



Ramsar Information Sheet

Published on 6 September 2018

Netherlands (Curaçao) Klein Curaçao



Designation date	31 July 2018
Site number	2355
Coordinates	11°59'24"N 68°38'36"W
Area	248,50 ha

Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

1 - Summary

Summary

Klein Curaçao is a small, uninhabited, offshore island of global importance for its breeding population of the least tern (*Sterna antillarum*, Meuchi chikitu in Papiamentu). The island's 600 m stretch of sandy beach represents the most important nesting area within Curaçao's jurisdiction for the Critically Endangered Hawksbill turtle (*Turtuga karèt*, *Eretmochelys imbricata*) and Endangered Green turtle (*Turtuga blanku*, *Chelonia mydas*). In addition, the eastern side of Klein Curaçao is surrounded by a near pristine Caribbean coral reef system supporting an enormous diversity of marine organisms.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Compiler 1

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Compiler 2

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2.1.2 - Period of collection of data and information used to compile the RIS

From year	2009
To year	2018

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Klein Curaçao
Unofficial name (optional)	Klein Kòrsou

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image
<1 file(s) uploaded>

Former maps	0
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Boundaries description

Klein Curaçao, a small uninhabited island located 11 kilometres from the eastern tip of Curaçao, was designated as an Important Bird Area (IBA, AN019) in 2007 (Debrot & Wells 2008). The Ramsar site lies within the IBA and includes the entire island and surrounding waters down to 60 m depth to include the island's coral reefs.

Curaçao is an oceanic island in the Southern Caribbean Ecoregion. It is part of the Leeward Antilles. The proposed Ramsar area "Klein Curaçao" is an offshore island situated about 11 km south-east of Curaçao and approximately 65 km north from the Venezuelan coast. Klein Curaçao is included in Curaçao's Territorial Sea.

2.2.2 - General location

a) In which large administrative region does the site lie?	Curaçao
b) What is the nearest town or population centre?	Willemstad

2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes No

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes No

2.2.4 - Area of the Site

Official area, in hectares (ha):

Area, in hectares (ha) as calculated from GIS boundaries

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Marine Ecoregions of the World (MEOW)	Southern Caribbean

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

- Criterion 1: Representative, rare or unique natural or near-natural wetland types

Other ecosystem services provided

Coral reefs- The world has effectively lost 19% of its coral reefs; 15 % are seriously threatened with irreversible loss expected to occur in the next 10-20 years; and 20% are under threat of loss in 20-40 years (Wilkinson 2008). Hence, coral reefs systems in general are critically threatened ecological communities. Klein Curaçao locally harbours a luxuriant fringing coral reef, locally characterized by more than 50% coral cover and the presence of threatened coral species, i.e., *Acropora* spp. (Vermeij, unpubl. data). In places coral cover approximates 100% which is well above historic baselines for Caribbean reefs.

Other reasons

An important consideration in the identification of coral reef sites for designation is the extent to which an area is unaffected by, and can be protected from, human-induced change that alters the quality of coastal waters, since the ecological character of the reefs will be maintained only if the water quality is preserved and coastal zones are appropriately managed. Sites that support species of special conservation concern, unique biological assemblages, and flagship or keystone species (such as elkhorn coral forests, sponge and sea fan assemblages), and which are in pristine condition, should be a high priority for designation. Rationale: bot the elkhorn coral forests as the sponge/ seafan assemblages are very abundant/ common on Klein Curacao.

- Criterion 2 : Rare species and threatened ecological communities

- Criterion 3 : Biological diversity

Justification

The total number of coral species on Curaçao is 68 (Bak 1975), representing 70% of all known Caribbean species. In terms of reef-building corals Curaçao is one of the most species-diverse areas in the Caribbean together with the Cayman Islands and nearby Aruba and Bonaire, (Miloslavich et al. 2010). Curaçao is therefore often considered a hotspot of biodiversity in what is already one of the five richest hotspots for biodiversity and endemism on Earth (i.e. the Caribbean) (Stehli & Wells 1971; Bak 1977). Coral reefs in the Ramsar area remain in a near-pristine state, are well developed and currently growing. Reef systems capable of maintaining themselves are becoming increasingly rare and as such the proposed Ramsar area shelters one of the few remaining healthy Caribbean reef communities and thus serves as a unique representation of Caribbean reef communities in general.

