Hanifaru Marine Protected Area Conservation Action Plan , Baa Atoll, Maldives 2025 to 2030



BAA ATOLL unesco BIOSPHERE RESERVE

Ministry of Tourism & Environment

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“Maldives is a nation with a long history of living in harmony with nature. Our environment and biodiversity remain the foundation of our economy, socio-economic development, and well-being. Baa Atoll UNESCO Biosphere Reserve epitomizes this connection.”

“Since its designation as a UNESCO Biosphere Reserve, the Reserve has not only been a source of pride for the people of the atoll but has also been a key driver of socio-economic development.

It is then imperative that we not only better understand the environmental and ecological conditions in the Reserve, but also enhance our efforts towards protection, conservation, and sustainable development.”

The Hanifaru Marine Protected Area serves as a cornerstone of the Baa Atoll UNESCO Biosphere Reserve.

The unique oceanographic conditions within Hanifaru Bay create an ideal habitat that supports critical feeding aggregations of reef manta rays and whale sharks, attracting thousands of visitors annually who seek to experience this natural wonder.

This site is the first marine protected area in Maldives with a management plan and has provided an example for the rest of Maldives.

Despite this, Hanifaru MPA faces numerous challenges, including illegal fishing, habitat degradation, and climate change impacts.

This document addresses these threats through a comprehensive framework that emphasizes sustainable practices and stakeholder engagement.

The vision is clear: by 2030, we aim to see thriving populations of manta rays and whale sharks coexisting harmoniously with local communities, by focusing on enhancing visitor awareness, ensuring equitable participation in decision-making processes, and implementing sustainable governance strategies.

This document outlines our commitment to preserving one of the world's most vital marine ecosystems supporting significant populations of reef manta rays and whale sharks.

Together, we can safeguard the future of Hanifaru MPA, ensuring that it remains a source of pride and ecological wealth for generations to come.

THORIQ IBRAHIM

MINISTER OF TOURISM & ENVIRONMENT

Executive Summary Introduction

Hanifaru Marine Protected Area (MPA) was designated in 2009 under the Protection and Preservation of Baa Atoll Hanifaru Marine Protected Area (Regulation 2012/R-23) which makes provisions for the management of Hanifaru MPA. It makes up one of the core areas of the Baa Atoll UNESCO Biosphere Reserve.

The MPA was established to protect Hanifaru Bay and the megafauna that rely on the site, specifically the seasonal feeding aggregations of reef manta ray *(Mobula alfredi)* and whale shark *(Rhincodon typus)*.

The Hanifaru MPA Conservation Action Plan is an accompanying document to Regulation 2012/R-23. It sets out ways to ensure effective management of the MPA over the next 5 years. It covers the period 2025 – 2030 inclusive.

It has been informed by a Protected Area Management Effectiveness (PAME) evaluation that was conducted in 2022 and a series of meetings and workshops held in 2023 to ascertain the views, opinions and priorities of stakeholders.

The outcomes of these highlighted progress to date and identified actions to improve management of the Hanifaru MPA over the next 5 years.

Key values of the MPA

1 AGGREGATIONS OF MANTA RAYS AND WHALE SHARKS

Hanifaru Bay is a globally significant site for reef manta rays with up to 1,500 individuals visiting the site seasonally, to feed and breed.

It also attracts aggregations of whale sharks during the southwest monsoon, primarily to feed.

2 UNIQUE OCEANOGRAPHIC & ECOLOGICAL PROCESSES

Hanifaru MPA has a unique geographical position in Maldives. The southwest monsoonal currents move deep nutrient rich water towards the surface where they create a plankton bloom.

This bloom is confined within Hanifaru Bay, creating a funnelling phenomenon which in turn attracts the aggregations of reef manta rays and whale sharks.

3 ECONOMIC VALUE ASSOCIATED WITH TOURISM

Hanifaru Bay has gained an international reputation as one of the best places in the world to experience swimming with manta rays and whale sharks. As a result, marine tourism has increased in popularity over the last decade.

It was estimated that Hanifaru MPA generated an annual revenue of US$241,000 in 2006–2008.

Threats to the MPA

The Regulation for the Protection and Preservation of Baa Atoll Hanifaru Area (2012/R-23) and subsequent amendments provide a comprehensive framework for the management of human activities within Hanifaru MPA.

Despite this, some threats to the marine environment and its biodiversity remain.

1. DEVELOPMENT ACTIVITIES AROUND MPA:

Land reclamation and other construction activities related to tourism developments has resulted in vegetation loss and habitat degradation; there is also shoreline erosion on many of the islands.

2. ILLEGAL FISHING:

The taking of any living organisms from the core area of the MPA is prohibited. Illegal fishing still occurs, however; in particular, illegal bait fishing (for anchovies and sprats) within Hanifaru Bay was identified as a threat by stakeholders.

3. BOAT TRAFFIC IN & AROUND THE MPA:

Most manta-tourist interactions only complied to recommended guidelines 44% of the time[1].

Most do not cause a response from the manta rays, however the more intrusive behaviours (for example, intentional touching/obstructing and chasing manta rays) cause a flight response.

[1] Murray, A., Garrud, E., Ender, I., Lee-Brooks, K., Atkins, R., Lynam, R., Arnold, K., Roberts, C., Hawkins, J. and Stevens, G. (2020). Protecting the million-dollar mantas; creating an evidence-based code of conduct for manta ray tourism interactions. Journal of Ecotourism 19: 132-147.



Photo by: Biosphere Reserve Office

Manta rays will abandon feeding if visitors come too close or obstruct their path. Reduced food intake is likely to reduce fecundity and offspring survivorship.

Boat traffic can also cause direct impacts and one third of reef manta rays recorded in Baa Atoll had injuries[2].

4. WASTE & PLASTIC POLLUTION:

Stakeholders identified waste and plastic pollution from boats and nearby islands as a key impact to the MPA.

Surveys have also found that some resorts release nutrients, sediments and chemical pollutants into the near-shore environment[3].

5. CLIMATE CHANGE:

Climate change poses an unknown risk to Hanifaru MPA. Climate change has been found to influence primary production throughout the Indian Ocean.

As a result, manta rays and whale sharks are vulnerable to the impacts of climate change through a reduction in food availability.

[2] Manta Trust (2019). Maldivian Manta Ray Project. Baa Atoll Annual Report 2019, 29pp. Available: MT_MMRP_Annual+Report_Baa+Atoll_2019_FINAL.pdf (squarespace.com)

[3] Cowburn, B., Moritz, C., Birrell, C., Grimsditch, G. and Abdulla, A. (2018). Can luxury and environmental sustainability co-exist? Assessing the environmental impact of resort tourism on coral reefs in the Maldives. Ocean & Coastal Management, 158: 120-127.

Governance of the MPA

Regulation 2012/R-23 makes provisions for the management of Hanifaru MPA.

The site is administered and managed by the Baa Atoll Biosphere Reserve Office and overseen by the Environmental Protection Agency (EPA).

HANIFARU MPA IS ZONED INTO 2 AREAS:

ZONE 01

Core Area

These are areas requiring significant level of protection.

Activities that can be permitted in this area shall only be those that would not harm the environment or life forms in the area in any manner or form.

ZONE 02

Buffer Zone

These are areas surrounding or connected to the core areas.

Certain activities permitted by the authorities can be carried out in this area.

ZONE 03

Transitional Areas

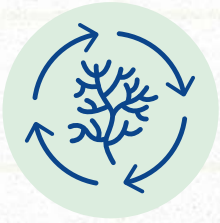
Multiple use areas where sustainable activities are allowed.

Management of Hanifaru MPA will be guided by the following management principles:



1. CLIMATE CHANGE:

The ecological and economic values of the MPA are vulnerable to climate change, however the risk is still unknown. Actions will focus on undertaking monitoring and research to identify the predicted impacts of climate change on whale sharks, manta rays and their supporting environment to inform the development of adaptation strategies as part of the adaptive management framework.



2. ECOSYSTEM APPROACH:

The ecosystem approach will be applied by ensuring that management of the MPA considers the ecological, social, cultural and economic values that make the site unique.



3. ADAPTIVE & EVIDENCE -BASED MANAGEMENT:

The Biosphere Reserve Office will base all management decisions in relation to Hanifaru MPA on the best available information and any knowledge gaps will be addressed through the monitoring and the adaptive management process.



4. PRECAUTIONARY PRINCIPLE:

Where evidence is inconclusive, the Biosphere Reserve Office will make best efforts to fill evidence gaps while also applying practical and proportionate precaution within a risk-based approach.



5. SUSTAINABLE DEVELOPMENT:

Any activities within Hanifaru MPA must have minimal impact on the marine environment and the biodiversity it supports, and must bring positive social, cultural, and economic benefits.



6. STAKEHOLDER & COLLABORATIVE ENGAGEMENT:

The strength and effectiveness of management within Hanifaru MPA depends on those that use the site to comply with the guidance and regulations. Collaboration with local stakeholders, communities, resorts and NGOs will be maintained and developed.



7. EQUITABLE MANAGEMENT:

Inclusion and the equitable distribution of knowledge and resources is imperative to the management of Hanifaru MPA.

