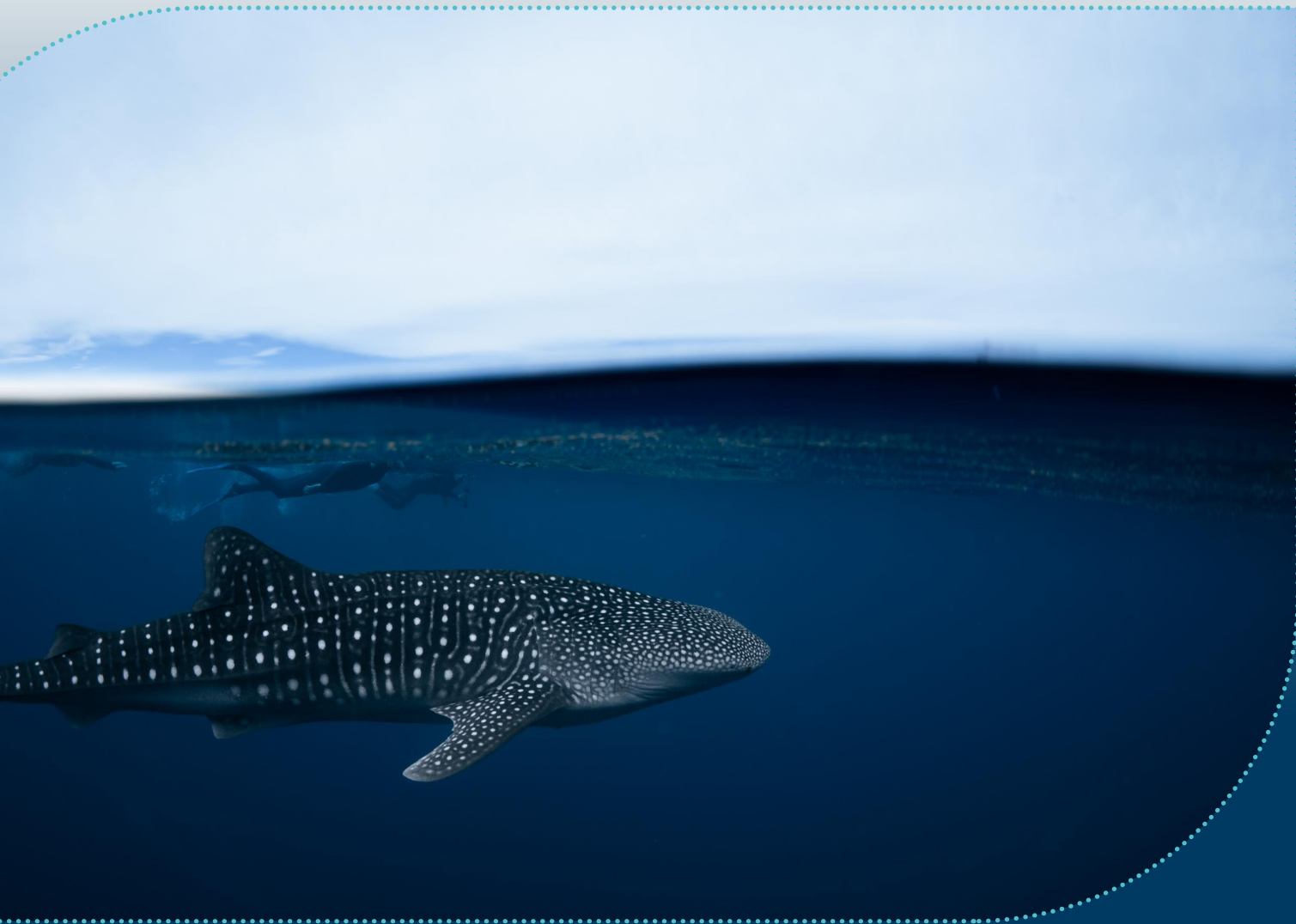


Whale shark management program

Draft for public comment

August 2026



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August 2026

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Front photo – Oashy Photo Onboard Ningaloo Discovery

Back photo – Oashy Photo

Acknowledgments

The Department of Biodiversity, Conservation and Attractions (DBCA) acknowledges the Baiyungu, Thalanyji and Yinigurdira people as the Traditional Owners of the Nyinggulu (Ningaloo) coast and recognises their continuing connection to the land, waters and communities of the Coral Bay and Exmouth areas.

The Nyinggulu (Ningaloo) Coast is culturally significant to the local Aboriginal people. The word “Nyinggulu” was recorded in the 1800s and means “deep water”. DBCA acknowledges the important role the Traditional Owners have in sustaining the unique environment of the Ningaloo Marine Park.

DBCA acknowledges the contribution of the commercial whale shark tour industry to the conservation of whale sharks and promotion of conservation to visitors to Ningaloo Reef, as well as their contribution to the Exmouth and Coral Bay communities and tourism economy.

DBCA also acknowledges the contribution of our partners and various stakeholder groups to the preparation of this draft whale shark management program including Traditional Owners, commercial tour operators, research institutions, conservation organisations, government and local businesses.

Have Your Say

This draft management program is available for public comment. Your comments are valuable and will help DBCA understand the diversity of community views. Have your say by writing to:

Project Manager at wsmp@dbca.wa.gov.au

Your comments will inform the final management program.

Gujawari (goo-joo-wa-ry) – whale shark

The following story is told by Hazel Walgar, a Baiyungu woman from the Ganyara language group, and Traditional Owner who lives on Country and is involved in the joint management of Ningaloo Marine Park (NMP) and adjacent lands. Hazel has shared the following story about the Gujawari, our regular visitors to the Nyinggulu Coast, in order to highlight the cultural connection and understanding that Traditional Owners have for the land and sea.

Gujawari – whale shark, our regular visitor to Nyinggulu!

They visit us every Nyarlba season which is springtime here in Nyinggulu.

Thanardi (dun-ar-dee), the ocean, is flourishing, the winter rains have come and dumped lots of vitamins and nutrients. This creates plenty of food for Gujawari, by now his journey begins to Nyinggulu.

Gujawari has been coming here for many generations, they have a strong connection to this area, our old people have seen them.

Stories have been passed down from our old people, from back when the Nyinggulu reef was closer to land. They thought he looked like a large floating stone, that's why they gave him the name - Gujawari. In our Baiyungu language, 'Guja' means stone and money.

We don't know where Gujawari comes from, all we know is that they travel from a long way. Their journey has continued here in Nyinggulu for many generations.

Gujawari are highly respected to Traditional Owners, they connect to us spiritually.

When the Gujawari arrives, we share a sense of feeling welcomed, whole and trusted.

Safe and secure emotionally and physically.

We connect spiritually, we don't need to talk.

Just two souls connecting.

This story is not to be copied, reproduced, or used verbally, electronically or physically without the author's consent.

Summary

The draft *Whale shark management program* (2026) has been developed by the Department of Biodiversity, Conservation and Attractions (DBCA) to provide a framework for whale shark conservation and to guide the management of human interactions with whale sharks in Western Australia (WA), particularly within the Ningaloo Marine Park (NMP) where whale sharks aggregate. Once endorsed this management program will replace the previous program approved in 2013.

The whale shark (*Rhincodon typus*) is a migratory protected species within all WA State and Commonwealth waters. DBCA manages whale sharks and their habitat within marine parks and reserves under the *Conservation and Land Management Act 1984* and regulates human interactions with whale sharks statewide under the *Biodiversity Conservation Act 2016* and Biodiversity Conservation Regulations 2018.

A significant seasonal aggregation of whale sharks occurs in the waters of NMP from March to July, each year, with sightings until as late as October in some years. As the world's largest fish, whale sharks are highly recognisable and have become a symbol for marine conservation. The iconic nature of whale sharks contributed to the outstanding universal value of the Ningaloo Coast inscription on the World Heritage List. A recreation and tourism industry focused on whale shark interactions has grown and developed around the seasonal occurrence on the Ningaloo Coast. There is the potential to further grow public understanding of and support for protection of marine environments through well-managed human interactions with whale sharks, delivering information and education.

Sustainable whale shark tourism in NMP has been managed by DBCA in partnership with Traditional Owners and commercial tourism operators since 1993 and includes licensing operators to conduct whale shark interaction tours, supported by community awareness-raising, education and scientific research. The commercial whale shark tourism operators collect data to inform management of whale sharks.

This management program has adopted the following strategic objectives for the management of whale sharks in WA:

1. Conserve the habitat and ecological processes vital for migratory whale sharks in WA.
2. Implement conservation and stewardship practices to ensure whale shark interactions are undertaken in a sustainable manner for the protection of whale sharks in WA.
3. Manage a best practice nature-based tourism industry with whale sharks in marine parks.
4. Monitor whale sharks within marine parks and undertake scientific research of whale sharks.

