0.2 to 0.5 meters as well as a gradient section (red) of 2700 square meters, varying in depth from 0.5 to 2 meters near the seaward edge of the sheltered bay (Image 1). In total, approximately 10% of the bay between the 2 dikes was surveyed. Again, all observed species were recorded and identified.

Supplementary work included satellite and drone imagery analysis and camera surveys to determine the position of the deeper edge of meadows and mangrove areas. Drone imagery was used to compare further changes over time.

Image 1: Areal overview of the bay with the two areas covered by the roving surveys.

Results

Mangroves and additional terrestrial flora

The shoreline surveyed in this area consists of a narrow beach with lush Buttonwood mangroves (*Conocarpus erectus*) of different sizes and ages growing along the water's edge. These mangroves shelter the beach and immediate marine environment from the road, erosion and other anthropogenic stressors and harbor different bird and invertebrate species. Besides mangroves, the shoreside vegetation also includes other flora species, such as Mesquite (*Neltuma juliflora*), Grey columnar cactus (*Stenocereus griseus*), Giant milkweed (*Calotropis procera*) and Scarlet cordia (*Cordia sebestena*).

Seagrasses

Turtle grass (*Thalassia testudinum*) remains the dominant seagrass species and bottom cover. However, the invasive seagrass *Halophila stipulacea*, was now not only observed loosely floating but also in one spot in the deeper edge of the bay where a small patch has started growing (Image 2). Small patches of Turtle grass (Image 3) were also observed apart from the larger already known patches in the shallows.

Image 3: Patch of Halophila stipulacea

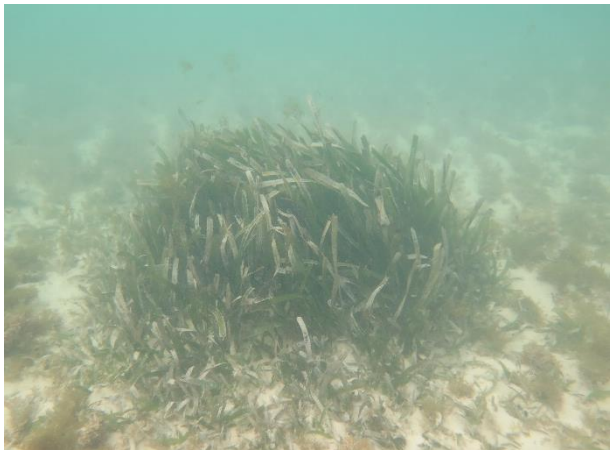

Image 2: Small patch of Turtle grass (Thalassia testudinum)

Corals

Within the surveyed area the previously observed 6 species of stony corals were still present with multiple healthy-looking colonies. Namely the Shallow water starlet coral (*Siderastrea radians*), Symmetrical brain coral (*Diploria strigosa*), Knobby brain coral (*Diploria clivosa*), Thin finger coral (*Porites divaricata*), Mustard hill coral (*Porites astreoides*), and the hydrocoral species Fire coral (*Millepora striata*). Additionally, the Blue Crust Coral (*Porites cf. branneri*) and Blade fire coral (*Millepora complanata*) were observed as well.

Most of these coral species are classified as Critically Endangered (CR), Near Threatened (NT) or Vulnerable (VU) (Table 1) in the IUCN Red List of Threatened Species[1]. The inner bay shape continues to protect the brain corals in this bay from Stony Coral Tissue Loss Disease (SCTLD), as only a few colonies of Symmetrical brain coral (*Diploria strigosa*) on the deeper, outer edge of the bay displayed symptoms of SCTLD. The colonies closer to shore and in the inner bay did not display signs of SCTLD. Therefore, the previously hypothesized function as a source for natural recruitment and recovery of corals around Aruba is still intact.

Observed biodiversity

This unique 'sectioned-off' marine habitat continues to have a high biodiversity presence. Besides reconfirming the presence of previously documented species, the research team observed over 40 additional species (Table 1, with new species in bold) during the more recent quick survey on 2 March 2025. Leaving the total number of confirmed species now at over 90 species (Table 1).

The new observed species include the locally protected Caribbean Spiny Lobster (*Panurilus argus*) (Image 4) and Queen Conch (*Strombus gigas*) (Image 5) which were already suspected to be present and are now confirmed present.

