



Maldives Whale Shark Research Programme

Guide to Whale Sharks & Code of Conduct



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Introduction

This resource 'Guide to Whale Sharks & Code of Conduct' has been created by the team at Maldives Whale Shark Research Programme, who have been studying the Maldivian population of the whale shark since 2006. The aim of this pack is to make information, regarding whale shark encounters in SAMPA, more accessible, informative, enjoyable and safe for everyone. The pack includes the following items:

- This document intended primarily for resident marine guides and marine biologists: detailing more in depth information about the whale shark including its biology, ecology and what scientists know so far as well as a break down of whale shark behaviours and code of conduct.
- The visual code of conduct (COC) and briefing pack: a resource for guides to present to guests at the beginning of whale shark excursions. There are 13 pages, each page has the appropriate imagery on the front and notes on the back of the page for the guide's reference.

Maldives Whale Shark Research Programme (MWSRP) was founded with the mission of understanding the population dynamics of the whale sharks in the Maldives and how this fits into the species' existence in the wider world. The charity's objectives are to promote, for the benefit of the public, the conservation, protection and improvement of the physical and natural environment of the whale shark and marine biological diversity by: (a) promoting and carrying out, for the public benefit, research and publishing or otherwise disseminating the useful results of such research: (b) raising.

Thank you to all who help us in this work; special thanks go to our Big Fish Network contributors, various stakeholders and to Exodus for helping to create this learning resource for whale shark guides and their guests.

Whale Shark Biology and Ecology

We already know how knowledgeable the whale shark guides of South Ari are! You are the ones out on the water most days with the world's biggest fish, observing their behaviours and sending us valuable data from the encounters. Without the help of contributors, including snorkel, dive guides and tourists, our whale shark register would not include the 536 (and counting!) individuals it does today!

Saying that, it is always worth re-reading the basics and keeping up to date on new whale shark science, of which there is a lot! Whale shark science is an ever-evolving subject, with new information being learnt about these endangered sharks every few months! Research and knowledge is key to a better understanding of these animals, so that better protections can be made globally and locally.

Whale Shark Basic Knowledge

- Whale sharks were first scientifically recorded in 1828 and are fish, not whales. More specifically, they are a cartilaginous fish and have a skeleton mainly composed of tough cartilage, which makes them very flexible and much lighter than bony fish.
- Whale sharks are the biggest fish in the ocean! While it is often cited that they can be up to 12 metres in length, they can in fact actually grow to more like 18 metres in length! The largest on scientific record was apparently 20 metres long and weighed 42 tonnes!
- The whale shark, as we know it, has been around for 60 million years. Sharks, as an entire subclass known as Elasmobranchii, have been around for 370 million years, since before the dinosaurs.

- Whale sharks are very long-lived sharks, with recent research estimating that they can potentially live up to 130 years!
- Whale sharks are known to swim large distances in 1 day (approximately 26 km per day) with average speeds ranging from 1.17 to 3.19 km/h. SAMPA is a small area spanning 42 km² (with a 1 km wide boundary), so it is likely that whale sharks leave SAMPA and return after a period of time.
- Whale sharks have a circum-global distribution across the tropics of Cancer and Capricorn and are considered highly mobile with the ability to travel vast distances. For instance, a whale shark was tagged in Panama and recorded, via satellite tracking technology, travelling over 20,000 km to the western Indo-Pacific (Mariana Trench).
- Whale sharks are oceanic and coastal dwellers. Aggregations of whale sharks, like the one in South Ari, are usually coastal and made up of juvenile individuals. When whale sharks are adults, this is when they may start to travel across oceans and become more pelagic.
- Whale sharks are filter feeders, meaning they feed on tiny creatures which form the foundation of the ocean food chain. Plankton can consist of fish eggs, copepods, krill and very small fish.
- Whale sharks have 300 rows of tiny 2 mm long teeth inside their huge mouths. While they do not use these for their feeding activities, it is thought that they may still have a use during courtship and mating activities, however such activities are still yet to be captured on film by scientists.
- Whale sharks not only have tiny teeth in their mouths but also 'skin-teeth', or dermal denticles as they are known, covering their whole body. These dermal denticles (teeth-like structures) are very tough, resistant against parasites and also hydrodynamic.
- It was recently discovered that whale sharks even have dermal denticles on their eyeballs! The research found that the denticles on the eye are different to those on the body and performed a function suited specifically to abrasion resistance. The scientists also found that the whale shark can retract its eyeball by up to 1 inch in to the socket.
- The whale shark has the biggest eardrum of any fish. While scientists cannot yet exactly quantify what this means (could they be listening out for plankton?) it is acknowledged that their hearing capabilities would factor into avoidance behaviour when it comes to loud vessels and large noisy encounters.

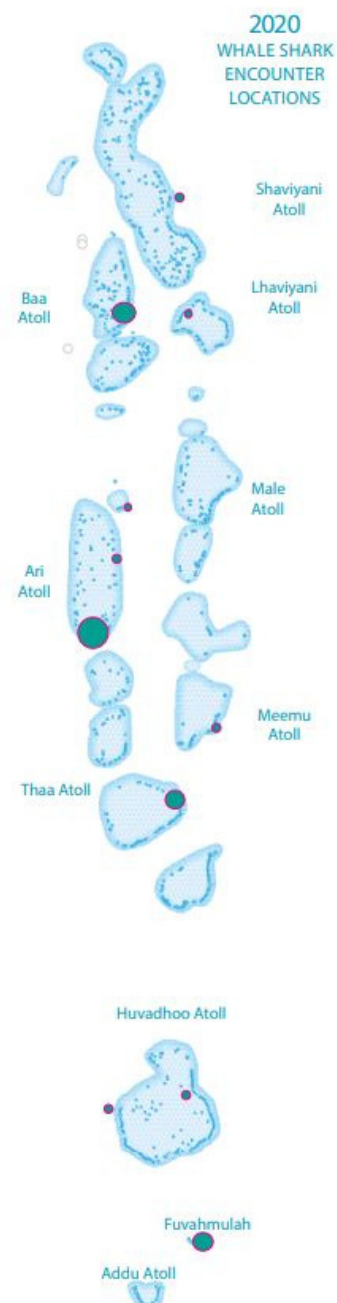
- Whale sharks are deep diving sharks, and this is the portion of their lives that researchers really do not know enough about. What we do know is that one tagged individual was recorded at a depth of 1928 metres down!
- Whale sharks have large oil filled livers, which make them negatively buoyant meaning that when they die, whale sharks sink instead of float. This factor, among many other factors, make it very difficult to study carcasses, which almost exclusively come from stranded whale sharks.
- Whale sharks are listed as endangered under IUCN Red List, along with CITES act, since 2003 and protected by Maldivian Law since 1995.
- Every whale shark has a unique spot pattern which can help scientists distinguish them as individuals and therefore track movements, distribution and overall health.
- Little is known about whale shark reproduction; what we do know is that they are ovoviviparous meaning that the females produce young which are hatched from eggs inside of them and the offspring is born free swimming. Almost all whale shark reproduction knowledge comes from a single specimen which was fished in Taiwan in 1995 and was carrying a total of 304 offspring, all at different stages of development which (scientists believe) indicates that females store sperm.



Characteristics of Maldivian Whale Sharks

Whale sharks are present all over the Maldives with certain atolls seeing more encounters than others. Here is what MWSRP has learned about Maldivian whale sharks in general.

