IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 12 September 2014

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

Ningaloo Coast

SITE INFORMATION

Country:
Australia
Inscribed in: 2011
Criteria:
(vii) (x)

Site description:
The 604,500 hectare marine and terrestrial property of Ningaloo Coast, on the remote western coast of Australia, includes one of the longest near-shore reefs in the world. On land the site features an extensive karst system and network of underground caves and water courses. Annual gatherings of whale sharks occur at Ningaloo Coast, which is home to numerous marine species, among them a wealth of sea turtles. The terrestrial part of the site features subterranean water bodies with a substantial network of caves, conduits, and groundwater streams. They support a variety of rare species that contribute to the exceptional biodiversity of the marine and terrestrial site © UNESCO

SUMMARY

2014 Conservation Outlook

Good

This recently inscribed property including an important marine element as well as terrestrial element is in good condition with strong protection and management in place. The greatest threats are from climate change, increasing visitation and associated pressures, such as recreational fishing and there are always risks which cannot be predicted, such as an accidental oil spill or extreme weather events. While measures are in place to avoid and if necessary mitigate oil spills, it would be better if there was no chance of them occurring in the first place. Some ongoing threats such as invasive species and increasing tourism also require continued intervention and a strong monitoring programme. As the Ningaloo Coast is also well-protected by its remoteness and low population density, the conservation outlook is assessed as good.

Current state and trend of VALUES

Good
Trend: Data Deficient

As this property is recently inscribed (2011), trends in WH values cannot yet be evaluated. While invasive species, pastoralism and military activities have probably had an impact on the property’s historical conservation state for its terrestrial values, its marine values have probably remained in a good state, however, a heat wave in 2011 caused coral bleaching in some reefs.

Overall THREATS

Low Threat

The Ningaloo Coast benefits from its remoteness and low population density affording it a high degree of natural protection. However, increase in seawater temperatures has already had some impact on the site and some fish species might be under pressure from recreational fishing. As the area is exposed to

sporadic cyclones and with oil drilling not far from the property, risks of oil spills remains the greatest threat, as well as associated shipping. However, careful management with risk assessment and emergency plans are in place thus the threats to the property are currently of low concern, but future impacts of climate change and increasing visitation are hard to predict.

Overall PROTECTION and MANAGEMENT

Highly Effective

The Ningaloo Coast has an excellent range of management plans and qualified staff. Monitoring is required to ensure that the WH values are maintained. Programmes ensuring that invasive species are controlled, that emergency preparation in the case of an accidental oil spill is kept up, and that any increase in tourism or climate change will not have an impact on natural values need to be continued. Apart from a need for increased staff and funding (noting that there is never enough), the protection and management of this property can be evaluated as highly effective.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Exceptional landscape combining arid terrestrial and marine features**
  Criterion:(vii)

  The landscapes and seascapes of the property are comprised of mostly intact and large-scale marine, coastal and terrestrial environments. The lush and colourful underwater scenery provides a stark and spectacular contrast with the arid and rugged land (SoOUV, 2011; Nomination, 2010; IUCN, 2011).

- **Largest documented aggregation of whale sharks in the world**
  Criterion:(vii)

  The property supports rare and large aggregations of Whale Sharks (Rhincodon typus) along with important aggregations of other fish species and marine mammals. The aggregations in Ningaloo following the mass coral spawning and seasonal nutrient upwelling cause a peak in productivity that leads approximately 300-500 whale sharks to gather, making this the largest documented aggregation in the world (SoOUV, 2011; Nomination 2010; IUCN, 2011).

- **High diversity of marine fish**
  Criterion:(x)

  High marine diversity of more than over 700 reef fish species and large number of marine pelagic species including Whale Sharks (SoOUV, 2011; Nomination, 2010; IUCN, 2011). Manta Rays are abundant in the reserve and are found on the outer reef. Nineteen species of shark including the Oceanic

White Tip Shark, Tiger Shark, Blue Shark and Grey Reef Shark also occur in deeper waters. The open ocean supports large aggregations of fish, including Trevally, Tuna, Mackerel, Marlin and Sailfish, many of which are found much closer to shore than in other parts of the world due to the narrow continental shelf (Nomination, 2010; IUCN, 2011).