- Criterion 4 : Support during critical life cycle stage or in adverse conditions

- Criterion 6 : >1% waterbird population

- Criterion 7 : Significant and representative fish

Justification

The reef communities of Site "Klein Curacao" harbor 358 fish species (Sandin et al. 2008) which corresponds to approximately 61% of all fish species that occur in the Caribbean. There are no endemic fish species reported for Curaçao. The fringing reef communities of Klein Curaçao are characterized by relatively high fish biomass (mean: 219 g/m²) relative to most other Caribbean islands (Newman et al. 2006; Sandin et al. 2008). Especially, the abundance of economically and/or ecologically valuable important fish groups such as herbivores and (reef associated) predatory fishes are high and exceed 30 gr/m² for both groups. As a result, the proposed Ramsar site has been deemed one of the most "fish-rich" areas in the Caribbean (Newman et al. 2006).

Sandin, S. A., Vermeij, M. J. and Hurlbert, A. H. (2008), Island biogeography of Caribbean coral reef fish. *Global Ecology and Biogeography*, 17: 770-777

Newman MJH, Paredes GA, Sala E & Jackson JBC (2006) Structure of Caribbean coral reef communities across a large gradient of fish biomass. *Ecology Letters*, 9(11): 1216-1227.

Criterion 8 : Fish spawning grounds, etc.

Justification

The shallow reefs (0 to 4 m depth) of the proposed Ramsar site harbor dense populations of the Elkhorn coral (*Acropora palmata*, *Koral kachu grandi*) and large stands of Fire coral (*Millepora complanata*, *Brantkoral*), which both provide complex structural habitats for specific reef fish species that are crucial for these species as hiding places and nursery habitats (Nagelkerken 1974). Especially juveniles of the Smallmouth grunt (*Haemulon chrysargyrum*, *Traki traki*), Mahogany snapper (*Lutjanus mahogany*, *Kalala*), Blue tang (*Acanthurus coeruleus*, *Kleinfeshi blou*), Ocean surgeonfish (*Acanthurus bahianus*, *Kleinfeshi blanku*) and Sergeant Major (*Abudefduf saxatilis*, *Katabòli*) depend on the habitat provided by these (hydro)corals as critical nursery habitat (Nagelkerken et al. 2000a).

3.2 - Plant species whose presence relates to the international importance of the site

N/A

3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
Birds																		
CHORDATA/AVES	<i>Sternula antillarum</i>	Least Tern	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	858	2002	1.6	LC	<input type="checkbox"/>	<input type="checkbox"/>		nesting
Fish, Mollusc and Crustacea																		
CHORDATA/ACTINOPTERYGII	<i>Abudefduf saxatilis</i>	Sergeantmajor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ACTINOPTERYGII	<i>Acanthurus bahianus</i>	Ocean surgeonfish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ACTINOPTERYGII	<i>Acanthurus coeruleus</i>	Blue tang surgeonfish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ACTINOPTERYGII	<i>Balistes vetula</i>	Queen triggerfish	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ACTINOPTERYGII	<i>Epinephelus itajara</i>	Goliath grouper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				CR	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ACTINOPTERYGII	<i>Epinephelus striatus</i>	Nassau grouper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>		