To ensure integrity, effective communication will be central to decisions, ensuring all stakeholders and members of the local communities including women, youth and disadvantaged groups have equal voices during any decision-making processes.

MPA Conservation Action Plan Vision

Globally significant populations of manta ray and whale shark of Baa Atoll are thriving, effectively protected and living in harmony with local communities.

Marine biodiversity is a source of pride, research, income and passion for the Maldives.



Photo by: Biosphere Reserve Office

MPA Conservation Action Plan Objectives and Actions

To achieve this long-term vision, a number of different management actions are proposed under a series of objectives:

OBJECTIVE 1: By 2030, the population size and distribution of manta rays and whale sharks is maintained at current levels or has increased.

1.1 Develop and implement a long-term monitoring programme that ensures a collaborative approach with stakeholders and external scientists to understand manta and whale shark populations in the context of environmental parameters and human pressures.

1.2 Ensure that all data collection and monitoring activities are aligned with the requirements of the national species-specific Management Plans.

1.3 Ensure that all data collected from monitoring activities is utilised, reported and used to inform adaptive management.

1.4 Identify the potential risks of current and predicted impacts of climate change on whale sharks, manta rays and their supporting environment.

1.5 Assess anthropogenic pressures on whale sharks and manta rays outside of the MPA (and suggest mitigation measures to protect migration corridors as appropriate).

1.6 Review regulations for waste management in Hanifaru Area and local islands and resorts.

OBJECTIVE 2: By 2030, visitor awareness and understanding of manta rays and whale sharks has improved as a result of the education programme.

2.1 Improve the dissemination of awareness raising materials for visitors about the purpose and rules of the MPA (e.g., interpretations boards at important visitor locations, leaflets, videos etc)

2.2 Establish a visitor centre.

OBJECTIVE 3: By 2030, Baa Atoll communities have increased benefits through equitable participation in management decision-making and improved livelihoods.

3.1 Each island to nominate and support an 'Environmental Champion' to advocate environmental issues and information about the MPA within their community.

3.2 Undertake a public engagement campaign to increase levels of knowledge and interest in the MPA amongst the local community using innovative, accessible, equitable and participatory approaches.

3.3 Work with local education establishments to develop educational activities and materials to improve local children's understanding and appreciation for their marine environment and the MPA and support routes into conservation careers.

3.4 Ensure that the results of scientific monitoring & research and management decisions are effectively shared with local communities and fed into national-level reporting.

3.5 Re-establish an Advisory Committee with representation from all stakeholders and sectors, with processes in place to ensure effective engagement with and equitable participation from all stakeholders, to support the implementation and review of the Management Plan.

3.6 Review the effectiveness of the Baa Atoll Conservation Fund and its benefit-sharing mechanisms and implement improvements to ensure equitable sharing of benefits amongst all stakeholders.

3.7 Undertake community surveys to understand social, cultural and economic benefits for the local community, perceptions of the MPA and how benefits are shared. Use the results to investigate opportunities for diversification of income for local communities.

OBJECTIVE 4: By 2030, appropriate strategies and processes are in place to ensure the sustainable and effective governance and management of the MPA.

4.1 Develop a business plan for the MPA based on an assessment of costs versus income (including consideration of increased entry fees) and publish annual financial accounts.

4.2 Develop annual operational plans to effectively implement the MPA management plan actions that enables participation by and ensures sharing with the community.

4.3 Ensure that the Management Plan is reviewed on an annual basis with a comprehensive review every five years, incorporates monitoring and research finding, and includes local knowledge and stakeholder input across all social groups, with comprehensive and logical outputs.

4.4 Develop and implement a communications strategy to raise the profile of Hanifaru MPA for all relevant stakeholders and social groups, and share MPA management outputs.

4.5 Reinstate the Baa Atoll Biosphere Reserve website and develop a Hanifaru MPA section to host key information and documents related to the MPA that are accessible to all stakeholders.

4.6 Undertake staff training needs assessment and ensure regular refresher training for all staff. Complete risk assessments for all staff working at sea.

4.7 Purchase necessary equipment for monitoring and enforcement activities. Ensure all equipment is well maintained.

4.8 Revise existing legislation to improve management and enforcement of human activities in Hanifaru MPA.

4.9 Adopt an Intelligence-Led Risk-Based Enforcement approach to ensure that available resource is used as efficiently and as effectively as possible.

4.10 Develop and publish guidelines and standard operating procedures for the enforcement approach.

OBJECTIVE 5: By 2030, all visitor interactions in Hanifaru will be high quality, safe, and sustainable.

5.1 Review the impacts on key species caused by an increase in tourism and use the results to revise management measures.

5.2 Review the role and responsibilities of the resorts, guesthouses, tour guides and rangers in ensuring that visitors comply with MPA rules.

5.3 Complete a monthly report on the management of Hanifaru MPA which is available to all resorts.

Include a summary of the code of conduct and safety updates.

5.4 Recruit additional staff and increase the number of patrols during peak season *(July–September)* to monitor visitor permits and ensure compliance.

Establish satellite ranger posts on Dharavandhoo or Dhonfanu.

Raise awareness of the penalties for non-compliance amongst visitors.

5.5 Provide training to enhance the knowledge and capabilities of tour guides to provide visitors with a high quality and safe experience.

5.6 Develop an Emergency Response plan for visitors snorkelling in the MPA.

Monitoring and Review

Annual reviews will be conducted by staff within the Baa Atoll Biosphere Reserve Office in collaboration with key stakeholders.

The MPA Conservation Action Plan will undergo a comprehensive review and PAME evaluation every five years.

This will be completed through a consultation process with stakeholders and other interested parties.



Photo by: Biosphere Reserve Office

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01 - Acronyms

EPA	Environmental Protection Agency
IUCN	International Union for Conservation of Nature
MMCP	Maldives Manta Conservation Programme
MPA	Marine Protected Area
OCPP	Ocean Country Partnership Programme
OECM	Other Effective Area-Based Conservation Measure
PAME	Protected Area Management Effectiveness
PCA	Protected and Conserved Areas
SMART	Specific, Measurable, Attainable, Relevant, Time-bound
UNESCO	United Nations Educational, Scientific and Cultural Organisation

02 - Introduction

Hanifaru Marine Protected Area (MPA) was designated in 2009 under the Protection and Preservation of Baa Atoll Hanifaru Marine Protected Area (Regulation 2012/R-23) and makes up one of the core areas of the Baa Atoll UNESCO Biosphere Reserve.

The designation was enacted to specifically protect the bay and the megafauna that rely on the site, including whale shark and manta ray. The site is administered and managed by the Baa Atoll Biosphere Reserve Office and overseen by the Environmental Protection Agency (EPA).

The Hanifaru MPA Conservation Action Plan is an accompanying document to The Regulation for the Protection and Preservation of Baa Atoll Hanifaru Area (2012/R-23) which makes provisions for the management of Hanifaru MPA. It sets out ways to ensure effective management of the MPA over the next 5 years. It covers the period 2025 – 2030 inclusive. The vision and goals of the plan provide the longer-term direction for management.

The objectives and actions provide the tools to help achieve the vision for Hanifaru MPA for the ecological values but also the social, cultural and economic values which make the MPA unique.

It has been written in conjunction with the Baa Atoll Biosphere Reserve Office and has been informed by a Protected Area Management Effectiveness (PAME) evaluation that was conducted in 2022 and a series of meetings and workshops held in 2023 to ascertain the views, opinions and priorities of stakeholders. The outcomes of these highlighted progress to date and identified actions to improve management of the MPA over the next 5 years.

03 - Description of Hanifaru MPA

Hanifaru MPA was designated to preserve the environment and to protect the frequently visiting whale sharks and manta rays.

In the Regulation, the term 'Hanifaru' constitutes Hanifaru Island, the sandbanks in the area, the reefs and lagoons connected to the area, Vaamandhoofaru Adi, the sea, and lagoon.

Hanifaru MPA forms one of the core areas of the Baa Atoll UNESCO Biosphere Reserve. It has a total area of 467.5 hectares and is a 'Look, See, Don't touch' zone. This level of protection covers all living and non-living resources, in particular the site's notable megafauna.

It is surrounded by a 200 metre-wide buffer zone (covering an area of 192.6 hectares) where some types of activities are allowed; the wider management protection measures can be found in Section 7 below.

Hanifaru MPA is currently recognised under the Maldives Protected Area Regulations as a Category 1: internationally recognised area[1].

The Government of Maldives is working in partnership with IUCN towards the inclusion of Hanifaru on the IUCN Green List[2].

3.1 PHYSICAL AND BIOLOGICAL CHARACTERISTICS

Hanifaru is situated on the eastern edge of Baa Atoll. It is small (700 x 200 m) and shallow (22 m maximum depth).

Hanifaru in Dhivehi translates to 'hani' narrow 'faru' reef – referring to the long thin nature of the topography. Average sea surface temperatures across Baa Atoll are approx. 29.1oC (Alonso-Garcia, 2019).