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List of acronyms

AMSA	Australian Maritime Safety Authority
BC Act	<i>Biodiversity Conservation Act 2016</i>
BC Regulations	Biodiversity Conservation Regulations 2018
CALM Act	<i>Conservation and Land Management Act 1984</i>
CALM Regulations	Conservation and Land Management Regulations 2002
CPC	Conservation and Parks Commission
CTO	Commercial Tour Operator
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DTMI	Department of Transport and Major Infrastructure
EMS	Electronic Monitoring System
EOI	Expression of Interest
FRM Act	<i>Fish Resources Management Act 1994</i>
MoU	Memorandum of Understanding
NMP	Ningaloo Marine Park
NTGAC	Nganhurra Thanardi Garrbu Aboriginal Corporation
WA	Western Australia

1 Introduction

The whale shark (*Rhincodon typus*), Gujawari to Traditional Owners of the Nyinggulu Coast, is a migratory shark species protected within all State and Commonwealth waters. The Department of Biodiversity, Conservation and Attractions (DBCA, 'the department') manages whale sharks and their habitat within marine parks and reserves under the *Conservation and Land Management Act 1984* (CALM Act) and regulates whale shark interactions statewide under the *Biodiversity Conservation Act 2016* (BC Act) and Biodiversity Conservation Regulations 2018 (BC Regulations). Whale sharks are also protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the Western Australia (WA) *Fish Resources Management Act 1994* (FRM Act).

WA hosts one of the largest aggregations of whale sharks and its uniqueness contributed to the Ningaloo Coast being inscribed on the World Heritage List. The seasonal aggregation of whale sharks occurs in the coastal waters of Ningaloo Marine Park (NMP) from March to July, with sightings extending as late as October.

An increasingly popular nature-based tourism industry that offers the opportunity to swim with a whale shark has developed around the seasonal occurrence and has made Coral Bay and Exmouth highly popular destinations for domestic and international tourists. This industry is a focal point for marine stewardship and education of visitors to the NMP and is globally recognised as an outstanding wildlife interaction experience that is managed under a best practice framework (Hender and Pabel 2024).

The department, in collaboration with commercial tour operators and external researchers, implements a research and monitoring program which has demonstrated that the current framework for the commercial whale shark tour industry has no apparent impacts on the conservation of the seasonal whale shark aggregation in NMP.

Human interactions can result in localised or short-term impacts on whale shark behaviour such as diving or avoidance leading to less time spent foraging/feeding and thermoregulating, increased stress or even injury from boat strike. Management of human interactions with whale sharks including recreational and commercial vessels, swimming, research activities, noise, and pollution aims to ensure whale sharks continue to visit WA and impacts are minimised.

1.1 Management context

This draft Whale Shark Management Program 2026 (herein 'the management program') has been prepared by DBCA to provide a framework for whale shark conservation and to guide the management of best practice commercial tourism, recreation and other human interactions with whale sharks in WA, particularly within the NMP where whale sharks aggregate.

The management program is informed by an assessment of performance measures in the previous 2013 whale shark management program (section 4.1), a review of

scientific literature, analysis of long-term temporal and spatial monitoring data collected by commercial tour operators (CTOs) (section 2.2), consideration of the current and potential threats facing whale sharks in WA and globally (section 2.3), and stakeholder feedback.

The management program identifies management objectives, desired outcomes and management actions for WA State waters. The management program makes recommendations on the management, education, research and monitoring necessary to conserve and protect this species in WA and provides an adaptive approach that will guide decision making by DBCA.

1.2 Vision

WA is a recognised world leader in whale shark conservation with a healthy whale shark population and a best practice, nature-based tourism industry.

1.3 Strategic objectives

The strategic objectives for the management of whale sharks in WA are to:

1. Conserve the habitat and ecological processes vital for migratory whale sharks in WA.
2. Implement conservation and stewardship practices to ensure whale shark interactions are undertaken in a sustainable manner for the protection of whale sharks in WA.
3. Manage a best practice nature-based tourism industry with whale sharks in marine parks.
4. Monitor whale sharks within marine parks and undertake scientific research of whale sharks.

Scientific findings about whale sharks in NMP

- The number of whale sharks observed in NMP varies from year to year, and some tagged whale sharks have been shown to leave NMP and then return within the same year. There is no robust abundance estimate for whale sharks that aggregate in NMP.
- Modelling data has found whale shark abundance in NMP to be higher during La Niña years than during El Niño years (Sleeman et al. 2010). Higher sea surface temperatures recorded in La Niña years appear to correlate with the presence of whale sharks in NMP as late as September and October.
- Whale sharks display surface filter feeding primarily during sunset and the first hours of night (Gleiss et al. 2013) and feed over a wide range of habitats, including reef edges and deeper waters.
- Vessel strikes may be a current pressure (Speed et al. 2008, Lester et al. 2020) although there is no evidence that injuries and scarring had a negative impact on the survival and residency time of individuals in the NMP.
- Whale sharks with fresh scars suggest that some vessel strikes may occur in NMP or in State or Commonwealth waters and indicates a need for awareness raising to ensure skippers minimise this risk. An understanding of the types of vessels which may pose a risk of vessel strike to whale sharks could inform management strategies.
- There has been no evidence to suggest that tour group interactions with whale sharks have affected the likelihood of whale shark re-encounters (Sanzogni et al. 2015, Lester et al. 2019, Tyne et al. 2025).
- Aerial surveys and vessel-based surveys have shown that whale sharks changed direction more frequently in the presence of vessels, which may be an avoidance strategy and have potential short-term fitness costs, but no evidence of long-term effects were determined (Raudino et al. 2016). Direction of travel was also shown to change in the presence of tour groups although this was not erratic (Reynolds et al. 2024).
- Techniques to monitor whale sharks include:
 - Photographs taken by CTOs are uploaded to [Sharkbook: Wildbook for Sharks](#) and used to determine the identity of the individual animal.
 - Photo identification to build re-sighting profiles for individual whale sharks that can be used to assess potential threats and management responses, where the original photo is the 'mark' and resightings of a recognisable individual are the 'recapture'.
 - Daily diary tags to investigate the short-term behavioural changes in whale sharks involved in tourist interactions (Reynolds et al. 2024).
 - Remote-sensing tags to measure the dive processes and investigate thermoregulation processes of whale sharks (Thums et al. 2013).
 - Satellite tracking studies to investigate movement patterns.

1.4 Legislative and policy framework

State

- [Conservation and Land Management Act 1984](#): Protects whale sharks in marine reserves, requiring licences for commercial activities.
- [Conservation and Land Management Regulations 2002](#) (CALM Regulations): Grants a licence to undertake commercial activities in the NMP under these regulations.
- [Biodiversity Conservation Act 2016](#): Protects all native fauna, including whale sharks, making it an offence to take, or deal with, protected fauna without a licence. Under the BC Act, the whale shark is listed as 'migratory' and as specially protected fauna in the category of 'other specially protected fauna' in recognition of the need to manage human interactions to ensure they do not pose a threat to this species.
- [Biodiversity Conservation Regulations 2018](#): Outlines listing process for fauna and regulates how interactions with whale sharks are to occur, including separation distances.
- [Fish Resources Management Act 1984](#): Makes it an offence to take, possess, sell, consign or bring a whale shark into the State or into State waters.

National

- [Environment Protection and Biodiversity Conservation Act 1999](#): Australia's main national environmental legislation. Whale sharks are listed as 'vulnerable' and 'migratory,' protecting them from harm and requiring permits for any significant impact activities.
- [Marine Safety \(Domestic Commercial Vessel\) National Law Act 2012](#): All domestic commercial vessels must meet the survey requirements of the Australian Maritime Safety Authority (AMSA) and be under the command of an appropriately qualified skipper.

1.4.1 DBCA's roles and responsibilities

DBCA has legislative responsibilities for the conservation of fauna through the BC Act and the CALM Act. In relation to whale sharks in State waters, this includes:

- the conservation and protection of biodiversity in WA including preparing and implementing programs for the conservation and management of the State's biodiversity;
- promoting and facilitating public recreation to the extent it is compatible with the conservation of the natural environment, on DBCA-managed lands and waters, and consistent with BC Regulations separation distances; and
- carrying out research in relation to the management of lands and waters, and conservation and protection of flora and fauna.

DBCA leads implementation of the whale shark management program including managing interactions with whale sharks and ensuring compliance with BC Act and

BC Regulation separation distances with recreational visitors, vessels and the activities of researchers and CTOs. This management program is in line with the objectives and targets outlined for whale sharks in the *Management plan for the Ningaloo Marine Park and Muiron Islands Management Area 2005-2015*.

Policy and guidance

DBCA's *Policy no. 37 Management of Wildlife Utilisation* outlines the strategies and legislative basis to ensure commercial fauna utilisation is managed in a sustainable manner both for the species involved and the environment. The policy includes implementation strategies such as licensing, research and the preparation of wildlife management programs to achieve this objective.

DBCA's *Policy no. 18 Recreation, Tourism and Visitor Services* assists DBCA to achieve the objective to 'provide world-class recreation and tourism opportunities, services and facilities for visitors to the public conservation estate while maintaining in perpetuity WA's natural and cultural heritage'.