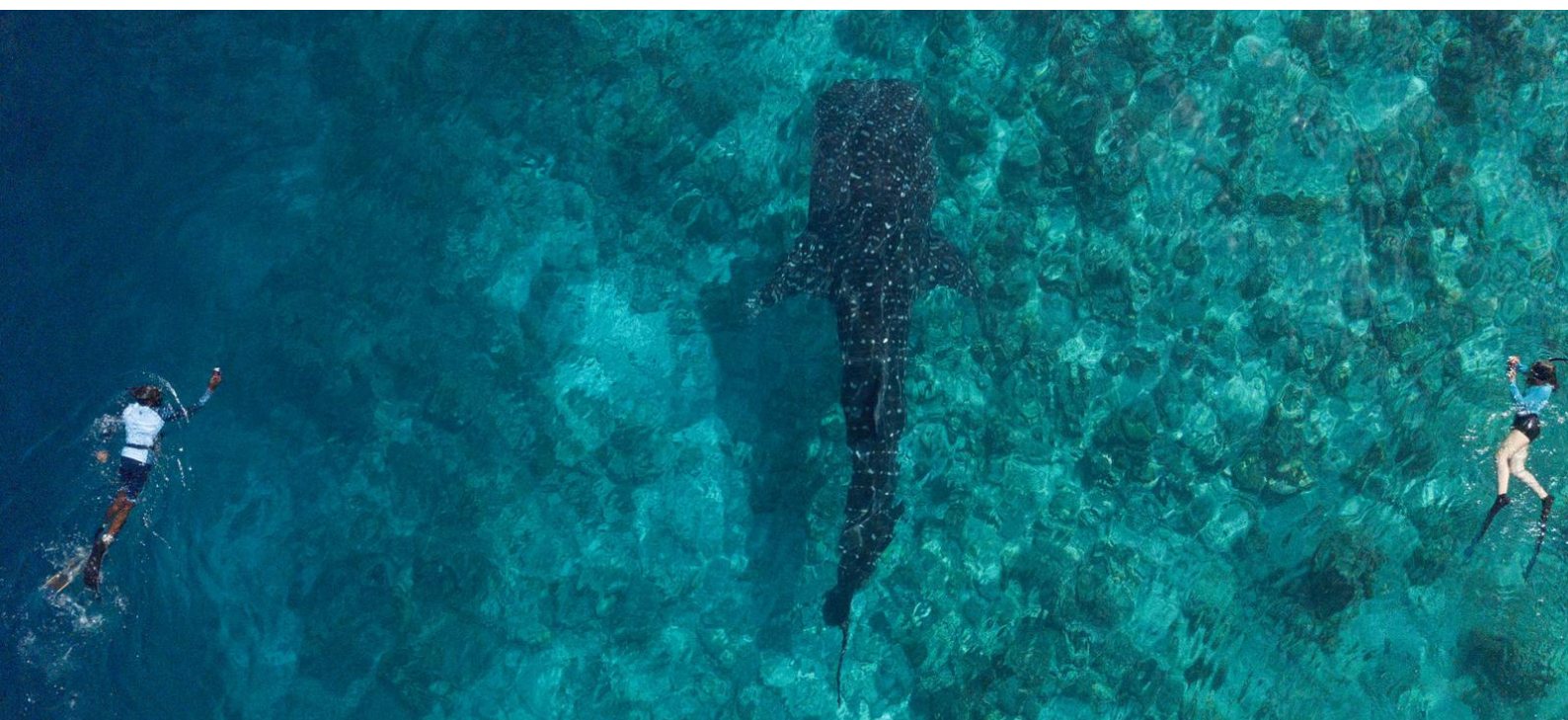
- The MWSRP database, known as Big Fish Network, has 526 individuals as of March 2021.
 - The Maldivian population of whale sharks (including SAMPA and all data from other atolls) averages at 5 - 6 metres in length.
 - It is mostly juvenile individuals sighted in the Maldives with the exception of Fuvahmulah, which sees predominantly large female whale sharks averaging 8 metres in length.
 - There is a male bias in the database which is not unusual for coastal aggregations, although the whale sharks seen in Fuvahmulah are mostly large adult females. This bears a lot of scientific value which we are currently collecting data on.
 - No whale shark of the Maldives has ever been recorded anywhere else in the world to date.
 - While whale sharks have been sighted in many different atolls, there are certain atolls which we have more data than others.
- Whale sharks in the Maldives may exhibit annual inter-atoll movements. Some individuals appear to follow a learned or habitual pattern of movements. Most individuals which have visited different atolls repetitively seem to be in those specific atolls at roughly the same time each year. This is likely tied to seasonal feeding opportunities. For instance, some individuals have been sighted in Baa atoll for the yearly plankton extravaganza in Hanifaru Bay, famous for its manta aggregation.



Characteristics of SAMPA Whale Sharks

There are around 20 whale shark hotspots worldwide, however South Ari Marine Protected Area (SAMPA) plays host to a unique and naturally occurring year round aggregation! This is the area of the Maldives from which MWSRP has accumulated the most data, and during our 14 years of research, we have learned a lot about the whale sharks of SAMPA.

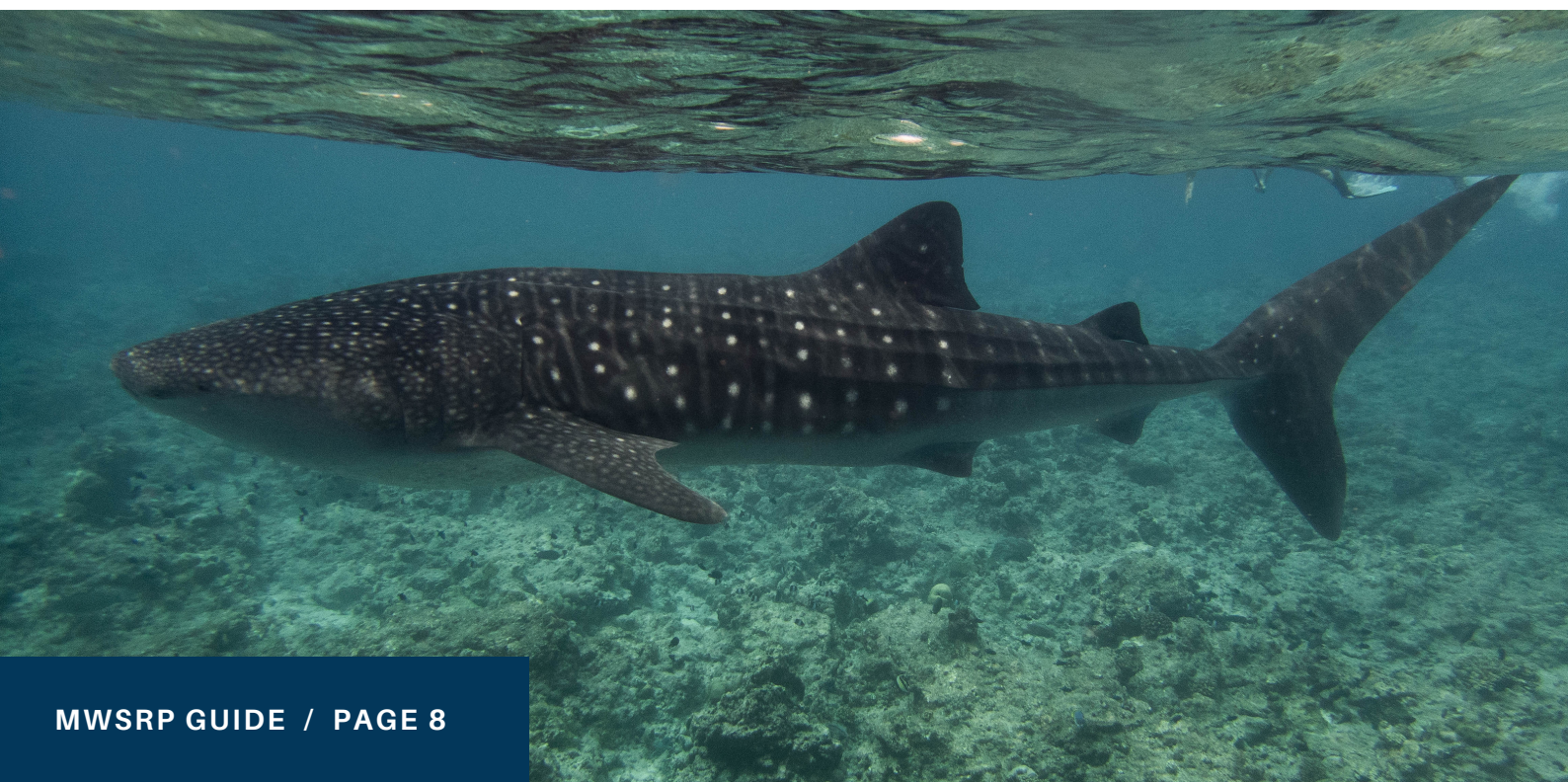
- Whale sharks can be sighted all over the Maldives, however South Ari atoll plays host to the a unique and naturally occurring year round aggregation.
- The individuals found in SAMPA have a high site fidelity rate, meaning that the same individuals are often re-sighted in the area. SAMPA has the highest re-sighting rate of any whale shark hotspot in the world.
- Roughly 80% of individuals in SAMPA are male.
- Individuals in SAMPA are juvenile taking into account their size estimates.
- The average estimated size of whale sharks in SAMPA (as of 2019) was 5.77 metres. The smallest shark on record was estimated at 3.5 metres.
- The predominant behaviour exhibited by whale sharks in SAMPA is cruising (see behaviours section for cruising explained).