[1] Maldives Protected Area regulation
[2] IUCN Green list in the Maldives report

The reef is semi oval in shape and is directly exposed to the ocean on the eastern side whilst the rest of the reef is surrounded by deep water channels.

A small, vegetated sand cay is located on the western corner of the reef and the lagoon is relatively shallow, dominated by sand and has no direct channels to the ocean.

The southeastern side of the reef includes a distinctive small bay that is directly connected to the main reef in the east with a distinctive channel to the west. The channel opens directly into the ocean and is used by marine megafauna to enter the bay (AEC, 2011).

Average live coral cover at Hanifaru was 20% across the 4 sites surveyed, with the site dominated by rock (30%) and sand (26%); this is similar to other sites within Baa Atoll (Ministry of Environment, Climate Change and Technology, 2021).

This unique topography, combined with the phenomenon known locally as 'Hulhangu', or the southwest monsoon which lasts from May to October each year, creates strong winds causing oceanic currents to flow from the southwest to the northeast (Anderson et al., 2011a; Harris et al., 2020).

When this current reaches the Maldivian archipelago, the upwelling effect brings nutrients from the seafloor.

Combined with light attenuation in the shallows, this creates ideal conditions to support phytoplankton and subsequently zooplankton blooms.

It is these zooplankton blooms that are the target prey of both whale shark and manta ray. Hanifaru Bay is an internationally significant area for seasonal feeding aggregations of reef manta ray *(Mobula alfredi)* and whale shark *(Rhincodon typus)* (May – December).

3.2 HUMAN ACTIVITIES

3.2.1 Tourism: Tourism is the most important activity taking place within the MPA. Tourism activities focus on snorkelling encounters with manta rays, and this generates an important revenue for the Maldivian economy.

The number of boats visiting Hanifaru MPA increased dramatically between 2009 and 2010 (Brooks, 2010; Matthews, 2020); there was however a reduction between 2011 and 2012, and numbers were then stable until 2019 (Matthews, 2020).

It is suggested that this is due to the introduction of management measures in 2011, which reduced

the numbers of boats and snorkelers visiting the site. There were 9,000 visitors to the site in 2019, increasing to 11,000 in 2021.

3.2.2 Research: The unique environmental conditions and aggregations of manta rays and whale sharks provide an ideal opportunity for scientific research.

The Maldives Manta Conservation Programme (MMCP)[3] (formerly the Maldivian Manta Ray Project), consists of a country-wide network of researchers, educators, dive instructors, biologists, communities, and tourism operators who collect data on the country's manta population.

Hanifaru is one of the sites included within the MMCP and has enabled the recording of over 1,800 individuals at the site. Research is also undertaken by visiting scientists and students from international universities and other research institutions.

3.2.3 Education: Hanifaru MPA also provides opportunities for education and awareness-raising with the local community and visitors.

MMCP has delivered outreach initiatives to schools across four atolls, including Baa Atoll since 2015[4] which has led to the development of a marine education programme, Moodhu Madharusaa ('Ocean School').

This aims to educate students about the environmental issues facing their communities and engage them with conservation solutions.

It also includes the Baa Atoll Manta Festival, which took place in 2018 and 2019 to bring together communities across Baa Atoll to celebrate and learn about the Maldives' marine biodiversity.

[3] mantatrust.org
[4] Manta Trust Maldives- marine-education-programme

04 - Key Values of the Site

4.1 AGGREGATIONS OF MANTA RAYS AND WHALE SHARKS

Baa Atoll has globally significant populations of whale sharks and manta rays and Hanifaru MPA offers one of the only places on earth where manta rays aggregate in such high numbers to feed[5].

4.1.1 Reef manta rays *(Mobula alfredi):* Globally, numbers of reef manta rays are in decline, and as a result are listed as 'Vulnerable' on the IUCN Red List of threatened Species (Marshall et al. 2022).

Baa Atoll, and in particular Hanifaru Bay, is a globally significant site for reef manta rays *(Mobula alfredi)*. Studies of populations have identified that up to 1,500 individuals visit the site seasonally, to feed and breed, equating to 30% of the Maldivian population.

In addition, Hanifaru is the only known site globally for feeding aggregations of reef manta ray to peak at between 200 – 250 individuals. This equates to 10% of Maldivian population (Armstrong et al., 2021).

4.1.2 Whale sharks *(Rhincodon typus):* Whale shark are listed as 'Endangered' on the IUCN Red List of Threatened Species (Pierce and Norman, 2016).

Hanifaru MPA attracts aggregations of whale sharks during the southwest monsoon, primarily to feed (Davies, 2009).

In 2019, there were 22 whale shark sightings of 12 different individuals recorded in Baa Atoll between July and October within Hanifaru Bay. August marked the peak of whale shark sightings.

Overall, whale shark sightings in Hanifaru comprised of 18% of the total sightings across Baa Atoll (Manta Trust, 2019).

4.2 UNIQUE OCEANOGRAPHIC AND ECOLOGICAL PROCESSES

Hanifaru MPA has a unique geographical position in Maldives. During the months of May to December, the southwest monsoonal currents are driven eastwards towards Maldives; these currents move deep nutrient rich water towards the surface.

[5] National geographic

Water currents are driven easterly across Baa Atoll and the nutrients are utilised by photosynthetic phytoplankton, creating a bloom.

This in turn, allows for an increase in zooplankton, feeding on the phytoplankton bloom. This increase in zooplankton availability coupled with the daily tidal currents pulls the zooplankton westwards into the entrance to Hanifaru Bay, where the zooplankton becomes confined to a small area, locked between the eastward monsoonal currents and westwards tidal currents, creating a funnelling phenomenon.

These unique physical characteristics create a dense zooplankton aggregation, which in turn attracts aggregations of reef manta rays and whale sharks (Harris et al., 2020; Armstrong et al., 2021; Harris and Stevens, 2021).

4.3 ECONOMIC VALUE ASSOCIATED WITH TOURISM

Hanifaru Bay has gained an international reputation as one of the best places in the world to experience swimming with manta rays and whale sharks.

As a result, marine tourism has increased in popularity over the last decade. It was estimated that on average some 19,230 manta ray dives and at least 2,000 manta ray snorkels were made per year in Baa Atoll during 2006–2008.

This was worth an estimated US$1.1 million per year in direct diving and snorkelling revenue, with Hanifaru MPA generating an annual revenue of US$241,000 (Anderson et al., 2011b).

06 - Threats

The Regulation for the Protection and Preservation of Baa Atoll Hanifaru Area (2012/R-23) and subsequent amendments provide a comprehensive framework for the management of human activities within Hanifaru MPA.

Despite this, some threats to the marine environment and its biodiversity remain. These threats were identified through the PAME evaluation[6] and stakeholder engagement workshops in 2022 and 2023 and are summarised below.

5.1 DEVELOPMENT ACTIVITIES AROUND THE MPA

The number of resorts in Baa Atoll increased by 155% between 2008 and 2019 with, guest house numbers also substantially increasing in this timeframe (Matthews, 2020).

Land reclamation and other construction activities related to these tourism developments has resulted in vegetation loss and habitat degradation; there is also shoreline erosion on many of the islands (AEC, 2010).

Kihaadhuffaru is the closest resort island to Hanifaru MPA (less than 2 km away); although originally constructed in 1999, there have been more recent developments such as the construction of over-water villas and a seaplane platform.

The development of new tourist hotels or resorts or additions / large-scale developments to existing tourist hotels and resorts require an Environmental Impact Assessment (EIA) under the Regulation on the Preparation of Environmental Impact Assessment Report (2012/

[6] Report of Protected Area Management Effectiveness Evaluations for Three Sites in the Maldives

R-27). A review of Environmental Impact Statements (EIS) for tourist resorts (including one for Kihaadhuffaru resort) however found that they showed insufficient consideration of aspects such as coastal erosion and sedimentation and that monitoring of impacts was lacking (Zubai et al., 2011).

5.2 ILLEGAL FISHING

The Regulation for the Protection and Preservation of Baa Atoll Hanifaru Area prohibits the taking of any living organisms from the core area, but traditional bait fish collection is permitted within the buffer zone.

Illegal fishing still occurs, however; in particular, illegal bait fishing (for anchovies and sprats) within Hanifaru Bay was identified as a threat by stakeholders, who reported that approximately 6 infractions were recorded per year (OCPP, 2022).

5.3 BOAT TRAFFIC IN AND AROUND THE MPA

The Regulation for the Protection and Preservation of Baa Atoll Hanifaru Area includes a series of management measures to minimise impacts to manta rays and whale sharks from tourists, including restrictions on the number of vessels that may enter the Hanifaru lagoon (10) and on the number of individuals who may enter the water at once (80); there is a speed restriction of 2 miles per hour within the lagoon, the maximum amount of time allowed in the water is 45 minutes and swimmers must keep a minimum distance of 3 metres from whale sharks and manta rays.

SCUBA diving and the use of any motorised diving equipment (e.g. underwater scooters) is prohibited and the use of a flash for still of video cameras is only allowed with special permission by the EPA.

The MMCP undertakes research on manta rays including monitoring anthropogenic pressures within Hanifaru MPA and aims to improve the sustainability of manta ray tourism activities across Baa Atoll through education and awareness-raising.