These responsibilities can be shared between DBCA, CTOs and the public (including recreational vessels) interacting with whale sharks by:

- ensuring visitors have a quality experience through the provision of quality services, facilities and interpretation;
- conducting operations and interactions in an environmentally sustainable way in accordance with legislative requirements to assist in protecting and managing nature conservation and cultural values.

Licensing of commercial tourism

To ensure commercial tourism activities are consistent with conserving the marine environment and protecting whale sharks, DBCA grants licences to operators conducting commercial activities on lands and waters that are managed by DBCA under the CALM Act. Licensing allows DBCA to assess and authorise suitable access and activities and to apply conditions to ensure the protection of natural and cultural values (see section 3.4). Only licensed CTOs are permitted to operate commercial tours that offer interactions with whale sharks in the NMP.

1.4.2 Department of Transport and Major Infrastructure legislation

Boating in WA State waters is regulated by the Department of Transport and Major Infrastructure (DTMI) through the *Marine Act 1982* and Navigable Waters Regulations and applies within marine conservation reserves, including NMP. Recreational vessels must be registered with DTMI, and a recreational skipper's ticket may be required.

1.4.3 Responsibilities of authorities and government agencies

DBCA is primarily responsible for the management of whale shark interactions in WA State waters including NMP (Figure 1) and the implementation of the management program. DBCA and the Department of Climate Change, Energy, the Environment and Water (DCCEEW) cooperate on the management of the NMP in State and Commonwealth waters, including sharing data and information. DBCA consults with

other organisations (e.g. local government authorities, DTMI, AMSA) with responsibilities in the surrounding waters and coastal areas, to ensure the various regulatory and management practices are complementary. DBCA liaises with external research organisations conducting whale shark research under DBCA permits in NMP. Authorities and agencies with statutory responsibilities in NMP are listed in Table 1.

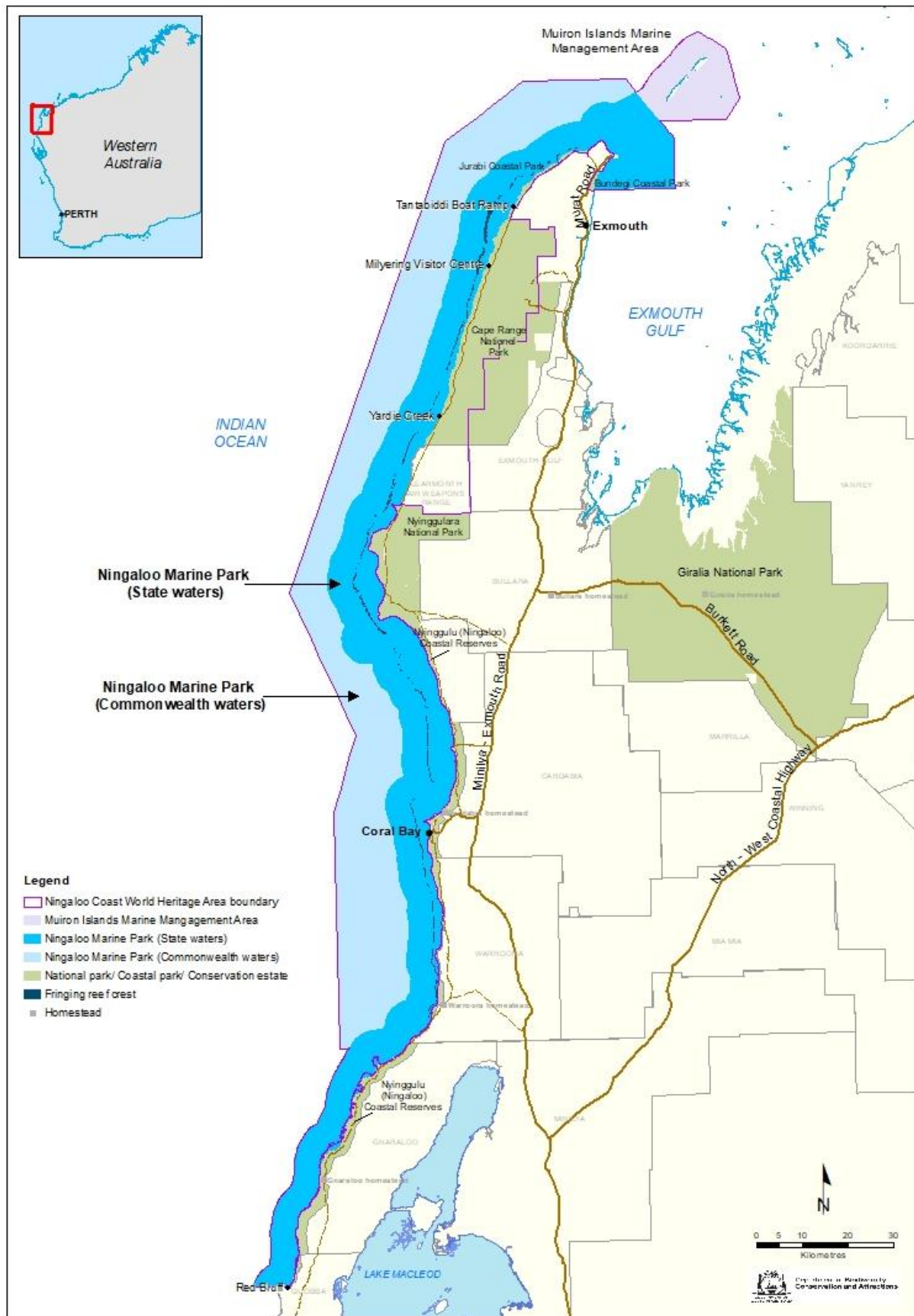


Figure 1. Ningaloo Marine Park.

Table 1. Authorities and agencies with responsibilities in NMP.

Authority / Agency	Responsibility
AMSA	• Australia's national agency for maritime safety, protection of the marine environment and maritime aviation search and rescue. AMSA regulates the safety of commercial vessels • Manages the issuing of commercial surveys for vessels allowing the carrying of paying passengers
Conservation and Parks Commission (CPC)	• Vested body for NMP • Provides policy advice to the Minister for Environment • Audits the implementation of the Ningaloo Marine Park and Muiron Islands management plan • Is consulted in relation to licence applications for commercial operations
DBCA	Manages whale shark interactions within NMP through: • Implementation of the whale shark wildlife management program and Ningaloo Marine Park Management Plan. • Coordination with other agencies and stakeholders • Implementation of education and public participation programs • Implementation of research and monitoring programs • Coordination of management intervention/compliance programs • Licences and manages whale shark operators to conduct commercial operations within NMP (State waters) • Is signatory to the MoU with DCCEEW regarding day-to-day management of whale sharks within NMP (Commonwealth waters) • Is signatory to the MoU with DCCEEW regarding World Heritage values management within NMP
DCCEEW	• Manages NMP (Commonwealth waters) • Administers the Commonwealth EPBC Act under which whale sharks are listed as a migratory species • Licences whale shark operators to conduct commercial operations within NMP (Commonwealth waters) • Is signatory to the MoU with DBCA regarding day-to-day management of whale sharks within NMP (Commonwealth waters) • Is signatory to the MoU with DBCA regarding World Heritage values management within NMP
Shire of Exmouth	• Manages the coastal infrastructure at Tantabiddi boat ramp and the Exmouth Marina used by Exmouth whale shark operators and recreational vessels accessing the coastal waters in the Exmouth area.
DTMI	• Responsible for all boating regulations, safety standards and marine pollution incidents • Manages the coastal infrastructure at the Coral Bay boat launching facility used by Coral Bay whale shark operators
Department of Primary Industries and Regional Development	• Administers the FRM Act

International

Conventions and agreements are developed to ensure conservation of species and habitats through international cooperation. The whale shark is included in several international conventions and agreements:

- [Convention on Migratory Species](#): Provides a framework within which its 117 parties may tackle threats that operate throughout a species' range. These arrangements generally include several targeted conservation initiatives such as habitat protection and protection from the identified threats impacting adversely on the species.
- [International Union for the Conservation of Nature](#) - Red List of Threatened Species: Identifies the global extinction risk status of species and lists the whale shark as 'endangered'.
- [Convention on International Trade in Endangered Species of Wild Fauna and Flora](#): Regulates trade in whale shark products so that such trade will not have a detrimental impact on the survival of the species.
- [United Nations Convention on the Law of the Sea](#): Defines the rights and responsibilities of nations in their use of the world's oceans.
- [Convention Concerning the Protection of the World Cultural and Natural Heritage](#) (the World Heritage Convention): The Ningaloo Coast is a World Heritage Site, with the whale shark aggregation contributing to its inscription in 2011.

2 Background

2.1 Whale sharks in Ningaloo Marine Park

Like many shark species, whale sharks have innate biological characteristics, such as large size, slow growth, late maturation, and longevity that may limit recruitment and make them particularly susceptible to exploitation and impacts from human activities. These characteristics also suggest that populations are likely to be slow to recover should they decline. Estimating global whale shark populations is difficult due to limited data availability and their migratory nature, although it is generally accepted that numbers are declining worldwide (Fowler 2000, Norman 2002). Despite increased efforts in research and monitoring over the past decade there are still knowledge gaps regarding the biology and ecology of whale sharks (see section 3.6).