- Average encounter duration in South Ari MPA (as of 2019) was 15.3 minutes, measured from the start (whale shark spotted) to the end (whale shark departs) of the encounter.
- Whale sharks exhibiting passive 'cruising' behaviour resulted in encounter durations of 13.9 minutes on average (as of 2019).
- Individuals exhibited feeding behaviour in 14.9% of the encounters (as of 2019). When whale sharks were engaged in 'feeding' behaviour, the average encounter duration was 52.2 minutes.
- Sharks reported as being 'evasive', had the shortest encounter durations, 5.9 minutes on average (as of 2019).
- Encounters with inquisitive sharks averaged 16.2 minutes (as of 2019).

Conclusions Drawn from MWSRP Data

MWSRP has come to believe that the whale sharks of South Ari are predominantly using the area as a secondary nursery, as South Ari provides perfect conditions for them to potentially feed at a depth and bask at the surface, undertaking their thermoregulation process. It is known that whale sharks reach maturation around 25 years of age, at which point MWSRP anticipate that they move on to new pastures. Understanding the lives of whale sharks as a whole is an important step towards understanding what threatens them and how we can better protect them as stewards of the Earth.



Threats to Whale Sharks and Protections

Despite being the biggest fish in the ocean, the threats the whale shark faces today are many and almost entirely caused by human impact. It is difficult to quantify the exact number of whale sharks alive today, due to their elusive adult life, however scientists estimate that populations have fallen by 50% and are actively in decline. Whale sharks are listed as endangered by IUCN (International Union for Conservation of Nature) in the year 2016 and were also added to CITES Appendix II.

Worldwide Anthropogenic Threats:

- Bycatch
- Targeted fishing and finning
- Entanglement
- Vessel collision
- Habitat destruction and climate change
- Microplastic



Worldwide Natural threats

- Orca (thought to be capable of preying on an adult whale shark by hunting in pods).
- Predatory sharks (likely to take opportunistic bites of smaller individuals).

Threats Specific to South Ari and Maldives

Unfortunately, whale sharks in the Maldives are no stranger to anthropogenic injuries, largely due to the fact that they dwell near the surface to thermoregulate their bodies and, to a lesser extent, to feed.

- Vessel strike: meaning injuries caused by boats. South Ari is an area of high tourism activity so the waters are often very busy which can pose a threat to the whale sharks and other surface dwelling marine life. While we cannot say for sure whether whale sharks in SAMPA sustain their injuries inside or outside of SAMPA, our recent findings of a rise in anthropogenic injuries coincides with a rise in tourism within the area and also a decrease in whale shark sightings.
- Human disturbance: human disturbance can threaten the whale shark by ultimately impacting its overall health and likely causing an increase in stress levels.
- Entanglement: entanglement in discarded fishing gear can hinder the whale shark's health in a variety of ways; most notably it can reduce mobility or even slowly lacerate/rub fins or the body.



Why Protect Whale Sharks?

Nature Based Motivations for Protection

Whale sharks are a beautiful and charismatic endangered species which have a key role in our ocean ecosystem here in Maldives and worldwide:

- They maintain plankton populations by eating it.
- They fertilize phytoplankton by bringing nutrition from the deep waters up to the surface where they disperse it as poo.
- They are a large animal and a natural carbon sink meaning that they can help fight climate change by storing carbon in their bodies.
- They are so big that they are a natural fish aggregating device (F.A.D) which offers protection for smaller species of fish.
- They are an indicator species meaning that if whale sharks are abundant, the area they inhabit is a productive habitat overall.
- They are an umbrella species meaning that by achieving MPA based protection for the whale shark (a naturally charismatic shark that people want to swim with), protection is also achieved for the other smaller but important species living within that habitat.



Economic Based Motivations for Protection

All of the aforementioned nature based motivations ultimately feed in to economic motivations for protection. The more economic value we, as a global society, see in protecting nature and its processes, the more the human race will benefit from a sustainable future.

- Whale shark tourism directly contributes to local livelihoods here in Maldives and provides an alternative income to fishing whale sharks and other sharks.
- In 2013 (only 4 years after guesthouse tourism was granted) MWSRP announced findings that 78,000 tourists did whale shark excursions in South Ari atoll alone, putting a value of \$9.4 Million to the presence of these animals. Imagine what the figures will be today (2021, date of document publishing) if the same study was conducted again!
- As mentioned before, whale sharks (and all sharks as the top tier of the ocean food chain) play a role in balancing the marine ecosystem. As humans, we rely on a healthy ocean to provide sustainable fish populations.