► High diversity of reptiles

Criterion:(x)

Situated at an ecotone between tropical and temperate waters, the Ningaloo Coast hosts an unusual diversity of marine turtle species with an estimated 10,000 nests deposited along the coast annually (SoOUV, 2011; Nomination, 2010; IUCN, 2011). Marine reptiles include six recorded marine turtle species (although only 3 species nest in significant numbers), and the Olive Sea Snake. The Carnarvon Xeric Scrub ecoregion is recognized for its high levels of species richness and endemism, particularly for birds and reptiles (SoOUV, 2011; Nomination, 2011; IUCN, 2011).

► High diversity of marine mammals

Criterion:(x)

A total of 20 cetacean species have been recorded in the property with frequent observations of dugong and dolphins (Humpback and Indo-Pacific) in the lagoons and other marine areas, and eight species of whales: Notable are the presence of Humpback Whales migrating through twice a year on their annual migration between calving grounds off the Kimberley coast and feeding grounds in Antarctica. Blue and Sperm Whales have been observed in the offshore regions of the nominated area, as have Minke, Bryde's, Southern Right and Killer Whales (Nomination, 2010; IUCN, 2011).

► High diversity of cave (troglomorphic) diversity

Criterion:(x)

The combination of relict rainforest fauna and small, fully aquatic invertebrates within the same cave system is exceptional. The subterranean fauna of the peninsula is highly diverse and has the highest cave fauna (troglomorphic) diversity in Australia and one of the highest in the world (SoOUV, 2011; Nomination, 2010; IUCN, 2011).

▶ **Noteworthy arid-zone vascular flora**
Criterion:(x)

Terrestrial arid-zone vascular plant diversity is noteworthy (SoOUV, 2011; Nomination, 2010).

▶ **High diversity of marine invertebrates and algae**
Criterion:(x)

More than 50 per cent of Indian Ocean coral species (over 300 species in 54 genera), roughly 650 mollusc species, around 600 crustacean species, 155 sponge species and an undocumented number of echinoderms including 25 new to science together provide an exceptional diversity of marine invertebrates, supplemented by more than 1,000 species of marine algae (SoOUV, 2011; Nomination, 2010; IUCN, 2011).

Other important biodiversity values

▶ **Noteworthy birds**

With about 200 bird species in the property, eleven of these are at the northern or southern limits of their range, or are otherwise isolated from their main populations. Examples include the Western Bowerbird (Chlamydera guttara), Rufous-crowned Emu-wren (Stipiturus ruficeps) and the Painted Firetail Finch (Emblema picta) (Nomination, 2010). The Cape Range Peninsula belongs to an arid ecoregion recognized for its high levels of species richness and endemism, particularly for birds and reptiles (SoOUV, 2011; IUCN, 2011).

Assessment information

Threats

Current Threats

Low Threat

Increase in seawater temperatures has already had some impact on the site and some fish species might be under pressure from recreational fishing. As the area is exposed to sporadic cyclones and with oil drilling not far from the property, risk of oil spills remains a high threat, especially if an increased number of drilling sites are built in the surrounding area. However, as the property appears to be experiencing little impact from quite a high number of threats, mainly due to good management, the area can be assessed as under low threat.

► Livestock Farming / Grazing

Very Low Threat
Inside site
Outside site

Minor impact, trend is decreasing. Managed on a sustainable basis under the Pastoral Lands Board (Nomination, 2010).

► War, Civil Unrest/ Military Exercises

Very Low Threat
Inside site

Learmonth Air Weapons Range Facility covering about 18,954 hectares within the property is used for military exercises and as a bombing range. It includes an ancient reef-complex and cave fauna of exceptional importance. It was one of Australia's most active bombing ranges until around 1990 (IUCN, 2011).

► Fire/ Fire Suppression

Low Threat
Inside site

Fire, historically part of local indigenous management, is a potential threat to the terrestrial vegetation and must be monitored and controlled (IUCN, 2011). Cape Range National Park management plan details the fire

management regime (Nomination, 2010; CALM, 2005).

► Solid Waste

Very Low Threat
Inside site

Minor risk, restrictions in place with ongoing monitoring and education (Nomination, 2010).

► Habitat Shifting/ Alteration

High Threat
Inside site
Outside site

Sea level rise and increases in seawater temperatures associated with climate change have had some negative impact on the property. However, the good overall integrity suggests a higher resilience than in disturbed systems under additional stress. Still, careful monitoring is highly recommended (IUCN, 2011). Strategies to increase resilience of ecosystems underway, but risk is expected to increase (Nomination, 2010).