The waters seaward of the reef crest at NMP host a large and predictable aggregation of whale sharks each year. This aggregation has been closely linked with an increase in productivity in the region associated with a mass coral spawning that occurs around March to April each year (Taylor 1996), however the number of whale sharks observed in NMP varies from year to year (Wilson et al. 2001, Sleeman et al. 2010).

The annual aggregation of whale sharks at NMP was first documented in the early 1980s and its predictability led to the emergence of a tourism industry offering in-water interactions from the mid 1990's. NMP is now recognised around the world as a

destination for quality, well-managed whale shark interactions, and a model for sustainable nature-based tourism. The appeal of swimming with such enigmatic creatures has led to growth in the whale shark tourism industry (Figure 2).

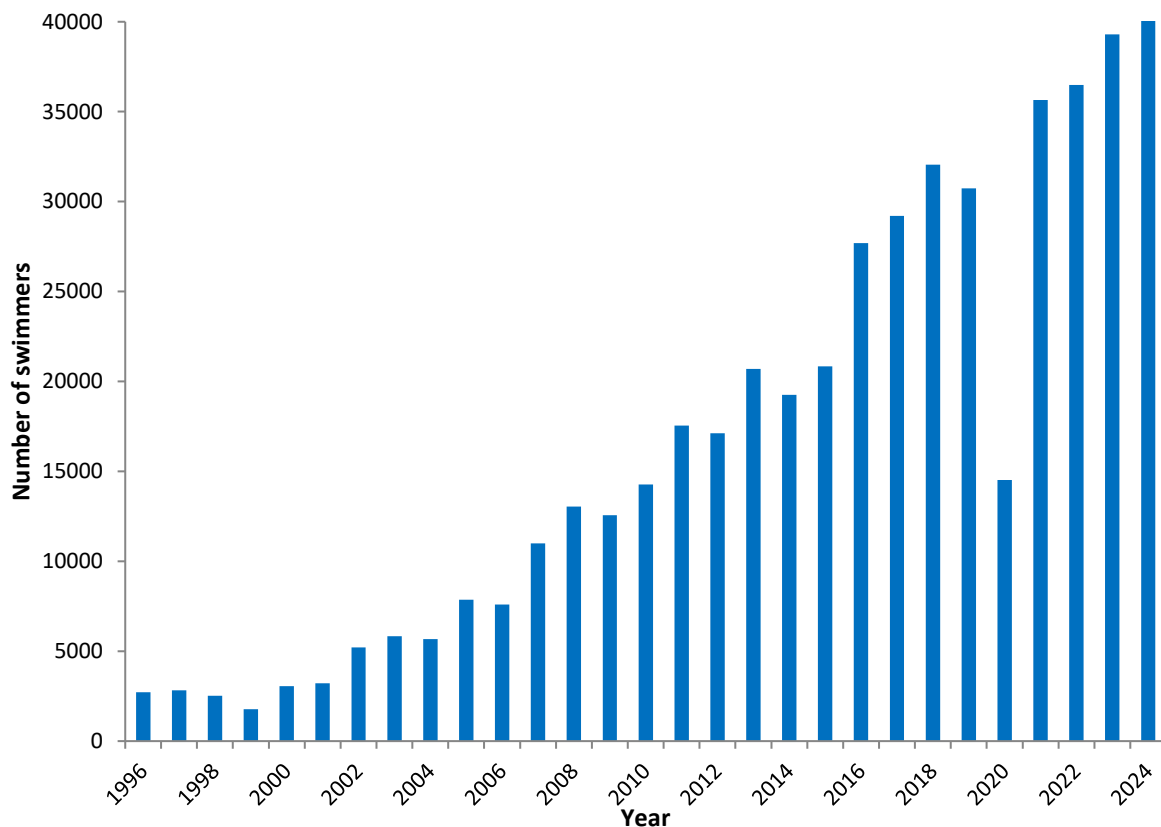


Figure 2. Total number of swimmers on commercial whale shark tours recorded in NMP annually between 1996 and 2024.

2.2 Monitoring whale shark interactions

An electronic monitoring system (EMS) is installed on each of the licensed tour vessels that records the location of the vessel, the number and category of passengers and details of each whale shark interaction. CTOs also take photographs of individual whale sharks during interactions. Analysis of the data collected from 2011 to 2019 (Tyne et al. 2025) and 2020 to 2023 included the following findings:

- The number of whale shark encounters increased from 3,211 in 2011 to 7,393 in 2023, an increase of 130 per cent. Of these whale shark encounters, 1,616 individual whale sharks have been identified using the Sharkbook database. 586 whale sharks were recorded only once, while 1030 individual whale sharks were recorded on multiple occasions between 2011 and 2023.
- There is some evidence of short-term behavioural impacts associated with vessel and swimmer tour group interactions, however there is no evidence to suggest these interactions have affected the likelihood of whale shark re-encounter. Individuals continue to return to NMP, indicating that, although some minor impacts may occur, the whale shark aggregation is not currently significantly affected by vessel or in-water human interactions.

- The whale shark encounter duration decreased significantly as the number of encounters with individual whale sharks per day increased in Tantabiddi, Coral Bay and across the NMP.
- Repeated interactions for an individual whale shark across one day could result in a potential behavioural disturbance and fitness cost to the whale shark (Tyne et al. 2025).
- For every increase of one whale shark encounter per day the study found a seven per cent decrease in encounter duration for Tantabiddi, a twelve per cent decrease in encounter duration for Coral Bay and an eight per cent decrease in encounter duration overall across the NMP.
- Potential disruption to individual whale sharks' daily behaviour patterns could result in less time spent foraging/feeding and thermoregulating, increased stress from the presence of vessels and people and avoidance of vessels.
- There were 124 individuals encountered multiple times within one day between 2011 and 2023. On average individual identified whale sharks were encountered 3.74 times per day ($\pm$ SD 2.65) during the study period and on three occasions two individual whale sharks were encountered over 20 times in one day.
- The mean whale shark encounter duration across the study period was 15.30 minutes ($\pm$ SD 12.96).
- The study recommended that cumulative whale shark encounter durations require further investigation, particularly their effect on the individual whale sharks involved and means of minimising repeated interactions should be considered.
- The review of the EMS data identified the spatial distribution of whale shark encounters, including hotspots of activity, around both Tantabiddi and Coral Bay.

2.3 Threats

Outside of State and Commonwealth of Australia waters, threats to whale sharks are principally due to harvesting and boat strikes (Womersley et al. 2022). Whale sharks also face threats in marine ecosystems from pollutants, entanglement, rising ocean temperatures and acidification that are changing the physical structure and food networks. Key pressures on whale sharks across their global range are outlined in Table 2 which can impact on the local population.

Table 2. Key pressures on whale sharks across their global range.

Pressure	Consequence
Commercial fishing and international trade	The decline in whale shark numbers globally over the past few decades can largely be attributed to overfishing (Rowat et al. 2021). Whale sharks are vulnerable to capture and there is commercial demand for whale shark meat, fins and other by-products. Harvesting of whale sharks outside of State and Australian waters occurs and may impact the population of whale sharks that visit NMP.
Fisheries bycatch	The incidental capture of whale sharks occurs in purse-seine or pelagic and tuna gillnet fisheries, although safe release practices are employed in

	fisheries in the Indian, Pacific and Atlantic oceans (Rowat et al. 2021). Where poor release techniques are used, delayed mortality may result (Rowat et al 2021).
Vessel strike	The whale shark's habit of swimming at or near the surface makes the species susceptible to injuries caused by collisions with boats and propellers. Injuries can cause mortality, impact fitness or result in behavioural and physiological changes (Rowat et al. 2021, Wormsley 2022). Injuries from boat and propeller strikes are commonly recorded in photo identification libraries but there is limited data on the level of disturbance or mortality from boat traffic. The frequency of vessel strikes is lower in NMP than other tourism interaction locations (Lester et al. 2020). Although it is difficult to determine whether injuries resulting from boat strike occur within or outside NMP there have been no mortalities due to boat strike reported in NMP. There is potential that increased vessel congestion may increase the risk of vessel strike in NMP.
Human disturbance	Unmanaged or poorly managed ecotourism across their global range could interfere with the natural behaviour of whale sharks. Whale sharks have been shown to change behaviour in the presence of vessels and swimmers (Araujo et al. 2017, Blanchard et al. 2020), which can detract from other fitness-related activities, such as foraging, thermoregulating and resting. Consequently, long term effects may include displacement from areas, stress, and possibly impacts on reproduction and survival and even mortality (Norman, 2002, Rowat et al. 2021). There is potential that increased vessel congestion may have an adverse impact on whale shark distribution and use of NMP if not managed appropriately. Noting that vessels and swimmers may change behaviour of whale sharks, unmanaged interactions have the potential to cause disturbance e.g. where recreational vessel users may not adhere to separation distances and approach protocols for whale sharks. In NMP, there has been an increase in commercial tours and recreational vessel use over the past 20 years.
Marine pollution	Filter feeders, such as whale sharks can be impacted by microplastic ingestion, causing contamination and plastic-associated toxicity. Industrial development (oil and gas) within proximity to NMP could impact on whale sharks if an oil spill occurred, resulting in whale sharks ingesting oil, food sources could be disrupted, and the gills and respiratory capacity can be affected. The current reported incidence of entanglement of whale sharks in fishing gear or litter is considered low in NMP.

