IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 29 September 2014

Please note: this is an archived Conservation Outlook Assessment for Islands and Protected Areas of the Gulf of California. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Islands and Protected Areas of the Gulf of California

SITE INFORMATION

Country:
Mexico
Inscribed in: 2005
Criteria:
(vii) (ix) (x)

Site description:
The site comprises 244 islands, islets and coastal areas that are located in the Gulf of California in north-eastern Mexico. The Sea of Cortez and its islands have been called a natural laboratory for the investigation of speciation. Moreover, almost all major oceanographic processes occurring in the planet's oceans are present in the property, giving it extraordinary importance for study. The site is one of striking natural beauty in a dramatic setting formed by rugged islands with high cliffs and sandy beaches, which contrast with the brilliant reflection from the desert and the surrounding turquoise waters. It is home to 695 vascular plant species, more than in any marine and insular property on the World Heritage List. Equally exceptional is the number of fish species: 891, 90 of them endemic. The site, moreover, contains 39% of the world's total number of species of marine mammals and a third of the world's marine cetacean species.
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SUMMARY

2014 Conservation Outlook

Good with some concerns

While threats from over-fishing, pollution, exotic species, uncontrolled tourism, and climate change are significant, management is rated as be relatively effective, and monitoring of indicator species has not indicated any problems at present with respect to the health of the marine ecosystem. Currently, therefore, management effectiveness and the overall state of the property's OUV appear to be relatively good. Over the long-run, however, the magnitude of current and future threats suggests a definite negative trend.

Current state and trend of VALUES

Good
Trend: Data Deficient

Biological indicators measured consistently over a period of 14 years indicate that the biological values of the property have been successfully conserved until now.

Overall THREATS

High Threat

Current threats from over-fishing, uncontrolled tourism, pollution, and exotic species are rated as "high". Threats to the marine resources are increasing from both artisanal and industrial fishing. Pollution from farm run-off, boat fuel, plastic flotsam and sewage are on the increase in the Gulf, and are expected to get much worse as tourism development continues around the region. Destruction of mangroves associated with the development of recreational facilities has a strong economic impact on local fishing communities and on food production in the region.The increasing impacts of climate change will particularly impact corals, calcifying organisms, and coastal wetlands.

Overall PROTECTION and MANAGEMENT

Mostly Effective

The property has a sound management system guided by an Integrated Management Program for the entire property. The budget is supported by the federal government and a variety of other funding sources, including international funding. Overall, protection and management of the property is mostly effective. The source of great concern is with respect to the many and varied threats from outside the property.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Striking natural beauty**
  Criterion:(vii)

  The serial property is of striking natural beauty and provides a dramatic setting due to the rugged forms of the islands, with high cliffs and sandy beaches contrasting with the brilliant reflection from the desert and the surrounding turquoise waters. The diversity of forms and colours is complemented by a wealth of birds and marine life. The diversity and abundance of marine life associated to spectacular submarine forms and high water transparency makes the property a diver’s paradise.(SoOUV, 2013)

- **A natural laboratory for the study of speciation and oceanographic processes**
  Criterion:(ix)

  The property ranks higher than other marine and insular World Heritage properties as it represents a unique example in which, in a very short distance, there are simultaneously “bridge islands” (populated by land in ocean level decline during glaciations) and oceanic islands (populated by sea and air). Moreover, almost all major oceanographic processes occurring in the planet’s oceans are present in the property, giving it extraordinary importance for the study of marine and coastal processes. These processes are indeed supporting the high marine productivity and biodiversity richness

that characterize the Gulf of California. (SoOUV, 2013)

▶ **Diversity of terrestrial and marine life**
Criterion:(x)

The diversity of terrestrial and marine life is extraordinary and constitutes a unique ecoregion of high priority for biodiversity conservation. The number of species of vascular plants (695) present in this serial property is higher than that reported in other marine and insular properties included in the WH List. The number of species of fish (891) is also highest when compared to a number of marine and insular properties. In addition the marine endemism is important, with 90 endemic fishes. The serial property contains 39% of the world’s total number of marine mammal’s species and a third of the world’s total number of marine cetacean’s species. In addition the serial property includes a good sample of the Sonora desert ecosystems, considered one of the richest deserts in the world from the desert biodiversity point of view. (SoOUV, 2013)

