SHARK AND RAY TOURISM

A GUIDE TO BEST PRACTICES IN PANAMA

MiAmbiente · Panamá · ARAP · MarViva · Shark Business · gef · PNUD

CREDITS AND ACKNOWLEDGMENTS

CONTENT MANAGEMENT AND CO-ORDINATION
Juan M. Posada, MarViva Foundation.

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COMPILATION AND DRAFTING
Juan M. Posada, MarViva Foundation; Elena Salim Haubold and Daniel Norwood, Shark Business.

DESIGN, ILLUSTRATIONS AND PHOTOGRAPHS
Layout and Design: Elena Salim Haubold and Daniel Norwood, Shark Business.
Illustrations: Jorge Galofre. Photographs: Daniel Norwood and Simon Pierce.

CONSULTANTS
Hector M. Guzman, Smithsonian Tropical Research Institute; Rodrigo Vallarino Romero, Panama Dive Center.

COUNTERPARTS
Shirley Binder, Haydeé Medina, and Lissette Trejos, Ministry of Environment; Robert Duarte and Anna Núñez, Aquatic Resources Authority of Panama; Malena Sarlo, United Nations Development Program.

REVIEW
Eduardo Polo, National Director of Coasts and Seas, Ministry of Environment; Zuleika Pinzón, General Manager of the Aquatic Resources Authority of Panama; Marino Abrego, Ministry of Environment; Juan Portugal, Tourism Authority of Panama; Humberto Jaime, United Nations Development Program; Jorge Jiménez, Erick Ross, Magdalena Velázquez and Vicente Del Cid, MarViva Foundation.

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INTRODUCTION

With more than 30 dive operators and a significant number of local marine-coastal transportation providers along the Pacific (1700km) and Caribbean (1287km) coasts of Panama, there is potential to establish tourism activities to scuba dive and snorkel with a variety of sharks and rays in the future. However, it must be recognized that this is an incipient activity, as cetacean watching was in the past, and every effort must be made to train and educate future operators to ensure the activity is conducted in a responsible manner.

To date, sharks and rays in Panama have been recognized for their use in fisheries, linked to the international fin trade, and more recently in the use of meat from newborn or small sharks in the preparation of the popular ceviches. This situation is unsustainable due to the population and biological characteristics shared by sharks and rays that make them very susceptible to fishing pressure, to the point of causing many species to join the lists of endangered species of the International Union for Conservation of Nature (IUCN). On the other hand, the ecological importance of sharks and rays, and their contribution to preserving the health of our seas and oceans has been clearly demonstrated, so the expression ″sharks are worth more alive than dead″ is not a simple conservationist message, but a reality that we must take into consideration if we want healthy fisheries and coastal marine ecosystems in the future.

Every year, thousands of tourists travel all over the world to observe sharks and rays in their natural environment, contributing to the exponential growth of what is already a multi-million dollar industry. Responsible management of this activity can contribute to the conservation process of these species. Positive impacts include: protection of habitats, management of conservation projects (with donations, fees or entrance fees to parks), and job creation for local populations who find conservation an economic incentive; as well as educating tourists about marine fauna, its threats and the need to protect it. There are examples from around the world that demonstrate how responsible shark and ray tourism has helped contribute to conservation efforts. Shark diving is so popular in the Republic of Fiji that it continues to raise considerable funds for conservation purposes (Brunnschweiler and Earle 2006). Responsible scuba diving excursions to view bull sharks within Fiji's first national marine park (Shark Reef Marine Reserve) enable tour operators to carry out control, patrol and surveillance activities as well as fund marine research and monitoring programs within the reserve (Brunnschweiler 2010). These dives with sharks in their natural habitat provide a much greater economic return than the use of sharks in other contexts. In the Republic of Palau, the value of sharks that frequent dive sites is considerably higher than the value of the same animal if it were simply fished for a one-time reward. This has encouraged local communities to protect sharks and prevent them from being fished in the entire Republic (Vianna *et al.*, 2012).

Unfortunately, this type of tourism does have some potential negative effects if not conducted in a responsible manner. Incorrect procedures may result in the excessive harassment of animals, causing them unnecessary stress and possibly altering their natural behaviour (social, hunting, flight, feeding, breeding, schedules, rest) and vital cycles. Also, the presence of boats represents a risk to large surface dwelling species such as whale sharks as they are occasionally hit or hurt by them.

This guide is a part of the United Nations Development Program, which, through the request made by the Coast and Seas Directorate of the Ministry of the Environment, seeks to promote good practices for diving and snorkelling with sharks and rays. By avoiding any potential problems associated with tourism activities, we can ensure that the industry will develop in an orderly fashion and become a sustainable economic alternative that directly benefits local communities. In the future, we hope that Panama will become a popular destination for marine wildlife tourism, where it is possible to observe some of nature's most majestic creatures in a safe and sustainable way.