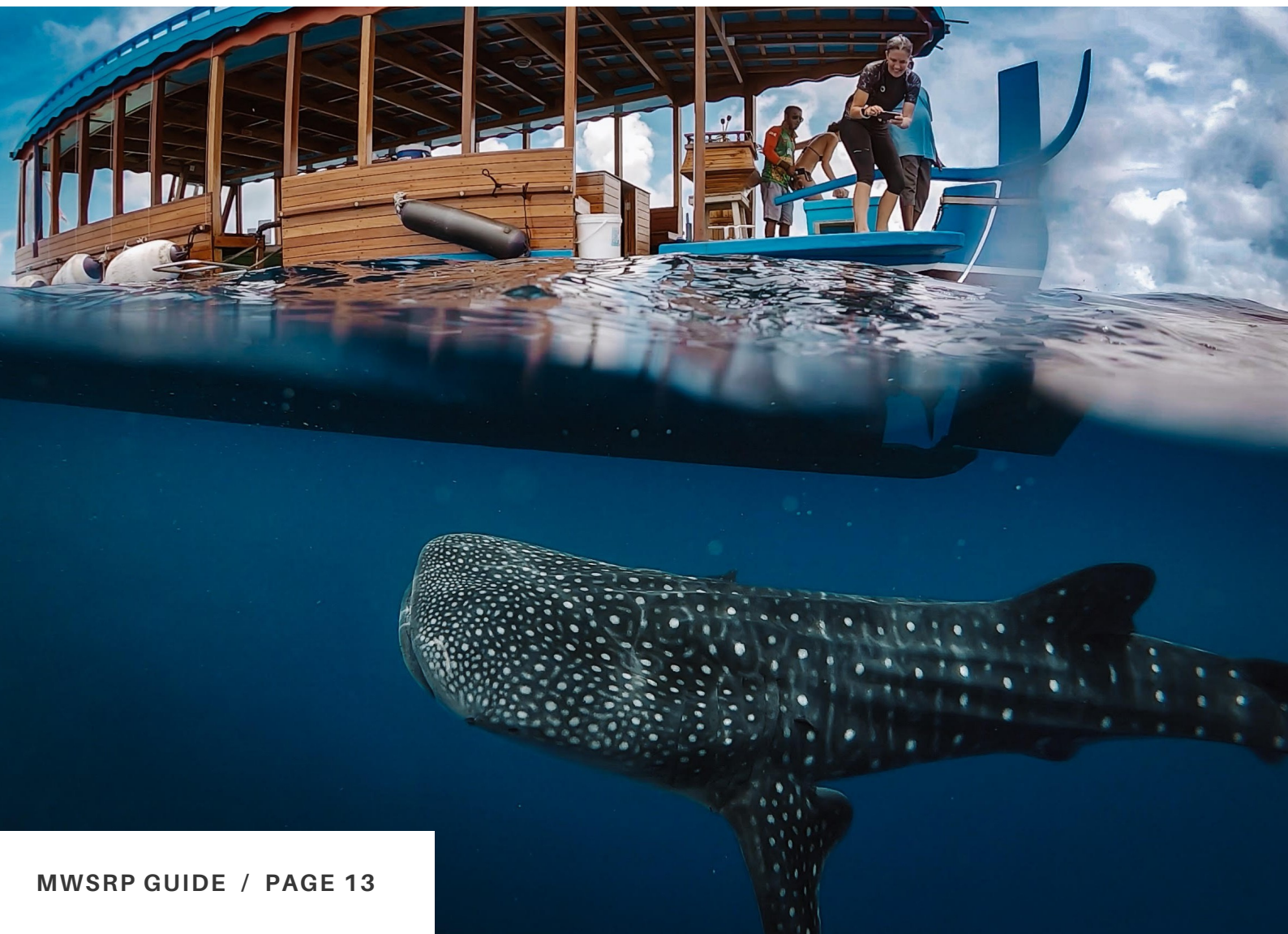


The reasons to protect whale sharks are clear and very beneficial for human livelihoods too. The whale shark has been protected by law here in Maldives since 1995. Today stakeholders and citizens can work towards putting protection into practice and making it as efficient as possible. That is where this code of conduct briefing and information pack, consisting of behavioural knowledge, plays a part.

Whale Shark Behaviours Explained

Whale Shark Behaviours

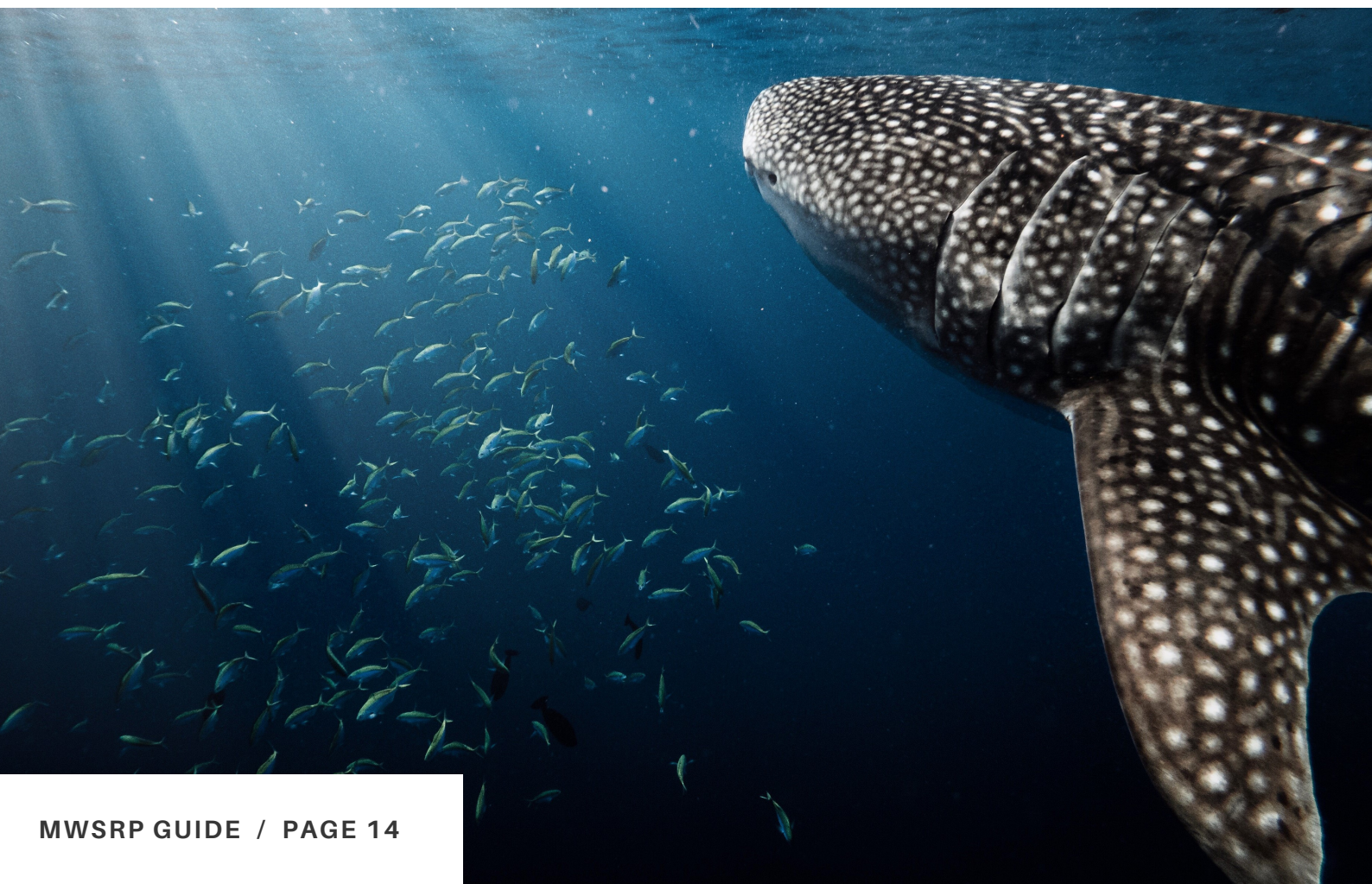
Before we move onto the code of conduct and how guides, and their guests, can contribute to whale shark science, let us take a look at whale shark behaviours. Whale sharks of the Maldives have been observed displaying a few different behaviours, with cruising and evasive behaviour being the most frequently observed. It is important to understand behaviour so we can then have better encounters for both the shark and snorkelers. Here we expand upon behaviours in more detail comparative to the notes available on the back of the COC visual briefing.



Cruising

A natural behaviour where the whale shark swims at a slow pace near the surface as part of their thermoregulation process. Cruising is likely to take place either on the reef or just off the reef, and typically the dorsal fin does not break the surface of the water. During this time the whale shark is often more sluggish at the beginning, having returned from the depths where it is cooler in water temperature and also lower in oxygen. As the shark continues to cruise uninterrupted it may seem to become slightly more alert comparative to the beginning stages of thermoregulation.

Cruising is the most frequently seen behaviour in South Ari and is absolutely vital for recuperation time. If cruising behaviour is disturbed, the shark will leave the encounter before it has had sufficient time to warm up. If you consider it from the human perspective; when we get no rest or respite from stimulating scenarios this can lead to stress which can accumulatively impact our health. The same can be applied to the whale shark. This is something to bare in mind especially when you encounter injured individuals. Depending on what kind of injury the shark may have sustained, it can be harder for the shark to stay deeper for longer periods of time, so they may need more time at the surface to recuperate.



Evasive

The second most common behaviour observed in SAMPA; sharks who were reported as being 'evasive' had the shortest encounter durations with an average of 5.9 minutes, with some encounters lasting less than 30 seconds. Evasiveness is considered as an unnatural behaviour and typically occurs as a result of cruising behaviour being interrupted by human presence. This can be characterised by a few things and often happens simply because snorkelers or vessels are not following the code of conduct.

