



Ramsar Information Sheet

Published on 17 February 2016

Brazil

Atol das Rocas Biological Reserve



Designation date	11 December 2015
Site number	2259
Coordinates	03°51'S 33°46'47"W
Area	35 186,41 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 (This field is limited to 2500 characters)

The Biological Reserve of Atol das Rocas (REBIO Atol das Rocas) is located on a seamount Ridge belonging to the Mountain Chain of Fernando de Noronha. This chain has a volcanic origin and is characterized by a set of high seamounts that rise above the continental foothills, between 2° S and 4° 30' S, and extends from the base of the continental slope until 31° W. The seamount on the east end emerges above sea level and forms the archipelago of Fernando de Noronha. The other hills, aligned in the direction E - W until the coast of Brazil (Ceara State), ascend to depths below 250 meters, and some almost reach the surface, as is the case of Atol das Rocas (Damuth & Palma, 1979, Duarte, 1938, Gorini et al, 1984).

Because the REBIO Atol das Rocas is located in oceanic waters, far from the continent, it is not included in any municipality; however, it belongs to the state of Rio Grande do Norte.

The relative proximity to the archipelago of Fernando de Noronha, belonging to the State of Pernambuco, has a significant influence over the site by strengthening human pressures related to tourism, and by the possible biological contribution caused by the unidirectional flow of the South Equatorial Marine Current.

The inclusion of the Biological Reserve of Atol das Rocas in the UNESCO World Heritage list, in 2001, was because it represents an oceanic island ecosystem with highly productive waters that provide food for tuna, sharks, cetaceans and sea turtles that migrate to the eastern Atlantic coast of Africa. Thus, its importance in the global context is linked to the maintenance of biodiversity, endemism, endangered species protection, as well as a possible tool for monitoring global climate change, justifying the interest of international organizations in investing in environmental programs targeted at this Conservation Unit, that aims towards conservation and research.

Atol das Rocas demonstrates a spectacular seascape at low tide when the reef is exposed and the lagoon and shallow pools can be observed, resembling true natural aquariums. It is a key location for the protection of biodiversity and endangered or threatened species such as sea turtles, particularly the green turtle and it accommodates the largest concentration of tropical seabirds found in the western Atlantic Ocean, including endemic species.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Name

Institution/agency

Postal address (This field is limited to 254 characters)

E-mail

Phone

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

From year

To year

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image

<1 file(s) uploaded>

Boundaries description (optional) (This field is limited to 2500 characters)

The Biological Reserve of Atol das Rocas, comprising all water reefs, islands, and continental shelf within the limits of the Brazilian territorial sea (Matos, 1996), contained within the isobath 1000, from the Lighthouse Island (Ilha do Farol). The boundaries of the Atol das Rocas Biological Reserve - created in 1979 - is the same of the Ramsar Site. The boundaries is a square with the geographical coordinates Lat 03°45 ' 00 ' ' S and 03°56 ' 00 ' ' S and Long 33° 37 ' 00 ' ' W and 33°56 ' 00 ' ' W -Gr.

2.2.2 - General location

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

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
Other scheme (provide name below)	Atlantic Ocean, Oceanic Islands

Other biogeographic regionalisation scheme (This field is limited to 2500 characters)

Marine Island ecosystem oceanic, characterized by the presence of an atoll of predominantly algae origin. (PAIVA et al, 2007, CLOUD, P. E., Jr. 1957, ALLAUX, 1940, BRIAN, 1953)

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 (This field is limited to 3000 characters)

The waters surrounding Atol das Rocas harbor a great abundance of commercial fishes as well as lobsters, which were one cause of heavy fishing activity around the atoll in the past (Kikuchi 1999).

Other reasons (This field is limited to 3000 characters)

The REBIO Atol das Rocas is characterized as an oceanic island environment, with the presence of the only atoll in the South Atlantic, predominantly formed by coralline algae and atypical geomorphological features, having characteristics of both the Atlantic and Pacific atolls. The site represents the first record of coralline algae as primary reef builders during the Quaternary period (MMA, 2001). Atol das Rocas is also the only atoll and the only offshore reef that emerges at sea level in the Western South Atlantic (Kikuchi, 1994). In addition, it hosts migratory birds, endangered species, endemic species and a considerable number of species of economic interest, justifying its great ecological significance. It is considered a true "oasis" of marine life in relatively sterile ocean waters, contributing for the reproduction, dispersal and colonization of marine organisms in the tropical South Atlantic.