This includes the development of a tourism code of conduct to minimise the negative impacts of manta snorkel tourism.

[7] https://swimwithmantas.org/

Tourist activity is highest in July to September with the maximum number of boats recorded in August. Highest tourist activity occurs over flood and high tides and around full and new moons (Matthews, 2020).

As a result, tourist numbers tend to be at their highest when the feeding opportunities for manta rays and whale sharks are at their peak (Neves, 2009; Brooks, 2010; Matthews, 2020). Murray et al (2020) found that within Baa Atoll, the majority of manta-tourist interactions within the Maldives only complied to recommended guidelines 44% of the time.

Boats showed poor conduct when entering and exiting the bay and when picking up snorkelers, with some driving too close and following manta rays (Brooks, 2010). The predominant type of interaction between humans and manta rays was a passive observation and the majority elicited no response from the manta rays.

Minor disturbance responses (for example, course redirection) occurred when people came within 3 metres distance of the manta ray. The more intrusive behaviours of intentional touching / obstructing and chasing manta rays were observed in a small number of interactions and tended to elicit a flight response (Neves, 2009; Brooks, 2010; Atkins, 2011; Lynam, 2012; Garrud, 2016).

Tourists approaching from the front of the manta ray increased the likelihood of a severe response (Neves,2009; Garrud, 2016; Murray et al., 2020); approaches from above were significantly more likely to cause cessation of feeding (Murray et al., 2020).

Manta rays were more readily disturbed whilst they were cleaning than when they were feeding (Atkins, 2011), however manta rays were observed to abandon feeding if visitors came too close or obstructed their path (Murray et al., 2020).

Reduced food intake is likely to cause reduced fecundity and offspring survivorship (Stevens, 2016). Similarly, displacement from cleaning stations may impact breeding success, as these sites are important aggregation sites for reproductive activity (Stevens et al., 2018).

In addition to disturbance, boat

traffic can cause direct impacts to marine species. Overall, the number of injuries recorded per manta ray across Maldives increased between 2004 and 2018, although anthropogenic injuries remained fairly constant (Stark, 2015; Strike, 2020). Surveys in 2019 found that 30% of reef manta rays recorded in Baa Atoll had sub-lethal injuries, of which 43% resulted from an anthropogenic source (Manta Trust, 2019).

Juveniles were more likely to have injuries than adults, injuries were also more likely to be observed on males than females and injuries were most likely to be observed at cleaning stations.

The most common anthropogenic induced injuries were caused by fishing line or hooks (32%) and boat strikes (4%). The number of boat strike and propeller injuries were found to have increased since 2016 (Strike et al., 2022).

5.4 WASTE AND PLASTIC POLLUTION

Stakeholders identified waste and plastic pollution from boats and nearby islands as a key impact to the MPA (OCPP, 2022); there was also anecdotal evidence of ghost nets in the area possibly linked to illegal fishing.

A study assessing the environmental impact of resort tourism in Maldives (including 3 resorts in Baa Atoll) found that the resorts release nutrients, sediments and chemical pollutants into their near-shore environment (Cowburn et al., 2018).

One of the Baa Atoll resorts had no sewage treatment plant and allowed sewage to drain into a central cesspool, released chlorinated swimming pool water into the sea and used mosquito 'fogging' chemicals, whilst all carried out cleaning and regular maintenance of boats (e.g. changing oil) adjacent to the main jetty.

5.5 CLIMATE CHANGE

Climate change poses an unknown risk to Hanifaru MPA. Climate change has been found to influence primary production throughout the Indian Ocean through the weakening of the southwest monsoon winds, which intensifies ocean stratification and inhibits upwelling. Rising sea surface temperature also enhances ocean

stratification, thus lowering primary production (Harris et al., 2020).

In addition, the zooplankton species found within Hanifaru originate elsewhere and their abundance and distribution could be altered by predicted temperature shifts in the wider Indian Ocean (Armstrong et al., 2021).

As a result, manta rays and whale sharks are vulnerable to the impacts of climate change through the reduction in food availability.

5.6 CONSTRAINTS

The PAME evaluation identified the following as constraints to the effective management of Hanifaru MPA. These can be grouped into 5 main themes:

01 — Lack of understanding of the environmental and economic landscape in the wider Baa Atoll area.

02 — Better understanding of protected feature requirements is needed.

03 — Greater understanding of funding and finance options in the wider Baa Atoll Biosphere Reserve is required.

04— Lack of staff, resources, training and enforcement

05 — Poor transparency and awareness

06 - Governance

The Regulation for the Protection and Preservation of Baa Atoll Hanifaru Area (2012/R-23) makes provisions for the management of Hanifaru MPA.

ITS PURPOSE IS TO: Develop sustainable mechanisms to protect the biodiversity and natural resources in Baa Atoll Hanifaru and the surrounding area, and to formulate guidelines to gain the benefits from its rich natural resources and biodiversity in an environmentally sustainable manner.

The Regulation makes provision for zoning, operation of vessels, visitor activity, tour guide activity and fees and sets out the prohibited activities and associated penalties.

The effective management of the Hanifaru MPA will ensure the Government of Maldives to meet their international and national commitments as set out in the Maldives National Framework for Management of Protected and Conserved Areas.

6.1 MANAGEMENT STRUCTURE

The Regulation for the Protection and Preservation of Baa Atoll Hanifaru Area (2012/R-23) is enforced by the Environmental Protection Agency (EPA), on behalf of the Ministry of Climate Change, Environment and Energy (Figure 1).

The EPA has extended enforcement authority to Baa Atoll Biosphere Reserve Office, Baa Atoll Council and Maldives Police Service.

FIGURE 1 Hanifaru Governance Structure



6.1.1 Baa Atoll Conservation Programme The Baa Atoll Conservation Programme (BACP) was established on 18th April 2012 to ensure the sustainable use of the Baa Atoll Biosphere Reserve.

It was developed and implemented in line with the Ecosystem Approach of Convention on Biological Diversity (CBD)[8] to ensure the 'integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.

BACP encompasses all the islands, waters and resources, both biological and non-biological and extends to one nautical mile beyond the outer reef zone of Baa Atoll.

6.1.2 Baa Atoll Conservation Fund The Baa Atoll Conservation Fund (BACF) was established on 18th April 2012 under the public Finance Act (Act No: 3/2006) of the Republic of Maldives.

Its purpose is to co-finance activities that ensure that Baa Atoll is a world class model of atoll ecosystem conservation in accordance with its designation as a UNESCO World Biosphere Reserve in 2011.

[8] Convention on Biological Diversity - Ecosystem Approach

BACF is responsible for the equitable distribution of funds to grassroots projects around Baa Atoll, which include environmental, cultural and educational projects.

6.1.3 Baa Atoll Biosphere Reserve Office The Baa Atoll Biosphere Reserve Office was established in 2012.

The Biosphere Reserve Office is responsible for the implementation and monitoring of the Hanifaru MPA Conservation Action Plan including the recording and reporting of vessels, visitor numbers, enforcement of best practice and reporting breaches to the EPA and Ministry of Climate Change, Environment and Energy.

In addition to their regulation and enforcement roles, rangers are also required to be trained and skilled to undertake general policing and educational and emergency roles associated with all users of Hanifaru MPA.

Oversight of the running and finances of the Biosphere Reserve Office is undertaken through a board of trustees, the composition of which are detailed in Table 1 below.

TABLE 1

BIOSPHERE RESERVE OFFICE — BOARD OF TRUSTEES	
1	EPA
1	Baa Atoll Council
1	NGO from Baa Atoll
1	Local Government Authority
1	Baa Atoll Biosphere reserve Office
1	Baa Atoll Conservation Fund
2	Resort representatives
1	Liveaboard association of Maldives

TABLE 2 Baa Atoll Biosphere Reserve Office governance structure and responsibilities

CONSERVATION UNIT	OUTREACH UNIT	LIVELIHOODS & SUSTAINABLE DEVELOPMENT PROGRAMME
Supports implementation of the Biosphere Reserve Zonation system	Working with schools and NGOs to promote education & awareness to enhance objectives of the BR Office	Support livelihood development initiatives that are consistent with the objectives of the biosphere reserve
Monitors and inputs recommendations to EIA development applications	Develop community engagement and volunteering activities in support of the BR Office team.	Working with key sectors (fisheries tourism, agriculture, transport, construction) to build sustainability as a core principle of development
Enforcement of regulations in close consultation with the EPA and the Police	Identify priority research topics and support local, national & international research initiatives that seek to enhance the functioning and understanding of the BR	Promoting measures to address climate change including mitigation and adaptive activities.
Implementation of management plans for the core areas	Coordinating monitoring programmes, making the data available and reporting the results	
Implementing & regularly updating the programme of strategic actions to reduce key Threats to Biodiversity		

6.2 KEY STAKEHOLDERS

TABLE 3 Baa Atoll Biosphere Reserve partner organisations

SECTOR	PARTNER
Non-Governmental Organisation (NGO)	Manta Trust
Tourism and recreation	Four Seasons Resort
	Four Seasons Explorer
	Seaside Finolhu
	Landaa Giraavaru
	Maldivian airline
	Joy Dive
	Aqua Westin
	Splash Vakkaru
	Dive Oceanus
	Elements Kihavah
	Ocean Fanatics
	Ocean Group
	Ocean Dimensions Kihaa
	Liveaboard Association of Maldives
Media	Maldives Post
	Eydhafushi Times

07 - Boundary & Zonation

HANIFARU MPA IS ZONED INTO 3 AREAS:

ZONE 01

Core Area

These are areas requiring significant level of protection.