Assessment information

Threats

Current Threats
High Threat

Current threats from over-fishing, uncontrolled tourism, pollution, and exotic species are rated as “high”. Threats to the marine resources are increasing from both artisanal and industrial fishing. Pollution from farm run-off, boat fuel, plastic flotsam and sewage are on the increase in the Gulf, and are expected to get much worse as tourism development continues around the region Destruction of mangroves associated with the development of recreational facilities has a strong economic impact on local fishing communities and on food production in the region.

► Marine/ Freshwater Aquaculture

Low Threat
Inside site

The moderated, but continual development of shrimp farming, in conjunction with municipal and agriculture effluents has been accompanied by concern about: (a) depletion of fishing stocks, (b) reduction of mangrove forest, (c) frequent harmful algal blooms in coastal waters and shrimp ponds, and (d) water quality deterioration (Páez-Osuna et al., 2003). The nutrient load discharged from shrimp farming on the coastal waters of the Gulf of California is small in comparison with other sources (i.e. agriculture, municipal effluents); although, the impact of the nutrient load from shrimp farms in certain coastal areas can be significant and therefore must be considered in the environmental assessment together with other sources (Páez-Osuna et al, 1999)

► Water Pollution

High Threat

Pollution from farm run-off, boat fuel, plastic flotsam and sewage are on the increase in the Gulf, and are expected to get much worse as tourism development continues around the region. (WDPA, 2011; Bath and Putney, 2010).

► Tourism/ visitors/ recreation

Very High Threat
Inside site
Outside site

Until recently, there has also been an absence of government surveillance, of monitoring, closed seasons, and compliance by tourism and industrial companies. Tourists and even research scientists degrade island and coastal habitats, cause erosion, leave wastes and litter, and disturb the breeding grounds of birds and sea lions. Looting of archaeological sites, deforestation of dunes and tree-felling also occurs (WDPA, 2011)
Analysis by WWF indicated that artisanal and industrial fisheries as priority threats, along with urban and tourist development in the Gulf (Cisneros-Mata,

2010)

► Invasive Non-Native/ Alien Species

Very High Threat
Inside site

The main threat for the native species of the islands is the introduction of exotic species such as cats, rats, and goats, which are set loose on purpose or by negligence by people from tourist yachts or fishermen who camp on the islands. These introductions radically alter delicate island ecosystems. (WDPA, 2011; CONANP, 2006).

► Fishing / Harvesting Aquatic Resources

Very High Threat
Inside site
Outside site

Threats to the marine resources are increasing from both artisanal and industrial fishing. Increasing numbers of fishermen using improved equipment have established more camps on the islands. Trawling, shrimp trawling, the use of line and depth seines and harpoons, the by-catching of juvenile fish and cetaceans such as the vaquita, even the shooting of sea lions, and the overfishing of commercially important species such as the totoaba, are all contributing to the gradual degradation of this rich sea. There have been some successes, however. in Bahía de Loreto for instance, long popular for artisanal and sport fishing, both legal and illegal, industrial shrimp-trawling is now banned. (Packard Foundation, 2012; WDPA, 2011; CONANP, 2006) Currently, over 85 percent of the Gulf ’s fisheries are either at their maximum sustainable yield or overexploited (Cisneros-Mata,2010). The American Fisheries Society oficial list of North American Fishes at Risk of Extinction reports (an underestimated) 11 at-risk-species- in the GoC. Five are large serranids some endemic or nearly endemic. This species are sensitive to overharvesting because of their late maturity and formation of localized spawning aggregations. The ASF also lists the GoC, specially its northern part as 1 of 5 geographic hotspots in North America where numerous fish species are at risk. In short, the fishers of the Gulf are often overharvesting, and in some cases even depleting, their stocks (Brusca et al., Sala et al. 2004; Velarde et al. 2004).