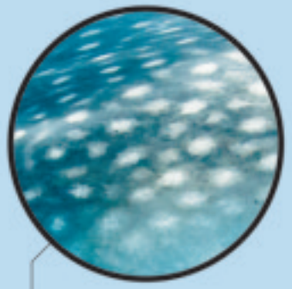
The Guidelines for Best Practices for Responsible Tourism of Sharks and Rays (Lawrence *et al.*, 2016) were key to the development of this document, which was adopted by service providers, divers and swimmers on a voluntary but recommended basis. WWF, Project Aware and Manta Trust, as well as Resolution No. AG-0069-2014 (Tuesday, February 4, 2014), regulating the whale shark (*Rhincodon typus*) reserve area of Isla Canales de Afuera, in the Coiba National Park. It should also be noted that Panama has Executive Decree 9 of the Ministry of Agricultural Development, dated April 21, 2009 (GO 26270 of 28/0 4/09), which declares the whale shark as a species of special protection in territorial waters of the Republic, prohibiting its fishing, capture, and commercialization.

The guide is made up of four technical sheets, dedicated to whale sharks, pelagic and reef sharks, and stingrays. On one hand, the recommendations are linked to the biological and ecological characteristics of the animals to be observed, because ″we only take care of what we are familiar with”. The other side of the chart is intended to present the way in which boats should operate in the presence of these animals, as well as the rules and recommendations that should be followed by divers and swimmers during the interactions. It also states how dive operators and in-water guides should monitor the activity so that it is carried out in a responsible and safe way for everyone involved.

At the end of the guide, the bibliography consulted for the preparation of this document is shown, which will allow anyone with an interest in furthering their knowledge to investigate further and discover additional material about the subject.

WHALE SHARK

The whale shark *(Rhincodon typus)* is the largest fish in the ocean and can reach lengths of up to 12 meters, with a maximum weight of 20 tons. Its body is covered in spots and stripes, making them easy to identify and they are found in both tropical and warm temperate waters all over the world. Although they normally travel alone, there are a few known locations where hundreds of individuals gather seasonally. Despite its immense size, this species poses no threat to humans, and swimming alongside this gentle giant provides an unforgettable experience.

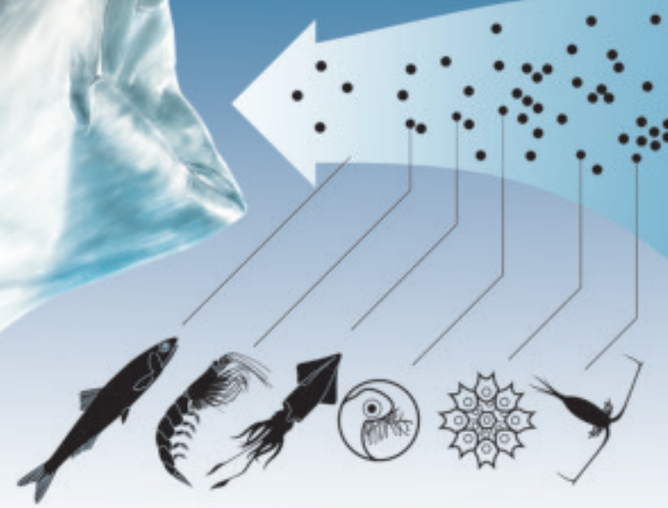


IDENTIFICATION

Each whale shark has a unique pattern of spots that never change, much like a human fingerprint. By capturing underwater images of the upper torso, scientists are able to identify and track individual sharks, enabling them to collect important data about the behavior of each animal.

CODE OF CONDUCT

Whale sharks are generally tolerant of humans swimming alongside them but it is important not to disrupt their natural behaviour. No more than eight people should be in the water with the same animal at any time, and each of them must maintain a minimum distance of at least 2 meters.



Anchovies | Krill | Squid | Roe | phytoplankton | zooplankton

Rhincodon typus

Class:	Chondrichthyes
Subclass:	Elasmobranchii
Superorder:	Selachimorpha
Order:	Orectolobiformes
Family:	*Rhincodontidae*
Genre:	*Rhincodon*
Species:	*Rhincodon typus*

SIZE & WEIGHT (MAXIMUM)

12 Meters

20 Tons

GEOGRAPHICAL DISTRIBUTION

The wide distribution of this pelagic species covers all the temperate and tropical seas of the world, except the Mediterranean Sea. The highest known aggregation of whale sharks occurred in 2009 on the Yucatan Peninsula, Mexico. Up to 420 sharks were counted, concentrated in an area of 18 square kilometres.

FEEDING BEHAVIOUR

The whale shark is one of only three species of filter feeding sharks that survive entirely on a diet of planktonic and nektonic prey. It feeds by swimming with its huge mouth open, sucking in large volumes of nutrient-rich water, and capturing through a filtration process large quantities of zoo and phytoplankton, krill, roe, small crustaceans, squid and fish.