Criterion 2 : Rare species and threatened ecological communities

Criterion 3 : Biological diversity

Justification (This field is limited to 3000 characters)

Leal (1991) reports the existence of five endemic species of prosobrânquios gastropods in the REBIO area of the Atol das Rocas (*Lironoba* sp, *Barleeira* sp. 2 *Dendropoma* sp. 1, *Olivella* sp. 2 and *Metaxia* sp. 2) , six species endemic of Fernando de Noronha and Atol das Rocas (*Colisella noronhensis*, *Nerita ascensionis deturpensis*, *Emarginula* sp. 2, *Malea noronhensis*, *Cerithiopsis* sp. 3 *Nassarius capillaris*), a species endemic to Trinidad and Atol das Rocas (*Kurtziella* sp. 2), two species endemic to Trindade, Noronha and Atol das Rocas (*Sinezona* sp. 1 *Nodilittorina vermeiji*), plus some endemic species of Atol das Rocas and seamounts: *Victory* (*Rissoina* sp . 1 *Volvarina* sp . 3) and *Montague* (*Volvarina* sp. 3).

At least five species of sponges are probably new to science: *Clathrina* sp, sp *Leucetta*, *Plakortis* sp. 2 *Plakortis* sp. 3 and *Aplysina* sp. Among these, *Clathrina* sp., *Plakortis* sp. 3 and *Aplysina* sp are provisionally considered endemic to Atol das Rocas, not being known in neighboring areas (Moraes, 2000).

Moreover, 15 species of corals have been recorded of which six are endemic to Brazil (MMA, 2001).

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

Criterion 5 : >20,000 waterbirds

Overall waterbird numbers 150000

Source of data: (Targino, 2001)

Criterion 6 : >1% waterbird population

Criterion 7 : Significant and representative fish

Justification (This field is limited to 3000 characters)

In the REBIO of Atol das Rocas 147 species of fish were identified and cataloged, being two endemic to Atol das Rocas and the Archipelago of Fernando de Noronha, *Thalassoma noronhanum* (“ gudião limpador ”) and *Stegastes rocasensis* (“ donzela-de-rocas ”) (Targino, 2001). According to Moura (1998), in addition to the two species above, there are three other endemic species of Atol das Rocas and Fernando de Noronha, citing one of the not yet described, as *Lythrypnus* sp.

Criterion 8 : Fish spawning grounds, etc.















Justification (This field is limited to 3000 characters)

The lemon shark, *Negaprion brevirostris*, in the Biological Reserve of Atol das Rocas, is a species easily spotted during underwater raids, carried out within the reef. In the inner portion, in tide pools, central lagoon and the “ Baia da Lama ” (Lama Bay), individuals of varying sizes are sighted, from newborns with a total length of 60 cm in average until adult specimens of over 300cm in total length. Newborns and juveniles with total length ranging from 60 to 120 cm, are most frequently found in Lama Bay, solitary or in schools and swimming in circles. These specimens move from the center lagoon and/or barreta NW (barretinha), always accompanying the rising tide, for example, entering the bay during high tide and out at the low-water mark. The Lama Bay, at Atol das Rocas is a shallow area, sheltered and with the presence of small prey, so it is sought by smaller individuals for food and shelter, also serving as primary and secondary nursery area, as newborns and young individuals are always seen in this area. Adult specimens also seek the region to give birth, always during the warmer months.













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

<no data available>

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	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA / AVES	 Anous minutus	Black Noddy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Recorded by Antas et al, (1990) and Schulz Neto (1998) to nest in the atoll
CHORDATA / AVES	 Anous stolidus	Brown Noddy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27000		2.7	LC 	<input type="checkbox"/>	<input type="checkbox"/>		Recorded by Antas et al, (1990) and Schulz Neto (1998) to nest in the atoll. has a pantropical distribution, and Atol das Rocas is the main place for their reproduction in Brazil, with a maximum population estimated at 27,000 birds. This species also nests in other oceanic islands.
CHORDATA / REPTILIA	 Caretta caretta	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"/>		Sporadically recorded at the site.
CHORDATA / REPTILIA	 Chelonia mydas	Green 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"/>		Uses the site for reproduction, according to Marcovaldi & Marcovaldi (1985), Moreira et al. (1995), Bellini et al. (1996 cited in Grossman, 2001)
CHORDATA / ACTINOPTERYGII	 Epinephelus itajara	Mero	<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 type="checkbox"/>	<input type="checkbox"/>		Reported by Rosa et al. (2002)
CHORDATA / REPTILIA	 Eretmochelys imbricata	Hawksbill 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"/>		Presence reported by Marcovaldi & Marcovaldi (1985), Moreira et al. (1995), Bellini et al. (1996 cited in Grossman, 2001)
MOLLUSCA / GASTROPODA	 Malea pomum	Malea noronhensis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Endemic to Atol das Rocas and the Archipelago of Fernando de Noronha
MOLLUSCA / GASTROPODA	 Nassarius capillaris		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Endemic to Atol das Rocas and the Archipelago of Fernando de Noronha