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA/ ACTINOPTERYGII	<i>Haemulon chrysargyreum</i>	Smallmouth grunt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ ACTINOPTERYGII	<i>Hyporhamphus niveatus</i>	Snowy grouper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ ACTINOPTERYGII	<i>Lachnolaimus maximus</i>	Hogfish	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		
MOLLUSCA/ GASTROPODA	<i>Lobatus gigas</i>	Queen conch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ ACTINOPTERYGII	<i>Lutjanus analis</i>	Mutton snapper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ ACTINOPTERYGII	<i>Lutjanus cyanopterus</i>	Cubera snapper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ ACTINOPTERYGII	<i>Lutjanus mahogoni</i>	Mahogany snapper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ ACTINOPTERYGII	<i>Mycteroperca interstitialis</i>	Yellowmouth grouper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ ACTINOPTERYGII	<i>Mycteroperca venenosa</i>	Yellowfinned grouper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ ACTINOPTERYGII	<i>Scarus guacamaia</i>	Rainbow parrotfish	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		
Others																		
CNIDARIA/ ANTHOZOA	<i>Acropora cervicornis</i>	staghorn coral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				CR	<input type="checkbox"/>	<input type="checkbox"/>	CITES II	
CNIDARIA/ ANTHOZOA	<i>Acropora palmata</i>	elkhorn coral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				CR	<input type="checkbox"/>	<input type="checkbox"/>	CITES II	
CNIDARIA/ ANTHOZOA	<i>Agaricia lamarcki</i>	Lamarcks sheet coral; sheet coral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ REPTILIA	<i>Caretta caretta</i>	Loggerhead sea turtle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
CHORDATA/ REPTILIA	<i>Chelonia mydas</i>	Green sea turtle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		nesting
CNIDARIA/ ANTHOZOA	<i>Dendrogyra cylindrus</i>	pillar coral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>	CITES II	
CHORDATA/ REPTILIA	<i>Dermochelys coriacea</i>	Leatherback sea turtle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				CR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
CNIDARIA/ ANTHOZOA	<i>Dichocoenia stokesii</i>	Elliptical Star coral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>	CITES II	
CHORDATA/ REPTILIA	<i>Eretmochelys imbricata</i>	Hawksbill sea turtle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				CR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		nesting
CHORDATA/ REPTILIA	<i>Lepidochelys olivacea</i>	Olive Ridley sea turtle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
CHORDATA/ MAMMALIA	<i>Megaptera novaeangliae</i>	Humpback Whale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
CNIDARIA/ HYDROZOA	<i>Millepora complanata</i>	bladed fire coral	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		
CNIDARIA/ ANTHOZOA	<i>Orbicella annularis</i>	Boulder Star coral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>		
CNIDARIA/ ANTHOZOA	<i>Orbicella faveolata</i>	Mountainous Star coral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>		

1) Percentage of the total biogeographic population at the site

3.4 - Ecological communities whose presence relates to the international importance of the site

<no data available>

Optional text box to provide further information

N/A

4 - What is the Site like? (Ecological character description)

4.1 - Ecological character

Marine habitats- The coral reef communities of Klein Curaçao harbor an exceptionally large abundance of hard and soft corals, gorgonians, sponges and a range of encrusting organisms. They provide habitat for numerous fish species, crustaceans and echinoderms. The reef flat off the east/ southeast coast of Klein Curaçao harbors 2 valuable marine community types: dense populations of the Elkhorn coral and dense fields of gorgonians. Both communities sustain major ecological processes as gross community calcification and nitrogen fixation. Dense populations of these branching species dissipate wave energy and thus protect the coast (Mumby et al. 2008). Elkhorn coral also ensures healthy and productive reefs by providing shelter to an enormous amount of other reef organisms (Gladfelter & Gladfelter 1978), including both adult fish and their juveniles (Nagelkerken 1974). Both Elkhorn coral and equally abundant fire corals provide shelter to juvenile fish, thus supporting productive fish communities (Nagelkerken 1974). On the coral reefs included in this proposal, grunts (Haemulidae), snappers (Lutjanidae) and Squirrelfish (Holocentridae) primarily use the habitat provided by Elkhorn coral and fire corals (Vermeij MJA, unpubl. data). Similar functions are assumed for gorgonian communities that further shelter significant numbers of herbivorous fish, especially Acanthurids, but also predatory fish as groupers. The forereef of Klein Curaçao is characterized by extremely high coral cover. Fields of the Vulnerable Pillar coral (*Dendrogyra cylindrus*) are commonly found between depths of 5 to 8 m. Two Endangered species, listed under the IUCN Red List, the Boulder Star coral (*Montastraea annularis*, Koral strea pilá) and the Mountainous Star coral (*Montastraea faveolata*, Koral strea seru) cover large areas of the forereef in this proposed Ramsar Area (Vermeij MJA, unpubl. data). Coral cover on these reefs currently exceeds that of the earliest historic baselines for Caribbean reef systems (Vermeij MJA, unpubl. data).