Activities that can be permitted in this area shall only be those that would not harm the environment or life forms in the area in any manner or form.

ZONE 02

Buffer Zone

These are areas surrounding or connected to the core areas.

Certain activities permitted by the authorities can be carried out in this area.

ZONE 03

Transitional Areas

Multiple use areas where sustainable activities are allowed.

A comprehensive list of permitted or prohibited activities can be found in Table 5, sourced from the Regulations[9]. Restrictions related to vessel movements are shown in Figure 2.

TABLE 4 Hanifaru MPA Core area of the Baa Atoll Biosphere reserve boundary co-ordinates

1	5 10 58.18N	73 07 46.53E
2	5 11 03.33N	73 08 46.54E
3	5 10 33.64N	73 09 40.81E
4	5 10 09 15N	73 09 16.10E
5	5 10 18 78N	73 08 36.88E
6	5 11 36.63N	73 08 00.84E

[9] Regulation on the Protection and Preservation of Baa Atoll Hanifaru Marine Protected Area

FIGURE 2 Map showing the vessel movement restrictions within Hanifaru MPA

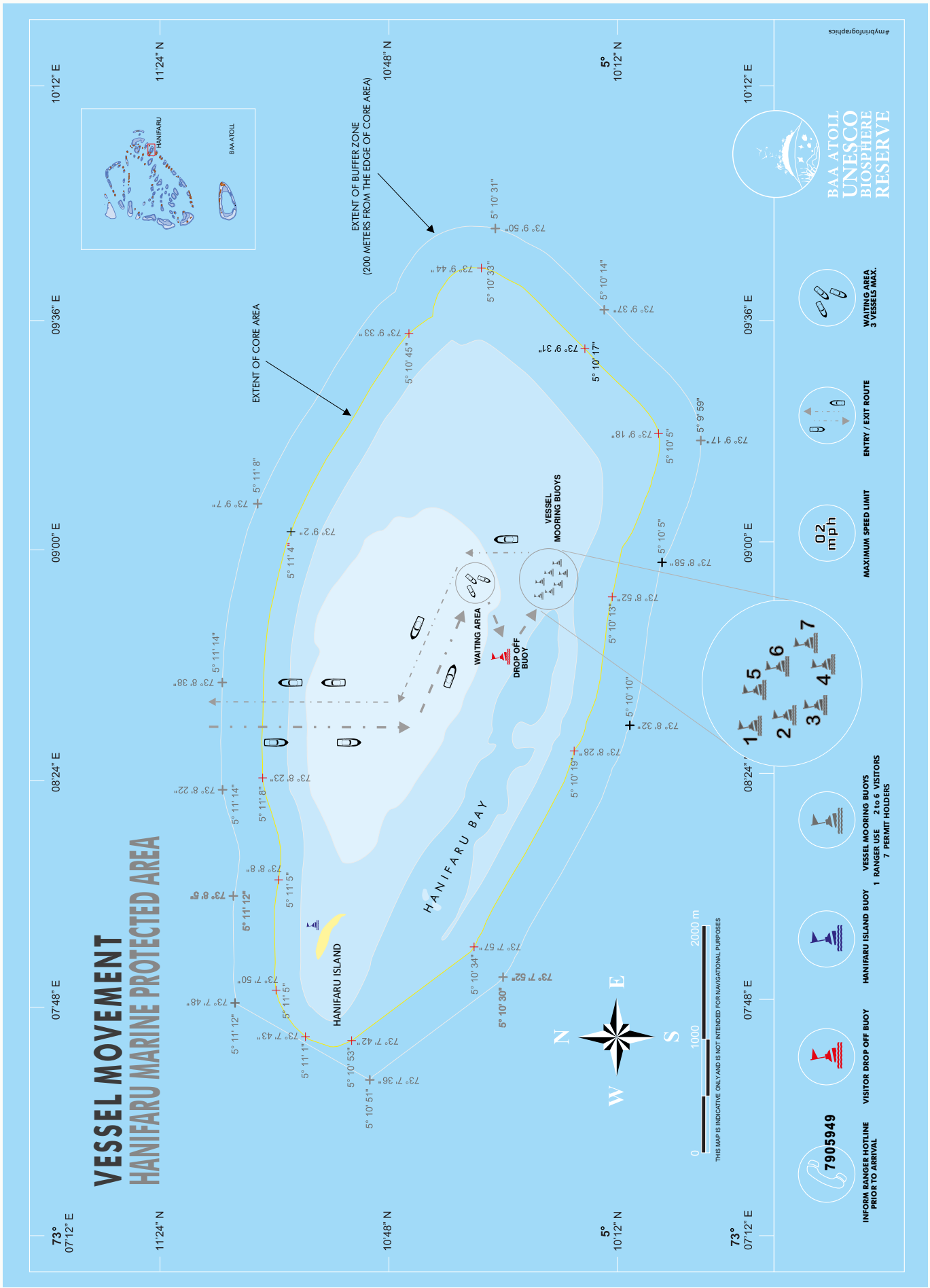


TABLE 5 Activities permitted and prohibited within Hanifaru MPA core area and buffer zone

ACTIVITIES PERMITTED AND PROHIBITED WITHIN HANIFARU MPA CORE AREA & BUFFER ZONE	BUFFER ZONE	CORE AREA
Tourism/recreation: Snorkelling	✓	✓
Tourism/recreational use: SCUBA	✓	✗
Tourism/Recreation use terrestrial picnics/sightseeing	✓	✓
Fishing trolling pelagic	✗	✗
Fishing bottom line (reef fish)	✗	✗
Fishing tourism bottom line (reef fish)	✗	✗
Traditional bait fish collection	✓*	✗
Fishing Gill nets	✗	✗
Fishing fin fish breeding aggregation sites	✗	✗
Spear gun fishing	✗	✗
Destructive fishing	✗	✗
Anchoring	✓	✗
Shell collection – commercial	✗	✗
Shell collection – subsistence	✗	✗
Sea cucumber fishery	✗	✗
Shark fishery	✗	✗
Live fish collection – commercial	✗	✗
Aquarium trade (vertebrate and invertebrate) Commercial	✗	✗
Lobster fishery (commercial/artisanal/subsistence)	✗	✗
Turtle egg/adult harvest – commercial	✗	✗
Turtle egg/adult harvest – subsistence	✗	✗
Sea bird and egg harvesting	✗	✗
Sand extraction commercial	✗	✗
Sand extraction subsistence	✗	✗
Coral extraction – commercial	✗	✗
Coral extraction – subsistence	✗	✗
Waste disposal at sea (boat or shore)	✗	✗
Palm frond collection	✓*	✗
Coconut collection	✓*	✗
Agriculture	✗	✗
Aquaculture	✗	✗

*RESTRICTIONS APPLY

08 - Management Principles

Management of Hanifaru MPA will be guided by the national management principles. The National PCA Management Framework includes an overarching principle 'climate change aware', that climate change considerations should be incorporated into the design and management of PCAs.

There are also a series of associated ecological and social principles that should be used to aid decision-making by the sites' management authority to support sustainable development and collaboration between the authorities and local communities:

OVERARCHING PRINCIPLE - CLIMATE CHANGE AWARE	
ECOLOGICAL PRINCIPLES	**SOCIAL PRINCIPLES**
Ecosystem approach	Sustainable development
Adaptive and evidence-based	Collaborative
Precautionary principle	Equitable

8.1 CLIMATE CHANGE AWARE

The ecological and economic values of the MPA are vulnerable to climate change, however the risk is still unknown.

Actions will focus on undertaking monitoring and research to identify the predicted impacts of climate change on whale sharks, manta rays and their supporting environment to inform the development of adaptation strategies as part of the adaptive management framework.

8.2 ECOSYSTEM APPROACH

The ecosystem approach will be applied by ensuring that management of the MPA considers the ecological, social, cultural and economic values that make the site unique.

Management measures will balance the use of natural resources in Hanifaru MPA to maintain functioning of the ecosystem as well as the local communities it supports.

8.3 ADAPTIVE & EVIDENCE-BASED MANAGEMENT

The Biosphere Reserve Office will base all management decisions in relation to Hanifaru MPA on the best available information and any knowledge gaps will be addressed through the monitoring and the adaptive management process.

At the end of every five-year management cycle, a PAME evaluation will be undertaken to assess progress over time and to adapt management accordingly.

8.4 PRECAUTIONARY PRINCIPLE

Where evidence is inconclusive, the Biosphere Reserve Office will make best efforts to fill evidence gaps while also applying practical and proportionate precaution within a risk-based approach, which can be defined as a decision-making tool to assist in dealing with highly uncertain risks (Gilbert, 2020).