Underwater noise	Whale sharks have been observed to dive in response to ignition of nearby inboard boat motors at NMP which may be a response to the low frequency sound of such motors. The long-term impacts of vessel noise are unknown. Anthropogenic underwater noise from a range of sources, such as commercial vessels, oil and gas exploration, and military sound sources occurs in WA State waters but the impact to whale sharks is unknown (Peel et al. 2021). The potential impacts of seismic testing by the oil and gas industry on whale sharks have yet to be investigated.
Climate change	More whale sharks aggregate in NMP during strong La Niña events potentially due to higher sea surface temperatures which may drive productivity changes and the availability of whale shark prey in NMP. Climate change could alter the strength of these oceanographic processes, which in turn could affect the distribution, movements, and relative abundance of whale sharks. Although climate change cannot be addressed at a marine park level alone, it is important to recognise that NMP is under pressure from climate change.
Prey depletion	Changes in ocean temperatures and acidification may affect the distribution of prey resources which could lead to changes in whale shark movements and distribution (Rowat et al. 2021).
Cumulative pressures	The cumulative impacts of the above global pressures on the whale sharks that visit WA State waters are not well understood. Long-term impacts on prey availability, fitness and behavioural changes from these pressures could result in changes to the presence and health of whale sharks in NMP.

3 Management

3.1 Traditional Owner involvement

The management of whale sharks within NMP is within the Gnulli Gnulli number 2 and 3 – Yinggarda, Baiyungu and Thalanyji People determination area. In 2023, WA State Government signed an Indigenous Land Use Agreement with Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) that includes the joint management and joint vesting of NMP. Joint management is a partnership between Aboriginal people and the State Government that is based on recognition, trust, respect, and shared goals and achievements across WA's conservation estate.

Traditional Owners will be involved in the preparation and implementation of this management program through the Nyinggulu Coast Joint Management Body (JMB). Opportunities for further engagement and involvement of Traditional Owners will be identified through the JMB.

3.2 Management outcomes and actions

The following section outlines the desired outcomes of the management program, and the actions to achieve them through the management of human interactions with whale sharks in WA and particularly within NMP. Ongoing monitoring continues to measure and inform the management program. Management will be adapted should pressures increase or as new information becomes available and a precautionary approach to management will continue to be adopted to ensure that short-term and long-term impacts on whale sharks are avoided.

Table 3. Management outcomes and actions.

Desired outcome 1: To ensure the migratory status and welfare of whale sharks is prioritised in decision-making and that whale shark management is underpinned by the principles of ecological sustainable development.
1. Collaborate with State, Commonwealth and international partners on the conservation and management of whale sharks. 2. Provide advice to development proponents, where appropriate, on the conservation status of whale sharks and potential impacts of proposals to whale sharks and their key habitat in WA. 3. Implement regular reporting of whale shark population condition, pressures and management response within marine park reporting to the CPC. 4. Regularly review and adapt management with new information on whale sharks, including this management program.
Desired outcome 2: The conservation of whale sharks through community education and partnerships that encourage marine stewardship.
1. Communicate monitoring and research findings to tourism, conservation and research partners and the community to support marine stewardship.

2. Continue to empower CTOs to be stewards of NMP and whale shark conservation through training and education materials for visitors. 3. Develop and implement education programs aimed at increasing awareness and marine stewardship for whale shark conservation, including to reduce the risk of vessel strike and disturbance.
Desired outcome 3: To ensure the commercial whale shark tourism industry in WA continues to be best practice, providing a high quality visitor experience and contributes to whale shark conservation.
1. Engage with CTOs and industry staff to share knowledge that supports whale shark conservation. 2. Continue to implement licence conditions and, using the best available science information, adapt these as necessary in communication with operators. 3. Maintain appropriate regulation and licensing of whale shark interactions in accordance with the CALM and BC Regulations. 4. Ensure CTOs understand and comply with licence conditions through training, compliance monitoring and annual reviews of compliance data. 5. Continue to restrict the number of licences and swimmers as a mechanism to ensure sustainability based on current scientific monitoring data. 6. Continue to develop and implement an integrated monitoring, evaluation and research program that measures pressures on whale sharks and informs management decisions. 7. Review and use research and monitoring outcomes to inform management strategies to avoid and minimise impacts to whale sharks.
Desired outcome 4: To ensure that whale sharks are not significantly disturbed by recreational human interactions.
1. Implement an effective compliance and enforcement program focused on BC Regulations to support positive behaviour change. 2. Educate recreational boaters about their obligations under the BC Regulations, in particular separation distances, and the need for safe operation of vessels within whale shark approach zones and in proximity to commercial tour vessels. 3. Investigate the potential impacts of recreational vessels on whale sharks. 4. Undertake research to ensure that regulated separation distances for whale shark interactions continue to be appropriate.
Desired outcome 5: In collaboration with Traditional Owners, improve understanding of the whale shark population and the pressures on the species in WA through monitoring in marine parks and scientific research.
1. Continue to monitor whale shark interaction tourism in NMP to ensure interactions are best practice and sustainable over the long-term. Continue to investigate spatial and temporal variability and changes in whale shark numbers in NMP and identify relationships with biological, biophysical and oceanographic variables to support management decisions. 2. Continue to investigate the local and regional patterns of movement of whale sharks.

3. Predict potential impacts of climate change on the habitat and food sources of whale sharks in NMP.
4. Identify knowledge gaps and where appropriate support research (internal and external) for the effective management of whale sharks.
5. Ensure that scientific research is ethical and ecologically sustainable through animal ethics consideration on research and monitoring and continued use of the guidelines on tagging in WA.
6. Adapt management actions based on monitoring and research to minimise the impacts of human interactions and pressures on whale sharks.

3.3 Management of whale shark interactions

When on our land and sea Country, the Nyینگulu Mob ask that you respect and care for the Gujawari by following these interaction protocols.

Noting that pressures on whale sharks include vessel strike and potential disturbance from vessels (which may be recreational, commercial tourism, or other commercial shipping operations), the following outlines the regulatory separation distances in WA between vessels and whale sharks under the BC Act and BC Regulations, as well as separation distances from people and aerial devices.

The BC Act prohibits disturbing fauna (s153(1)) without lawful authority. The BC Regulations outline the minimum separation distances from whale sharks by all people, vessels and aerial devices in WA waters (Table 4). These aim to protect whale sharks from impacts from human activities and reduce safety risks to the public.

These rules are applicable to all licence holders, tour participants, and all recreational vessel users and swimmers in WA. These separation distances extend to a vertical distance above the surface of water and to a vertical distance below the surface of water.

Table 4. Prescribed separation distances for whale shark interactions in WA.

Interaction	Separation distance	Rules for interactions
Person (in water)	3m from the head or side of the whale shark 4m from the tail of the whale shark	If a whale shark approaches a person so that it is closer than the separation distance, the person must move away from the whale shark as soon as reasonably possible until the separation distance is established.
Vessel	30m	If a whale shark approaches a vessel so that it is closer than the separation distance, the person in charge of the vessel must ensure that the separation distance is established by - a) switching off the vessel, or putting the vessel into neutral, or otherwise disengaging any other means of propulsion, until the separation distance is established; or

		b) moving the vessel away from the whale shark at a speed not exceeding six knots until the distance between the vessel and the whale shark is at least the separation distance.
Aerial device (drone)	60m	A person in charge of an aircraft or aerial device must move the aircraft or aerial device away from the whale shark until the separation distance is established.

3.3.1 Swimmer requirements

To experience swimming with a whale shark, people are encouraged to book on a tour with a licensed CTO, who will provide safety briefings and educational information on whale sharks and operate in accordance with conditions designed to minimise disturbance to whale sharks.

For all people swimming with whale sharks, the following key interaction requirements ensure the safety and enjoyment of swimmers and to protect whale sharks from harm or disturbance (Figure 3):

- Maintain a minimum distance of 3m from the head or side of the whale shark and 4m from its tail.
- Do not obstruct or interfere with the natural movement of a whale shark (do not swim in front of it).
- Flash photography and selfie sticks on extension poles are prohibited.
- Do not touch, or attempt to touch, the whale shark.
- Scuba diving with whale sharks is prohibited.
- The use of motorised swimming aids, including scooters, is not permitted during interactions with whale sharks.
- The use of jet skis is not permitted within 400m of a whale shark.
- Do not interact with a whale shark that is injured, sick or deceased, entangled or otherwise incapacitated by material of human origin, or is showing signs of disturbance.