Terrestrial habitats- The island was originally vegetated but was extensively mined for phosphate in the late nineteenth and early twentieth century's and overgrazed by livestock, probably since the 1800s. As a consequence the island has been devoid of all trees and bushes for more than 100 years. The Department of Agriculture and Fisheries (LVV) reached an agreement with the owner of the goats and his grazing rights and goats were bought and removed from the island in January 1998. Since then, the vegetation, although sparse, has recovered considerably. Since 2000, Carmabi Foundation has been successfully reforesting the island with native plant species. Drought and salt resistant trees, shrubs, herbs and grasses have been introduced and are now dispersing naturally across the island. Some of the most successful species are the Button mangrove (*Conocarpus erectus*) and Portia tree (*Thespesia populnea*), the bushes Bay cedar (*Suriana maritima*) and Sea lavender (*Mallotonia gnaphalodes*) and the herbs Saltwort (*Batis maritima*) and Flatleaf flatsedge (*Cyperus planifolius*) (Debrot & Wells 2008). The island harbors a large population of the Whiptail blue lizard (*Cnemidophorus murinus*, lagadishi). As mentioned previously, the terrestrial habitats of Klein Curaçao are important for sea turtles and terns nesting.

4.2 - What wetland type(s) are in the site?

Marine or coastal wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
C: Coral reefs		1		Representative
D: Rocky marine shores		2		
E: Sand, shingle or pebble shores		3		

Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Saline, brackish or alkaline water > Marshes & pools >> Ss: Seasonal/ intermittent saline/ brackish/ alkaline marshes/ pools		4		

4.3 - Biological components

4.3.1 - Plant species

<no data available>

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
CHORDATA/REPTILIA	<i>Cnemidophorus murinus</i>	Whiptail blue lizard				
CHORDATA/MAMMALIA	<i>Stenella longirostris</i>	Spinner Dolphin				

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
A: Tropical humid climate	Am: Tropical monsoonal (Short dry season; heavy monsoonal rains in other months)

Based on the mean annual rainfall (573 mm), the climate on the island qualifies as semi-arid. Annual variations in temperature are small and average around 28 °C. Precipitation levels differ throughout the year and in the period between October and January rainfall is higher than all other months and generally referred to as the wet season (Meteorological Services of the Netherland Antilles and Aruba 2008).

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

- Entire river basin
- Upper part of river basin
- Middle part of river basin
- Lower part of river basin
- More than one river basin
- Not in river basin
- Coastal

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

Caribbean Sea

4.4.3 - Soil

- Mneral
- Organic
- No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes No

Please provide further information on the soil (optional)

Klein Curaçao is a 2 km long by 800 m wide, flat, offshore reef island surrounded by a fringing coral reef. The island consists entirely of limestone deposits and its central part consists of Lower Terrace limestone (De Buissonjé 1974). It is rimmed by a zone of recent or sub-recent coral shingle. On the southwest shore of the island lies a 600 m long stretch of recent calcareous sand (De Buissonjé 1974), facing calm and shallow waters whereas the rest of the island's shore is rocky and wave exposed.

4.4.4 - Water regime

Water permanence

Presence?	
Usually permanent water present	No change

Source of water that maintains character of the site

Presence?	Predominant water source
Marine water	<input type="checkbox"/> No change

Water destination

Presence?	
Marine	No change

Stability of water regime

Presence?	
Water levels fluctuating (including tidal)	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

The main oceanic current travels from east to west and reaches Klein Curaçao at its eastern side, where clear, oceanic water hits the island. Currents around the island are notoriously variable and can be extremely strong, exceeding 1 m s⁻¹. Curaçao's daily tidal range is small (30 cm), only during strong winds the tidal range can be bigger with a maximum of about 70 cm (de Haan & Zaneveld 1959). Mean annual water temperature and salinity are 28°C and 35 ppt, respectively. After heavy rainfall, temporary brackish pools form within depressions on the island.