REPRODUCTION

Little is known about their reproductive behaviour and it has not yet been determined where they mate or give birth. They are ovoviviparous and the only pregnant shark to ever be studied was found to be carrying more than 300 embryos, each measuring between 42 and 63 cm in length.

CONSERVATION STATUS

Species included in Appendix II of Cites

EX EW CR **EN** VU NT LC

ENDANGERED

The whale shark is still the target of the fishing industry in several coastal areas. IUCN considers it an "endangered" species. In Panama, it is a species that enjoys special protection (Executive Decree April 9, 2009, G.O. 26270 of 04/28/09).

RESPONSIBLE WHALE SHARK TOURISM

GUIDE TO BEST PRACTICES IN PANAMA

BOAT RESTRICTIONS

SIZE
The vessels that provide the sighting service commercially should not exceed 12 meters (40 feet) and should preferably be equipped with 4 stroke engines.

DISTANCE
- All boats must be no closer than 10 meters (30 feet) from a whale shark.
- Do not approach the animal head on, but follow its direction of travel.

SPEED
- Maximum speed of 3.5 km/h (2 knots).
- The engine must be in neutral if the distance to the whale shark is less than 100 meters (300 feet).

TIME
No boat may spend more than 30 minutes interacting with a whale shark.

OTHER VESSELS
There should only be one boat per whale shark within the contact zone. All other vessels shall remain at a distance of 100 meters (300 feet).

INTERACTION BETWEEN TOURISTS AND WHALE SHARKS

GROUP SIZE
A maximum of 6 divers or 8 swimmers with snorkel, not including guide and photographer.

DISTANCE
- No more than 6 divers or 8 snorkel swimmers within 6 feet of the shark.
- Do not interact with offspring and juveniles whose size is less than 2 meters (6 feet) in length.

RESTRICTIONS
- Do not touch, ride or chase the shark and do not block its path or interfere with its natural behavior.
- Do not touch or remove any electronic or marking device attached to the shark, as it is part of ongoing scientific research.

GUIDELINES
- No flash photography or selfies.
- Enter the water quietly.
- Do not jump from the boat.

EQUIPMENT
- Always wear a neoprene suit or life jacket.
- Do not use any propulsion device (watercraft, scooters) or disturbing electrical equipment (horns, shark repellent, echo sounders).

OPERATOR RESPONSIBILITIES

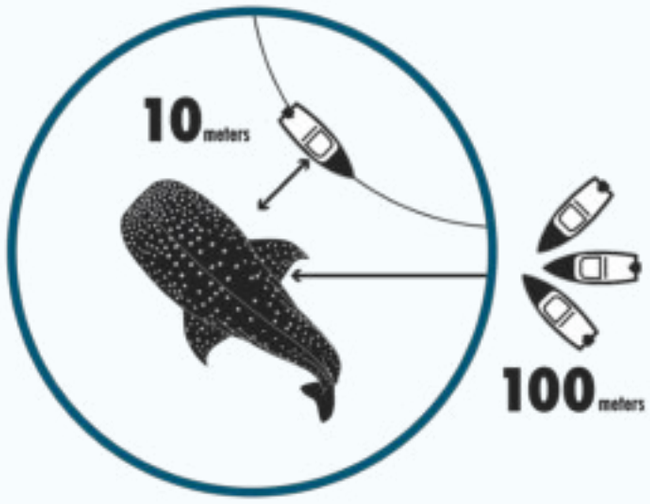
SECURITY
Comply with the security requirements established by the Panama Maritime Authority.

ACTVITY BRIEFING
Explain clearly the code of conduct for the activity, the safety procedures, and the risks related to the activity.

EDUCATIONAL MATERIAL
- Discuss with the group the basic biology natural history and conservation status of the whale shark.
- This document must be available at dive shops and on board boats.

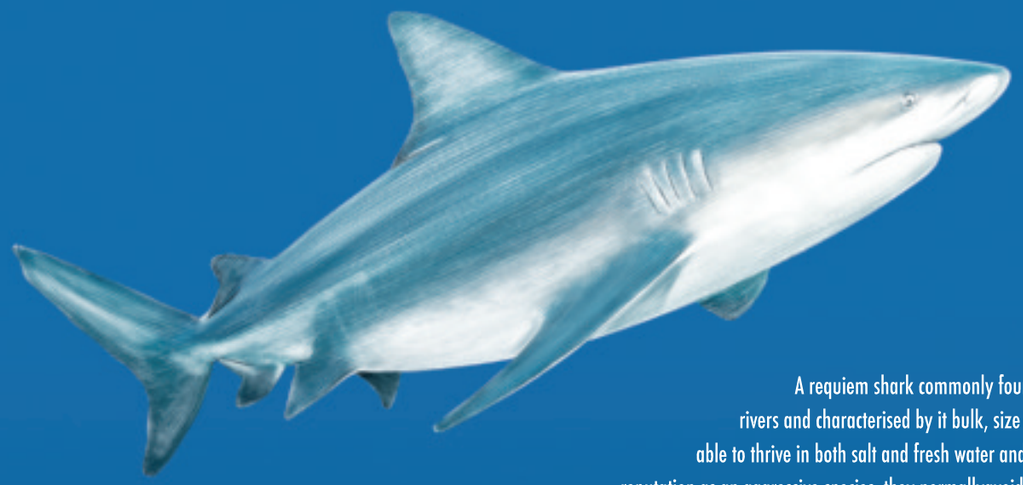
ENFORCEMENT
- Tourists should be accompanied by a guide to ensure that the code of conduct is followed.
- Inform tourists that non-compliance with the rules will result in removal from the water.