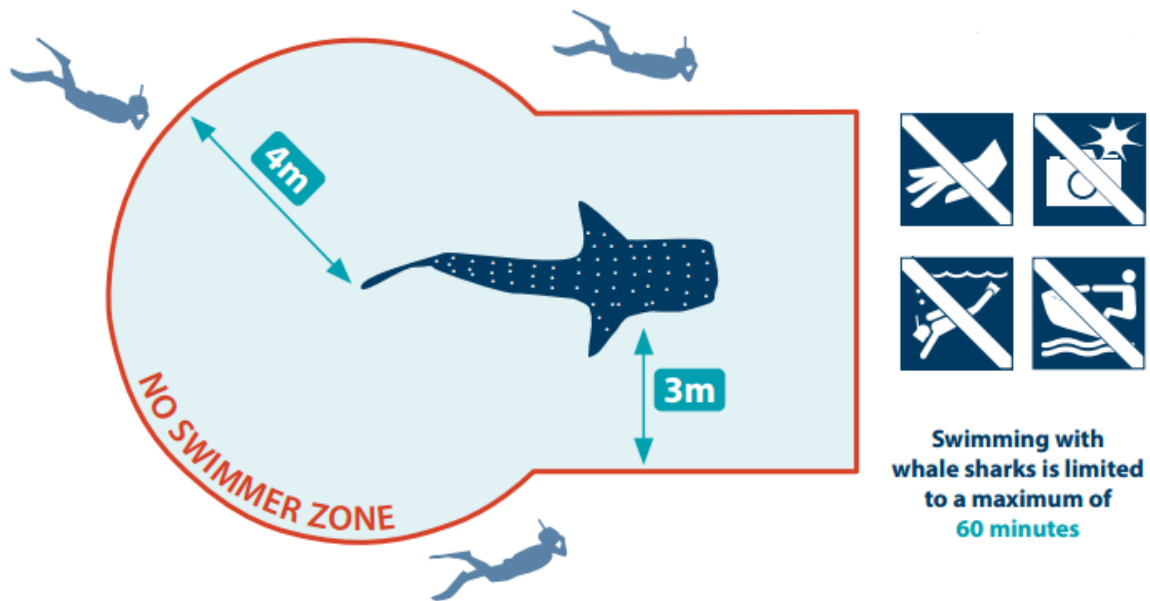


Figure 3. Whale shark interaction requirements for swimmers.

3.3.2 Vessel requirements

To minimise the risk of disturbance to normal whale shark behaviour, boat strike and vessel crowding, key interaction rules for all vessels (Figure 4) are outlined below:

- Vessels must maintain a minimum of 30m from whale sharks at all times.
- Restrict vessel speed to six knots when within 250m of a whale shark.
- Vessels must only approach whale sharks from a direction that does not interfere with the whale shark's natural movement.
- Only one vessel at a time may operate within 250m of a whale shark (approach zone).
- The vessel must not remain in the approach zone for longer than 90 minutes.
- The first vessel within the approach zone is deemed to be 'in contact' with the whale shark.
- The second vessel to arrive at the whale shark must keep a distance of 250m from the whale shark (controlled zone), and any other vessels must be 400m from the whale shark.
- A vessel must not tow a person on a device or another vessel into the approach zone for a whale shark.

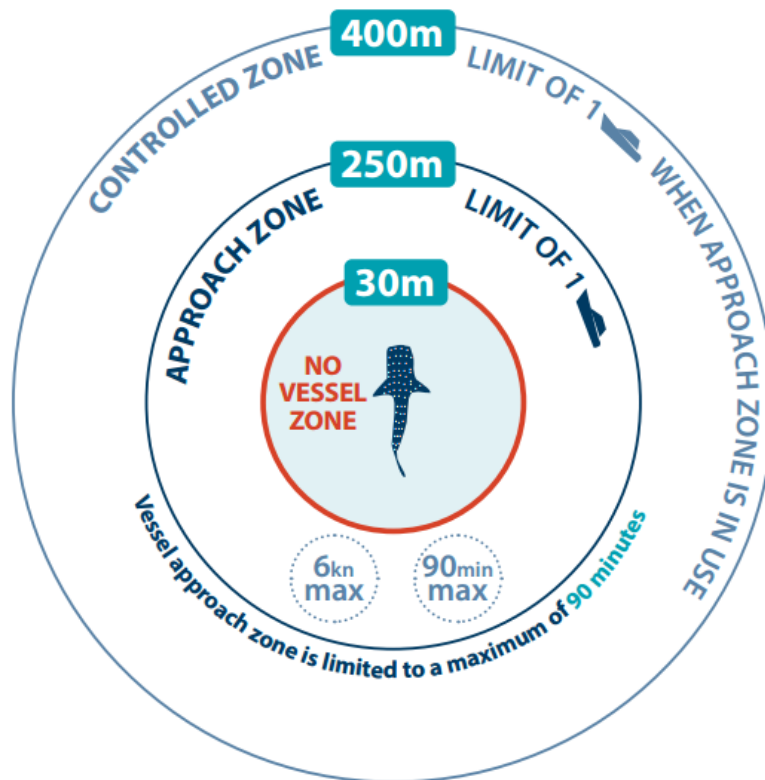


Figure 4. Whale shark interaction requirements for CTO and recreational vessels.

3.3.3 Compliance monitoring

Ensuring compliance from both CTOs and recreational users interacting with whale sharks is a high priority and resource intensive activity for DBCA. The department will implement compliance strategies and actions to ensure adherence to regulations by all vessel operators and swimmers. Methods used by DBCA to monitor compliance within NMP, include boat ramp inspections, overt and covert operations, aerial surveillance and vessel patrols as appropriate. Non-compliance with associated licences, Acts and Regulations will result in an investigation that could result in compliance action being taken.

3.4 Managing in-water interaction tours with whale sharks

Only licensed operators may conduct commercial in-water interaction tours with whale sharks. These operators provide guests with managed and enjoyable experiences that allow them to learn about and appreciate whale sharks and their conservation status, leading to greater community advocacy and support. These businesses also make an important contribution to the region and to the WA visitor economy, as the industry has grown the reputation of Ningaloo Coast as a place to experience whale sharks.

A CTO licence provides authorised access for commercial operators and sets out the licence conditions which must be adhered to. The conditions are aimed at minimising disturbance to whale sharks, managing impacts on the population, and monitoring the operations.

It is important that CTOs are managed under a contemporary framework, that is based on scientific evidence and can be adapted as needed in response to new information, whilst meeting the objectives of this management program (section 1.3). In managing the industry, DBCA also acknowledges the need for business certainty and will continue to engage with CTOs if adaptations to the framework are considered necessary, especially if they will result in a change in commercial operations.

The following guidelines outline how the interactions with whale sharks by licensed CTOs and their visitors are managed within NMP. The guidelines will be applied by DBCA to inform the licence conditions and will be consistent with the strategic objectives, desired outcomes and management actions that are outlined in this management program.

3.4.1 Legislative and licensing framework

The department issues 'E' class (restricted) licences under Part 7 of the CALM Regulations to CTOs for commercial interactions with whale sharks within the NMP. These licences are limited in number and the licence conditions aim to ensure that commercial whale shark interaction tours minimise the risk of injury to swimmers and prevent harm and minimise disturbance to whale sharks.

Whale shark CTOs can obtain 'E' class commercial licences to the maximum term under the CALM Regulations. As a high standard of performance is applied to the licences, the maximum term is appropriate, to give operators confidence to invest in their business and ensure it meets the requirements of the licence.

After the renewal period, licences are usually reallocated through a competitive expressions of interest (EOI) process consistent with DBCA's *Corporate Policy Statement No. 8 – Negotiating commercial development and activities*.

3.4.2 Number of licences and licensed vessels

The number of whale shark commercial operations licences for NMP is limited to 15. Of these, 12 licences are allocated for operations from Tantabiddi in the northern waters, and three from Coral Bay in the southern waters of NMP.

The limitation on the number of licences is due to whale sharks' protected status under State and Commonwealth laws, their significant international conservation status, and the limited understanding of their biology and ecology. The limited licence numbers are intended to minimise pressures on the seasonal aggregation and maintain the welfare of individual whale sharks by limiting the number of vessels seeking to interact.

The evidence suggests that the commercial whale shark tour industry does not appear to impact the seasonal whale shark aggregation within NMP and does not appear to prevent them returning. However, there has been an increase in the number of interactions conducted by the industry and monitoring of the impacts of in-water interactions on whale shark behaviour, along with management under licence conditions, will be maintained to manage impacts.

During the preparation of this management program, consideration was given to a number of requests from the tourism industry. These included whether a limited

number of occasional licence/s could be granted to allow other vessel tour operators to opportunistically provide interaction experiences with whale sharks for a small number of guests, whether licensed operators could conduct multiple tours per day, whether there could be an increase to the maximum 20 swimmers per tour and if additional vessels may be added to an operator's licence.

From the review of the data and literature undertaken in the preparation of this management program, the number of licences granted and licensed vessels will continue to be limited to 15 for in-water interaction tours and only for in-water interactions in NMP. This is based on the following considerations.

The analysis of EMS data during the review indicated that multiple daily interactions may result in behavioural change to individual whale sharks. The data indicated a decrease in interaction duration when an individual whale shark experiences multiple interactions in one day, as well as the cumulative time an individual spends with CTO vessels. Although 90 minutes is the maximum duration a vessel can remain in the approach zone of a whale shark, the data show that whale sharks may experience interactions from multiple CTO vessels, with the result that an individual may experience cumulative interactions in excess of 90 minutes. The decrease in interaction duration with individual whale sharks suggests potential disruption to that individual's behaviour, that may result in less time spent foraging/feeding and thermoregulating, increased stress from the presence of vessels and people and avoidance of vessels. The data indicate that the presence of vessels is more likely to create avoidance or changed behaviours in individual whale sharks.

The EMS data also indicates vessel congestion at specific times and locations. This would be exacerbated if there was to be an increase to the number of commercial tour vessels licensed.

Noting the above, the limit on the level of individual vessel activity associated with commercial tours is still considered appropriate.

3.4.3 Licence charges

Licence charges contribute toward the costs of managing and administering licensed tourism activities, including conservation, research, monitoring, education and management activities. Licence charges are applied per passenger and are collected by the commercial operators. This reflects a 'user pays' approach.

DBCA will review licence charges annually in line with State Government requirements to ensure they are appropriate and contribute towards cost recovery. Consultation will occur with operators regarding any proposed changes to the licence charges.

3.4.4 Licence conditions

The whale shark commercial operations licence holders are required to comply with licence conditions outlined in DBCA's [Commercial Operator Handbook](#). In addition, they must comply with conditions stipulated in their 'E' class (restricted) licence and the Biodiversity Conservation Regulations 2018, which outline how in-water interactions with whale sharks must occur.

Licence conditions are an important management tool designed to protect the natural and cultural values and manage visitor risk. DBCA can add to, cancel, suspend and vary licence conditions at any time. Conditions are reviewed regularly and may be changed in response to new information under an adaptive management approach.

Failure to adhere to licence conditions may result in compliance action being taken.

Some of the licence conditions address aspects of management to protect natural and cultural values and/or mitigate risk, to minimise disturbance to whale sharks and manage risks to swimmers, including:

- The Operator shall not carry more than twenty (20) whale shark swimmers per tour.
- The number of persons in the water with a whale shark at any one time shall not exceed ten (10) whale shark swimmers and two (2) operational personnel.
- The Operator shall only operate one (1) whale shark interaction tour per day.

Where:

- A swimmer is defined as *any Passenger who undertakes an in-water interaction with a whale shark during the Operations.*

This management program proposes to maintain the existing limits on swimmers and to limit licensed operators to one interaction tour per day, to manage impacts of repeated encounters with whale sharks from swimmers and vessels. Additional swimming passengers would likely result in additional drops of swimmer groups, lengthen the potential cumulative interaction time and add to vessel activity around whale sharks. An increase in swimmer numbers may also increase the size of commercial tour vessels. More tours per day is likely to result in increased vessel activity around whale sharks and extend interactions into sunset, when whale sharks are known to feed (Gleiss et al. 2013).

3.4.5 Data collection

As per the licence conditions, CTOs record data from their tours using an EMS and associated photo identification data. The Electronic Monitoring System (EMS) collects detailed data during commercial whale shark interactions to support effective monitoring and management, including:

- Tour details: date and time of each tour, and the number of passengers and swimmers on board.
- Interaction details: GPS coordinates, start and end times of interactions, the number of drops per whale shark, and how each interaction commenced and concluded, i.e. whether the whale shark was handballed to/from another vessel, whether the whale shark dived, or whether swimmers left the whale shark independently.
- Whale shark details: size and sex of the whale shark, and the presence of any scarring or tags.

When combined with photo-identification data, the EMS data supports the assessment of potential disturbance, biological trends, spatial use, interaction durations, and tourism patterns to help inform adaptive management and conservation strategies.

This information aids in making decisions for the sustainable management of whale shark tourism and enhances the understanding of the biology, demographics, ecology, and threats.

3.4.6 Visitor risk management

As providers of the tourism activity, CTOs are responsible for visitor safety and having safety management systems in place. Licence holders must have public liability insurance for any claims arising from whale shark tours.

As with any activity involving interactions between people and wild animals, there will be elements of risk that cannot be completely mitigated or avoided.

3.4.7 Interaction requirements between recreational vessels and Commercial Tour Operators

The first vessel within the approach zone (Figure 4) is deemed to be 'in contact' with the whale shark.

When a CTO enters this zone, they will display their whale shark flag (Figure 5), indicating they are 'in contact' with the whale shark. All other vessels must remain outside the prescribed separation distance (controlled zone or outside the controlled zone) (Figure 4) until the CTO removes their flag, signaling the interaction is complete.

If a recreational boat is deemed to be 'in contact' (within 30 to 250m) with a whale shark, all other vessels, including CTO vessels, must remain outside the prescribed separation distance (Figure 4) until the interaction is complete.



Figure 5. Whale shark flag displayed when a CTO vessel is 'in contact' with a whale shark.

3.5 Community education

Continuing industry and community support for whale shark conservation contributes to the effectiveness of the management program. Education for compliance is a key strategy to ensure that visitors and stakeholders have a sound understanding of the conservation and management issues associated with whale sharks. CTOs play an

important role in this, by providing information to their guests that support conservation. Key strategies to achieve this include, but are not limited to the following:

- Interpretive material (e.g. brochures, signage).
- Media (e.g., local and social media).
- Boat ramp education.
- Public presentations.
- Compulsory whale shark interaction training courses for industry staff.

Education of recreational users will be continued to minimise the risk of boat strike and ensure recreational visitors are complying with the interaction requirements of the BC Act and Regulations for swimmers and vessels.

3.6 Research and monitoring priorities

3.6.1 Research priorities

Despite ongoing research and monitoring efforts, knowledge gaps remain in relation to whale shark biology, ecology, life history, distribution, movement patterns and the potential impacts from threats and human interactions. It is important to continue to understand these aspects to protect and conserve whale sharks and to ensure that human interactions are sustainable.

A review of available scientific information has informed the identification of future research and monitoring priorities for whale sharks in WA State waters, including NMP (Table 5). Not all priorities are within the scope of DBCA's science program but have been included to guide external research organisations with an interest in pursuing these knowledge gaps. DBCA will focus monitoring and research priorities to inform the management measures for whale shark conservation in NMP.

Table 5. Future research and monitoring priorities for whale sharks in WA State waters, including NMP.

Priority 1: Continue to assess the effectiveness of the whale shark management program in an adaptive management framework.
1. Monitor and research the level of pressure on whale sharks from commercial and recreational tourism interactions, including the cumulative impact of the number, duration of encounters and potential behavioural changes incorporating EMS data as well as other techniques (DBCA). 2. Collect, curate and manage photo identification and EMS data in a standardised manner, to facilitate analysis that will inform management and conservation activities (DBCA). 3. Monitor whale shark encounter density distribution to identify hotspots for interactions and the inter-annual variation in the density distribution using the complete EMS dataset (DBCA). 4. Consider methods to understand whale shark behaviour in the presence and absence of vessels and potential drivers of behavioural change (e.g. use of daily diary tags).
Priority 2: Improve understanding and monitoring of other pressures on whale sharks.

1. Investigate boating pressures on whale sharks in NMP, including types of vessels which may pose a risk of strike to whale sharks (by recording size and freshness of scarring in the EMS, and through stereo-video scar measurements, scar size and pattern analysis).
2. Investigate the impact of underwater noise on whale sharks and consider the level of pressure from tour vessels, recreational vessels, coastal development and other marine activities.
3. Investigate whether there has been an increase or change in scarring (repeat the 2012 scarring study) using photographs of whale sharks to determine if scarring has increased over time and/or whether anthropogenic causes of scarring have changed.
4. Continue research on the impact of vessel strike on whale sharks across their range with a focus on shipping highways and aggregation sites in high vessel use areas.
5. Consider the impact of development (coastal, oil and gas) on whale sharks across their range, e.g. habitat degradation or changes to hydrodynamic patterns that influence whale shark food sources and distribution.
6. Research the effects of climate change on whale shark food, habitat, abundance and distribution.
7. Investigate if microplastics are present in the plankton in the NMP that provide the food source for whale sharks. If microplastics are detected, investigate whether there is evidence of bioaccumulation in whale sharks.

Priority 3: Continue research and monitoring to improve understanding of the whale shark aggregation in NMP in the context of the broader whale shark population.

1. Estimate abundance of NMP whale shark aggregation, including trialling cost effective techniques and determining suitable timeframes for long term monitoring.
2. Investigate the spatial and temporal variability and movement of whale shark abundance in NMP through monitoring.
3. Investigate how the distribution of whale shark interactions differs with El Niño–Southern Oscillation events to determine if it is predictable, and if these events may affect the length or timing of the tourism season or the number of whale sharks available for interaction.
4. Identify environmental and physical drivers that influence whale shark abundance and distribution at NMP, including factors that influence food availability.
5. Investigate prey density distribution and interannual variability, in comparison with whale shark distribution and determine if this information can be used to predict whale shark presence.
6. Investigate links between the whale shark population at NMP and other global aggregations to determine potential relationships using genomics, and evidence of movement between locations from tagging or photo identification.