► Commercial/ Industrial Areas

Very Low Threat
Outside site

The Ningaloo Coast is situated in an isolated location with a small regional population and insignificant urban development, so direct threats from human activities are low. The arid climate results in extremely low levels of runoff. In addition, the Ningaloo Coast Regional Strategy Carnarvon to Exmouth, a 30-year strategic land-use plan, limits significant development to the towns of Exmouth and Carnarvon, both of which are outside the nominated area (Nomination, 2010).

► Industrial/ Military Effluents

Data Deficient
Inside site
Outside site

Oil pollution could result from accidents, including accidents provoked by natural disasters or human or technical errors. There are important off-shore

oil and gas resources near the property. An oil exploration has been licensed in permit WA-384-P roughly 50 km offshore of North West Cape. Given that offshore petroleum extraction is expected to increase in adjacent waters, accidental discharge of oil or other pollutants poses a significant threat to the marine life and ecosystems of the Ningaloo coast. Although an integrated national contingency plan is in place and oil spill response equipment has been pre-deployed at Exmouth, the nominated coastline is too long and remote to afford any reasonable protection from an oil spill (Nomination, 2010; IUCN, 2011).

► Tourism/ Recreation Areas

High Threat
Outside site

Although tourism is on the increase, associated threats (damage to vegetation, illegal fishing, sewage and waste disposal and disturbance to wildlife) are mitigated via comprehensive management programs and an overall tourism development strategy. Recreational boat launching facilities are limited and strictly controlled. Future concerns include increased water demand leading to water abstraction with effects on the fragile subterranean aquatic habitats, but alternatives are under investigation (Nomination, 2010; IUCN, 2011).

► Fishing / Harvesting Aquatic Resources

High Threat
Inside site
Outside site

Small-scale commercial and recreational fishing is permitted within the property (IUCN, 2011). Commercial fishing activities and associated impacts are strictly regulated and effectively controlled by a systematic compliance and enforcement regime, including a zoning system that incorporates no-take sanctuary zones (Nomination, 2010). However, declines in the abundance of some reef fish (have been recorded and might be due to recreational fishing pressure. There is also increased fishing pressure from increased access through development of boat ramps (a necessary safety measure) and also increasing boat size (Confidential comment, 2014).

► Mining/ Quarrying

Low Threat
Inside site

Limestone quarrying currently taking place in an extraction lease at a modest scale is not posing a risk (IUCN, 2011). Proposed activities that have a significant impact on values are subject to assessment process (Nomination, 2010).

► Invasive Non-Native/ Alien Species

High Threat
Inside site

Invasive alien species, most importantly foxes, cats, goats and weeds on land and some marine species are satisfactorily monitored and controlled (IUCN, 2011) and the management regime has resulted in large reduction in pest numbers (Nomination, 2010).

► Storms/Flooding

Very Low Threat
Inside site
Outside site

Occasional cyclone events (sporadic, around every three to five years) are unlikely to destroy World Heritage values. Natural disturbance through severe storm and cyclone events is important in maintaining coral species diversity in the world’s coral reefs: disturbance destroys the faster-growing branching corals, and allows slower-growing massive corals to survive. Risk preparedness strategies for natural disasters are in place, with extensive monitoring and strategies to ensure resilience of plant and animal communities (Nomination, 2010). However, there is a risk from the increasing intensity and frequency of cyclones with decreasing recovery times for corals between them.

Potential Threats

Data Deficient

The greatest potential threat is the further unknown effects of climate change

that could result in sea level rise, the risk of catastrophic fire, change in cyclone frequency, drought, or change in the temperature of seawater, all of which would impact WH values greatly. Increasing number of oil drilling sites or future expansion of military activities pose increased potential threats. While it is said that the property's large size and good integrity makes the property resilient, this is debatable.

► War, Civil Unrest/ Military Exercises

Low Threat
Inside site

Future bombing activities on the Learmonth Air Weapons range, in particular to the Bundera sinkhole which is located on Defence Land. A 2009 review of Department of Defence ranges recommended its continued use in the future. Although Defence Land within the World Heritage site is subject to the EPBC Act, the act may be countermanded if this is "in the interests of Australia's defence or security, or in relation to a national emergency" (IUCN, 2011). The Department of Defense also plays an environmental Management role in the area protecting estate and participating in feral animal control programs. They do have environmental management programs for the area.