Potential Threats

High Threat

The increasing impacts of climate change will particularly impact corals, calcifying organisms, and coastal wetlands.

▶ Chemical changes in oceanic waters, Temperature changes

High Threat
Inside site
Outside site

By 2050, climate change is expected to increase temperatures by 2 ºC, and decrease rainfall by 20% with high variability from season to season and year to hear. Sea level rise will particularly affect wetlands. Sea temperature rises will cause coral diseases and mortality, while ocean acidification will kill calcifying species (Cavasos, 2008).

Protection and management

Assessing Protection and Management

▶ Relationships with local people

Mostly Effective

The National Commission for Protected Areas (CONANP) works closely with local communities to develop livelihoods that are compatible with conservation. Years of working with the communities has lead to generally good relations. (Bath and Putney, 2010)

▶ Legal framework and enforcement

Mostly Effective

All of the islands of the property are protected areas under the General Law for Ecological Balance and Environmental Protection of Mexico (1994). In accordance with Article 44 of this Law private owners have to comply with the conservation and management provisions declared for each protected area at the time of its declaration, as well as with the regulations included in

their management plan. Thus, in practical terms all the islands of the property are protected and managed by the National Commission for Protected Areas (CONANP) often under co-management arrangements with local communities. All of the marine areas included in the nomination are federal property (SOUV, 2010). Law enforcement is carried out by the office of the Federal Attorney for Environmental Protection (PROFEPA) and the Navy (Bath and Putney, 2010; CONAP, 2006)

► Integration into regional and national planning systems

Highly Effective

The Property is well integrated in the national system of protected areas and through CONANP with regional and national planning systems. (Bath and Putney, 2010)

► Management system

Mostly Effective

Management of the property is exercised by the National Commission for Protected Areas (CONANP), a specialized agency of the Mexican Ministry of the Environment and Natural Resources (SEMARNAT). CONANP is a decentralized agency, and direct management activities for the property are implemented by CONANP's Division for the Northwest Region that has 11 operational units. Management is guided by an Integrated Management Program for the entire property (Programa de Manejo del Área de Protección de las Islas del Golfo de California) that was approved by government in 2000 and renewed in 2006. (SOUV, 2010; CONAP, 2006)
The Gulf is an area valuable to science, increasingly important for tourism, and is an important economic fishery, especially for blue shrimp, corvina, northern milkfish, sierra, manta ray, guitarfish, shark, crab and clam. To control burgeoning tourism, CONANP, local governments and the Navy enforce strict regulations. To control fisheries and the overfishing of commercial stocks, fishing in marine protected areas is prohibited. Nearly 2/3 of the marine protected areas of the Gulf have developed and published Management Programs through participatory processes. A Coalition for Sustainability in the Gulf of California brings together The National Information System for Mexican Biodiversity (CONABIO), the Mexican Foundation for the Conservation of Nature, the National Institute for Ecology,

the Guaymas Monterey Technical College, Conservation International, WWF and CEMEX. (Packard Foundation, 2012; WDPA, 2011) There is also an NGO Coalition of 23 coastal organizations for sustainability (ALCOSTA) established in 1998.

► Management effectiveness

Mostly Effective

A systematic evaluation of management effectiveness of the marine protected areas of the Gulf of California indicated that over the last 5 years of the 39 areas, 7 were “much better” managed, 25 were “better” managed, 4 were about the “same”, one was “worse”, and 2 could not be rated.

► Implementation of Committee decisions and recommendations

Highly Effective

The only Committee decisions taken for this property by the Committee were inscription in 2005, and expansion in 2007 and 2011.

► Boundaries

Highly Effective

The property is located in the Gulf of California in northwestern Mexico and covers an area extending from the Colorado River delta in the north to the Islas Marías 1,400 km to the south. It comprises 244 scattered islands in eight groups. Most of the boundaries are marine and designated by geographic coordinates. Where needed, terrestrial boundaries are demarcated. (WDPA, 2000; CONAP, 2006)

► Sustainable finance

Mostly Effective

The annual budget for management of the property is supported by the federal government from 3 major accounts, international and national project funding, the Mexican Protected Areas Trust Fund, a specific Trust Fund for the Marine Protected Areas of the Gulf of California, and public use fees. The support of trust funds, and the diversity of other funding sources, is a good indicator that financing for the property can be sustained over the long run.