SUSTAINABLE PRACTICES
- Use recyclable materials and environmentally friendly equipment whenever possible. Avoid using plastics and other disposable material.
- Never throw anything into the sea.



PELAGIC AND REEF SHARKS

Sharks first appeared 420 million years ago, in the Devonian period, and have since diversified into more than 500 species that inhabit every ocean on the planet. Below we present the five most commonly sighted sharks in Panama. Although each species has unique biological and ecological characteristics, an underwater encounter with any one of them will be an experience that mostscuba divers will never forget.

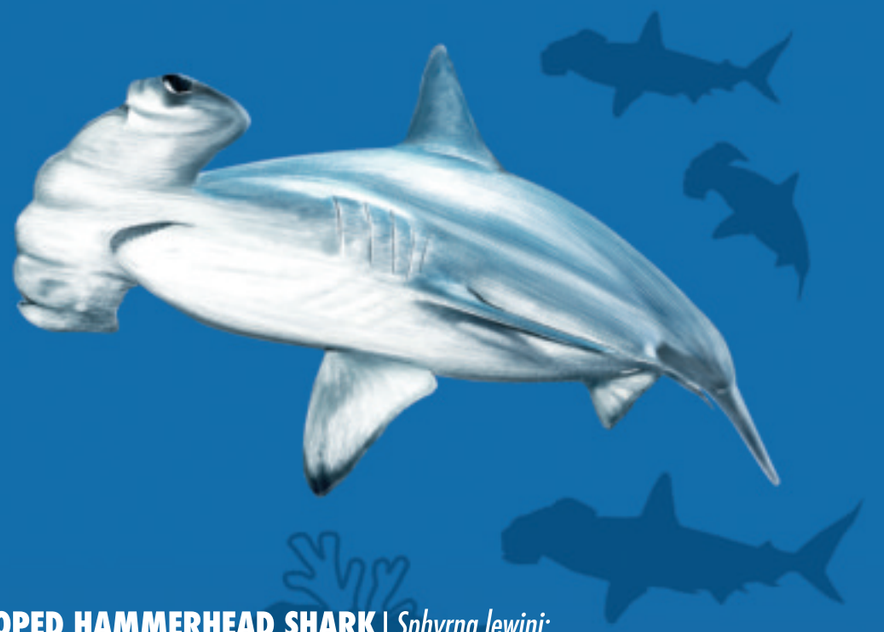


BULL SHARK | *Carcharhinus leucas:*
NEAR THREATENED

Pacific/Caribbean

400 cm 316 kg

A requiem shark commonly found worldwide in warm shallow water along coasts and rivers and characterised by it bulk, size and its small eye in relation to the rest of its body. It is able to thrive in both salt and fresh water and can travel far up rivers. Although the bull shark has a reputation as an aggressive species, they normallyavoid humans and sightings while on scuba are uncommon.



SCALLOPED HAMMERHEAD SHARK | *Sphyrna lewini:*
ENDANGERED

430 cm 152 kg Pacific/Caribbean

Named after its unusual and distinctive shaped snout, this species often gather in their hundreds at volcanic seamounts to be cleaned by reef fish and to mate. At night these schools disperse and individuals head off into open water to hunt bony fish, squid and rays. Due to their tendency to school in large numbers, they are one of the most endangered species of all sharks, and it is estimated populations have been depleted by over 90%.

BLACKTIP SHARK | *Carcharhinus limbatus:*
NEAR THREATENED

275 cm 122 kg Pacific/Caribbean

Characterised by a trailing black edge on its dorsal fin and its long pointed snout this species is normally found in shallow water around reefs and drops offs. They often form large groups when food is abundant and individuals are capable of leaping clear of the water when attacking schools of fish and other prey.

WHITETIP REEF SHARK | *Triaenodon obesus:*
NEAR THREATENED

213 cm 18 kg Pacific

A specialist in capturing reef fish that hide among corals and crevices. It is most commonly seen resting during the day on sandy areas and inside caves but transforms at night into a ruthless hunter that gathers in large groups to patrol the reef and hunt. Regularly seen while diving popular sites along both coasts of Panama.

NURSE SHARK | *Ginglymostoma cirratum, Ginglymostoma unami:*
INSUFFICIENT DATA

430 cm 109 kg Pacific/Caribbean

A slow moving bottom dweller most often found resting motionless on the seabed. They are nocturnal hunters and have powerful jaws packed full of tiny teeth capable of crushing shellfish and other invertebrates. Divers can easily identify this species by their brown coloured skin and large broad head.

RESPONSIBLE PELAGIC AND REEF SHARK TOURISM

GUIDE TO BEST PRACTICES IN PANAMA

INTERACTION BETWEEN TOURISTS AND SHARKS

GROUP SIZE
A maximum of 6 divers is allowed, not including guide and photographer.

DISTANCE
No diver will approach within 3 meters (9 feet) of sharks.

RESTRICTIONS
- Do not touch, mount, feed, or chase sharks.
- Never disturb bottom dwellers or block the exit from caves or crevices.

GUIDELINES
Remain calm and still to enjoy the best encounters. Avoid sudden movements and be aware of your surroundings at all times.

EQUIPMENT
- Wear neoprene suit and gloves.
- Spearfishing around sharks is not permitted.
- Do not use propulsion devices (watercraft, scooters).
- Avoid using shiny jewellery and accessories.

OPERATOR RESPONSIBILITIES

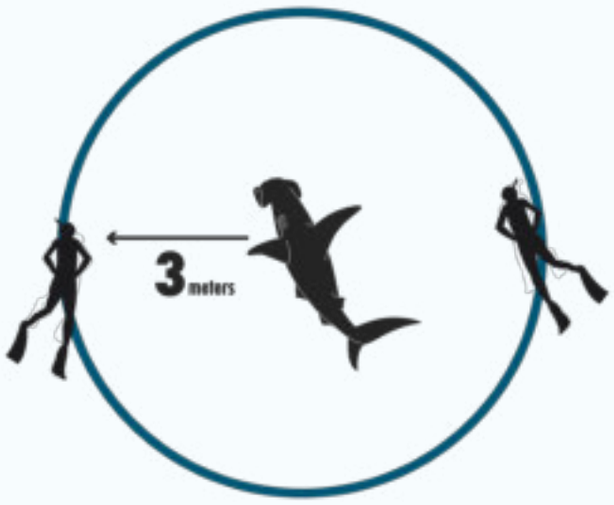
SECURITY
Comply with the security requirements established by the Panama Maritime Authority.

ACTIVITY BRIEFING
Explain clearly the code of conduct for the activity, safety procedures, and the risks related to the activity.

EDUCATIONAL MATERIAL
- Discuss with the group about the basic biology, natural history and conservation status of pelagic and reef sharks.
- This documentation must be available at dive shops and on-board boats.

ENFORCEMENT
- Tourists should be accompanied by a guide to ensure that the code of conduct is followed.
- Inform tourists that any breach of the rules will not be tolerated, resulting in removal from the water.

SUSTAINABLE PRACTICES
- Use recyclable materials and environmentally friendly equipment whenever possible. Avoid using plastics and other disposable material.
- Never throw anything into the sea.



RAYS

Stingrays are cartilaginous fish closely related to sharks that can be found in coastal tropical and subtropical waters around the world. They are characterised by their flattened body shape and disc-shaped pectoral fins which they often use to hide in the mud and sand. They use electroreceptors to locate and then feed on mollusks, crustaceans and small fish. Some rays have a poisonous barb on their tail that they use for self defence, so be careful when walking in sandy or muddy areas around shallow bays or coral reefs.The following are the most commonly encountered species in Panama.

SPOTTED EAGLE RAY

Aetobatus narinari

300 cm Pacifico/Caribe

Very easy to recognise due to its distinctive dark dorsal surface covered in white spots or rings, round snout that resembles a ducks beak, and a long whip-like tail with 2-6 spines. When in shallow waters or outside their normal habitat the rays are most commonly seen alone, but they do also congregate in schools.

PELAGIC STINGRAY

Pteroplatytrygon violacea

96 cm Pacifico/Caribe

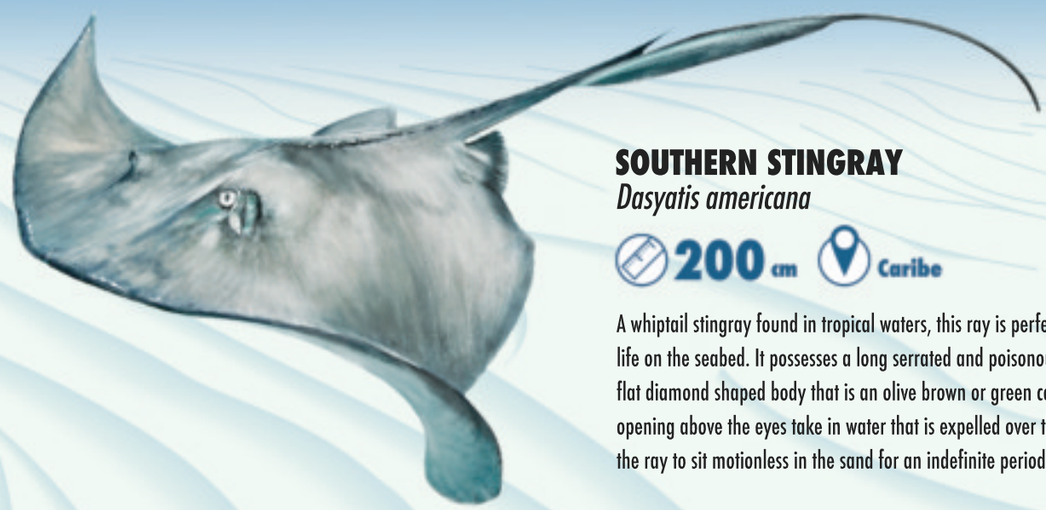
The only species of stingray that almost exclusively inhabits the open ocean, Its broad disc-shaped body is wider than it is long and has a dark purple colouration that helps it blend in with its surroundings to avoid predators. It uses its pectoral fins to cover long distances and can even swim backwards. Worldwide distribution in water warmer than 19 degrees Celsius.

DIAMOND STINGRAY

Dasyatis dipterura

122 cm Pacifico

Named after its diamond shaped pectoral fin, It favours sandy bottoms near rocky reefs or kelp forests, is more active at night and can form large groups when searching for food. The slowest of all stingrays, it is particularly vulnerable to attack and fishing pressure in latin america where it is one of the most economically important rays.



SOUTHERN STINGRAY

Dasyatis americana

200 cm Caribe

A whiptail stingray found in tropical waters, this ray is perfectly adapted to life on the seabed. It possesses a long serrated and poisonous spine and a flat diamond shaped body that is an olive brown or green colour. Spherical opening above the eyes take in water that is expelled over the gills, allowing the ray to sit motionless in the sand for an indefinite period of time.

ROUND STINGRAY

Urobatis halleri

58 cm Pacifico

This small, beautifully patterned stingray is found in the coastal waters of the eastern Pacific Ocean. It has a large tail spine for its size, and is the most commonly encountered ray in Panama. The species favours soft bottomed habitats such as mud or grass covered sandy areas, where it hunts and feeds on a variety of benthic invertebrates.

LONGTAIL STINGRAY

Dasyatis longa

117 cm Pacifico

Almost identical to its cousin the diamond stingray except for its lack of an upper fin fold in the tail, this species inhabits sandy areas where it hides during the day and hunts at night. Particularly abundant in the pacific ocean from Baja California to Colombia. Hundreds of individuals have been recorded in the Galapagos Islands in the shallow lagoons of mangrove swamps.

RESPONSIBLE RAY TOURISM
GUIDE TO BEST PRACTICES IN PANAMA

BOAT RESTRICTIONS

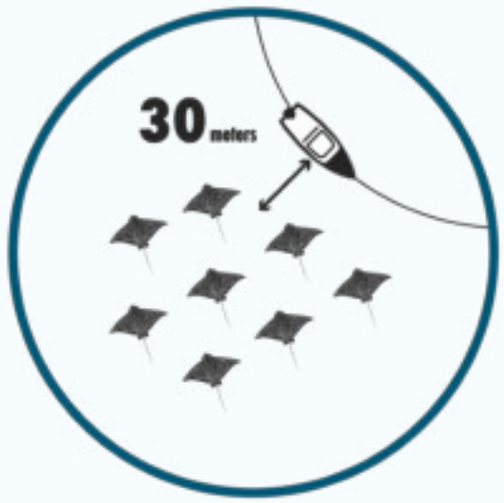
SIZE	The vessels that provide the sighting service commercially should not exceed 12 meters (40 feet) and should preferably be equipped with 4 stroke engines.
DISTANCE	All boats must be no closer than 30 meters (100 feet) from a group of rays.
SPEED	• Maximum speed of 11 km/h (6 knots). • Do not anchor near the group of rays.
TIME	No boat may spend more than 30 minutes interacting with a group of rays.
OTHER VESSELS	There should only be one boat per group of rays.

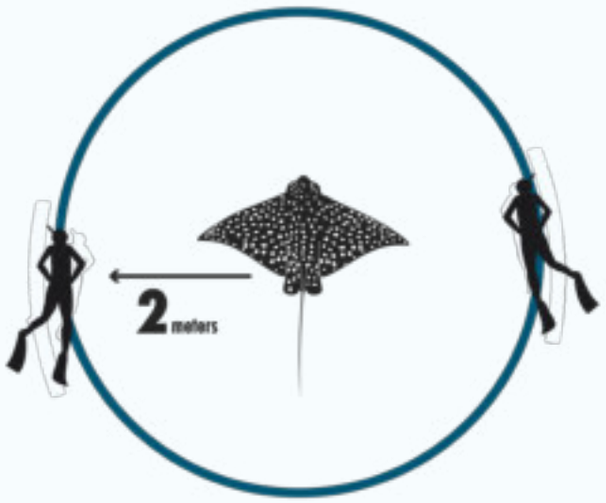
INTERACTION BETWEEN TOURISTS AND RAYS

GROUP SIZE	A maximum of 6 divers or 8 swimmers with snorkel, not including guide and photographer.
DISTANCE	No diver or swimmer shall approach closer than 2 meters (6 feet) to the rays.
RESTRICTIONS	• Do not touch, ride, feed, chase, disturb or interrupt the path of movement of any ray. • Do not touch or remove any electronic or marking device attached to the ray, as it is part of ongoing scientific research.
GUIDELINES	Be careful when lying on or diving very close to the sandy bottom, thus reducing the risk of contact with a ray.
EQUIPMENT	• Wear neoprene suit or life jacket. • Do not use any propulsion device (watercraft, scooters) or disturbing electrical equipment (horns, shark repellent, echo sounders).

OPERATOR RESPONSIBILITIES

SECURITY	Comply with the security requirements established by the Panama Maritime Authority.
ACTIVITY BRIEFING	Explain clearly the code of conduct for the activity, the safety procedures and the risks related to the activity.
EDUCATIONAL MATERIAL	• Discuss with the group the basic biology, natural history and conservation status of the rays. • This documentation must be available at dive shops and on board boats.
ENFORCEMENT	• Tourists should be accompanied by a guide to ensure that the code of conduct is followed. • Inform tourists that non-compliance with the rules will result in removal from the water.
SUSTAINABLE PRACTICES	• Use recyclable materials and environmentally friendly equipment whenever possible. Avoid using plastics and other disposable material. • Never throw anything into the sea.





MANTA AND MOBULA RAYS

Manta and mobula rays are large filter feeding fish with long flat bodies and powerful wing like pectoral fins. Mobulas have a ventral mouth, with pointed horn-like cephalic fins, and for this reason are often called devil rays. They tend to be cautious around divers and for this reason little is known about much of their behavior. Mantas are larger and are easily distinguished by their paddle-like cephalic fins, which they use to help channel prey into their mouths. They can be very curious and have even been known to seek out divers and snorkelers for interaction. It is possible to see Mobula Thurstoni along the pacific coast of Panama while Mantas Birostris are found in both the Caribbean and Pacific Ocean.

BREACHING RAYS

Both manta and mobula rays sometimes breach the surface, launching them high out of the water at top speed and then hitting the surface with a big splash. Scientists believe this could be a way of communicating with other rays or ridding themselves of unwelcome parasites.

Mobula birostris

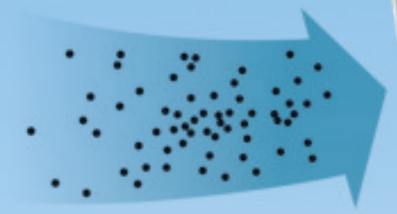
Class:	Chondrichthyes
Subclass:	Elasmobranchii
Superorder:	Batoidea
Order:	Rajiformes
Family:	*Mobulidae*
Genre:	*Mobula*
Species:	*M. Birostris*

CODE OF CONDUCT

It is recommended that a maximum of 6 divers or 8 snorkelers should be in the water at one time, and each person should keep a distance from the Manta/Mobula of at least 3 meters. Nobody should ever attempt to touch the animal or interfere with its natural behaviour.

FEEDING BEHAVIOUR

Although manta's mouths are in a terminal position and mobula rays' are in the ventral position, both species feed similarly: swimming towards large concentrations of zooplankton to ingest it with their large mouths and cephalic extensions.



Mobula thurstoni

Class:	Chondrichthyes
Subclass:	Elasmobranchii
Superorder:	Batoidea
Order:	Rajiformes
Family:	*Mobulidae*
Genre:	*Mobula*
Species:	*M. Thurstoni*

CONSERVATION STATUS

Species included in Appendix II of Cites

EX EW CR EN VU **NT** LC

NEAR THREATENED

CONSERVATION STATUS

Species included in Appendix II of Cites

EX EW CR EN **VU** NT LC

VULNERABLE

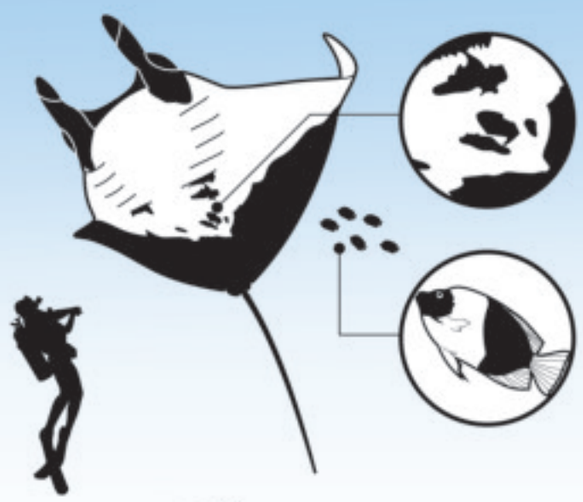
1-2

REPRODUCTION

Both species give birth to only one or two live pups every 2-5 years making them particularly vulnerable to overfishing.