Priority 4: Improve understanding of whale shark population structure and health.

1. Monitor the impacts of tagging on whale sharks to inform the established guiding principles for NMP and the State.
2. Undertake research to assess whale shark population demographics and health (e.g. through morphometrics).
3. Identify, and if possible, address emerging disease or health issues as they arise.

4 Implementation and review

4.1 Performance measures

4.1.1 Assessment of 2013 performance measures

Performance measures were identified in *Whale shark management with particular reference to Ningaloo Marine Park, Wildlife management program no. 57* (2013). The performance measures were evaluated based on the key findings from the review of scientific literature and analysis of data collected by CTOs through the EMS (Appendix 1). The performance measures were focused on whale shark interactions as part of commercial tours and have been used to inform the 2026 management program.

4.1.2 Performance measures for 2026 management program

The following performance measures have been identified to evaluate this management program. Where trends in performance are applicable, the desired trends are identified for each performance measure.

Table 6. Performance measures for the 2026 management program.

Performance measure	Desired trend
1. Number of individual whale sharks visiting NMP each year.	Constant or positive.
2. Number of whale sharks with fresh injuries/scars (as an indicator of probable boat-strike) as a proportion of whale sharks encountered.	Negative.
3. Number of recreational and commercial compliance breaches with regulatory and management framework, as measured through compliance programs.	Negative.

In addition to the above performance measures DBCA will evaluate the impacts from interactions with whale sharks, as determined by review of whale shark monitoring data, and report on any findings.

4.2 Whale shark management

DBCA's role in whale shark management includes:

- Working with partners to conserve whale sharks and manage sustainable interactions in marine parks.
- Licensing and compliance monitoring of the commercial tourism industry.
- Training of in-water guides in the commercial tourism industry.
- Public education programs and compliance monitoring of recreational vessel interactions with whale sharks.
- Analysis of EMS data and research findings to inform management practices and conservation strategies.

- Development of strategies to guide recreation, tourism, and policy development.
- Evaluation of management program efficacy, including financial review and ongoing assessment of strategic objectives and performance measures. This information is made available to the public in the form of an annual report.
- Conducting pre and post season meetings/communications with CTOs.

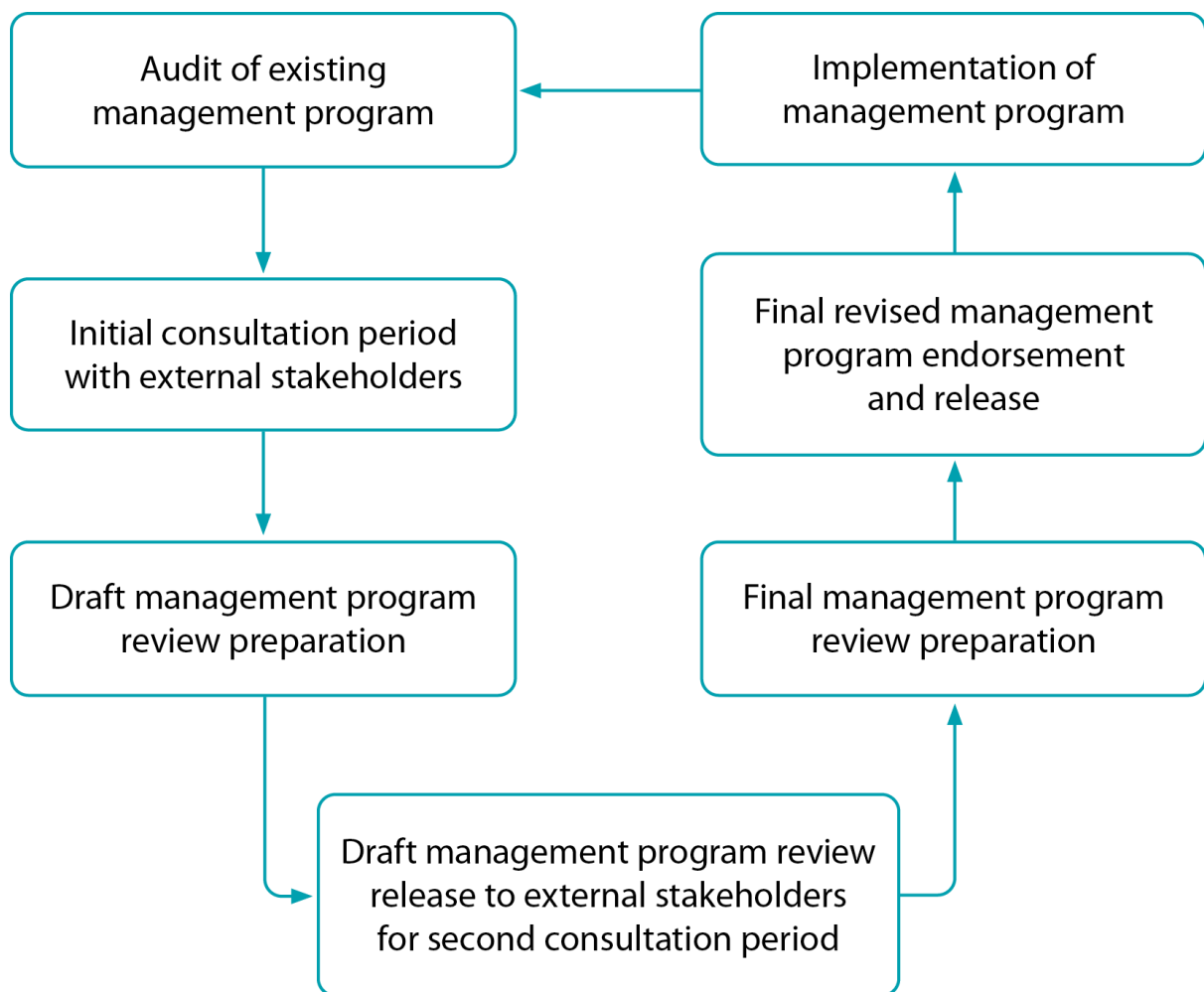
4.2.1 Links with Western Australian Conservation and Parks Commission reporting

The CPC audits DBCA's implementation of management plans for WA marine parks and reserves including NMP through a formal annual review process. The audits include reports on the status of the key ecological values of the reserves, which includes whale sharks, and assesses the effectiveness of current strategies in place. The CPC is also consulted prior to commercial operations licences being granted.

4.3 Review of the whale shark management program

DBCA is the custodian of the management program. The management program will continue for a period of ten years from the date it is approved, unless new information provides for the revision of the program prior to that date. At the end of the ten-year period, the management program will remain in place until it is reviewed with public consultation and submitted to the CPC for endorsement and the Minister for Environment for approval.

The process for reviewing the whale shark management program is as follows:



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Appendix 1.

Table A.1. Assessment of key findings of whale shark management program performance measures.

Performance measure	Desired trend	Findings	Assessment
1. Number of reported whale shark sightings per season relative to search effort.	Constant or positive	Commercial tours increased by 68 per cent from 2011-2019 and a further 26 per cent during 2019-2024. The number of reported whale shark encounters increased by 84 per cent from 2011 to 2019 as recorded in the EMS.	Achieved
2. Number of reported whale sharks with boat strike injuries as a proportion of whale sharks encountered.	Negative	The number of scars increased over time during 2008-2013. There was also an overall increase in boating traffic in the area over this period. Data on where strikes occur determined by scar freshness is not available.	Further investigation to be undertaken
3. Commercial operators being aware of and compliant with regulatory and management regime, as measured through compliance and education programs.	Positive	All industry staff undertake pre-season training. During 2020-23, there were few compliance issues of concern during the season with CTOs based on DBCA compliance monitoring activities.	Achieved
4. Recreational users being aware of and compliant with regulatory and management regime, as measured through compliance and education programs.	Positive	DBCA undertakes regular education programs with recreational boat users. DBCA has received multiple reports of recreational swimmers and vessels breaching the required separation distances.	Further investigation and compliance to be undertaken

5. Techniques developed for reviewing whale shark monitoring data for the potential impacts of interactions on whale shark behaviour.	N/A	Data collected during aerial surveys and the EMS including spatial distribution of whale shark encounters and duration of interactions.	Achieved
6. Impacts of interactions on whale shark occurrence and behaviour, as determined by review of whale shark monitoring data.	Constant or negative	No evidence to suggest that tour group interactions with whale sharks have affected the likelihood of whale shark re-encounter, indicating that whale sharks are not affected long-term by in-water interactions with humans.	Achieved
		Evidence of interaction duration decreasing for individual whale sharks with multiple interactions per day requiring further investigation. Evidence that whale sharks changed direction more frequently in the presence of vessels.	Ongoing monitoring for short-term impacts to be undertaken. Identify a suitable metric to establish if long term impacts on whale sharks are present.