Protection and management

Assessing Protection and Management

► Management system

Mostly Effective

Given the various governmental levels and agencies involved and the differentiation between terrestrial and marine parts of the property, effective coordination of the multiple plans in an overall management framework is critical. Full cooperation between agencies, including fisheries, and two local government bodies is necessary to ensure management and law enforcement in the vast and remote marine and terrestrial areas (SoOUV, 2011). With the exception of the pastoral leaseholds, all areas within the nominated property fall under a management plan (IUCN, 2011).

► Relationships with local people

Mostly Effective

Establishing and maintaining positive relationships with neighbouring landowners to ensure management practices are complementary to the protection of World Heritage values is essential, and an ongoing challenge (Lukeman, 2005). The Ningaloo Coast World Heritage Advisory Committee has been established and had its first meeting February 2014. This Committee consists of 11 stakeholders from the local and broader community including a member who is a pastoral leaseholder (IUCN Consultation, 2014).

► Legal framework and enforcement

Highly Effective

The entire, mostly state-owned property is comprehensively protected and managed, including by an overarching strategic management framework. (SoOUV, 2011; Nomination, 2010; IUCN, 2011).

► Integration into regional and national planning systems

Highly Effective

Appears highly effective. Local governments also play a key role in planning

► Management effectiveness

Mostly Effective

There is a need for ongoing management of fisheries and visitation and careful planning of resource extraction with corresponding monitoring and disaster preparedness to protect the values of the property (SoOUV, 2011). (IUCN, 2011).

► Implementation of Committee decisions and recommendations

Data Deficient

n.a. Property has only just recently been inscribed (2011).

► Boundaries

Mostly Effective

Boundaries are sufficient to ensure integrity of the property. Some areas of the nominated property were referred back to the State Party to allow further collaboration with stakeholders, including holders of private leases within these areas. These areas could be considered via a subsequent minor boundary modification (WHC Decision 35COM 8B.7).

► Sustainable finance

Mostly Effective

Funding from federal and state levels and staffing as of the time of inscription would benefit from increases (SoOUV, 2011). State government expends approximately AU$ five million annually on staff, offices, maintenance, enforcement, monitoring, research and general management. A further AU$ 700,000 is allocated yearly to promote tourism and once-off funding is occasionally provided for specific projects, such as the goat eradication program. DEWHA provides approximately AU$ 100,000 annually for the day-to-day management of the Commonwealth Marine Park. The Department of Defence occasionally allocates funding for special conservation projects (e.g. protection of Bundera sinkhole). The pastoralist leaseholders reported to provide private funds for the conservation and management of their land along the 2 km coastal strip (IUCN, 2011).

► Staff training and development

Some Concern

At the time of inscription the Department of Environment and Conservation (DEC), currently Department of Parks and Wildlife, employed 33 staff members in the Exmouth district, with a key focus in the northern portions and lower management presence in the southern portions of the reserveIt was noted that unless staff numbers and funding were significantly augmented, the additional management responsibility of the eastern foothills of the Cape Range, and particularly the 2 km coastal strip, could exceed the management capacity in the foreseeable future (IUCN, 2011).

► Sustainable use

Mostly Effective

There is a need for ongoing management of fisheries to protect the values of the property (SoOUV, 2011). Although an extensive prawn fishery exists in Exmouth Gulf, it is reportedly sustainable and subject to strict fishery regulations (IUCN, 2011).

► Education and interpretation programs

Highly Effective

Visitor education programmes are well developed (Nomination, 2010).

► Tourism and interpretation

Highly Effective

Department of Parks and Wildlife (DPaW) has been working with the Shire of Exmouth and commercial tourism operators to begin developing and incorporating World Heritage interpretive and promotional material into brochures, websites and tourist signage at major tourist attractions including the Vlamingh lighthouse, with significant upgrades to the Milyering Visitor Centre of which stage 1 has now been completed (IUCN consultation, 2013 and 2014).

► Monitoring

Highly Effective

The Department of Parks and Wildlife (DPaW) has a monitoring program through the Western Australian Marine Monitoring Program (WAMMP) with sites at Ningaloo (Confidential consultation, 2014).

► Research

Highly Effective

A long list of research projects is provided in the nomination (2010).

Overall assessment of protection and management

Highly Effective

The Ningaloo Coast has an excellent range of management plans and qualified staff. Monitoring is required to ensure that the WH values are maintained. Programmes ensuring that invasive species are controlled, that emergency preparation in the case of an accidental oil spill is kept up, and that any increase in tourism or climate change will not have an impact on natural values need to be continued. Apart from a need for increased staff and funding (noting that there is never enough), the protection and management of this property can be evaluated as highly effective.