8.5 SUSTAINABLE DEVELOPMENT

Any activities within Hanifaru MPA must have minimal impact on the marine environment and the biodiversity it supports,

and must bring positive social, cultural, and economic benefits.

This sustainable approach will ensure that present day activities will not affect or compromise the needs of future generations to meet their own needs.

8.6 STAKEHOLDER & COLLABORATIVE ENGAGEMENT

The strength and effectiveness of management within Hanifaru MPA depends on the willingness of those that use the site to comply with the guidance and regulations.

Many of the local stakeholders, communities, resorts and NGOs have been involved in the development of this Conservation Action Plan and the associated management measures and as such, it is crucial that this collaboration is maintained and developed.

The Conservation Action Plan sets out the mechanisms through which these relationships and outcomes can be fostered and enhanced.

8.7 EQUITABLE MANAGEMENT ENGAGEMENT

Inclusion and the equitable distribution of knowledge and resources is imperative to the management of Hanifaru MPA.

To ensure integrity, effective communication will be central to MPA management, ensuring that all stakeholders and members of the local communities including women, youth and disadvantaged groups have equal voices during any decision-making processes.

09 - Vision

Globally significant populations of manta ray and whale shark of Baa Atoll are thriving, effectively protected and living in harmony with local communities.

Marine biodiversity is a source of pride, research, income and passion for the Maldives.



10 – Management objectives & actions

The management objectives and the actions described in this section provide an overview of the activities that will be undertaken over the next five years to achieve the vision of Hanifaru MPA.

The Hanifaru MPA management actions have been prioritised by stakeholders as High, Medium or Low. Each objective has associated indicators to measure success. These indicators will be monitored in line with the Hanifaru MPA Monitoring and Research Plan to determine whether management objectives have been achieved.

The management actions will be implemented by the Baa Atoll Biosphere Reserve Office with assistance from the EPA and other external stakeholders in the Baa Atoll area.



Photo by: Biosphere Reserve Office

OBJECTIVE 1: By 2030, the population size and distribution of manta rays and whale sharks is maintained at current levels or has increased.

MANAGEMENT ACTION 1.1 Develop and implement a long-term monitoring programme that ensures a collaborative approach with stakeholders and external scientists to understand manta and whale shark populations in the context of environmental parameters and human pressures.	**PRIORITY** — High **YEAR** — 1 to 5
MANAGEMENT ACTION 1.2 Ensure that all data collection and monitoring activities are aligned with the requirements of the national species-specific Management Plans	**PRIORITY** — High **YEAR** — 1
MANAGEMENT ACTION 1.3 Ensure that all data collected from monitoring activities is utilised, reported and used to inform adaptive management.	**PRIORITY** — High **YEAR** — 2 to 5
MANAGEMENT ACTION 1.4 Identify the potential risks of current and predicted impacts of climate change on whale sharks, manta rays and their supporting environment	**PRIORITY** — High **YEAR** — 2 to 3
MANAGEMENT ACTION 1.5 Assess anthropogenic pressures on whale sharks and manta rays outside of the MPA (and suggest mitigation measures to protect migration corridors as appropriate)	**PRIORITY** — High **YEAR** — 3 to 4
MANAGEMENT ACTION 1.6 Review regulations for waste management in Hanifaru Area and local islands and resorts	**PRIORITY** — High **YEAR** — 4
INDICATORS • Manta ray / whale shark population size • Manta ray / whale shark population distribution	**TARGETS** • Maintain or Increase

OBJECTIVE 2: By 2030, visitor awareness and understanding of manta rays and whale sharks has improved as a result of the education programme.

MANAGEMENT ACTION 2.1 Improve the dissemination of awareness raising materials for visitors about the purpose and rules of the MPA (e.g. interpretations boards at important visitor locations, leaflets, videos etc)	**PRIORITY** — High **YEAR** — 1
MANAGEMENT ACTION 2.2 Establish a visitor centre	**PRIORITY** — Low **YEAR** — 4
INDICATORS • Level of awareness of the MPA	**TARGETS** • Increase