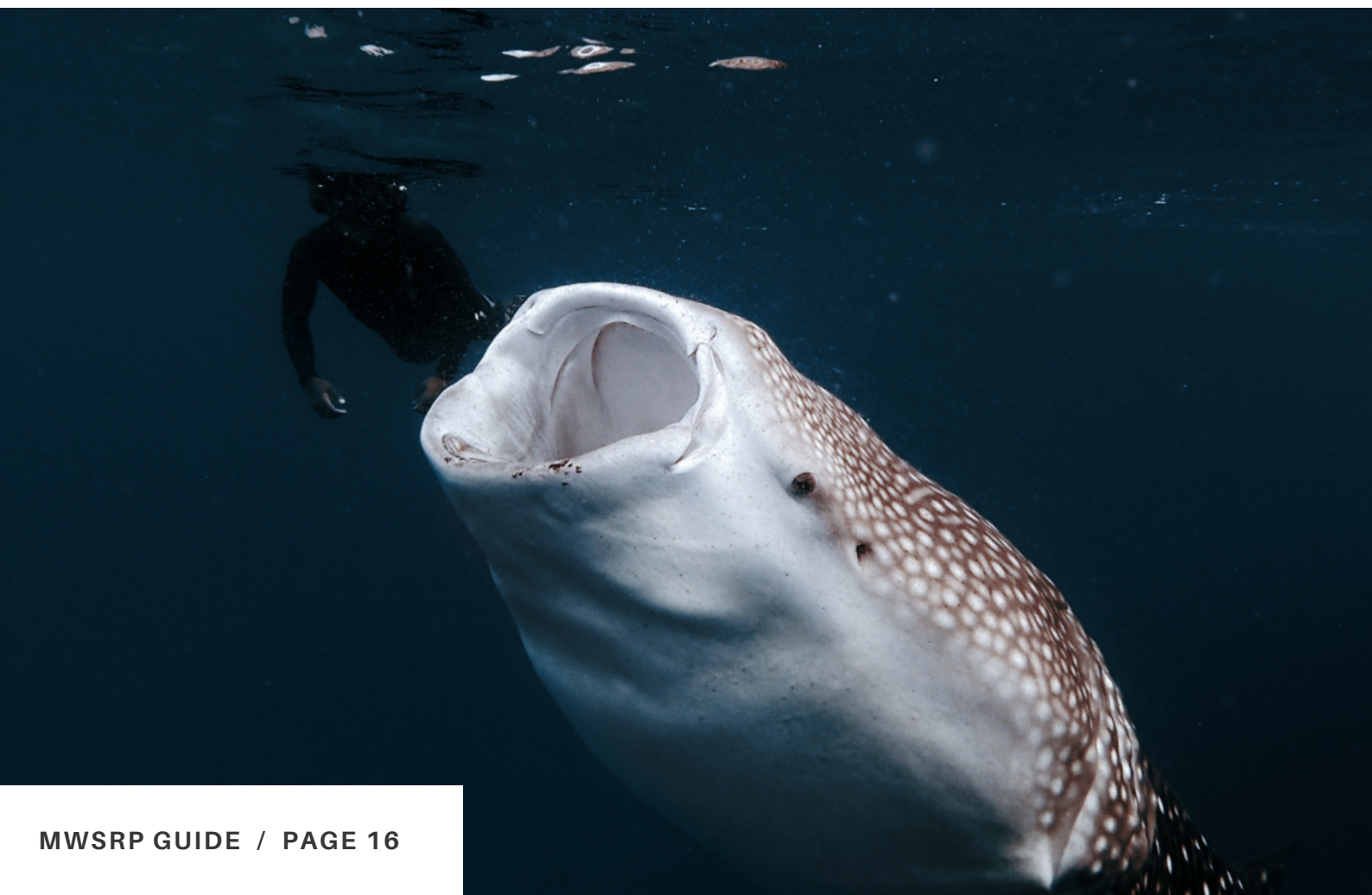
- Fast swimming: the shark may swim faster than its comfortable cruising pace if it wants to evade negative stimuli.
- Abrupt turns: the shark may change direction abruptly to avoid negative stimuli.
- Parabola diving: this behaviour is when the shark moves up and down the water column to avoid negative stimuli. For example, a shark may move from 2 metres depth to 7 metres depth to avoid snorkelers who are getting too close and then later it may rise again closer to the surface.
- Banking: the whale shark has no defense mechanism other than its back which is formed of very dense, tough tissue and covered in abrasion-resistant dermal denticles. Banking is characterised by the shark turning its whole body abruptly, or slightly, to present its back as a defense. This action is a cue that the shark feels threatened and the snorkeler needs to back off and give the shark more space.
- Eyeball retraction: this is another queue that the whale shark feels threatened. The eyeball will recede into the socket when the negative stimuli is too close to the shark.
- The shark may simply leave the encounter prematurely by diving off the reef in either a steep or gradual way.



Feeding

As we mentioned earlier, whale sharks are filter feeders that feed on plankton, tiny creatures which form the foundation of the ocean food chain. Plankton can consist of fish eggs, copepods, krill and very small fish. Data collection indicates that feeding is not a primary behaviour of SAMPA whale sharks, but it certainly is observed. There are two kinds of feeding behaviour which are seen in SAMPA:

- RAM filter feeding: this is a passive form of feeding, requiring minimum expenditure of energy, and is the feeding method most observed in SAMPA. The whale shark simply opens its mouth wide and lets the plankton flow in. The shark will often RAM feed against the current. Occasionally the gills may 'flush' or the shark may make a 'coughing' action which we believe could aid in the clearing of the gill rakers (the hairy structures which catch the plankton).
- Suction feeding: this feeding method is rarely seen occurring naturally in South Ari and typically happens when there is a very dense, concentrated patch of plankton. If a whale shark should find this concentrated patch, they maximise feeding efficiency by sucking in volumes of water containing the plankton.



Inquisitive

Inquisitive behaviour is always very exciting to see and is often displayed by individuals who are new to the area. Inquisitive behaviour is when the whale shark takes an active interest in something, typically a snorkeler or the hull of a boat. This behaviour can be characterised by the shark following snorkelers and actively swimming towards them or circling as if to inspect this point of interest. If this should happen, remember to follow the code of conduct and give the shark space. If a shark should approach a boat hull or propeller during an encounter, take action and alert the boat captain to turn the engine off as to avoid any injury to the shark. Inquisitive individuals are prone to injuries because of this behaviour so please be aware.



Interaction

This is a behaviour rarely observed in SAMPA and, like inquisitiveness, is always exciting to see in action. Whale sharks are almost entirely solitary animals who are typically not social unless aggregating in response to a food source. Interaction can occur when individuals cross paths and, one or both of them, take an interest in the other. The whale sharks may circle one another as if to check each other. At this point whale shark science has not deduced what they are communicating specifically, so more research is needed. Could the whale sharks be sending chemical signals to each other to communicate, if so could it be a display of mutual interest in one another or a display of dominance? Time and research will tell...

Whale Shark Encounter Code of Conduct

When encountering whale sharks, or any wildlife for that matter, it is important that we do not cause any discomfort or disruptions to the animal by upholding a code of conduct. By code of conduct we mean how we conduct ourselves in water as snorkelers and out of the water as vessels. It is a privilege to share the water with these endangered gentle giants as we only see whale sharks for a small window of time during their elusive lives. As aforementioned, South Ari is an aggregation where young individuals come for safety and recuperation; disturbing this vital time can impact the whale shark's overall health.

Each page of the visual code of conduct guide (explained on page 24 - 28 of this document) has the appropriate imagery for each fact or rule on the front, and notes on the back of the page for the guide's own reference.