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

Mostly Effective

The greatest threats from outside the site are oil and gas extraction , with some concerns relating to commercial fishing both of which appear to be effectively controlled as legislation is in place to ensure activities outside of the site will not threaten WH values. The difficulty is analysing levels of risk, for example the likelihood that an off-shore drilling rig could have an accident. Management is doing its best to mitigate the effects of climate change.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ Exceptional landscape combining arid terrestrial and marine features

Good
Trend:Data Deficient

Property inscribed in 2011. While invasive species, pastoralism and military activities have probably had an impact on the property’s historical

conservation state for its terrestrial values, its marine values have probably remained the same.

▶ Largest documented aggregation of whale sharks in the world

Good
Trend:Data Deficient

Property inscribed in 2011, probably little modification from best-recorded historical conservation state.

▶ High diversity of marine fish

Good
Trend:Data Deficient

There appears to have been a distinct decline in reef fish abundance from the best recorded historical state (Confidential consultation, 2014).

▶ High diversity of reptiles

Good
Trend:Data Deficient

Property inscribed in 2011, probably little modification from best-recorded historical conservation state.

▶ High diversity of marine mammals

Good
Trend:Data Deficient

Property inscribed in 2011, probably little modification from best-recorded historical conservation state.

▶ High diversity of cave (troglomorphic) diversity

Good
Trend:Data Deficient

Property inscribed in 2011, probably little modification from best-recorded historical conservation state.

▶ Noteworthy arid-zone vascular flora

Good
Trend:Data Deficient

Property inscribed in 2011.Iinvasive species, pastoralism and military activities have probably had an impact on the property's historical conservation state on its flora, but as the area is still reported to be in a good state, this should probably be taken as the baseline for future evaluations.

► High diversity of marine invertebrates and algae

Good
Trend:Data Deficient

Property inscribed in 2011, probably little modification from best-recorded historical conservation state.

Other important biodiversity values

► Noteworthy birds

With about 200 bird species in the property, eleven of these are at the northern or southern limits of their range, or are otherwise isolated from their main populations. Examples include the Western Bowerbird (Chlamydera guttara), Rufous-crowned Emu-wren (Stipiturus ruficeps) and the Painted Firetail Finch (Emblema picta) (Nomination, 2010). The Cape Range Peninsula belongs to an arid ecoregion recognized for its high levels of species richness and endemism, particularly for birds and reptiles (SoOUV, 2011; IUCN, 2011).

Summary of the Values

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

Good

Trend: Data Deficient

As this property is recently inscribed (2011), trends in WH values cannot yet be evaluated. While invasive species, pastoralism and military activities have probably had an impact on the property's historical conservation state for its terrestrial values, its marine values have probably remained in a good state, however, a heat wave in 2011 caused coral bleaching in some reefs.

► Assessment of the current state and trend of other important

biodiversity values

Good

Trend: Data Deficient

V9: Noteworthy birds. Although birds were not included in the SoOUV for criterion x, they were assessed as noteworthy in the evaluation and merit monitoring in future.

Additional information

Key conservation issues

▶ Tourism

Local

Impacts of tourism (damage to vegetation, illegal and legal fishing, sewage and waste disposal, increased water use and disturbance to wildlife) may increase as the property becomes better known.

▶ Potential oil spills

Local

Oil pollution could result from accidents, including accidents provoked by natural disasters which may increase due to climate change. Shipping associated with this also poses other risks, such as running aground and collisions with wildlife.

▶ Climate change

Local

Potential effects of climate change have been studied for another WH property of Shark Bay on Australia’s west coast. Increased sea temperatures, rising sea levels and large storm-surge events pose a significant threat to marine and coastal ecosystems. Reduced rainfall, higher land temperatures and increased risk of extreme weather events such as flash flooding and cyclonic activity may cause changes in the abundance and distribution of native flora and fauna populations or alter underlying geological and geomorphologic values (ANU,

2009).

▶ Invasive species

Local

Although feral animals and invasive plant species that impinge on natural values are reported to be well-controlled, the problem will never disappear and continued effort and management is required to ensure invasives do not become a greater problem and to prevent any new invasions.

▶ Recreational fishing

Local

Recreational fishing could impact the marine values, in particular certain species.

▶ Military training site

Local

Increased shelling could damage a number of terrestrial values.

