IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 10 November 2017

Please note: this is an archived Conservation Outlook Assessment for Belize Barrier Reef Reserve System. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Belize Barrier Reef Reserve System

SITE INFORMATION

Country:
Belize
Inscribed in: 1996
Criteria:
(vii) (ix) (x)

Site description:
The coastal area of Belize is an outstanding natural system consisting of the largest barrier reef in the northern hemisphere, offshore atolls, several hundred sand cays, mangrove forests, coastal lagoons and estuaries. The system’s seven sites illustrate the evolutionary history of reef development and are a significant habitat for threatened species, including marine turtles, manatees and the American marine crocodile. © UNESCO

SUMMARY

2017 Conservation Outlook

Significant concern

Coastal development, tourism growth, overfishing, invasive species and the multiple impacts of climate change (coral reef bleaching events, increased frequency and severity of storms, and sea level rise) have all been affecting the integrity of the site and its values. While at the level of the component protected areas of this serial property the managers and staff are generally doing an adequate job of controlling visitation, fishing and other in-water activities, the broader issues of adequate coastal zone management and zoning of land development needs have been a concern for a number of years. However, significant progress has recently been achieved in developing an overarching framework for addressing these issues, particularly through the development of the Integrated Coastal Zone Management Plan. The recent development of a legislative ban on off-shore oil operations in Belizean waters, even if it remains to be officially adopted, also represents a very positive step. If effectively implemented and enforced, these and other recently developed regulations can provide a clear framework for addressing the threats to the property and therefore enable the values previously affected by different factors to recover in the future. While the progress achieved needs to be celebrated, the conservation outlook for the property remains of significant concern until it can be demonstrated that the threats to the property can indeed be reduced.

Current state and trend of VALUES

High Concern
Trend: Stable

The values for which the site was inscribed on the World Heritage List are still clearly demonstrated; however, they are being affected by a number of threats, including coastal development, invasive species and climate change. The 2015 Report Card for the Mesoamerican Barrier Reef indicates that 21% of the reefs in Belize were in critical condition, 47% of the reefs were in poor condition, 28%

were in fair and 4% were in good condition (Healthy Reefs for Healthy People, 2015. However, these figures are for the whole part of the Mesoamerican Reef located in Belize and the condition of the reefs within the World Heritage site is expected to be better. The property remains the longest barrier reef in the Northern and Western Hemispheres and is still considered unique in the world for its array of reef types contained in a relatively small area. However, the pristine nature of the site has been undermined by a number of factors, especially growth of tourism, real estate and tourism infrastructure development. It is hoped that with the recent positive developments in the legislative framework, a number of threats can be addressed more efficiently, allowing for some values of the site to recover in the future.

Overall THREATS

High Threat

Coastal development, tourism growth, overfishing, invasive species and the multiple impacts of climate change (coral reef bleaching events, increased frequency and severity of storms; and sea level rise) are all very serious factors that negatively affect the overall integrity of the site. The most serious potential threat to the values of the site is oil exploration and drilling. While the recent development of a legislation that would introduce an indefinite moratorium on offshore oil operations in Belizean waters represents a significant step in ensuring that threats to the property from potential offshore oil operations are eliminated, until the legislation is officially adopted, the level of threat remains high.

Overall PROTECTION and MANAGEMENT

Some Concern

Belize Barrier Reef Reserve System comprises seven component protected areas. While management of these components can be quite effective and certain issues, such as tourism and fishing, are well-controlled, some issues, particularly land development, require cooperation across the whole site. In particular, serious concerns have previously been expressed with regard to the sale and lease of lands within the property and development of those areas. Recently, significant progress has been achieved in a number of areas, allowing for the relevant regulations to be streamlined. It is, however, essential that new legislative instruments such as the Integrated Coastal Zone Management Plan

are effectively implemented in order to provide clear guidance for any kind of development activities within the World Heritage site and its buffer zone. It is also important that the revised Mangrove Regulation also reflects the need for stronger protection within the World Heritage site.