(Packard Foundation, 2012; WDPA, 2011; SOUV, 2010)

► Staff training and development

Mostly Effective

Regular training of staff is planned and implemented as part of the Management Program for the Gulf of California. Sources of expertise and training are provided by 6 Mexican, 4 U.S., and 4 other international sources. (Packard Foundation, 2012; WDPA, 2011; CONANP, 2006)

► Sustainable use

Some Concern

CONANP works closely with local communities to assure that their use of natural resources is sustainable, and roughly about1/3 of the annual budget goes to supporting community projects. (Packard Foundation, 2012; WDPA, 2011; Bath and Putney, 20010; CONANP, 2006)

► Education and interpretation programs

Highly Effective

Education programs are developed and implemented as part of the integrated Management Program for the property (Packard Foundation, 2012; WDPA, 2011; Bath and Putney, 20010; CONANP, 2006)

► Tourism and interpretation

Mostly Effective

Visitation is increasing especially near the city of La Paz, and the number is increasing. Sport fishing
both by tourist service companies and independents is well established in the central and southern
areas from La Paz and Loreto. Adventure and ecotourism groups come individually and in guided groups and cruises to watch whales and nesting birds, to skin-dive, kayak, sail, camp and trek. Guidelines for tourism and ecotourism, tourist
information and permits are obtainable at the regional and local offices of CONANP. There is an Orientation

Center at Bahía Kino opposite Tiburón. (WDPA, 2011)

► Monitoring

Mostly Effective

A system for monitoring key indicators of the state of conservation has been created. The indicators include the changes in the populations of indicator species, the degree of change to habitat, the area converted to sustainable use, and the number of people following sustainable practices. (CONANP, 2012; WDPA, 2011)

► Research

Highly Effective

Almost all major oceanographic processes occurring in the planet's oceans are present in the Gulf of California, which gives it extraordinary importance for the study of marine and coastal processes. The islands are seen as natural laboratories for the examining of speciation, colonization, interaction and adaptation among species; also for geological and evolutionary research. MacArthur and Wilson's theory of island biogeography was tested there. Between 1994-6 an archaeological project on Isla Espíritu Santo and I. Partida uncovered 127 shelters, camps, shell middens, funeral caves and cave paintings. Universities in northwest Mexico and southwest U.S.A. work from field stations at Bahía de los Angeles on the peninsula, Isla Rasa in the San Lorenzo archipelago, on Isla Isabel and at Bahía Kino and Guyamas on the mainland. The National University of Mexico has monitored seabird populations on Isla Isabel since 1981; the Universities of Nayarit and Guadalajara also use the island's excellent opportunities for research. Much remains unknown but numerous research projects are in hand. Much information is available although it is scattered. Research will also be promoted by a new South Californian Fund for Protected Natural Areas. Research is also supported by a number of NGOs working in the Gulf

of California, mainly WWF, CI, TNC and PRONAT (WDPA, 2011; CONAP, 2006)

Overall assessment of protection and management

Mostly Effective

The property has a sound management system guided by an Integrated Management Program for the entire property. The budget is supported by the federal government and a variety of other funding sources, including international funding. Overall, protection and management of the property is mostly effective. The source of great concern is with respect to the many and varied threats from outside the property.

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

Some Concern

The Management Program for the property takes notice of the impacts to the Gulf of California coast from “upstream” urban and industrial areas. Given the huge number and immensity of impacts, most attention is focused on wetlands since they are the breeding and nursery habitats of much of the Gulf’s fish. The resources available for this large task are extremely limited in comparison to the immensity of the problem (CONANP, 2006)

▶ Best practice examples

1. Development of a dedicated trust fund for long-term management of the property.
2. A single integrated management program for a complicated serial site with 900 islands and 11 clusters of protected areas.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► Striking natural beauty

Good
Trend:Stable

The aesthetic values of the site have been well preserved.