Image 4: Caribbean Spiny Lobster (Panurilus argus)

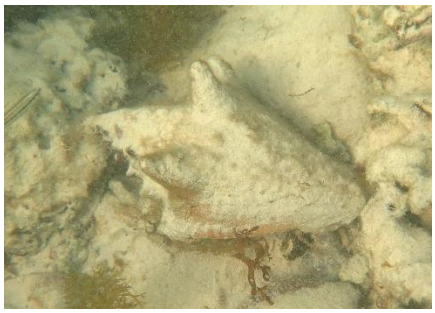

Image 5: Queen Conch (Strombus gigas)

On 30 July 2023 the tracks of a nesting emergence of the vulnerable Loggerhead (*Caretta caretta*) was observed and documented (Image 7 & Image 6).

Image 6: Loggerhead Sea turtle (Caretta caretta) track directly adjacent to the Buttonwood mangroves along the beach on 30 July 2023.

Image 7: Close-up of Loggerhead track on 30 July 2023

[1] IUCN Red List of Threatened Species (https://www.iucnredlist.org/en)

Table 1: All species observed during the Quickscan of 28 June 2023, and since then including the survey on 2 March 2025. New additions of this addendum in bold.

Common name	*Scientific name*	Article 4	SPAW Annex	CITES	IUCN Status
Birds					
Brown pelican	***Pelecanus occidentalis***	x	II		LC
Bananaquit	***Coereba flaveola***				LC
Laughing gull	***Leucophaeus atricilla***				LC
Sea turtles					
Loggerhead sea turtle	***Caretta caretta***	x	II	I	VU
Flora (terrestrial)					
Buttonwood mangrove	*Conocarpus erectus*	x	III		LC
Mesquite	***Neltuma juliflora (Prosopis juliflora)***				LC
Grey columnar cactus	***Stenocereus griseus***	x			LC
Giant milkweed	***Calotropis procera***				LC
Scarlet cordia	***Cordia sebestena***				LC
Twisted acacia	***Acacia tortuosa***				NE
Flora (marine)					
Turtle grass	*Thalassia testudinum*	x	III		LC
Coralline algae	*Corallinaceae*	1a			NE
Halimeda	*Halimeda sp.*				NE
Bristle Ball Brush	*Penicillus dumetosus*				NE
Tubular Thicket algae	*Galaxaura spp.*				NE
White scroll algae	*Padina sanctae-crucis*				NE
Y-branched algae	*Dictyota spp.*				NE
Y-twig alga	***Amphiroa rigida***				NE
Green grape alga	***Caulerpa racemosa***				NE
Green feather alga	***Caulerpa sertularioides***				NE
Sea pearl	***Valonia ventricosa***				NE
Green bubble weed	***Dictyosphaeria cavernosa***				NE
Reef cement	***Rhodophyta***				NE
Cactus tree alga	***Caulerpa cupressoides***				NE
Green jointed-stalk alga	***Halimeda monile***				NE
Stony corals					
Shallow water starlet coral	*Siderastrea radians*	x	III	II	LC
Mustard hill coral	*Porites astreoides*	x	III	II	LC
Symmetrical brain coral	*Diploria strigosa / Pseudodiploria strigosa*	x	III	II	CR
Knobby brain coral	*Diploria clivosa / Pseudodiploria clivosa*	x	III	II	NT
Thin finger coral	*Porites divaricata*	x	III	II	LC
Blue crust coral	***Porites cf. branneri***	x	III	II	NT