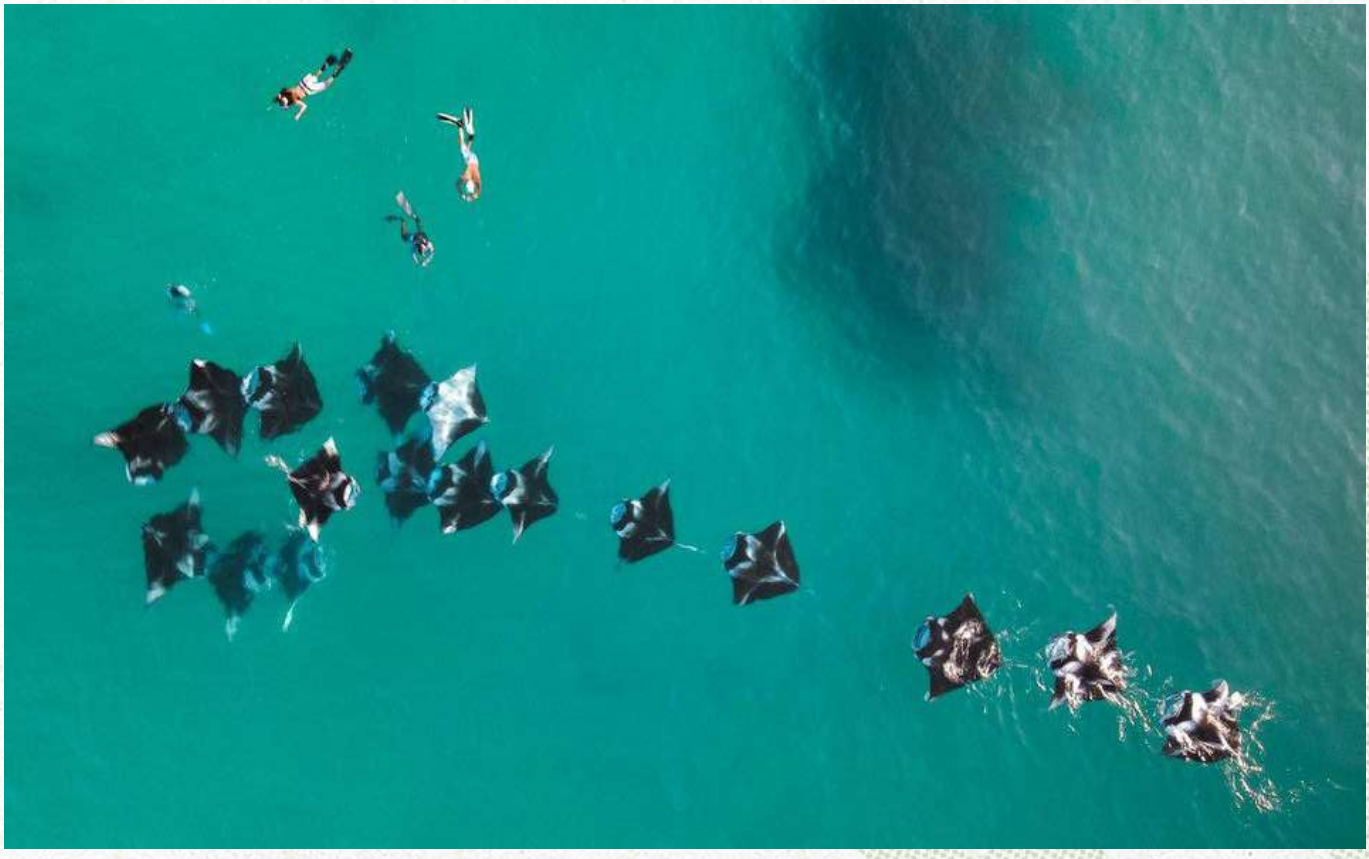


Photo by: Biosphere Reserve Office

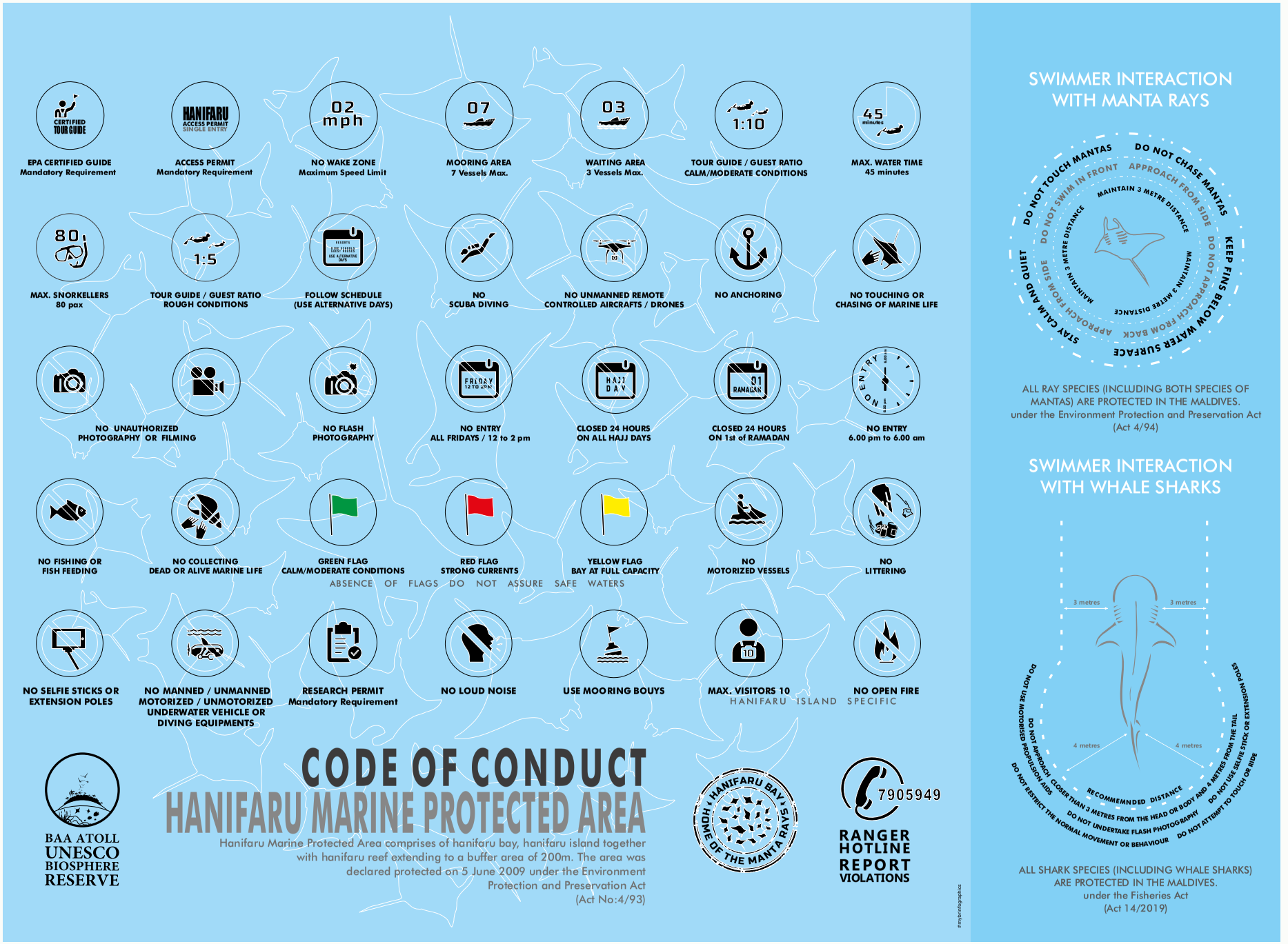


FIGURE 3 Poster for visitors showing the code of conduct for interacting with manta rays and whale sharks in Hanifaru MPA

OBJECTIVE 3: By 2030, Baa Atoll communities have increased benefits through equitable participation in management decision-making & improved livelihoods

MANAGEMENT ACTION 3.1 Each island to nominate and support an 'Environmental Champion' to advocate environmental issues and information about the MPA within their community.	**PRIORITY** — Medium **YEAR** — 2
MANAGEMENT ACTION 3.2 Undertake a public engagement campaign to increase levels of knowledge and interest in the MPA amongst the local community using innovative, accessible, equitable and participatory approaches.	**PRIORITY** — High **YEAR** — 2
MANAGEMENT ACTION 3.3 Work with local education establishments to develop educational activities and materials to improve local children's understanding and appreciation for their marine environment and the MPA and support routes into conservation careers.	**PRIORITY** — Medium **YEAR** — 2
MANAGEMENT ACTION 3.4 Ensure that the results of scientific monitoring and research and management decisions are effectively shared with local communities and fed into national-level reporting.	**PRIORITY** — Medium **YEAR** — 2 to 5
MANAGEMENT ACTION 3.5 Re-establish an Advisory Committee with representation from all stakeholders and t, with processes in place to ensure effective engagement with and equitable participation from all stakeholders, to support the implementation and review of the Conservation Action Plan.	**PRIORITY** — High **YEAR** — 1
MANAGEMENT ACTION 3.6 Review the effectiveness of the Baa Atoll Conservation Fund and its benefit-sharing mechanisms and implement improvements to ensure equitable sharing of benefits amongst all stakeholders.	**PRIORITY** — Medium **YEAR** — 1
MANAGEMENT ACTION 3.7 Undertake community surveys to understand social, cultural and economic benefits for the local community, perceptions of the MPA and how benefits are shared. Use the results to investigate opportunities for diversification of income for local communities.	**PRIORITY** — Medium **YEAR** — 4 to 5
INDICATORS • Socio-economic benefits for households, & individuals across gender & social groups • Level of stakeholder participation in, & satisfaction with management processes • Level of awareness of the MPA and its objectives	**TARGETS** • Increase • Increase • Increase

OBJECTIVE 4: By 2030, appropriate strategies and processes are in place to ensure the sustainable, equitable, inclusive and effective governance and management of the MPA

MANAGEMENT ACTION 4.1 Develop a business plan for the MPA based on an assessment of costs versus income (including consideration of increased entry fees) and publish annual financial accounts	**PRIORITY** — High **YEAR** — 2
MANAGEMENT ACTION 4.2 Develop annual operational plans to effectively implement the Hanifaru MPA Conservation Action Plan actions that enables participation by and ensures sharing with the community	**PRIORITY** — Low **YEAR** — 1 to 5
MANAGEMENT ACTION 4.3 Ensure that the Hanifaru MPA Conservation Action Plan is reviewed on an annual basis with a comprehensive review every five years, incorporates monitoring and research finding, and includes local knowledge and stakeholder input across all social groups, with comprehensive and logical outputs	**PRIORITY** — High **YEAR** — 1 to 5
MANAGEMENT ACTION 4.4 Develop and implement a communications strategy to raise the profile of Hanifaru MPA for all relevant stakeholders and social groups, and share MPA management outputs	**PRIORITY** — High **YEAR** — 2
MANAGEMENT ACTION 4.5 Reinstate the Baa Atoll Biosphere Reserve website and develop a Hanifaru MPA section to host key information and documents related to the MPA that are accessible to all stakeholders.	**PRIORITY** —High **YEAR** — 1
MANAGEMENT ACTION 4.6 Undertake staff training needs assessment and ensure regular refresher training for all staff. Complete risk assessments for all staff working at sea.	**PRIORITY** —High **YEAR** — 2
MANAGEMENT ACTION 4.7 Purchase necessary equipment for monitoring &enforcement activities. Ensure all equipment is well maintained.	**PRIORITY** —High **YEAR** — 1 to 5
MANAGEMENT ACTION 4.8 Revise existing legislation to improve management and enforcement of human activities in Hanifaru MPA	**PRIORITY** —Medium **YEAR** — 1 to 2
MANAGEMENT ACTION 4.9 Adopt an Intelligence-Led Risk-Based Enforcement approach to ensure that available resource is used as efficiently and as effectively as possible.	
MANAGEMENT ACTION 4.10 Develop and publish guidelines and standard operating procedures for the enforcement approach	
INDICATORS • Capacity of Management Body • Adoption and Implementation of Hanifaru MPA Conservation Action Plan • Existence and adequacy of enabling legislation	**TARGETS** • Increase

OBJECTIVE 5: By 2030, all visitor interactions in Hanifaru will be high quality, safe, and sustainable

MANAGEMENT ACTION 5.1 Review the impacts on key species caused by an increase in tourism and use the results to revise management measures	**PRIORITY** — High **YEAR** — 2 to 3
MANAGEMENT ACTION 5.2 Review the role and responsibilities of the resorts, guesthouses, tour guides and rangers in ensuring that visitors comply with MPA rules	**PRIORITY** — High
MANAGEMENT ACTION 5.3 Complete a monthly report on the management of Hanifaru MPA which is available to all resorts. Include a summary of the code of conduct and safety updates.	
MANAGEMENT ACTION 5.4 Recruit additional staff and increase the number of patrols during peak season (July-September) to monitor visitor permits and ensure compliance. Establish satellite ranger posts on Dharavandhoo or Dhonfanu. Raise awareness of the penalties for non-compliance amongst visitors	
MANAGEMENT ACTION 5.5 Provide training to enhance the knowledge and capabilities of tour guides to provide visitors with a high quality and safe experience	
MANAGEMENT ACTION 5.6 Develop an Emergency Response plan for visitors snorkelling in the MPA	
INDICATORS • Level of visitor satisfaction	**TARGETS** • Increase

11 - Compliance & Enforcement

11.1 ENFORCEMENT RESPONSIBILITIES

Within the Hanifaru MPA, rangers, patrol and monitor the area. However, they do not have enforcement powers. Any incidents of non-compliance are recorded and escalated to the EPA or police for further investigation and to undertake compliance action.

11.2 POWERS

The police have powers conferred to them under the Act No.34/2020 (Maldives Police Act).

This allows them to implement environmental laws and regulations and investigate environmental crimes, including the issue of fines.