FULL ASSESSMENT

Description of values

Values

World Heritage values

► Classic example of the evolutionary history of reefs

Criterion:(ix)

This site is unique for its array of reef types and provides a classic example of the evolutionary history of reefs through fringing, barrier and atoll reef types (IUCN, 1996). Including littoral, wetland and mangrove ecosystems, to seagrass beds interspersed with lagoonal reefs, to the outer barrier reef platform and oceanic atolls, this ecological gradient provides for a full complement of life-cycle needs, supporting critical spawning, nesting, foraging and nursery ecosystem functions. Maintaining these ecological and biological processes ensures robust and resilient reefs, which are themselves one of the world's most ancient and diverse ecosystems (World Heritage Committee, 2014).

► One of the most pristine reef ecosystems in the Western Hemisphere

Criterion:(vii)

The site was considered one of the most pristine reef ecosystems in the Western Hemisphere (IUCN, 1996). As the longest barrier reef in the Northern and Western Hemispheres and distinctive on account of its size, array of reef types and the luxuriance of corals, it provides a classic example of the evolutionary history of reefs and reef systems. The rise and fall of sea level over the millennia, coupled with natural karst topography and clear waters, results in a diverse submarine seascape of patch reefs, fringing reefs, faros, pinnacle reefs, barrier reefs as well as off-shelf atolls, rare deep water coral

reefs and other unique geological features such as the Blue Hole and Rocky Point where the barrier reef touches the shore. The spectacular picturesque natural setting of brilliant white sandy cayes and verdant green mangrove cayes is in dramatic contrast to the surrounding azure waters (World Heritage Committee, 2014).

► **Important habitat for a number of internationally threatened marine and bird species**
Criterion:(x)

The site provides an important habitat for a number of internationally threatened marine species. Remaining pristine areas of cayes (aka islands), with remnant stands of littoral and mangrove forest, provide critical habitat for several endemic and migratory bird species (IUCN, 1996). The site is home to a diverse array of top predators, on land, sea and in the air; the jaguars of Bacalar Chico Forest and Marine Reserve, the great hammerheads of the Blue Hole Natural Monument, and the ospreys of Glovers Reef Marine Reserve are a testament to the property's importance and its ecological integrity. A total of 178 terrestrial plants and 246 taxa of marine flora have been described from the area, while over 500 species of fish, 65 scleractinian corals, 45 hydroids and 350 molluscs have been recorded. The property is also home to endemic species including several Yucatan birds, island lizards, several fishes, tunicates and sponges, making it an area with one of the highest levels of marine biodiversity in the Atlantic (World Heritage Committee, 2014).

Assessment information

Threats

Current Threats
High Threat

Coastal development, tourism growth, overfishing, invasive species and the multiple impacts of climate change (coral reef bleaching events, increased

frequency and severity of storms; and sea level rise) are all very serious factors that negatively affect the overall integrity of the site.

▶ Invasive Non-Native/ Alien Species

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

The invasion of Indo-Pacific lionfish would appear to be the most exigent threat posed by an invasive species to the Outstanding Universal Value of the property (UNESCO and IUCN, 2013). The State Party has been actively addressing the issue; however, the level of this threat remains very high. In 2016, a national initiative for the long-term control of the lionfish population commenced and the National Lionfish Management Strategy (2016-2021) was prepared (State Party of Belize, 2017).

▶ Habitat Shifting/ Alteration, Temperature extremes

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

Sea level rise is already occurring gradually as a result of climate change. The rising sea levels and the potential increase in significant hurricane events associated with the expected change in climate will severely impact the future of Belize. It is likely that all seven component sites that comprise the property are facing a significant threat in the medium term (UNESCO and IUCN, 2009; 2013).

▶ Ocean acidification, Temperature extremes

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

Large-scale mortality of coral cover occurs periodically, caused by rising sea temperatures and acidification of the marine environment, both of which are attributed to climate change (UNESCO and IUCN, 2009). No comprehensive recent information for the entire property is available. However, monitoring of coral bleaching has been undertaken in several locations. Some data indicate that in 2015 bleaching was limited to a small group of species which had been bleached in previous events and are species known for slow

recovery (Belize Audubon Society, 2015).

► Water Pollution

Low Threat
Inside site, localised(<5%)
Outside site

Near-shore environments are being polluted by runoff from construction sites, residential areas and tourism infrastructure, with inappropriate disposal of wastes. Improper handling of fuels and other toxic substances adds to the pollution (UNESCO and IUCN, 2009). The national Mangrove Regulation needs updating with a view to restricting the coastal development footprint and associated erosion; the Belize Government is working on finalising a revised Mangrove Regulation (State Party of Belize, 2017; Belize Reef Scorecard, 2017). Phase shifts are occurring on some reefs from a domination by coral to fleshy macroalgae (seaweed) (Healthy Reefs for Healthy People, 2015).

► Erosion and Siltation/ Deposition

High Threat
Inside site, localised(<5%)
Outside site

Reef siltation is caused by sediments carried by rivers into coastal environments, which originate both from Belize and neighbouring countries (UNESCO and IUCN, 2009).

► Tourism/ visitors/ recreation, Housing/ Urban Areas

Very High Threat
Inside site, localised(<5%)

Coastal development has been an ongoing issue for this property. Lands on islands and cayes within the property have been sold off and leased by government for the development of private homes and tourism infrastructure (UNESCO and IUCN, 2009; State Party of Belize, 2012; UNESCO and IUCN, 2013). The cartographic information on land tenure within the property recently compiled by the State Party shows a high proportion of private land or areas with unknown land tenure within the property. Therefore it will be crucial that strict and clear restrictions and regulations on development are established in order to ensure that no development can be allowed, which would result in negative impacts on the property. A permanent legal

moratorium on the sale of the remaining nationally held lands, requested by the World Heritage Committee, remains to be established (UNESCO, 2017).

▶ Fishing / Harvesting Aquatic Resources

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

Illegal fishing by vessels from neighbouring countries, and overfishing of finfish, conch and lobster is prevalent and has resulted in the loss of fishing aggregations, low populations of key species and the proliferation of macroalgae covering the reefs (UNESCO and IUCN, 2009; State Party of Belize, 2012). The State Party has developed a number of measures to address the issue, including a newly established Managed Access programme, seasonal closures for conch, protection for spawning aggregation sites and the development of several legislative instruments (UNESCO and IUCN, 2013). The Managed Access programme is a rights-based approach to managing fisheries in Belize focused on ending open access fishing in Belizean waters and on empowering fishers (State Party of Belize, 2017). While much progress has been achieved in improving fisheries management, the effectiveness of the measures with regards to reducing threats to the values of the property specifically needs to be evaluated.

Potential Threats

High Threat

The most serious potential threat to the values of the site is oil exploration and drilling. While recent development of a legislation that would introduce a moratorium on offshore oil operations in Belizean waters represents a significant step in ensuring that threats to the property from potential offshore oil operations are eliminated, until the legislation is officially adopted, the level of threat remains high.

▶ Oil/ Gas exploration/development

High Threat
Inside site, extent of threat not known
Outside site

A number of Petroleum Sharing Agreements (PSA) in the marine areas used to overlap or be adjacent to the property (UNESCO and IUCN, 2013). The

World Heritage Committee in several decisions has expressed its concern over potential oil exploration and exploitation within or adjacent to the property and requested the State Party to ensure that “all areas within the property and the surrounding areas that support the ecological functioning of the system are excluded from oil exploration and exploitation” (World Heritage Committee, 2015). Recently, a draft bill introducing an indefinite moratorium on offshore petroleum operations in Belizean waters has been prepared (The Guardian Belize, 2017).This represents a significant step in ensuring that threats to the property from potential offshore oil operations are eliminated. However, until the legislation is officially adopted, the level of threat remains high.

Protection and management

Assessing Protection and Management

► Relationships with local people

Mostly Effective

There is little recognition and understanding of the World Heritage status of the property among local communities (UNESCO and IUCN, 2009). However, relationships between the managers of individual component protected areas and local communities appear to be good, with a number of successful rights-based programmes developed for managing fisheries (State Party of Belize, 2017).

► Legal framework

Some Concern

There is no legal framework to the World Heritage status of the property. Rather, enforcement is based on the varying legal designations attached to each component of the site, and the governance arrangement in place for that component (UNESCO and IUCN, 2009).

► Enforcement

Mostly Effective

Significant efforts have been undertaken over a number of years to improve

fisheries management and address the issue of illegal fishing.

► Integration into regional and national planning systems

Mostly Effective

A number of legislative instruments are currently being developed or have been developed recently including, for example, the Integrated Coastal Zone Management Plan (ICZMP), the Land Use Policy Implementation Plan, the National Protected Areas Bill, the Fisheries Resources Bill (UNESCO and IUCN, 2013) and the National Mangrove Regulations (State Party of Belize, 2017), and their adoption and effective implementation are essential to ensure the long-term conservation of the property. Particularly, the finalisation and adoption of the ICZM Plan represents an important step in ensuring effective integration of the property into coastal zone management. It will be important that resources are available for its effective implementation in the long term (World Heritage Committee, 2017).

► Management system

Mostly Effective

This is a serial property composed of several protected areas. While on the level of these component protected areas the existing management structures can be effective, there is no single management system or management plan to guide management of the site as a whole. However, the recent formation of the Ministry of Fisheries, Forestry and Sustainable Development at least brought together Departments responsible for various aspects of protected areas management in Belize (UNESCO and IUCN, 2013).

► Management effectiveness

Serious Concern

While management of the component protected areas of the site can be quite effective, even if sometimes constrained by lack of human and financial resources, certain issues, particularly land development, require cooperation across the whole site. While the main management agencies (Fisheries and Forestry Departments, Coastal Zone Management Authority, NGOs involved in co-management) are cooperative, permitting agencies do not always issue permits in accordance with the management plans of the component protected areas. It is, therefore, essential that the recently adopted

Integrated Coastal Zone Management Plan as well as other relevant regulations are effectively implemented in order to provide clear guidance for any kind of development activities within the World Heritage site and its buffer zone.

▶ Implementation of Committee decisions and recommendations

Mostly Effective

The State Party has made significant progress in addressing a number of the Committee's requests and recommendations (World Heritage Committee, 2017); however, a number of requests remain to be addressed.

▶ Boundaries

Mostly Effective

The boundaries of the seven components comprising the property are well described. The State Party has also provided more precise descriptions and calculations of the area of each component through the process of clarification of property boundaries and areas by State Parties (World Heritage Committee, 2016).

▶ Sustainable finance

Some Concern

A protected areas fund, the Protected Areas Conservation Trust, has helped to increase the levels of funding available for protected areas. However, given the lack of government funding, the overall availability of finance for the management of the property is insufficient (UNESCO and IUCN, 2009; Belize Reef Scorecard, 2017).

▶ Staff training and development

Data Deficient

No recent data available

▶ Sustainable use

Some Concern

Habitat modification on different cayes and islands for vacation homes and tourism infrastructure is clearly incompatible with the conservation of the

values of the site and has been of concern for a long time. Recreational uses such as sailing and diving could potentially be carried out in sustainable ways, but would require rigorous management to define capacities, appropriate management and regular monitoring to detect impacts. Though some impact assessments are being undertaken with the tourism industry, full management programmes are not in place (UNESCO and IUCN, 2009).

► Education and interpretation programs

Data Deficient

No recent data available.

► Tourism and visitation management

Mostly Effective

The National Sustainable Tourism Master Plan for Belize 2030 recognises the importance of the World Heritage site and outlines a vision for future tourism development.

► Monitoring

Mostly Effective

Monitoring is undertaken on the level of component protected areas by the respective management organisations, but also across the whole reef when it comes to broader issues, such as, the invasion of lionfish (UNESCO and IUCN, 2013).

► Research

Mostly Effective

Various research programmes have been carried out by the management authorities and a number of NGOs.

Overall assessment of protection and management

Some Concern

Belize Barrier Reef Reserve System comprises seven component protected areas. While management of these components can be quite effective and certain issues, such as tourism and fishing, are well-controlled, some issues,

particularly land development, require cooperation across the whole site. In particular, serious concerns have previously been expressed with regard to the sale and lease of lands within the property and development of those areas. Recently, significant progress has been achieved in a number of areas, allowing for the relevant regulations to be streamlined. It is, however, essential that new legislative instruments such as the Integrated Coastal Zone Management Plan are effectively implemented in order to provide clear guidance for any kind of development activities within the World Heritage site and its buffer zone. It is also important that the revised Mangrove Regulation also reflects the need for stronger protection within the World Heritage site.