Hydrocorals					
Fire coral	*Millepora striata*	x	III	II	VU
Blade fire coral	***Millepora complanata***	x	III	II	CR
Hydroids					
Christmas tree hydroid	***Pennaria disticha***				NE
Sponges					
Yellow tube sponge	*Aplysina fistularis*				NE
Lumpy overgrowing sponge	*Desmapsamma anchorata*				NE
Fire sponge	*Tedania ignis*				NE
Dark volcano sponge	***Svenzea zeai***				NE
Brown variable sponge	***Cliona varians***				NE
Fish					
Banded butterflyfish	*Chaetodon striatus*				LC
Foureye butterfly fish	*Chaetodon capistratus*				LC
Ocean surgeonfish	*Acanthurus tractus/bahianus*				LC
Blue tang	*Acanthurus coeruleus*				LC
Blue runner	*Caranx crysos*				LC
Yellowfin mojarra	*Gerres cinereus*				LC
Smallmouth grunt	*Haemulon chrysargyreum*				LC
French grunt	*Haemulon flavolineatum*				LC
Squirrelfish	*Holocentrus adscensionis*				LC
Honeycomb cowfish	*Acanthostracion polygonius*				LC
Smooth trunkfish	*Lactophrys triqueter*				LC
Spotted scorpionfish	*Scorpaena plumieri*				LC
Spotted goatfish	*Pseudupeneus maculatus*				LC
Redband parrotfish	*Sparisoma aurofrenatum*	x			LC
Bluehead	*Thalassoma bifasciatum*				LC
Slippery dick	*Halichoeres bivittatus*				LC
Sergeant major	*Abudefduf saxatilis*				LC
Dusky damselfish	*Stegastes adustus*				LC
Cocoa damselfish	*Stegastes variabilis*				LC
Sand-canyon goby	*Coryphopterus bol / venezuelae*				VU
Striped parrotfish	*Scarus iseri*	x			LC
Princess parrotfish	*Scarus taeniopterus*	x			LC
French angelfish	*Pomacanthus paru*				LC
Hardhead silverside	*Atherinomorus stipes*				LC
Stoplight parrotfish	*Sparisoma viride*	x			LC
Green moray	***Gymnothorax funebris***				LC
Sharptail eel	***Myrichthys breviceps***				LC
Palometa	***Trachinotus goodei***				LC
Redear herring	***Harengula humeralis***				LC
Mahogony snapper	***Lutjanus mahogoni***				LC
Highhat	***Pareques acuminatus***				LC
Sharpnose puffer	***Canthigaster rostrata***				LC

Yellowtail snapper	***Ocyurus chrysurus***				DD
Schoolmaster	***Lutjanus apodus***				LC
Triplefin	***Enneanectes sp.***				LC
Squirrelfish	***Holocentrus sp.***				LC
Yellowtail parrotfish	***Sparisoma rubripinne***	x			LC
Yellowtail damselfish	***Microspathodon chrysurus***				LC
Invertebrates					
Hermit crab					NE
Ciliated false Squilla	*Psuedosquilla ciliata*				NE
West indian sea egg	*Tripneustes ventricosus*				NE
Rock-boring urchin	*Echinometra lucunter*				NE
Christmas tree worm	*Spirobranchus giganteus*				NE
Long-spined urchin	*Diadema antillarum*	x			NE
Bearded fireworm	*Hermodice carunculata*				NE
Netted olive	***Oliva reticularis***				NE
Queen conch	***Strombus gigas***	x		II	NE
Caribbean spiny lobster	***Panulirus argus***	x	III		NE
Spotted cleaner shrimp	***Periclimenes yucatanicus***				NE
Magnificent feather duster	***Sabellastarte magnifica***				NE
Giant anemone	***Condylactis gigantea***				NE
Whispy-Y anemone	***Undetermined***				NE
Atlantic ghost crab	***Ocypode quadrata***				NE

Observed changes

Based on the drone and satellite imagery, a comparison over time (Images 8, 9 & 10) illustrates the loss of seagrass and corals from the bottom surface due to the siltation caused by the introduction of sand in the south-eastern corner of the bay in June 2023. While this corner is now submerged under the sea again, the introduced sand has eroded away covering and smothering corals and seagrass along the way. It is just now during the March 2025 observation that most sand has settled, giving the seagrasses and corals a chance to repopulate this corner.

Image 8: Areal view of the bay in January 2022, extracted from Google Earth on 29 June 2023.