4.4.5 - Sediment regime

- Significant erosion of sediments occurs on the site
- Significant accretion or deposition of sediments occurs on the site
- Significant transportation of sediments occurs on or through the site
- Sediment regime is highly variable, either seasonally or inter-annually
- Sediment regime unknown

(EOD) Water turbidity and colour	Clear
(EOD) Water temperature	28 degrees Celcius

4.4.6 - Water pH

- Acid (pH<5.5)
- Circumneutral (pH: 5.5-7.4)
- Alkaline (pH>7.4)
- Unknown

4.4.7 - Water salinity

- Fresh (<0.5 g/l)

- Mxohaline (brackish)/Mxosaline (0.5-30 g/l)
- Euhaline/Eusaline (30-40 g/l)
- Hyperhaline/Hypersaline (>40 g/l)
- Unknown

4.4.8 - Dissolved or suspended nutrients in water

- Eutrophic
- Mesotrophic
- Oligotrophic
- Dystrophic
- Unknown

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar ii) significantly different site itself.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Hazard reduction	Coastal shoreline and river bank stabilization and storm protection	Low

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Picnics, outings, touring	Medium
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	Medium

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	High

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes No Unknown

4.5.2 - Social and cultural values

- i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland
- ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland
- iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples
- iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland

<no data available>

4.6 - Ecological processes

<no data available>

5 - How is the Site managed? (Conservation and management)

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

Public ownership

Category	Within the Ramsar Site	In the surrounding area
Provincial/region/state government	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
National/Federal government	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional):

- a) within the Ramsar site: The designated area is entirely state owned.
 b) in the surrounding area: The waters surrounding Klein Curaçao lie within the Territorial Sea of Curaçao.

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site: The Ministry of Health, Environment and Nature of the Government of Curacao for the nature aspects, and Ramsar technical focal Point
 The Ministry of Traffic, transportation, Spatial Planning for Spatial Planning aspects

Provide the name and title of the person or people with responsibility for the wetland: Gabriel Murray, Sector Director Agriculture, Environment and Nature and Faisal Dilrosun Acting Director Department of Agriculture and fisheries Management of the Ministry of Health, Environment and Nature

Postal address: Ministry of Health, Environment and Nature
 Schottegatweg 18
 Willemstad Curacao

E-mail address: faisal.dilrosun@gobiernu.cw

5.2 - Ecological character threats and responses (Management)

5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Recreational and tourism activities	High impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Please describe any other threats (optional):

within the Ramsar site: Klein Curaçao was covered by vegetation before extensive mining of phosphate began in the late nineteenth century. Additionally, livestock kept on the island greatly contributed to the eradication of plant life on the island. As a consequence, the island has been devoid of all trees and bushes for more than 100 years, until restoration activities were successfully started by the Carmabi Foundation in 1998 (Debrot & Wells 2008). The waters of Klein Curaçao were home to the now extinct Caribbean Monk seal (*Monachus tropicalis*), that was hunted by the Arowak Indians of Curaçao (Debrot 2000). Presently, the main threat facing the island's natural resources is disturbance from uncontrolled recreational access by over 600 visitors per week (Debrot & Wells 2008). This disturbance may (amongst others) negatively affect nesting activity of sea turtles and terns.

5.2.2 - Legal conservation status

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Klein Curacao	http://datazone.birdlife.org/site/factsheet/klein-cura%C3%A7ao-cura%C3%A7ao-iba-cura%C3%A7ao-(to-netherlands)	whole

5.2.3 - IUCN protected areas categories (2008)

Ia Strict Nature Reserve

Ib Wilderness Area: protected area managed mainly for wilderness protection

II National Park: protected area managed mainly for ecosystem protection and recreation

III Natural Monument: protected area managed mainly for conservation of specific natural features

IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention

V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation

VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

<no data available>

5.2.4 - Key conservation measures

Habitat

Measures	Status
Re-vegetation	Partially implemented

Human Activities

Measures	Status
Livestock management/exclusion (excluding fisheries)	Implemented
Communication, education, and participation and awareness activities	Implemented

Other:

The government has established a commission to develop a management plan and policy paper for Klein Curaçao.