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

Some Concern

The most significant threat originating from outside the site is potential off-shore oil exploration and development. The site has very limited capacity to deal with this issue.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **Classic example of the evolutionary history of reefs**

High Concern
Trend:Deteriorating

The property still provides an array of examples of the evolutionary history of reef development with fringing, barrier and atoll reef sites. However there are trends which indicate that an increased level of development both within and adjacent to the property on the coastal fringe has taken place and if not properly managed could lead to the decline of these reef sites. Of particular concern in the immediate term, the coastal fringing reefs could be considered the most vulnerable (UNESCO and IUCN, 2013). The 2012 Report Card for the Mesoamerican Barrier Reef indicates that in Belize 29% of the reefs were in critical condition, 44% of the reefs were in poor condition, 22%

were in fair and 5% were in good condition (Healthy Reefs for Healthy People, 2012). However, these figures are for the whole part of the Mesoamerican Reef located in Belize and the condition of the reefs within the World Heritage site is expected to be better. In 2015, the state of reefs in Belize was assessed as 4% in good condition, 28% in fair condition, 47% in poor condition and 21% in critical condition (Healthy Reefs for Healthy People, 2015).

► One of the most pristine reef ecosystems in the Western Hemisphere

High Concern
Trend:Deteriorating

The values for which the property was inscribed on the World Heritage List under criterion (vii) are still clearly demonstrated in the property. The Belize Barrier Reef Reserve System remains a display of superlative natural phenomena and areas of exceptional natural beauty and aesthetic importance. It remains the longest barrier reef in the Northern and Western Hemispheres and is still considered unique in the world for its array of reef types contained in a relatively small area (UNESCO and IUCN, 2013). The pristine nature of the site is, however, being undermined by myriad factors, especially growth of tourism, real estate and tourism infrastructure development, overfishing, pollution of near-shore environments, multiple effects of climate change and invasive species (UNESCO and IUCN, 2009; 2013).

► Important habitat for a number of internationally threatened marine and bird species

Low Concern
Trend:Stable

There do not appear to be any identified total losses of habitats or species since inscription and recent management measures have attempted to address significant threats in this regard. There remains, however, significant concern for some unique habitats, notably in the highly diverse Pelican Cayes area where existing development proposals remain legally viable (UNESCO and IUCN, 2013). Also, the high private land ownership of cayes/islands within the site means continued land developments in the future are highly possible.

Summary of the Values

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

High Concern

Trend: Stable

The values for which the site was inscribed on the World Heritage List are still clearly demonstrated; however, they are being affected by a number of threats, including coastal development, invasive species and climate change. The 2015 Report Card for the Mesoamerican Barrier Reef indicates that 21% of the reefs in Belize were in critical condition, 47% of the reefs were in poor condition, 28% were in fair and 4% were in good condition (Healthy Reefs for Healthy People, 2015. However, these figures are for the whole part of the Mesoamerican Reef located in Belize and the condition of the reefs within the World Heritage site is expected to be better. The property remains the longest barrier reef in the Northern and Western Hemispheres and is still considered unique in the world for its array of reef types contained in a relatively small area. However, the pristine nature of the site has been undermined by a number of factors, especially growth of tourism, real estate and tourism infrastructure development. It is hoped that with the recent positive developments in the legislative framework, a number of threats can be addressed more efficiently, allowing for some values of the site to recover in the future.

Additional information

Benefits

Understanding Benefits

► **Health and recreation, Outdoor recreation and tourism**

The site has become a major draw internationally because of the beauty of

the islands, cayes, and reefs.

► **Food, Fishing areas and conservation of fish stocks**

Provided that an effective no-take zones network is in place and is effectively enforced, the site would have a major impact on restoring fisheries in the whole area of the Barrier Reef.

► **Knowledge, Importance for research**

The site could be used as a center for reef research and education.

Summary of benefits

The Property seeks to protect and manage some of the most extraordinary areas of the Mesoamerican Reef for conservation, tourism, fisheries, and research and education.

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