RIS for Site no. 2259, Atol das Rocas Biological Reserve, Brazil

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA / ELASMOBRANCHII	Negaprion brevirostris 	Lemon shark	<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"/>				NT 	<input type="checkbox"/>	<input type="checkbox"/>		The site is important for feeding, sheltering, as well as as primary and secondary nursery area, as newborns and young individuals are always seen. Adult specimens also seek the region to give birth, always during the warmer months.
MOLLUSCA / GASTROPODA	Nerita ascensionis 	Nerita ascensionis deturpensis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Endemic to Atol das Rocas and the Archipelago of Fernando de Noronha
CHORDATA / AVES	Onychoprion fuscatus 		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	100000		11.1	LC 	<input type="checkbox"/>	<input type="checkbox"/>		Recorded by Antas et al, (1990) and Schulz Neto (1998) to nest in the atoll. It is the largest population in the South Atlantic; however, they also nest in other oceanic islands in Brazil.
CHORDATA / ACTINOPTERYGII	Stegastes rocasensis 	" donzela-de-roca	<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"/>					<input type="checkbox"/>	<input type="checkbox"/>		Endemic to Atol das Rocas and the Archipelago of Fernando de Noronha
CHORDATA / AVES	Sula dactylatra 	Masked Booby	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Recorded by Antas et al, (1990) and Schulz Neto (1998) to nest in the atoll
CHORDATA / AVES	Sula leucogaster 	Brown Booby	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		Recorded by Antas et al, (1990) and Schulz Neto (1998) to nest in the atoll
CHORDATA / ACTINOPTERYGII	Thalassoma noronhanum 	" gudião limpador "	<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"/>		Endemic to Atol das Rocas and the Archipelago of Fernando de Noronha

(This field is limited to 2500 characters)

Criterion 4

At high tide, the entire reef flat is covered by water and only the perimeter of the atoll (reef margin) and the two existing islands can be seen. The islands are real nests and serve as a place for rest and relaxation of important migratory birds. The Atol das Rocas and the Archipelago of Fernando de Noronha are considered the most important areas for the breeding of seabirds in Brazil, both in diversity and quantity. The site provides food for tuna, sharks, cetaceans and sea turtles that migrate to the Atlantic coast of eastern Africa.

According to Schulz Neto (1998), in the REBIO Atol das Rocas species can be classified as: breeding, because they nest there; constant foragers, using the atoll as a resting and feeding area; migratory, only land ashore for breeding in their places of origin, passing the rest of the year wandering the oceans of the world, and finally, sporadic visitors.

Five species of birds nest in the atoll, in both the Farol and the Cemitério Islands, more information in the annex.

The “ trinta-réis-pequeno ” , another marine species, breeds in the Northern Hemisphere and migrates to the south during winter, being constantly observed in the Atol (Schuz Neto, 1998).

The last group of birds that can be registered in the Atoll, and one of the most spectacular due to its peculiar features, are the shorebirds such as sandpipers, which takes its name from feeding on the shores of lakes, rivers and beaches. Only 12 species have been observed so far, and this number can easily increase with an increase in studies. Atol das Rocas, along with Fernando de Noronha, is especially important for this group of birds; it is one of the few places in Brazil where species from the Old World can also be observed (Schuz Neto, 1998).

Criterion 5

According to studies conducted in the area, the Atol das Rocas and the Archipelago of Fernando de Noronha are

considered the most important areas for seabird ' s reproduction in Brazil, both in diversity and in numbers of individuals. In the REBIO Atol das Rocas lays the largest tropical seabird colony in the country, with an estimate of at least 150,000 birds of 29 different species (Targino, 2001). This includes the largest South Atlantic colonies of sooty terns, brown noddies and masked boobies, based on the diversity and number of individuals, AdRBR is considered the single most important site for tropical seabirds in the whole Atlantic (BirdLife International, 1998 in MMA, 2001).

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

<no data available>

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

4.1 - Ecological character

(This field is limited to 2500 characters)

In the Atol das Rocas there are only two islands of biogenic origin. The soil of the islands are predominantly composed of limestone and is heavily fertilized by the seabirds' excrement which, along with the lack of fresh water - except for the rain - leads to the existence of a small variety of plant species, highly adapted to this hyper saline environment and intense light. A small range of herbaceous species and the presence of some coconuts, introduced by man, characterize the vegetation. The marine vegetation is characterized, to date, by the existence of 121 strains of algae, much of which consists of epiphytic algae, hardly observed by the naked eye.

Teixeira (1996) mentions that the terrestrial flora is very poor and in the Cemitério Island has an even smaller number of species. This author reported the existence of six species in six families: Amaranthaceae (Iresine portulacoide), commonly known as pirrichil; Cyperaceae (Cyperus ligularis), called razor grass or manibu; Portulaca (Portulaca oleracea) or beldroega; Palmae (Cocos nucifera), with eight plants well grown; Casuarinaceae (Casuarina sp), and Gramineae (Poaceae) without identification. This author also reports that the razor grass is associated with pirrichil and beldroega.

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
A: Permanent shallow marine waters		3	126.51	Representative
C: Coral reefs		1	336.36	Representative
E: Sand, shingle or pebble shores		4	22.15	Rare
G: Intertidal mud, sand or salt flats		2	215	Representative

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
Blutaparon portulacoides		
Cocos nucifera		
Cyperus ligularis		
Hymenocallis caribaea		
Portulaca oleracea		
Sesuvium portulacastrum		

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/ELASMOBRANCHII	<i>Aetobatus narinari</i>					
CNIDARIA/ANTHOZOA	<i>Agaricia agaricites</i>					
CNIDARIA/ANTHOZOA	<i>Aiptasia pallida</i>					
PORIFERA/DEMOSPONGIAE	<i>Amphimedon compressa</i>					
PORIFERA/DEMOSPONGIAE	<i>Amphimedon viridis</i>					
MOLLUSCA/BIVALVIA	<i>Arca zebra</i>					
MOLLUSCA/BIVALVIA	<i>Asaphis deflorata</i>					
CNIDARIA/ANTHOZOA	<i>Bellactis ilkalyseae</i>					
MOLLUSCA/GASTROPODA	<i>Bursa rhodostoma</i>	Bursa aff. thomae				
ARTHROPODA/MALACOSTRACA	<i>Calappa ocellata</i>	ocellate box crab				
CHORDATA/ACTINOPTERYGII	<i>Cantherhines macrocerus</i>					
CHORDATA/ACTINOPTERYGII	<i>Canthidermis sufflamen</i>					
CHORDATA/ELASMOBRANCHII	<i>Carcharhinus perezii</i>					
CHORDATA/ACTINOPTERYGII	<i>Cephalopholis cruentata</i>					
PORIFERA/DEMOSPONGIAE	<i>Chondrilla nucula</i>					

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
PORIFERA/DEMOSPONGIAE	Cinachyrella alloclada					
MOLLUSCA/BIVALVIA	Codakia orbicularis					
MOLLUSCA/BIVALVIA	Ctenoides scabra	Lima scabra				
CHORDATA/ELASMOBRANCHII	Dasyatis americana					
ECHINODERMATA/ECHINOIDEA	Diadema antillarum	black sea urchin				
MOLLUSCA/GASTROPODA	Diodora arcuata					
MOLLUSCA/GASTROPODA	Diodora cayenensis	Cayenne keyhole limpet				
MOLLUSCA/GASTROPODA	Diodora dysoni					
MOLLUSCA/GASTROPODA	Diodora mirifica					
MOLLUSCA/GASTROPODA	Diodora sayi					
ECHINODERMATA/ECHINOIDEA	Echinometra lucunter	blue sea urchin				
MOLLUSCA/GASTROPODA	Emarginula phrixodes					
ECHINODERMATA/ECHINOIDEA	Eucidaris tribuloides	satelite sea urchin				
CNIDARIA/ANTHOZOA	Favia gravida					
MOLLUSCA/GASTROPODA	Fissurella emmanuelae					
MOLLUSCA/GASTROPODA						

Fissurella rosea

--	--	--	--	--

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATA/AVES	<i>Fregata magnificens</i>	Magnificent Frigatebird				
CHORDATA/ELASMOBRANCHII	<i>Galeocerdo cuvier</i>	Tiger shark				
CHORDATA/ELASMOBRANCHII	<i>Ginglymostoma cirratum</i>					
ANNELIDA/POLYCHAETA	<i>Hermodice carunculata</i>					
MOLLUSCA/BIVALVIA	<i>Isognomon alatus</i>					
ARTHROPODA/MALACOSTRACA	<i>Johngarthia lagostoma</i>	as <i>Gecarcinus lagostoma</i>				
ECHINODERMATA/ASTEROIDEA	<i>Linckia guildingi</i>	starfish				
MOLLUSCA/GASTROPODA	<i>Lottia leucopleura</i>					
MOLLUSCA/GASTROPODA	<i>Lucapina aegis</i>					
MOLLUSCA/GASTROPODA	<i>Lucapinella limatula</i>					
CNIDARIA/ANTHOZOA	<i>Madracis decactis</i>					
CHORDATA/ELASMOBRANCHII	<i>Manta birostris</i>					
CNIDARIA/HYDROZOA	<i>Millepora alcicornis</i>	fire coral				
CNIDARIA/HYDROZOA	<i>Millepora braziliensis</i>					
CNIDARIA/ANTHOZOA	<i>Mussismilia hispida</i>					
MOLLUSCA/CEPHALOPODA						

Octopus hummelincki



bumblebee octopus



Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
ECHINODERMATA/OPHIUROIDEA	Ophioderma appressa					
ECHINODERMATA/OPHIUROIDEA	Ophioderma rubicunda					
CNIDARIA/ANTHOZOA	Palythoa caribbaeorum					
ARTHROPODA/MALACOSTRACA	Panulirus echinatus	brown spiny lobster				
CHORDATA/AVES	Passer domesticus	House Sparrow				
CNIDARIA/ANTHOZOA	Phyllactis correae					
CNIDARIA/ANTHOZOA	Phyllogorgia dilatata					
CNIDARIA/ANTHOZOA	Plexaurella dichotoma	double-forked plexaurella;slit-pore sea rod				
CNIDARIA/ANTHOZOA	Porites astreoides					
CNIDARIA/ANTHOZOA	Porites branneri					
ANNELIDA/POLYCHAETA	Saccocirrus papillocercus					
PORIFERA/DEMOSPONGIAE	Scopalina ruetzleri					
MOLLUSCA/GASTROPODA	Siphonaria hispida					
MOLLUSCA/GASTROPODA	Siphonaria lessonii					
MOLLUSCA/GASTROPODA	Siphonaria pectinata					

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
ANNELIDA/POLYCHAETA	Spio pettiboneae					
PORIFERA/DEMOSPONGIAE	Spirastrella coccinea					
CHORDATA/AVES	Sula sula	Red-footed Booby				
CNIDARIA/ANTHOZOA	Telmatactis cricoides	Telmatactis rufa				
ECHINODERMATA/ECHINOIDEA	Tripneustes ventricosus	white sea urchin				
CNIDARIA/ANTHOZOA	Zoanthus sociatus					

Invasive alien animal species

Phylum	Scientific name	Common name	Impacts
CHORDATA/MAMMALIA	Mus musculus	housemouse	No impacts

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
A: Tropical humid climate	Af: Tropical wet (No dry season)

(This field is limited to 1000 characters)

Atol de Rocas has an equatorial climate (Kikuchi 1999). Rainfall - According to data from the Brazilian Navy, the rainy season of Atol das Rocas reaches 250 mm in April and 6 mm in the month of October. The relative humidity is high in all months, with an average of 80% or more (Teixeira, 1996). According to IBAMA (1989), the annual rainfall varies from 1,250 to 1,500 mm, with the rainy season between March and July (Schulz Neto, 1998).

Air Temperature - Schulz Neto (1998) and MMA 2007 report an annual average temperature of 26° C, with maximum of 32° C and minimum of 18° C. Kikuchi (1994) found that in the period 1991-1992 in Atol das Rocas, atmospheric temperature fluctuated daily between 25 °C and 32 °C, with a minimum temperature of 12.78 °C in February of 1992 and a maximum of 36.4° C in June of 1992.

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

0

a) Maximum elevation above sea level (in metres)

3

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.

(This field is limited to 1000 characters)

Atlantic Ocean.

In the geomorphological map of Atol das Rocas the following compartments can be identified: fore/front reef, reef

flat/plateau and lagoon. On the outside of the reef, adjacent to the reef front, the ocean floor was denominated as adjacent bottom and is described in association with the reef front. The line that defines the outer perimeter of the reef flat is the reef margin. Pools, channels and sandy islands occur in the reef flat/plateau. See the additional information for a detailed description of these.

4.4.3 - Soil

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) (This field is limited to 1000 characters)

The main components of the sediment in and around the reef are fragments of encrusting coralline algae, benthic foraminifers and fragments of mollusk shells. The sum of these three components always accounts to more than 70% of the grains that constitute the samples (Kikuchi, 1994). Atol das Rocas is founded on a volcanic substrate.

4.4.4 - Water regime

Water permanence

Presence?
Usually permanent water present

Source of water that maintains character of the site

Presence?	Predominant water source
Marine water	<input checked="" type="checkbox"/>

Water destination

Presence?
Marine

Stability of water regime

Presence?
Water levels fluctuating (including tidal)

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology: (This field is limited to 1000 characters)

Tides - The tidal regime semidiurnal. The tide tables published by DHN for the archipelago of Fernando de Noronha presents spring tide range of 2.5 m and width of 1.3 m at neap tide. The tidal amplitudes in the REBIO Atol das Rocas are estimated from tide tables of Fernando de Noronha. Kikuchi (1999) states that in sigizia tide, the amplitude can reach 3.2 m. During low tide the reef ring of the atoll is exposed, consisting of a natural wall some 1.5 m high and bordered by sandbanks (United Nations Environment Programme-World Conservation Monitoring Centre, 2008).

According to Netto (1999), the environments in the Atol das Rocas significantly differ in relation to hydrodynamic conditions:

while the main forces acting on the outside of the atoll are related to ocean currents and waves, inside the atoll water flow is defined by strong tidal currents and a lesser degree by the waves.

4.4.5 - Sediment regime

<no data available>

4.4.6 - Water pH

Alkaline (pH>7.4)

Please provide further information on pH (optional): (This field is limited to 1000 characters)

Occasional pH measurements made by Kikuchi (1994) showed a great range of variation, values close to 5 in measurements performed at night and values near 11 during the day. Araújo (1991), studying zooplankton found quite stable pH values between 8.5 to 8.6, and the measurements were performed during the day at stations located in Barretão, Barretinha, Laguna and the outside area of the atoll.

4.4.7 - Water salinity

Please provide further information on salinity (optional): (This field is limited to 1000 characters)

The distribution of salinity in the equatorial region presents little seasonal variation, with a slight increase in spring (maximum of 36.2 mg/g) and decreasing from 100m. South of the equator, the distribution of isolines is zonal, with a slight increase from north to south, little seasonal variation, and increases with depth up to 100 m (maximum of 37mg/g) (Silva & Alvarenga, 1995).

4.4.8 - Dissolved or suspended nutrients in water

<no data available>

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 site itself: i) broadly similar ii) significantly different

Please describe other ways in which the surrounding area is different: (This field is limited to 1000 characters)

The site is an atoll located in the middle of the ocean, therefore its surroundings are comprised only by oceanic water.

The use in the surroundings area area navigation, recreation, commercial small scale fishing and industrial fishing. The only use in the site is research.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Spiritual and inspirational	Aesthetic and sense of place values	High
Scientific and educational	Long-term monitoring site	High
Scientific and educational	Major scientific study site	High

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

Other ecosystem service(s) not included above: (This field is limited to 1000 characters)

The uniqueness, beauty and fragility of this ecosystem arouse the interest of many researchers and research institutions, national and international, noticed by the significant number of scientific papers, as well as masters and doctoral dissertations carried out in this conservation area. Generally, the research team and the Head of unit remain around 20 days in the Atoll. After a week on the mainland, the Chief of the unit returns to the Atoll with another group of researchers. This routine, as well as providing an intense research work, inhibits the presence of fishermen on the atoll and its surroundings. The number of researchers generally does not exceed three, and the base of REBIO can accommodate up to four.

The vast majority of previous studies focused inside the atoll; as lack of suitable vessels have limited research activities outside the atoll. Therefore, most of the conservation unit is still largely unknown.

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

<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
National/Federal government	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Other public ownership	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional): (This field is limited to 1000 characters)

Because the Ramsar site comprises oceanic islands, they are all under the control of the Federal Government. However, there are areas within the site that are in the possession of the Brazilian Navy, such as the lighthouse on the “ Farol ” island.

The surrounding area is part of the Brazilian Exclusive Economic Zone, under federal Government control (Carvalho, 1999).

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site: (This field is limited to 1000 characters)

Unidade de Conservação Federal: Reserva Biológica de Atol das Rocas/Instituto Chico Mendes de Conservação da Biodiversidade.
Escritório Administrativo da REBIO Atol das Rocas.

Provide the name and title of the person or people with responsibility for the wetland:

Maurizélia de Brito Silva

Postal address: (This field is limited to 254 characters)

Av. Alexandrino de Alencar, 1399 – Natal, RN – Cep. 59.015-350, Tel. +55 84 3201-4230 ramal 234 / 3608-4716/084 96097443.

E-mail address:

maurizelia.silva@icmbio.gov.br

5.2 - Ecological character threats and responses (Management)

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

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Aircraft flight paths	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Fishing and harvesting aquatic resources	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Unspecified/others	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Invasive non-native/ alien species	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Geological events

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Unspecified	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Storms and flooding	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Please describe any other threats (optional): (This field is limited to 2500 characters)

-A process of erosion was verified in the Lama Bay slope, just behind the research base. If the process continues, it may

compromise the building, forcing the change of its location. The causes of this erosion are not yet known.

-Visits of sailors as well as visits and/or long stays of researchers have an impact on areas that are important for feeding and mating of different species.

5.2.2 - Legal conservation status

Global legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
World Heritage site	BrazilianAtlanticIslands:FernandodeNoronha	http://www.protectedplanet.net/brazilian-atlantic-islands-fernando-de-noronha-and-atol-das-rocas-reserves-world-heritage-site	whole

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Biological Reserve	AtoldasRocas(Est.June1979)	http://www.protectedplanet.net/atol-das-rocas-biological-reserve	whole

5.2.3 - IUCN protected areas categories (2008)

Ia Strict Nature Reserve

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Human Activities

Measures	Status
Regulation/management of recreational activities	Implemented
Research	Implemented

Other: (This field is limited to 2500 characters)

Implemented practices (based on the current management plan) are: fiscalization of any type of fishing inside the reserve, conducting marine research for conservation of endangered species.

Proposed but not yet implemented practices include:

- Develop a procedures manual for researchers and trainees working in REBIO, which should consider the best practices, areas of higher accident risk, and special areas for feeding and reproduction of some species (considering seasonality). The manual should provide maps/sketches of the areas of greatest accident risk, special areas and routes.
- Conduct surveillance on REBIO fortnightly by IBAMA agents or through partnerships with other institutions.
- Coordinate the establishment of an agreement with the Brazilian Navy, the Brazilian Air Force and other agencies and public enterprises, primarily on illegal fishing inside the site.
- During the sailboat racing (Natal-Noronha), supervision should be intensified to restrain the visit of the sailors in the atoll.
- Periodic trips to transport staff and researchers at the atoll must be accompanied by enforcement agents. Liaise with the State Committee for Fisheries and the Ministry of The Fisheries and Aquaculture (MPA) in Rio Grande do Norte strategies guidance on standards and prohibitions.
- Adopt control measures to prevent the introduction of alien species.
- Food, utensils, clothing and equipment should be cleaned and inspected prior to entering the conservation unit.
- Special attention towards insects and arachnids.
- Adopt control measures to prevent proliferation of exotic and/or invasive organisms.
- The organic waste should have proper disposal in order to avoid the availability of food, especially for mice and cockroaches.
- If scientific studies demonstrate the alien and/or invasive fauna, they may be eliminated with technical guidance.
- Guide researchers as to the procedures to be adopted in times of reproductive aggregation of turtles and sharks, to avoid possible stress on animals.
- Requesting the Directorate of Hydrography and Navigation of the Navy of Brazil the demarcation of boundaries of the REBIO and its Buffer Zone in nautical charts, as well as information restricting visitation in the Aviso aos Navegantes.
- Ask the Brazilian Air Force and Air Traffic Control to ban commercial and military flights over the site at below 100 ft. and steer aircraft transitioning off the atoll, to prevent negative impacts on birds and their nestlings.

5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

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: (This field is limited to 1000 characters)

The great distance of REBIO from the mainland, the inhospitable conditions of the area, transport difficulties, and the small number of employees, impose a number of obstacles that hinders any environmental education within the conservation unit.

There is no program or environmental education project being developed systematically by the conservation unit staff in the schools, but there is a significant participation of the Head of UC in events, scientific meetings and conferences where information about the REBIO Atol das Rocas is disclosed.

The partnership with the Tamar Project in Fernando de Noronha allows performing a work for environmental awareness through lectures that are held regularly to residents and tourists who frequent Fernando de Noronha.

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? Please select a value

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Animal community	Implemented

(This field is limited to 2500 characters)

An international Reef Check program, conducted by Prof. Dr. Beatrice Padovani Ferreira (UFPE) (Maida and Ferreira, 1996), coordinator of the program in Brazil is underway. The program aims to identify the conditions of reef environments through underwater visual censuses for fish fauna, invertebrates, corals and other features of the environment.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

(This field is limited to 2500 characters)

- ALCOLADO, P. M. 1989. Estructura ecológica de lâs comunidades de esponjas Del arrecife de Rincón de Guanabo. Rep. Inv. Inst. Oceanol. Cuba. 10, p. 3-28.
- ALMEIDA, C. E.; MARCHON-SILVA, V.; RIBEIRO, R.; SERPA-FILHO, A.; ALMEIDA, J. R. & COSTA, J. 1999. Entomological fauna from Reserva Biológica do Atol das Rocas – RN, Brazil: I. Morphoespecies composition. XXII Congresso Brasileiro de Zoologia. Recife, 15p.
- ANDRADE, G. O. 1959. O recife anular das Rocas, um registro de recentes variações eustáticas no Atlântico Equatorial. Anais da Associação dos Geógrafos Brasileiros, XI (I): 29-61.
- ANDRADE, G. O. 1960. O recife anular das Rocas, um registro de recentes variações eustáticas no Atlântico Equatorial. DHN, Anais Hidrográficos XVIII (I): 203-234.
- ANTAS, P. T. Z. e J. Azevedo, S. M. 1990. Expedição ao Atol das Rocas - fevereiro/março de 1990. Relatório das atividades com aves. Relatório para a direção da Reserva Biológica do Atol das Rocas. Natal, IBAMA/RN: 2.
- ARAÚJO, A. S. 1991. Zooplâncton da Rebio de Atol das Rocas. Relatório conclusivo da campanha março/90. Universidade Federal da Bahia, Departamento de Zoologia. Salvador, 32p.
- ALLAUX, C. 1940. A formação atoliana de Rocas (trad.) A “ A Voz do Mar ” XIX(173): 163.
- BELLINI, C.; MARCOVALDI, M. A.; SANCHES, T.M.; GROSSMAN, A. & SALES, G. 1996. Atol das Rocas biological reserve: second largest Chelonia mydas rookery in Brazil. Marine Turtles Newsletter. 72:1-2.
- BRYAN, E. H. 1953. Check list of atolls. Atoll Research Bulletin 19: p. 1-38.
- BÜCHERL, W. 1959. Escorpiões e escorpionismo no Brasil. Memórias do Instituto Butantan, 29: p. 243-253.
- CARVALHO, G. L. C. 1999. O mar territorial brasileiro de 200 milhas: estratégia e soberania, 1970-1982. Univ. de Brasília. 105 p.
- CLOUD, P. E., Jr. 1957. Nature and origin of atolls. Proc. 8th Pacific Sci. Cong. 3a: p. 1009-1024.
- COELHO, P. A. 1965. Crustáceos decápodos do Atol das Rocas. Ciência e Cultura, 17 (2): p. 309- 310.

DAMUTH, J. & PALMA, J. J. C. 1979. Geomorfologia do fundo atlântico equatorial oeste. In: PETROBRÁS. Geomorfologia da Margem Continental Brasileira e das áreas oceânicas adjacentes. Rio de Janeiro, CENPES/DINTEP. p. 53-88 (Série Projeto REMAC).

DUARTE, P. J. 1938. O Atol das Rocas. Arquivo de Pesquisas Agronômicas, Recife, 1:p 61-70.

ECHEVERRÍA, C. A.; PIRES, D. O.; MEDEIROS, M. S. & CASTRO, C. B. 1997. Cnidarian of the Atol das Rocas, Brazil. Proc 8 th Int. Coral Reef Sym. 1:443-446.

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

<1 file(s) uploaded>

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:



Atol das Rocas Biological Reserve (Communications Department, Ministry of Environment, 15-01-2016)



Atol das Rocas Biological Reserve (Communications Department, Ministry of Environment, 15-01-2016)



Atol das Rocas Biological Reserve (Communications Department, Ministry of Environment, 15-01-2016)



Atol das Rocas Biological Reserve (Communications Department, Ministry of Environment, 15-01-2016)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Transboundary Designation letter

<no file available>

Date of Designation 2015-12-11