Code of Conduct: Key Rules

- **DO NOT TOUCH:** Whale sharks are not tactile animals and will leave the encounter early if you touch them, therefore disrupting their natural behaviours.
- **KEEP 3 - 4 METRES DISTANCE:** Keep 3 metres distance from the body and 4 metres from the tail. Whale sharks can move quickly when they choose to; keep distance to protect yourselves and the shark.
- **DO NOT OBSTRUCT:** Obstructing the path of a whale shark will cause them distress and they may leave. If the whale shark should approach you on its own accord, move out of the way quickly.
- **DO NOT SWIM ON TOP OF THE WHALE SHARK:** Allow space for the shark to rise to the surface for continuing its thermoregulation process. If you need to cross to the other side of a shark which is cruising at the surface, swim around and behind the shark's tail keeping distance. If the shark is cruising at a depth of 5 metres or more, you may safely swim above the shark to cross to the other side.
- **NO FLASH PHOTOGRAPHY:** Whale sharks do not respond well to bright and unexpected flashes of light.
- **REDUCE NOISE:** Do not jump from a standing position; instead opt for a seated position when exiting the vessel to the encounter. Do not shout and attempt to keep your fins under the water, also please reduce excessive splashing. Whale sharks have the world's biggest ear drum so we must be as quiet as possible during encounters.



South Ari Marine Protected Area Today

On 5th June 2009, the following guidelines for whale shark tourist encounters in the Maldives were put in place by the Environmental Protection Agency Maldives (EPA Maldives). These were guidelines formed with the help of data collected as well as knowledge shared by MWSRP and are still in place today as guidelines. Since 2009, the vessel activity in SAMPA, along with tourism in the area, has grown significantly and while these guidelines are still relevant and important to follow, the reality nowadays is that many vessels do not follow them due to a lack of regulation and enforcement of the rules. EPA Maldives has been working towards finalising a management plan for SAMPA; however, until such time of completion, it still remains important for operators to follow these guidelines, therefore taking responsibility for sustainable whale shark interactions and guest safety.

Official Document of Maldivian Whale Shark Tourist Encounter Guidelines

Established 5th June 2009 by Environmental Protection Agency (EPA) Maldives

1. Restriction on vessels in or near contact zone:

- a. An exclusive contact zone of a 250 metres (820.2 feet) radius applies around any whale shark.
- b. A vessel establishing a contact zone should identify itself by raising the designated flag.
- c. Any other vessel engaging in whale shark related activities must not enter a contact zone to observe a whale shark.
- d. The operator of a vessel establishing a contact zone shall record the details of the contact on the form provided and return this to the appropriate authority within the time specified.

2. Restrictions on period in contact zone:

- a. A contact vessel must not remain in the same contact zone for longer than 40 minutes if there are other vessels queuing to view the shark.
- b. Notwithstanding clause 2 (1) above, the contact period is deemed as having ended once the contact vessel has lost contact with the shark and should lower the contact flag indicating that the contact zone and contact period have lapsed.

3. Restrictions on vessel speed in contact zone:

- a. Subject to clause (2 & 3) below, a contact vessel must not exceed 5 knots (9.3km/hr) in a contact zone.
- b. A contact vessel must not exceed 2 knots (3.7 km/hr) within 50 metres (164 feet) of the contact whale shark.
- c. If, for reasons of safety, a contact vessel must exceed 5 knots (9.3km/hr) in a contact zone, that vessel must leave the contact zone as soon as is practicable.

4. Proximity of contact vessel to the whale shark:

- a. A contact vessel must maintain a distance of at least 10 m (32.8feet) from the nearest whale shark.
- b. Should a whale shark swim towards the vessel to within 10 m (32.8 feet), all engines should be in neutral or switched off until the shark has moved more than 10 m away.

5. Direction of approach:

- a. Subject to clause 3 (1 & 2) if swimmers or divers are to enter the sea from a contact vessel to view a whale shark, the contact vessel should wherever possible approach a whale shark from in-front or from the side without the vessel forcing the shark to change direction.

6. Number of swimmers or divers:

- a. The number of swimmers or divers entering the sea from a contact vessel to view a shark is limited to a maximum of 12 persons in total. 1 Appendix I – South Ari Atoll MPA

7. Physical contact with whale shark prohibited:

- a. A person must not touch or ride on, or attempt to touch or ride on, a whale shark under any circumstance.

8. Proximity of swimmers or divers to the whale shark:

- a. A person in the sea must
 - i. at all times maintain a distance of at least:
 - ii. 3 metres (9.84 feet) from the head or body of the whale shark, when approaching a whale shark from any direction.
 - iii. 4 metres (13.1 feet) from the tail of the whale shark, when approaching the tail from any direction.
- b. Must not deliberately cross in front of the whale shark's direction of travel or impede its movement.

9. Motorized swimming and other activities prohibited:

A person in the sea must not:

- a. use a motorized or otherwise powered swimming or diving aid in a contact zone.
- b. use any device capable of towing or carrying a person, that is towed behind a vessel, in a contact zone.
- c. use flash photography

10. Exceptions when authorized by the authorised Government Agencies:

- a. Clauses 5, 7, 8 and 9 do not apply to a person who is undertaking authorized scientific research. Authorized scientific teams should also adhere to their allocated timings provided in the permits and should collect their deployed equipment prior to leaving the MPA.



Guide to Whale Shark Guiding

The guest briefing is arguably the most important element of delivering an enjoyable whale shark excursion. In addition to providing important information about safety, codes of conduct and the whale shark, a good briefing can create a healthy general attitude amongst guests by encouraging questions, creating conversation, reassuring those feeling apprehensive, curbing unrealistic expectations, and building excitement and anticipation.



A good guest briefing should include some of, if not all, of the following information and should be delivered professionally and enthusiastically. Remember to speak up, use non-verbal communication and where possible use a briefing pack (see below) to illustrate your points. The briefing should be short enough to hold people's attention, no more than 8 - 12 minutes, and remember to use the provided whale shark code of conduct pack. If you have more to say, rather than going over this time limit, take the opportunity to expand on certain points during the trip.

Step by Step

1. Welcome and Introductions

- Welcome people on board and introduce yourself and the crew
- How long will the excursion be?
- Where are we now?
- Where are we going?
- How long will it take to get there?

2. What happens during a whale shark encounter?

- Briefly explain each part of the process, including:
 - Preparing equipment
 - Spotting a whale shark
 - Maneuvering the boat
 - Getting in the water
 - Snorkeling with the whale shark
 - Being picked back up by the boat

3. Proceed to explain whale shark code of conduct:

- Work through each rule in order
- Keep it short: 5 - 8 minutes
- Refer to the notes on the back of each page
- Ask guests if they have any questions



Additional tips to give to guests:

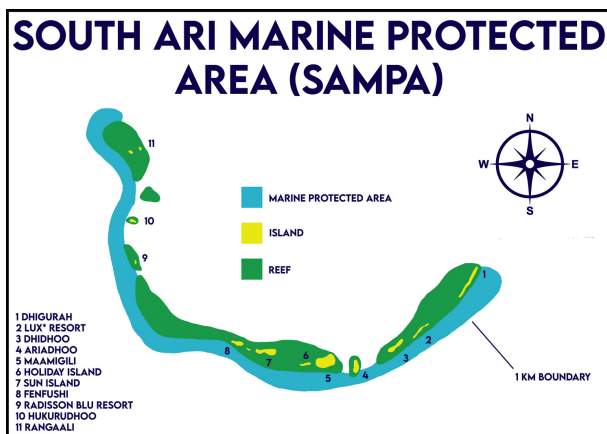
- **Prepare your equipment** beforehand and make sure you know how to use it.
- **Memorize what your guide is wearing.** If the encounter is busier than guidelines permit, it will help the snorkeler to locate their guide should separation from the group happen.
- **Memorize what your excursion boat looks like.**
- **Swim with a buddy.** Whether you are a confident swimmer or not, it is safer to swim with a buddy.

Visual Whale Shark Briefing Pack Explained

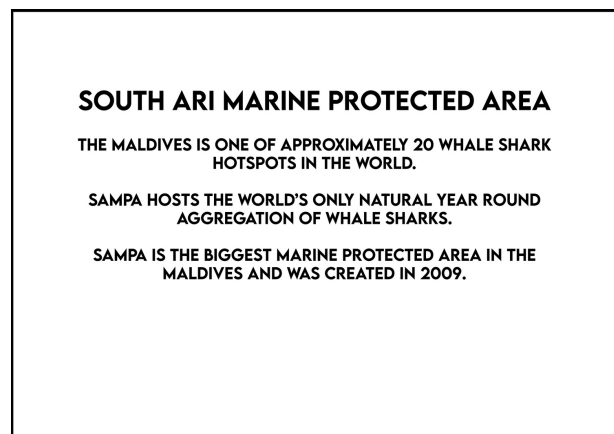
This is the part of the briefing where you, as the guide, can use the briefing pack visual aids provided, which has notes regarding explanation for each page of the briefing. The briefing should take 10 - 12 minutes and guides should work through each page in the methodical and numbered way provided. This whale shark visual briefing is made up of 13 pages and only pages 1, 2, 3, 4, 5, 6 and 13 have notes which are intended to be printed on the back of the pages.

Page 1: South Ari Marine Protected Area – A map of SAMPA guides can refer to.

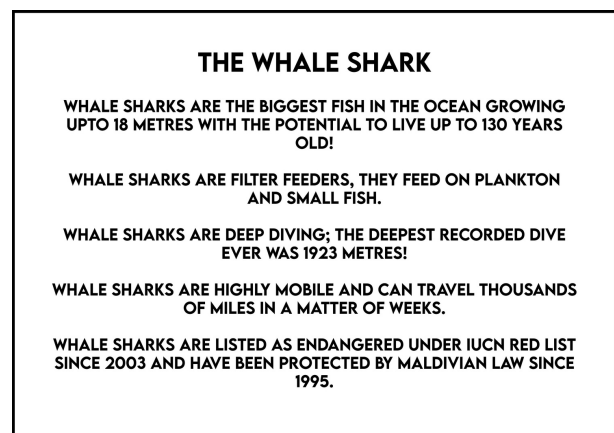
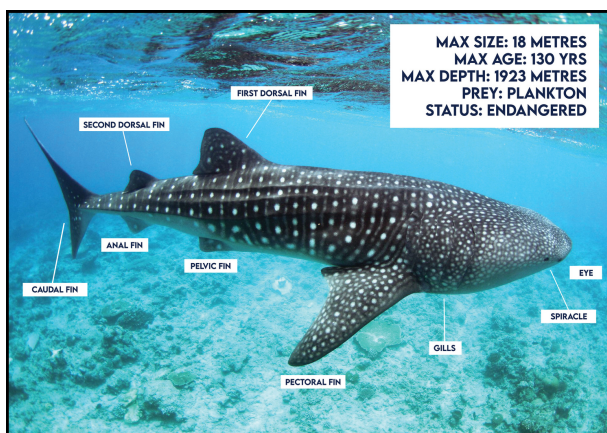
Front



Back



Page 2: The Whale shark – Goes over the basics of biology and ecology.





THE WHALE SHARKS OF SAMPA

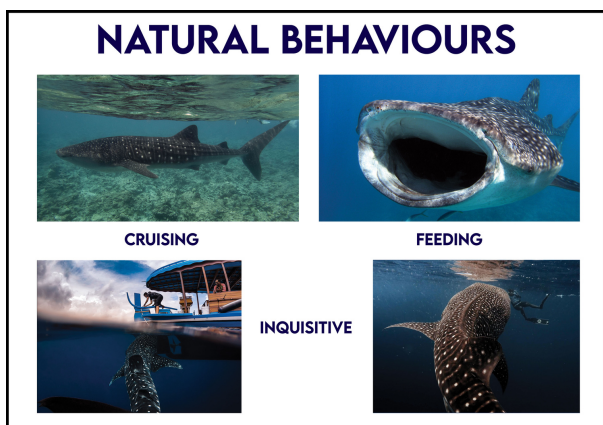
SAMPA IS HOME TO JUVENILE WHALE SHARKS WITH THE AVERAGE SIZE BEING 5.5 METRES.

90% OF THE WHALE SHARKS IN SAMPA ARE MALE.

THE UNIQUE FEATURES OF SAMPA PROVIDE IDEAL AND SAFE CONDITIONS FOR THESE YOUNG SHARKS.

THE PRIMARY BEHAVIOUR OBSERVED BY SAMPA WHALE SHARKS IS CRUISING. DURING CRUISING PERIODS, THE WHALE SHARK IS IN THE PROCESS OF THERMOREGULATION.

WHALE SHARKS ARE DEEP DIVERS AND NEED TIME TO RECUPERATE AT THE SURFACE, WHERE IT IS WARM, AFTER DIVING AT DEPTH WHERE THE WATER TEMPERATURE IS COLD AND LOW IN OXYGEN.



UNNATURAL BEHAVIOURS

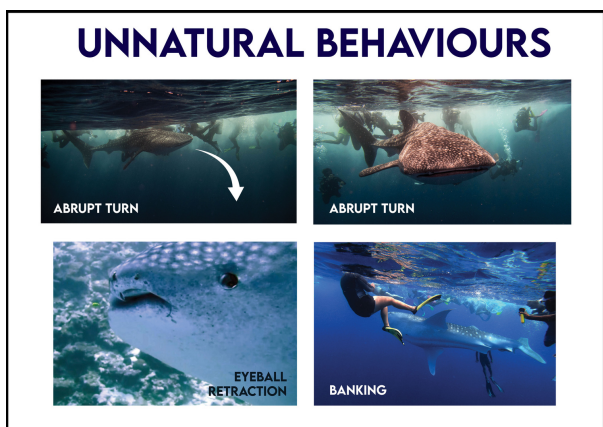
WHALE SHARKS WILL BECOME EVASIVE WHEN CODE OF CONDUCT IS NOT FOLLOWED. THIS IS CHARACTERISED BY...

FAST SWIMMING AND ABRUPT TURNS TO AVOID SNORKELERS.

BANKING AWAY FROM SNORKELERS WHO ARE TOO CLOSE. THIS IS A SIGN YOU NEED TO GIVE THE SHARK SPACE.

EYEBALL RETRACTION IF THE SHARK FEELS THREATENED BY A SNORKELER THAT IS TOO CLOSE.

STEEP DIVING OFF THE REEF, ENDING THE SHARK'S RECUPERATION TIME PREMATURELY.



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THREATS TO THE WHALE SHARK



BYCATCH FISHERIES

ENTANGLEMENT BOAT STRIKES DISTURBANCE FROM BAD CODE OF CONDUCT

THREATS TO THE WHALE SHARK

BYCATCH: WHALE SHARKS MAY BE A VICTIM OF BYCATCH FROM COMMERCIAL FISHING VESSELS.

FISHERIES: TARGETED FISHERIES FOR WHALE SHARK FINS, MEAT, SKIN AND LIVER OIL IS IN DECLINE BUT STILL A THREAT.

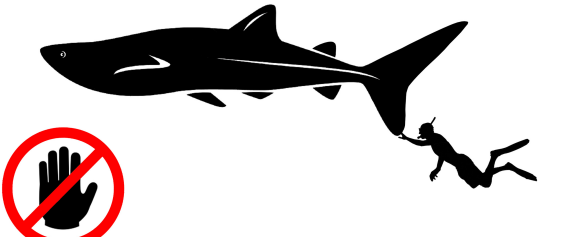
ENTANGLEMENT FROM DISCARDED FISHING GEAR.

VESSEL STRIKES CAN SEVERELY INJURE THEM. THIS IS THE MAIN THREAT IN THE MALDIVES.

HUMAN DISTURBANCE: BAD CODE OF CONDUCT CAN NEGATIVELY IMPACT THE WHALE SHARK BY STRESSING THEM OUT AND DISRUPTING THEIR RECUPERATION.

DO NOT TOUCH

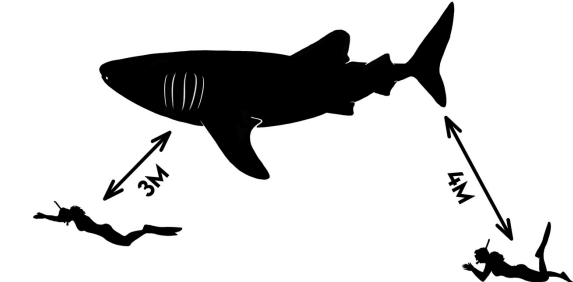
WHALE SHARKS ARE NOT TACTILE ANIMALS AND WILL LEAVE THE ENCOUNTER IF WE TOUCH THEM



Page 7: Do not touch the whale shark

KEEP 3-4 METRES DISTANCE

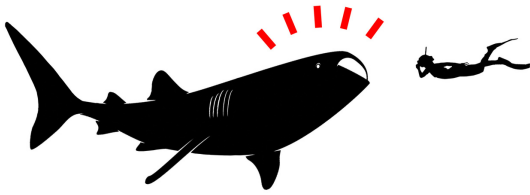
KEEP 3 METRES DISTANCE FROM THE BODY AND 4 METRES FROM THE TAIL.



Page 8: Keep 3 - 4 metres distance

DO NOT OBSTRUCT

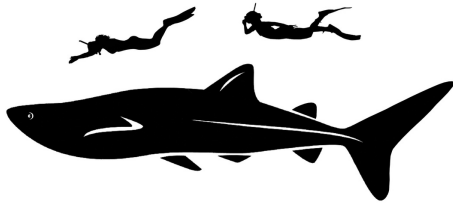
OBSTRUCTING THE PATH OF THE WHALE SHARK WILL CAUSE THEM DISTRESS AND THEY MAY LEAVE



Page 9: Do not obstruct

DO NOT SWIM ON TOP OF THE WHALE SHARK

ALLOW SPACE FOR THE SHARK TO RISE TO THE SURFACE TO CONTINUE THERMOREGULATION.



Page 10: Do not swim on top of the whale shark

REDUCE NOISE

WHALE SHARKS CAN BECOME EVASIVE WHEN ENCOUNTERS ARE NOISY



DO NOT JUMP OFF THE BOAT FROM A STANDING POSITION



ENTER FROM SEATED POSITION AT THE SIDE OF THE BOAT



DO NOT SHOUT OR SPLASH EXCESSIVELY, & RESPECT OTHERS

Page 11: Reduce noise



Page 12: No flash photography

Page 13: Citizen Science – Explains how every whale shark is identifiable by their spot pattern and how the excursion guests can help contribute towards whale shark science and protection.

CITIZEN SCIENCE

SUBMIT YOUR ENCOUNTER TO THE MALDIVES WHALE SHARK RESEARCH AND CONTRIBUTE TO SCIENCE AND PROTECTION

SEND YOUR I.D. PHOTOS TO:
NETWORK@MALDIVESWHALESHARKRESEARCH.ORG

FIND THEM ON SOCIALS

CITIZEN SCIENCE

EVERY WHALE SHARK HAS A UNIQUE SPOT PATTERN WHICH CAN HELP SCIENTISTS DISTINGUISH THEM AS INDIVIDUALS AND THEREFORE TRACK MOVEMENTS, DISTRIBUTION AND OVERALL HEALTH.

SUBMIT YOUR ENCOUNTER PHOTOS TO MWSRP AND THEY WILL IDENTIFY YOUR WHALE SHARK AND LOG IT IN THEIR BIG FISH NETWORK DATABASE. IF THE SHARK IS NEW YOU GET TO CHOOSE A NAME FOR IT.

IF THE WHALE SHARK HAS ANY INJURIES, IT'S IMPORTANT TO DOCUMENT THESE AS IT HELPS RESEARCHERS TRACK THE HEALING PROCESS.

EMAIL NETWORK@MALDIVESWHALESHARKRESEARCH.ORG WITH YOUR WHALE SHARK PHOTOS AND FOLLOW MWSRP ON SOCIALS TO STAY UP TO DATE WITH THE SHARKS OF SAMPA.

Whale Shark Citizen Science and the Big Fish Network

What is Whale Shark Citizen Science?

Definition: *Citizen Science*

'The collection and analysis of data relating to the natural world by members of the general public, typically as part of a collaborative project with professional scientists.'

As discussed earlier, protecting charismatic species such as the whale shark can begin with simply helping scientists collect data. The Maldives Whale Shark Research Programme has been collecting data on the whale sharks in the Maldives since 2006. Photo ID forms the backbone of our data collection efforts because each whale shark has a unique spot pattern, like how each human has their own fingerprint. By capturing this 'whale shark fingerprint' area via photography, we can then run the ID through pattern matching software and determine whether an individual is new or has been resighted.

In 2013, our online register and citizen science platform, the Big Fish Network (BFN), was created to establish a regional monitoring network of whale shark tour guides and contributors. With the introduction of the Big Fish Network, citizen scientists have helped us catalogue over 500 whale shark individuals and log thousands of valuable encounter data. This directly contributes towards helping us learn about this gentle giant and better protect it from human impact.



Who Can Contribute to the Big Fish Network?

Anyone who is lucky enough to encounter the whale shark can become a citizen scientist!

The BFN contributor membership is predominantly aimed at marine biologists as well as excursion and dive guides who regularly encounter whale sharks in the water. MWSRP aims to recruit these guides and offer training sessions so they can record encounter data, identify their shark using pattern recognition software and input the data via their personal login. The process of BFN and whale shark identification can be an exciting experience for excursion guests. It can serve as a follow-up experience to the actual encounter, further solidifying customer satisfaction. The more that BFN contributors participate in whale shark data collection, the more chances there are of identifying a new individual that you (the contributor) and your guests can name!

Tourists and individuals, who are not a representative of a whale shark excursion operator, can also submit their encounters to MWSRP. Tourists may submit their encounter photos to our email address: info@maldiveswhalesharkresearch.org. This will then be uploaded by an MWSRP team member.

The Big Fish Network App

You may see information on our website about the BFN iOS app, which was created in 2014. Sadly, at present, it is not operational and is in need of a big update we are seeking funding for. Currently, MWSRP is in the midst of an operational shift largely driven by the world events of the pandemic. Funding to redesign and update the app is on our big list of things to improve, so until then the predominant form of submitting data is through the BFN portal accessible via PC login.



Looking to the Future

Our core team has worked hard to bring you this new learning resource, so thank you very much for taking the time to read it! Looking to the future, we aim to produce more resources like this one in an effort to aid whale shark guides and people who wish to snorkel with this gentle giant.

As an extension to this 'Guide to Whale Shark & Code of Conduct' we are hoping to also provide the following in the near future:

- Versions of the 'Visual Whale Shark Briefing Pack' translated in Dhivehi, Russian, Chinese and other languages deemed necessary.
- A 'Best Practice for Vessels Briefing Pack' aimed at boat captains with visual aids, written in both Dhivehi and English.
- A reference guide for using the BFN online portal.



Many thanks to the photographers who allowed us to use their imagery to help create these learning resources: Basith Mohamed, Kaushiik Subramaniam, Mette Ellis Naussbaumer, Lewis Jefferies, Shawn Heinrichs, Jono Allen, Melody Skye, Mohamed Hassan.