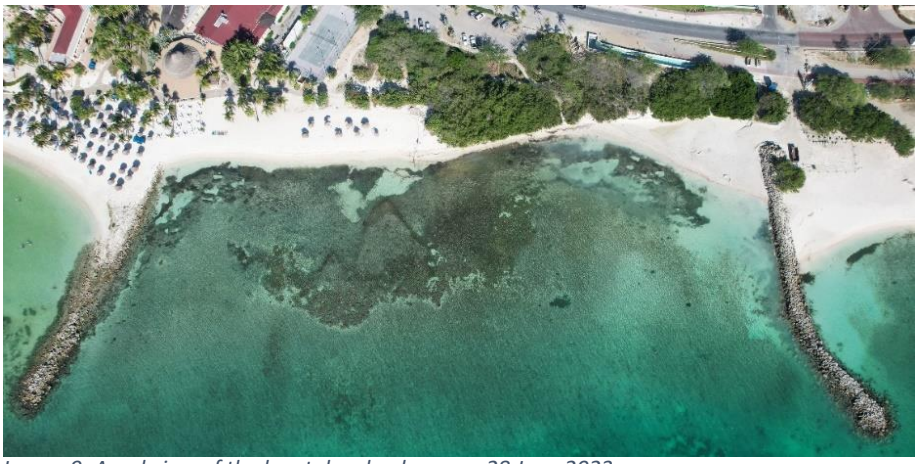

Image 9: Areal view of the bay taken by drone on 28 June 2023.

Image 10: Areal view of the bay taken by drone on 4 March 2025.

Discussion

It is important to note that this addendum nor the original Quick Scan conducted by the Marine Conservation team of ACF does not comprise an extensive assessment of this area, also for seasonality. However, even in sporadic observations and without covering the entire bay, a high variety of species was documented, and this number keeps expanding. Therefore, it is clear that the coastal area in front of Hilton Embassy Suites Aruba is of significant importance. Therefore, it is urgent to preserve this area for its biodiversity and ecosystem functions. Moreover, it is plausible to conclude that a complete environmental assessment of the area would result in the documentation of many more species and natural values.

Hence, ACF hereby reaffirms the previously made statement that 'an adequate environmental impact assessment (EIA) of the hotel and beach development project, as required by international standards for the development of such projects, should have indicated the present biodiversity and at the very least provided recommendations and viable alternatives to prevent or at least reduce the impacts'. What's more, this would have been in alignment with the Embassy Suites by Hilton's Corporate Responsibility[2].

[2] See Travel with Purpose | Environmental, Social and Governance at Hilton and Environmental Impact | Travel with Purpose | Hilton ESG

Recommendations

Based on the additional findings ACF reaffirms this marine sanctuary should be kept as pristine as possible – protected and preserved - and not be developed into a white beach area for recreation. There are already developed beaches and access points to the sea on both sides of the adjacent dikes that can be used for human recreation and enjoyment. ACF additionally recommends only allowing walking over this section of the coast as a connecting beach, but no swimming or wading in this area as it is very shallow and highly sensitive to trampling.

Aruba Conservation Foundation (ACF) is an independent conservation management organization, encharged with the conservation of nature, and the management of protected areas in Aruba which as of today encompass just over 24% of Aruba's natural terrain and 0.02% of Aruba's territorial waters in the form of 4 Marine Protected Areas (MPAs) at Oranjestad, Mangel Halto, Sero Colorado and Arikok.

ACF's conservation management philosophy is characterized by an integrated and inclusive approach to nature conservation with a focus on heterogeneity and island wide connectivity of nature to maintain long term ecological sustainability, integrity of our biosphere, and related ecological processes. At ACF, by our 8 guiding conservation principles, we apply strategic, evidence-based, precautionary, adaptive, and integrated conservation management to address conservation issues, deliver conservation objectives and critically evaluate all our conservation endeavors. We work according to the principles of Ecosystem-Based Management (EBM) and Biodiversity Conservation, using the Conservation Standards (Theory of Change) to deliver high conservation performance.

Ecosystem-Based Management (EBM) is an integrated management approach applied by ACF in all conservation efforts. EBM aims to manage in an integrated and precautionary manner human uses and their cumulative impacts on terrestrial, marine and coastal ecosystems functioning on an ecological scale, rather than confined to jurisdictional boundaries or considering single issues, species or ecosystem services in isolation.

Biodiversity Conservation goes hand in hand with habitat and ecosystem conservation. ACF prioritizes in-situ biodiversity conservation with a strong focus on the conservation of endemic species, keystone species, threatened/endangered species and the mitigation of invasive/alien species.

Whenever and wherever necessary, ACF will apply the *precautionary principle* as a strategy to cope with possible risks where scientific understanding is yet incomplete, as is often the case for Aruba. Where serious or irreversible damage is imminent, the lack of full scientific certainty should not be used as a reason to continue activities and to postpone measures to prevent degradation of nature and the environment.