► A natural laboratory for the study of speciation and oceanographic processes

Data Deficient
Trend:Data Deficient

Data deficient

► Diversity of terrestrial and marine life

Good
Trend:Stable

CONANP has selected biological monitoring indicators to use in the evaluation of the impacts of management. The species selected are the California sea lion and brown pelicans, and their populations in the property have been measured annually since 1994. A report in 2009 shows the sea lion population is now slightly lower that in ’94, while the Brown Pelicans populations have increased slightly. (CONANP, 2009). Thus, though populations sizes vary year to year, the average is relatively consistent, indicating that in general the health of the marine ecosystem has been conserved.

Summary of the Values

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

Good

Trend: Data Deficient

Biological indicators measured consistently over a period of 14 years indicate that the biological values of the property have been successfully conserved until now.

Additional information

Key conservation issues

▶ Over-fishing

Local

Threats to the marine resources are increasing from both artisanal and industrial fishing. Increasing numbers of fishermen using improved equipment have established more camps on the islands. Trawling, shrimp trawling, the use of line and depth seines and harpoons, the by-catching of juvenile fish and cetaceans such as the vaquita, even the shooting of sea lions, and the overfishing of commercially important species such as the totoaba, are all contributing to the gradual degradation of this rich sea. .(Packard Foundation, 2012; WDPA, 2011; CONANP, 2006))

▶ Pollution

Local

Pollution from farm run-off, boat fuel, plastic flotsam and sewage are on the increase in the Gulf, and are expected to get much worse as tourism development continues around the region. (WDPA, 2011; Bath and Putney, 2010).

▶ Uncontrolled tourism

Local

Until recently, there has been an absence of government surveillance, monitoring, and regulation of tourism. Tourists and even research scientists degrade island and coastal habitats, cause erosion, leave wastes and litter, and disturb the breeding grounds of birds and sea lions. Looting of archaeological sites, deforestation of dunes and tree-felling also occurs (WDPA, 2011)

▶ Introduction of exotic species on islands

Local

The main threat for the native species of the islands is the introduction of

exotic species such as cats, rats, and goats, which are set loose on purpose or by negligence by people from tourist yachts or fishermen who camp on the islands. These introductions radically alter delicate island ecosystems. (WDPA, 2011; CONANP, 2006).

Benefits

Understanding Benefits

▶ Is the protected area valued for its nature conservation?

Inscription of the site as a World Heritage property is a testimony to the values ascribed to conservation of the site at the national and international levels.

▶ Importance for research, Contribution to education

Almost all major oceanographic processes occurring in the planet’s oceans are present in the Gulf of California, which gives it extraordinary importance for the study of marine and coastal processes. The islands are seen as natural laboratories for the examining of speciation, colonization, interaction and adaptation among species; also for geological and evolutionary research. (WDPA, 2011)

▶ Outdoor recreation and tourism

The economic benefits derived from the site include major commercial, artisanal, and recreational fishing, and tourism.

Summary of benefits

Conservation are the most significant benefits at the national and international elvel, while at the local level the economic benefits are most valued.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Fundación Mexicana para la Conservación de la Naturaleza		Funding of projects by government agencies and NGOs to improve the conservation and management of the property, and support local communities to develop sustainable livelihoods.
2	David and Lucile Packard Foundation		Funding implementation of the Integrated Program for Marine Protected Areas of the Gulf of California.
3	WWF Mexico		Gulf of California Program WWF works to ensure that the Gulf remains a healthy and productive marine area that can support local communities as well as the abundant wildlife within and near its waters. We have helped create several protected areas within the Gulf, and have worked to protect areas such as Cabo Pulmo National Marine Park from any future coastal development.
4	Conservación del Territorio Insular Mexicano, A.C. (ISLA)		Assessment of the sea cucumber in the marine protected areas in the Bahía de los Angeles area. Working the sport fishing assessment with special attention to totoaba. Assessing local eco-tourism companies to obtain a certification under the NMX-AA-133-SCFI-1996. Eco-tourism Sustainability Norm.

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