11.2 COMPLIANCE MEASURES & PENALTIES

Any person in breach of the Regulation is subject to a fine between MVR5.00 and RF 500 for minor offences and up to a maximum of MVR100,000,000 for major offences.

Laws, regulations, guidelines and code of conduct can be found under the Environmental Protection Agency website. Codes of conduct and guidelines do not incur any enforcement penalties and steps will be taken to educate those in breach of those measures.

11.3 REPORTING NON-COMPLIANCE

Members of the public can report any incidents of non-compliance to the ranger service or police. A confidential hot line is also available which is direct to the EPA (+960 7980379).

The EPA also welcome reports via social media (Twitter, Facebook, WhatsApp, Viber, Telegram).

11.4 ENFORCEMENT APPROACH

An Intelligence-Led Risk-Based Enforcement approach will be adopted to ensure that the available resource is used as efficiently and as effectively as possible. Enforcement tools that are available include:

→ Education and outreach
→ Verbal and written warnings
→ Fines *(including a transparent, proportionate and consistent approach to the issue of fines)*

12 – Monitoring & Evaluation

Evaluation of the Hanifaru MPA Conservation Action Plan will determine whether management actions are achieving the desired outcomes, addressing priority management needs, and meeting the objectives of the MPA.

Annual reviews, conducted by the Baa Atoll Biosphere Reserve Office in collaboration with key stakeholders, will determine whether activities have occurred as planned and will identify any issues affecting implementation and resource allocation.

The Hanifaru MPA Conservation Action Plan will undergo a comprehensive review and protected area management effectiveness (PAME) evaluation every five years to be completed through a consultation process with stakeholders and other interested parties.

The PAME evaluation will consider new evidence from scientific research and long-term monitoring and will assess the extent to which management actions have achieved the MPA objectives over the five-year period.

The Hanifaru MPA Research and Monitoring Plan sets out how the key ecological and economic values will be monitored and includes long-term targets and thresholds to determine whether management objectives are being achieved.

This information will be used to inform the PAME evaluation. The evaluation will review management actions completed, revise strategies and activities accordingly and, as appropriate, add new strategies and activities based on priority management needs and any new threats identified.

The output of this activity will be a revised Hanifaru MPA Conservation Action Plan for the next five years of operations.

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14 - Appendices

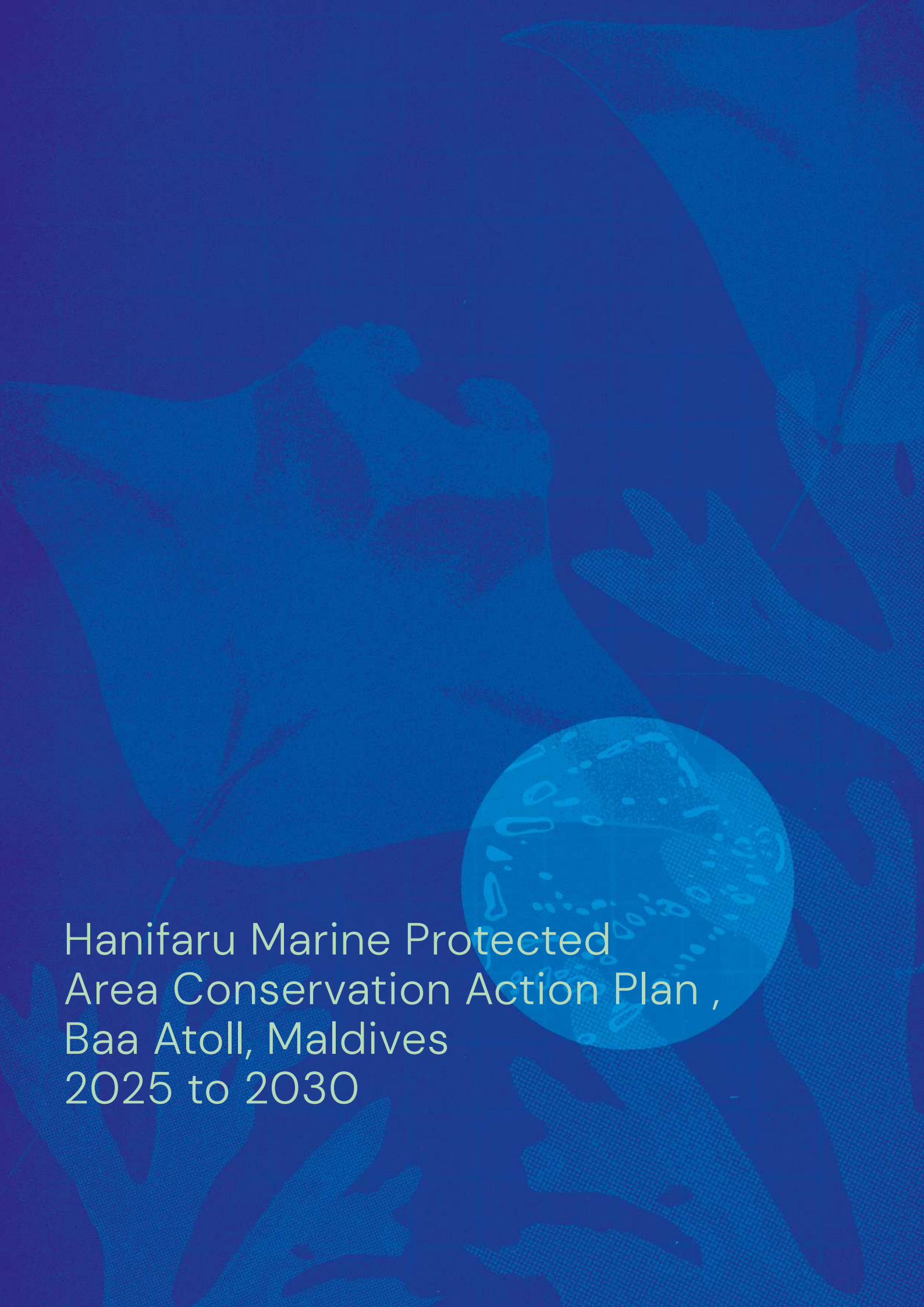
TABLE 6 Regulations governing the use of Hanifaru MPA

REGULATION GOVERNING THE SITE USAGE FOR HANIFARU MPA	
No. of vessels that can engaged within the MPA is limited to 5	Government Directive No. 133-EE/2009/19 (appx 2)
The number of swimmers or divers entering the sea is limited to a maximum of 80 persons	Government directive No. 133-EE/2009/19 (appx 2)

REGULATION AND/OR RECOMMENDATION GOVERNING BOAT CONDUCT IN HANIFARU BAY MPA	
Speed limit within the protected area should not exceed 10 nautical miles	Government Directive No. 133- EE/2009/19 (Appendix 2)
Boats should enter the bay with extreme care at a slow speed (to avoid collisions with swimmers or animals)	Baa Atoll MoU - Maldivian Manta Ray Project Guidelines (Appendix 1 & 4)
Boats should enter the bay by the routes marked in red (Figure 2.4) & avoid manoeuvring over the bay (this keeps boats a safe distance from the swimmers & animals)	Baa Atoll MoU - Maldivian Manta Ray Project Guidelines (Appendix 1 & 4)
Boats should not pick up divers or snorkelers over the bay, they should swim back to the boat (this keeps boats a safe distance from the swimmers and animals)	Baa Atoll MoU - Maldivian Manta Ray Project Guidelines (Appendix 1 & 4)
Anchoring except in an emergency situation which is life threatening or leading to the destruction of the vessel	Government Directive No. 133- EE/2009/19 (Appendix 2)

REGULATION AND/OR RECOMMENDATION GOVERNING BOAT CONDUCT IN HANIFARU BAY MPA	
Boats should anchor at the eastern end of the bay on the sandy shelf. Boats should not anchor in the bay, on the cleaning station or in deeper water (due to the size of the bay boats need to anchor in order that they remain a safe distance from the swimmers and animals, boats should not anchor in deep water as animals may become entangled in anchor lines)	Baa Atoll MoU - Maldivian Manta Ray Project Guidelines (Appendix 1 & 4)
No vessel should come closer than 10 metres to reach the whale shark (for the purposes of this study this regulation has also been extended to manta rays)	Government Directive No. 133- EE/2009/19 (Appendix 2)

REGULATIONS AND RECOMMENDATIONS GOVERNING IN WATER CONDUCT IN HANIFARU MPA	
No person entering the water is allowed to disturb or tamper with whale sharks or manta rays	Government Directive No. 133- EE/2009/19 (Appendix 2)
It is not allowed to TOUCH, RIDE or SWIM AFTER any animal	Baa Atoll MoU - Maldivian Manta Ray Project Guidelines (Appendix 1 & 4)
Divers and snorkelers should keep a suggested distance of 3 to 4m from the animals	Baa Atoll MoU - Maldivian Manta Ray Project Guidelines Government Whale Shark Interaction Guidelines (Appendix 1,3 & 4)
The normal movements of the animals should not be restricted	Maldivian Manta Ray Project Guidelines (Appendix 4)



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