5.2.5 - Management planning

Is there a site-specific management plan for the site? No

Has a management effectiveness assessment been undertaken for the site? Yes No

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes No

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

Tour operators offering trips to Klein Curaçao are generally aware and respectful of the island's natural values and raise awareness of their costumers to the ecological importance of Klein Curaçao. The island was designated as an Important Bird Area (IBA, AN019) in 2007 (Debrot & Wells 2008) which also raises local/regional/international public awareness of the importance of preserving this area. Several scientists from Carmabi and associated universities regularly participate in conventions, radio/television shows, public presentations and local events to inform the general public of the importance of preserving our marine ecosystems. A general education program was also implemented by the Natuur en Milieu Educatie (NME). The organization's goal and mission is to increase awareness of the values of nature through school visits, information booklets etc. An education and visitor's centre is currently being implemented at Carmabi that will focus on the island's marine life.

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No, but a plan is being prepared

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Animal community	Implemented
Animal species (please specify)	Implemented

Carmabi Foundation has been leading several research projects on Klein Curaçao and scientists from the institution still visit the island occasionally for research and monitoring purposes.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

Bak RPM (1975) Ecological aspects of the distribution of reef corals in the Netherlands Antilles. *Bijdr Dierk*, 45: 181-190.

Bak RPM (1977) Coral reefs and their zonation in Netherlands Antilles. In: Frost, S. H., Weiss, M. P., Saunders, J. B. (eds.) *Reefs and related carbonates - ecology and sedimentology*. Am. Ass. Petr. Geol., Tulsa, Oklahoma, pp. 3-16.

Debrot AO (1998) New cetacean records for Curaçao, Netherland Antilles. *Caribbean Journal of Science*, 34(1-2): 168-169.

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Debrot AO & Wells J (2008) Curaçao. In: Wege D & Anadon V (eds) *Important Bird Areas in the Caribbean: key areas for conservation*: 143-149. Cambridge, U.K.: BirdLife International.

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de Haan D, Zaneveld JS (1959) Some notes on tides in Annabaai harbour, Curaçao, Netherlands Antilles. *Bull Mar Sci Gulf Carib*. 9: 224-236.

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Gladfelter WB & Gladfelter EH (1978) Fish community structure as a function of habitat structure on West Indian patch reefs. *Rev Biol Trop*, 26: 65-84.

Hendrikse N (2005) *Hollands Glorie in de Kolonie*. Omni Media, Curaçao.

Meteorological Services of the Netherlands Antilles and Aruba (2008) *Climatological report 2008*. Retrieved from www.meteo.an on 10/01/2012.

Miloslavich et al. (2010) Marine Biodiversity in the Caribbean Regional Estimates and Distribution Patterns. *PLoS ONE*, 5(8): e11916.

Mumby PJ, Broad K, Brumbaugh DR, Dahlgren CP, Harborne AR, Hastings A, Holmes KE, Kappel CV, Micheli F & Sanchirico JN (2008) Coral Reef Habitats as Surrogates of Species, Ecological Functions, and Ecosystem Services. *Conservation Biology*, 22(4): 441-451.

Nagelkerken WP (1974) On the occurrence of fishes in relation to corals in Curaçao. *Stud. Fauna Curaçao Caribb. Isl.*, 45: 118-141.

Prins TG, Reuter JH, Debrot AO, Wattel J & Nijman V (2009) Checklist of the birds of Aruba, Curaçao and Bonaire, South Caribbean. *Ardea*, 97(2):268 pp.

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<no file available>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<no file available>

vi. other published literature

<1 file(s) uploaded>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Marine life surrounding Klein Curacao (Mark Verreij, 02-07-2018)



Marine life surrounding Klein Curacao (Mark Verreij, 02-07-2018)



Marine life surrounding Klein Curacao (Mark Verreij, 02-07-2018)



Marine life surrounding Klein Curacao (Mark Verreij, 02-07-2018)



Marine life surrounding Klein Curacao (Mark Verreij, 02-07-2018)



Flamingo on Klein Curacao (Mark Verreij, 02-07-2018)



Light house on Klein Curacao (Mark Verreij, 02-07-2018)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation