IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 08 November 2017

Please note: this is an archived Conservation Outlook Assessment for Brazilian Atlantic Islands: Fernando de Noronha and Atol das Rocas Reserves. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

# Brazilian Atlantic Islands: Fernando de Noronha and Atol das Rocas Reserves

## SITE INFORMATION

Country:
Brazil
Inscribed in: 2001
Criteria:
(vii) (ix) (x)

Site description:
Peaks of the Southern Atlantic submarine ridge form the Fernando de Noronha Archipelago and Rocas Atoll off the coast of Brazil. They represent a large proportion of the island surface of the South Atlantic and their rich waters are extremely important for the breeding and feeding of tuna, shark, turtle and marine mammals. The islands are home to the largest concentration of tropical seabirds in the Western Atlantic. Baia de Golfinhos has an exceptional population of resident dolphin and at low tide the Rocas Atoll provides a spectacular seascape of lagoons and tidal pools teeming with fish. © UNESCO

## SUMMARY

# 2017 Conservation Outlook

**Good with some concerns**

While the general level of threat to the property is relatively low resources and monitoring tools are insufficient to control the threats to the property’s values from inappropriate tourism development and associated urban growth, as much as displacement of terrestrial species on Fernando de Noronha, illegal fishing and degradation in the marine environment due to exotic species and potential effects of foreseen sea-level changes.

## Current state and trend of VALUES

**Low Concern**
**Trend: Stable**

Marine ecological processes within the site have until now been relatively unaffected, though climate change may have major impacts in the future. There is a long history of major human impacts on terrestrial ecosystem processes on Fernando de Noronha since the 19th century, but little impact on the Atol das Rocas. Industrial fishing in the vicinity of the site is, however, impacting on pelagic species in general and sharks in particular and large aggregation of boats have resulted in the introduction of exotic species, causing a potentially significant impact on the marine ecosystem stability of the site.

## Overall THREATS

**High Threat**

The most serious threats to the site’s values at present are from tourism andurban growth. Displacement of native terrestrial species on Fernando de Noronha and illegal fishing also threaten the site’s values, as well as possible long-term effects of, climate change in particular, the exposure to sea-level changes.

## Overall PROTECTION and MANAGEMENT

**Some Concern**

While management instruments and legal provisions are in place to secure protection of the site’s values, lack of effective implementation of tourism control measures, a monitoring system and limited resources to undertake new capacity research studies may be compromising the integrity of the property.

# FULL ASSESSMENT

## Description of values

### Values

### World Heritage values

► **Spectacular seascape and the highest known population of resident dolphins**
**Criterion:(vii)**

Baía dos Golfinhos is the only know place in the world with such a high population of resident dolphins and Atoll das Rocas demonstrates a spectacular seascape at low tide when the exposed reef surrounding shallow lagoons and tidal pools forms a natural aquarium. Both sites have also exceptional submarine landscapes that have been recognised worldwide by a number of specialised diving literatures (Justification for inscription, 2001, WHC).

► **A key role in the process of reproduction, dispersal and colonisation by marine organisms in the entire Tropical South Atlantic**
**Criterion:(ix)**

Fernando de Noronha and Atol das Rocas Reserves (FNNMP/AdRBR) represents over half the insular coastal waters of the Southern Atlantic Ocean. These highly productive waters provide feeding ground for species such as tuna, billfish, cetaceans, sharks, and marine turtles as they migrate to the Eastern Atlantic coast of Africa. An oasis of marine life in relatively barren, open ocean, the islands play a key role in the process of reproduction, dispersal and colonisation by marine organisms in the entire Tropical South Atlantic (Justification for inscription, 2001, WHC).

### ► Biodiversity and endangered species of Southern Atlantic

**Criterion:(x)**

FNNMP/AdRBR is a key site for the protection of biodiversity and endangered species in the Southern Atlantic. Providing a large proportion of the insular habitat of the South Atlantic, the site is a repository for the maintenance of marine biodiversity at the ocean basin level. It is important for the conservation of endangered and threatened species of marine turtles, particularly the hawksbill turtle. The site accommodates the largest concentration of tropical seabirds to be found in the Western Atlantic Ocean, and is a Global Centre of Bird Endemism. The site also contains the only remaining sample of the Insular Atlantic Forest and the only oceanic mangrove in the South Atlantic region (Justification for inscription, 2001, WHC).

### Other important biodiversity values

### ► Other international designations

The site lies within a WWF Global 200 Eco-region and a BirdLife-designated Endemic Bird Area. (UNEP-WCMC, 2011)

## Assessment information

### Threats

### Current Threats

**High Threat**

The most serious threats to the site’s values at present are from tourism and urban growth, displacement of native terrestrial species on Fernando de Noronha nd illegal fishing also threaten the site’s values, and may be a

threaten to it’s Outstanding Universal value.

### ► Oil/ Gas exploration/development

**Low Threat**
**Inside site, extent of threat not known**

This is a product of leaks and the pumping of bilges of passenger ships and fishing vessels; and the handling of fuels and oils in the harbor (ICMBio,2011b). The regular landing of fuel for the electricity plant in Fernando de Noronha poses further risks. After a major event occurred in 2000, there is no specific evidence of larger spills afterwards, although it remains a latent threat.

### ► Invasive Non-Native/ Alien Species

**High Threat**
**Inside site, scattered(5-15%)**

Clearing of vegetation and introduced species have had a significant impact within the site on Fernando de Noronha (ICMBio,2011b; UNEP-WCMC, 2011). Several research projects supporting management plans of invasive species are being currently undertaken in order to control effects, mainly on native flora and amphibian species (Triade, 2015; Vieira, 2016).

### ► Fishing / Harvesting Aquatic Resources

**High Threat**
**Inside site, widespread(15-50%)**

This includes commercial fishing in no take zones, and artisanal spear and blast fishing in coral communities. (ICMBio,2011b; UNEP-WCMC, 2011). Fishing has significant negative impacts on pelagic species, in particular sharks. Enforcement of fishing regulations is insufficient, both at Fernando de Noronha and Atol das Rocas (IUCN Consultation, 2014). Artisanal fishing for self-consumption and community income is practiced in the Archipelago, as an alternative to tourism. Thunnus albacares and Caranx lugubris comprise most of the catch (Domínguez, P. et al.,2015). Commercial fishing is forbidden since 1998 when shark species had declined by this preasure (García y Clapis, 2008).

### ► Tourism/ visitors/ recreation

**High Threat**
**Inside site, throughout(>50%)**

Inappropriate tourism development has led to the degradation of both the marine environment (physical damage by anchors, novice divers, beach goers, harbors, and sewage) and to coastal and terrestrial environments (fauna disturbance, construction of infrastructure, introduction of exotic species, collection of fauna as souvenirs, trampling of vegetation, and damaging of scenic values) (ICMBio,2011b; UNEP-WCMC, 2011; de Fretias Prazeres, 2011). Although recreation and tourism are strictly restricted – only research and monitoring activities are undertaken - (Ramsar, 2016), in 2014, indicators regarding tourism life cycle (especially ecotourism, which is the focus of the attractiveness of the Archipelago) reached its peak. The increase in visitors suggests a significant threat to biodiversity conservation; offers such as low season discounts, lodging increase from 6% to 12% between 2009 and 2012 contributed to this (Zanirato, 2014). Number of visitors to Fernando de Noronha increased from 62.551 in 2002 to 91.000 in 2016, an increase of 45.48% (http://www.brasil.gov.br/turismo/2017/01/fernando-de-noronha-registra-aumento-de-turistas-em-2016).

Based on several indicators of highlighted impacts and threats, such as of the tourism carrying capacity and the disturbance of the dolphins' habitat, it can be inferred that the destination is at risk of s loss of part ofimpacts on its biodiversity, which may cause it to decline, if effective actions are not sufficiently implemented. There are, however, initiatives and efforts to reduce and control these risks (Zanirato, 2014).

### ► Other

**High Threat**
**Inside site, widespread(15-50%)**

Urban development has led to the dumping of solid and liquid wastes, disturbance and displacement of native species, seabird collisions with aircraft; and the degradation of scenic values (ICMBio,2011b; WDPA, 2011). Coral mortality has been identified in the southwestern and northeastern ends of the north shore of Fernando de Noronha and is associated with the harbor (northeast) and sewage outfall (southwest) (de Fretias Prazeres,

2011). Urban growth is poorly regulated.

Inhabitant population has increased between 1991 and 2010 by about 1000 individuals – residents only, visitors are not included in this number- (Santana et al, 2016). The increase is of great concern to experts as demographic density is 154,55 hab / km2, within the 17 Km2 of the main island (according to IBGE in 2010).

The Management Plan indicates that demographic density in the environmental preservation area is 290,1hab / km2 within 8 km2, but only resident and visitation areas are to be considered, this number could reach the 1.000 hab / km2. In order to avoid future collapse of the island, supporting capacity studies suggest this number should be maintained (Santana et al, 2016).

## Potential Threats

**Low Threat**

To date, there is little evidence of climate change impacting the site’s marine environment, but sea temperature increases, oceanic acidification, and sea-level rise are expected to impact the site in the future.

### ► Temperature extremes

**High Threat**
**Inside site, throughout(>50%)**
**Outside site**

Climate change is causing sea temperature increases and ocean acidification, which leads to mortality of oceanic calcifying organisms (ICMBio, 2011b; WDPA, 2011). Sea-level rise caused by climate change will impact low-lying Atol das Rocas; to 2017, no specific evidence of this or other changes resulting from severe weather is available, although changes in the regular temperature behavior were registered in 2015 in the Sourth Atlantic ocean as result of El Niño events.

## Protection and management

## Assessing Protection and Management

### ► Relationships with local people

**Some Concern**

Tensions between tourism and conservation sometimes lead to major differences, but these differences are worked out in the National Park Consultative Committee, and as part of the participatory process for the development of the property's management plan (ICMBio, 2011). Environmental NGOs take part in discussions about planning, community capacity-building and monitoring, and act as facilitators (Estima, D. et al, 2013). Additionally, the Sustainability Program or the FN Archipelago – Noronha +20, which is an interinstitutional pact aiming at the social and environmental well-being of the archipelago focuses on critical issues ranging from urban and public use to research, education and health (Programa de sustentabilidad Noronha + 20, 2011).
Co-management mechanism processes between local fisheries and biodiversity-related institutions, particularly the PA system, seem counterproductive, as conservation activities are not fully integrated into small-scale fisheries as to provide benefits to these communities (Cantareli, et al., 2016).

### ► Legal framework

**Mostly Effective**

The property has adequate legal protection conferred by a number of federal laws and state regulations. The Chico Mendes Institute for Biodiversity Conservation (ICMBio), an autonomous federal agency under the Ministry of Environment, is responsible for the management and conservation of the site (SoUV, 2015). The Atol das Rocas Marine Protected Area was established in 1979 and later redesignated as the first National Biological Marine Reserve. In 1988 the Fernando de Noronha Marine National Park was created by Federal Decree 96.693 and in 1989 the entire archipelago and surrounding waters were declared an Environmental Protection Area of the state of Pernambuco by State Decree 13555 which forms the legal basis for the buffer zone around the Marine National Park. Law enforcement is incipient,

hampered by lack of resources (IBAMA, 2006).

### ▶ Enforcement

**Data Deficient**

Law enforcement is hampered by lack of resources (IBAMA, 2006).

### ▶ Integration into regional and national planning systems

**Some Concern**

An overall framework for integration into national and state protected areas systems and tourism development activities exists (ICMBio, 2011b). However, in practice comprehensive integrated management could be improved (IUCN Consultation, 2014)

### ▶ Management system

**Some Concern**

The Fernando de Noronha Archipelago National Marine Park, the Atol das Rocas Marine Biological Reserve and the Environmental Protection Area (APA) are administered by the Chico Mendes Biodiversity Conservation Institute (ICMBio). Management Plans were prepared by ICMBio for the Atol das Rocas Marine Biological Reserve in 2007 and for the Fernando de Noronha APA and National Marine Park in 2011 2011 and address issues such as tourism, research, environmental education, protection and monitoring of the biodiversity. These plans guide management and conservation, and regulate boating and diving. Local artisanal fishermen are licensed to fish in the Fernando de Noronha Archipelago Marine Park. All fishing is prohibited in the Atol das Rocas Marine Biological Reserve. Migration to Fernando de Noronha is controlled at present levels and limited to relatives of the islanders. (UNEP-WCMC, 2011; ICMBio 2011b). Enforcement of the no take zone around the Atol das Rocas was strengthened in 1991 when a research station was established, however enforcement is still insufficient. Management plans of both the national park and the protection area are no longer fulfilling the needs of regulation to the activities being undertaken in the Archipelago, hence they are being updated in light of the new realities particularly, the growth in population -residents and visitors- (Santana et al, 2016); for the environmental protection area, the management plan has just

been updated and singed in June 2017 (ICMBio, 2017).

### ▶ Management effectiveness

**Some Concern**

Despite some existing threats, the component protected areas of this site appear to be relatively well protected. Fernando de Noronha National Park, Rocas Biological Reserve and the surrounding Environmental Protection Area are all seriously understaffed and underfunded which hampers efficient law enforcement (IUCN Consultation, 2014).
The Atol das Rocas Biological Reserve is banned from public access and managed for the protection of species and for research. The Reserve benefits from surveillance by the Brazilian Navy and the Air Force, notably as concerns fishing and tourism activities, while the Nationa Parks has a Sustainable Development and Ecotourism Management Plan, strictly controling the development of tourism infrastructure and visits (SoUV, 2015). The updating of the management plans (Santana, 2016; ICMBio, 2017) suggests adequate responses are being proposed by the PA authority to face the new challenges to control illegal activities and reinforce management.

### ▶ Implementation of Committee decisions and recommendations

**Data Deficient**

No Committee decisions have been taken since inscription of the property.

### ▶ Boundaries

**Mostly Effective**

At the time of inscription the boundaries of the property were considered “adequate for conserving marine biodiversity” (IUCN Evaluation, 2011). It was also noted that all key terrestrial habitats were included in the property. However, some concerns exist about the awareness among the local population about the World Heritage status of the property and its boundaries (IUCN Consultation, 2014).

### ▶ Sustainable finance

**Some Concern**

While 70% of the entrance fees go back to management of the park, finance

is inadequate to manage the site as outlined in the management plans (ICMBio, 2012).

### ► Staff training and development

**Some Concern**

The EPA management plan has a capacity building program for environmental guides, local population for better management of tourism and other activities for both management and technical staff (ICMBio, 2017).DDThe ICMBio currently runs ACADEBIO, the state-owned academy aimed at streghthening capacities of all the Chico Mendes staff in the county.

### ► Sustainable use

**Data Deficient**

Lobster fishing is allowed in the Sustainable Fishing Zone of the environmental protection area, but no information is available regarding whether it can be considered sustainable.

### ► Education and interpretation programs

**Mostly Effective**

Sporadic educational activities are carried out, but financing is insufficient to fully implement the environmental education program outlined in the management plan (ICMBio, 2011a; ICMBio 2011,b; ICMBio, 2011c; ICMBio 2008, IBAMA, 2006). The awareness among local people of the World Heritage status of the property is very low (IUCN Consultation, 2014). Environmental NGOs participate in tourism discussions to guide measures and monitoring with local communities (Estima, D. et al, 2013). There is also Noronha + 20, a 20-year program built with civil society, the production sector and the government aimed at preventing environmental degradation in the Archipelago. The environmental protection area has helped making human presence and nature conservation more compatible, contributing to environmental education through direct contact with different forms of life and the interaction with nature (Santana, 2016).
The new management plan has an education and interpretation program (ICMBio, 2017), but it’s effectiveness is still to be assessed.

### ► Tourism and visitation management

**Serious Concern**

There is a good network of trails with well trained local guides and there are riding, fishing and boat rides. Dolphin viewing is very popular. There is concern, however, that the mass tourism model that has developed on Fernando de Noronha is inappropriate, and that an eco-tourism model is needed to assure conservation of the property's OUV(ICMBio, 2011a; ICMBio 2011,b; ICMBio, 2011c). The National Park has an interpretive centre at its headquarters where environmental education talks are given several evenings a week (UNEP-WCMC, 2011). Carrying capacity in land and marine areas must be reviewed/updated.

As a result of the and unorganized growth of the tourism activity, the increase of the lodging infrastructure without proper sanitary conditions, the expanding erosion and degradation process of drainage and water basins and overall degradation of natural ecosystems, capacity of the ecosystem to preserve species and face disturbance is being compromised. The intense visitation of boats facilitates the spread of exotic species from several parts of Brasil and the world (ICMBio, 2017).
The National Park has a Sustainable Development and Ecotourism Management Plan which was implemented with the support of local people, strictly controlling the development of tourism infrastructure and visits, and also covers the urbanized areas located outside the property (SoUV, 2015).

### ► Monitoring

**Serious Concern**

A comprehensive monitoring system has not been developed for the entire World Heritage site. However, the Brazilian National Reef Monitoring Program has monitored coral coverage and condition in the property since 2002 (Rodriguez-Ramiriz, et al, 2008). Plans are underway for development of a specific monitoring system for recreational diving in order to reduce damage to coral communities (Luiz, 2012).
Fishing data indicate the need to elaborate a joint resource management plan that results in the valuation of the artisanal fisherman and the sustainability of the fishing activity, including a monitoring strategy

(Domínguez et al, 2015).
The Noronha +20 Sustainability Observatory is a proposal of management and monitoring instrument to follow up actions in the Plan, organize and collect information and disseminate actions and results (Programa de sustentabilidad Noronha + 20, 2011).

### ▶ Research

**Highly Effective**

Since the 1970s, the Federal government has organised scientific expeditions and research today is regularly conducted, particularly into spinner dolphin (Project GOLFINHO ROTADOR) and nesting marine turtle populations (Project TAMAR) on Fernando de Noronha, where the main nesting beaches of the green turtle have monitored since 1987. These projects are however highly dependent on external funding from PETROBRAS National Oil Company and other sources. On the Atol das Rocas regular studies have been conducted since 1990 on migratory and resident seabirds, as well as on migrating hawksbill turtles, fish, crustaceans, coralline algae and benthic organisms. (WDPA, 2011). Long term research on reef fishes has received more attention in the recent years, as a means for evaluating overfishing effects and for comparing pristine vs coastal areas under urban impacts (MCTI/CNPq 2012). Research facilities have been developed on Fernando de Noronha (TAMAR Project since 1984), Atol das Rocas.(University of North Rio Grande since 1991), and in the Sao Pedro e Sao Paulo Archipelago (since 1998) (ICMBio, 2011b). Several projects have been led by the ICMBio and research institutions e.g. sharks project on participatory monitoring (Gracía y Clapis, 2008), the Tamar Project, for marine turtles and the Spinner Dolphin Project (SoUV, 2015; Mohr et.al, 2009).

## Overall assessment of protection and management

**Some Concern**

While management instruments and legal provisions are in place to secure protection of the site’s values, lack of effective implementation of tourism control measures, a monitoring system and limited resources to undertake new capacity research studies may be compromising the integrity of the property.

► **Assessment of the effectiveness of protection and management in addressing threats outside the site**

**Some Concern**

Threats originating outside the property include inappropriate tourism development, urban growth in the town of Vila dos Remedios on Fernando de Noronha, and climate change. Environmental impacts from cruise tourism need to be more investigated.

## State and trend of values

### Assessing the current state and trend of values

#### World Heritage values

► **Spectacular seascape and the highest known population of resident dolphins**

**Low Concern**
**Trend:Stable**

Site’s scenic values and values associated with outstanding natural phenomenon have been relatively well preserved. Although spinner dolphins are still present in high numbers, there has been distribution changes noted which could be at least partially attributed to tourism pressure (IUCN Consultation, 2014).

► **A key role in the process of reproduction, dispersal and colonisation by marine organisms in the entire Tropical South Atlantic**

**Low Concern**
**Trend:Stable**

Marine ecological processes within the site have until now been relatively unaffected, though climate change may have major impacts in the future. There is a long history of major human impacts on terrestrial ecosystem processes on Fernando de Noronha since the 19th century, but little impact on the Atol das Rocas.

### ► Biodiversity and endangered species of Southern Atlantic

**High Concern**
**Trend:Stable**

While populations of many species remain stable, poorly controlled fishing in the vicinity of the site might be having significant impacts on the shark population and the introduction of exotic species (IUCN Consultation, 2014; Gaeta et. Al, 2015; ICMBio, 2017).

## Summary of the Values

### ► Assessment of the current state and trend of World Heritage values

**Low Concern**

**Trend: Stable**

Marine ecological processes within the site have until now been relatively unaffected, though climate change may have major impacts in the future. There is a long history of major human impacts on terrestrial ecosystem processes on Fernando de Noronha since the 19th century, but little impact on the Atol das Rocas. Industrial fishing in the vicinity of the site is, however, impacting on pelagic species in general and sharks in particular and large aggregation of boats have resulted in the introduction of exotic species, causing a potentially significant impact on the marine ecosystem stability of the site.

### ► Assessment of the current state and trend of other important biodiversity values

**Low Concern**

**Trend: Stable**

The status and trends of other biodiversity values associated with the WWF Global 200 Eco-region and a BirdLife-designated Endemic Bird Area designations are the same as for World Heritage Values.

# Additional information

## Benefits

### Understanding Benefits

#### ► Outdoor recreation and tourism

Tourism is the driver of the economy of Fernando de Noronha.

### Summary of benefits

At the national and global level, conservation is the main benefit of the property, while on the island of Fernando de Noronha, tourism is considered the main benefit of the property.

## Projects

### Compilation of active conservation projects

| № | Organization/ individuals | Project duration | Brief description of Active Projects |
|---|---|---|---|
| 1 | Reef Check Brazil | | RC Brazil has just received funding from PROBIO, a division of the Brazilian Ministry of Environment, to monitor the 3,000 km of reef along the Northeastern coast. Four pilot locations have been selected: Abrolhos Reef, Fernando de Noronha Archipelago, the Coral Coast MPA and the Maracajaú Reefs. |
| 2 | Brazilian National Coral Reef Monitoring Program | | Started in 2002, and includes all major reef areas in Brazil, including Fernado de Noronha and Atol da Rocas (Rodriguez-Ramirez,et al, 2008.) |

| № | Organization/ individuals | Project duration | Brief description of Active Projects |
|---|---|---|---|
| 3 | Project GOLFINHO ROTADOR | | Research on the spinner dolphin, provision of visitor information on the species, advice for conservation policies and efforts towards achieving sustainability for human activities at Fernando de Noronha. |
| 4 | Project TAMAR | | Research and protection of nesting marine turtle populations on Fernando de Noronha. Maintenance of a visitor center with facilities for environment-related lectures and events used by several other institutions on a regular basis. |
| 5 | Fernando de Noronha's shark project, Brazil: Participative fisheries monitoring | From: 2009 | Capacitate the fishermen for to implement a participative fisheries monitoring in Fernando de Noronha Archipelago and to incorporate the local community as the main agent of the shark management program. |
| 6 | Impact assessment of teiú (Salvator merianae) to health and biodiversity conservation in the Fernando de Noronha Archipelago | | Understand the sanitary situation state of teiús populations in FN and their interferience in the health of the ecosystem |
| 7 | Sanitary, reproductive and conservation assessment of mabuia (Trachylepis atlantica) in the Fernando de Noronha Archipelago | | Risk analysis to health of the mabuias populations possed by introduced species mainly the lagarto lizzard, in the Fernando de Noronha island. |
| 8 | Impact assessement of the mocó (Kerodon rupestris) in the Marine National Park and the environmental protection area of Fernando Noronha | | (I) access the dinamic structure of the moco pupulation (II) their general health condition (III) understand the relation between the residents and tourists of the Island and the species (IV) identify dietary componentes (V) identify costs and benefits of different management options to control mocó populations and (VI) point to those more adequate options for the protected area |

## Compilation of potential site needs

| № | Site need title | Brief description of potential site needs | Support needed for following years |
|---|---|---|---|

| | | |
|---|---|---|
| 1 | . | Development of a World Heritage interpretation program to make residents and visitors aware of its meaning and benefits |
| 2 | . | Development of a trust fund to finance the long-term management of the property. |
| 3 | . | Development and implement a monitoring system to monitor the effects of tourism, illegal fishing and other threats on the general condition of the ecosystem. Next 3 years |

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