▶ Fire

Local

Uncontrolled fire or inappropriate fire regimes, in part due to climate change, could threaten a number of WH values.

Benefits

Understanding Benefits

▶ Is the protected area valued for its nature conservation?

A significant proportion of the whale shark population is secure from threats such as fishing. Large aggregations of other marine vertebrates have also been recorded at Ningaloo, including Manta Rays, Humpback Whales and Black-tip Reef Sharks, which are in serious decline elsewhere.

▶

Does management of the site provide jobs (e.g. for managers or rangers)?

Provision of revenue and jobs through tourism and park management.

▶ **Outdoor recreation and tourism**

Beneficiaries include local and regional businesses that rely on tourism, and the tourists themselves.

▶ **Fishing areas and conservation of fish stocks**

Area of mangroves provides a nurse site for fish within and outside the protected area. Well-established sanctuary zones can have a positive effect on maintaining populations of fished species.

▶ **Access to drinking water, Commercial wells**

The water supply for Exmouth is obtained from extraction from an aquifer underneath the WHA. Uses bottling and municipal drinking water.

▶ **Wilderness and iconic features**

There are aboriginal burial grounds in the site that would be considered sacred.

▶ **Sustainable extraction of materials (e.g. coral, shells, resin, rubber, grass, rattan, etc)**

Coral and specimen shell collecting is allowed in certain areas with a permit.

▶ **Importance for research, Contribution to education**

Important area for research, both marine and terrestrial, as well as archaeological.

▶ **Soil stabilisation, Coastal protection, Flood prevention, Water provision (importance for water quantity and quality)**

Large natural terrestrial and marine areas provide important environmental services including coastal protection, soil stabilisation, wetland protection,

and groundwater renewal.

Summary of benefits

The property benefits the local and global community for protecting wildlife and wilderness values and providing environmental services. Its mangrove areas and no-fish sanctuary zones provide a nursery for fisheries outside of the property, and tourism provides important benefits to the tourist as well as revenue and jobs to the local population. Park management also provides jobs, and research undertaken in the property increases scientific knowledge and education.
* The nomination (2010) notes that there are fewer than 37 permanent inhabitants within the property and that the towns of Exmouth and Carnarvon, with a population of some 5,300 people, both lie outside the property. Therefore benefits to the “community within site” have been lumped with the benefits to the “community outside site” even if a few members of the community live within the property.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	ECOCEAN Inc.		Conservation of whale sharks around the world, working in collaboration with other nongovernmental organisations such as Earthwatch, individual volunteers in the community, and DEC in Australia, as well as scientists in the United States.
2	The Department of Defence		Project to protect Bundera Sinkhole noted in Nomination (2010). See http://www.cavedivers.com.au/bundera-sinkhole for notes on importance of this sinkhole.
3	Department of Parks and Wildlife		Goat control program.

№	Organization/ individuals	Project duration	Brief description of Active Projects
4	Department of Parks and Wildlife		Regional turtle conservation project.
5	Department of Parks and Wildlife		Extensive research

Compilation of potential site needs

№	Site need title	Brief description of potential site needs	Support needed for following years
1	N.A.	Further research into impacts of fishing	
2	N.A.	Increased interpretation and education – both on the ground and online	

REFERENCES

№	References
1	ANU (Australian National University) (2009). Implications of climate change for Australia's World Heritage properties: A preliminary assessment. A report to the Department of Climate Change and the Department of the Environment, Water, Heritage and the Arts by the Fenner School of Environment and Society, the Australian National University. 207 pp.
2	CALM (Western Australian Department of Conservation and Land Management) (2005). Management Plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area 2005–2015. Management Plan 52, CALM, Perth, Australia.
3	IUCN (2011). IUCN Technical Evaluation. Ningaloo Coast (Australia).
4	Lukeman, S. (2005). Lessons Learnt from the Shark Bay World Heritage Area, a report prepared for the Gascoyne Development Commission. Gascoyne Development Commission, Carnarvon.
5	M. Depczynski et al. (2012). Bleaching, coral mortality and subsequent survivorship on a West Australian fringing reef. Coral Reefs (2013) 32:233–238
6	Nomination (2010). Ningaloo Coast World Heritage Nomination. Department of the Environment, Water, Heritage and the Arts, Australia.
7	SoOUV (2011). Statement of Outstanding Universal Value Ningaloo Coast. In Decision 35COM 8B.7