FORMATION

Mobulas often gather in large groups and can sometimes be seen in schools of hundreds of individual rays. Mantas often swim in formation when taking advantage of a particularly abundant food source.



IDENTIFICATION

Each individual has a unique pattern of spots or patches on its underside, below or above the gill slits. Scientists photograph and record these markings, enabling them to recognise individuals and record their movements.

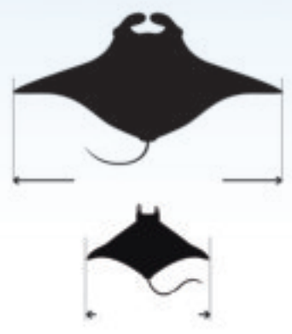
CLEANING STATION

Mantas often visit areas of coral reefs known as cleaning stations to rid themselves of parasites and other materials that are eaten by smaller fish. This symbiotic relationship is critical to the health of these giant rays and is a great way for divers to get close to them.
Cleanser: Holacanthus clarionensis.

GEOGRAPHICAL DISTRIBUTION

Both species have a pan tropical distribution, and are found in tropical, subtropical and temperate waters. Oceanic mantas spend most of their time in the pelagic area and visit shallow reefs to clean and feed themselves. Less is known about the bent fin devil ray but this species probably occurs in many other locations that have yet to be identified.

SIZE & WEIGHT



1.4 tons

5 meters

54 kg

2 meters

RESPONSIBLE MANTA AND MOBULA RAY TOURISM

GUIDE TO BEST PRACTICES IN PANAMA

BOAT RESTRICTIONS

SIZE
The vessels that provide the sighting service commercially should not exceed 12 meters (40 feet) and should preferably be equipped with 4 stroke engines.

DISTANCE
- All boats may be no closer than 10 meters (30 feet) to any manta or mobula.
- Do not approach the animal head on, but follow its direction of travel.

SPEED
- Do not exceed 14 km/h (8 knots) if the distance to the rays is less than 100 meters (300 feet), and 9 km/h (5 knots) at 30 meters (90 feet).
- The motor should be neutral if the distance to the group or individual is less than 30 meters (90 feet).

TIME
No boat may spend more than 30 minutes interacting with any manta or mobula.

OTHER VESSELS
There should only be one boat per ray within the contact zone. All other vessels shall remain at a distance of 100 meters (300 feet).

INTERACTION BETWEEN TOURISTS AND MANTAS AND MOBULAS

GROUP SIZE
A maximum of 6 divers or 8 swimmers with snorkel, not including guide and photographer.

DISTANCE
No diver or swimmer shall approach closer than 2 meters (6 feet) to any ray.

RESTRICTIONS
- Do not touch, ride or chase the rays and do not block its path or interfere with its natural behavior.
- Do not touch or remove any electronic or marking device attached to the animal as it is part of ongoing scientific research.

GUIDELINES
If diving at cleaning stations, approach calmly and keep still in order not to disturb the rays. Never stand on corals or damage the reef in any way.

EQUIPMENT
- Always wear a neoprene suit or life jacket.
- Do not use any propulsion device (watercraft, scooters) or disturbing electrical equipment (horns, shark repellent, echo sounders).

OPERATOR RESPONSIBILITIES

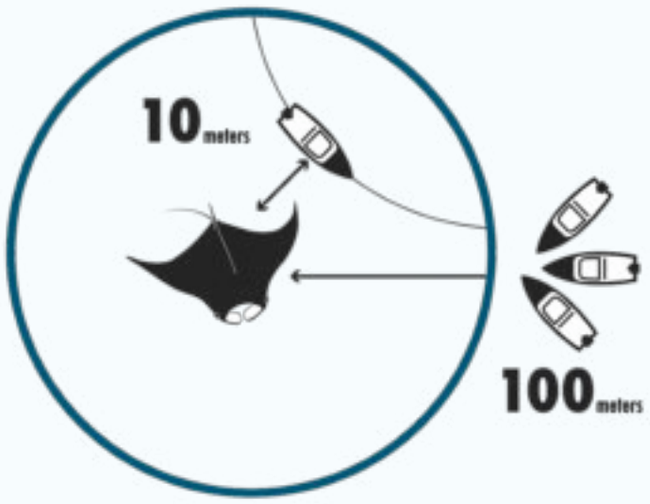
SECURITY
Comply with the security requirements established by the Panama Maritime Authority.

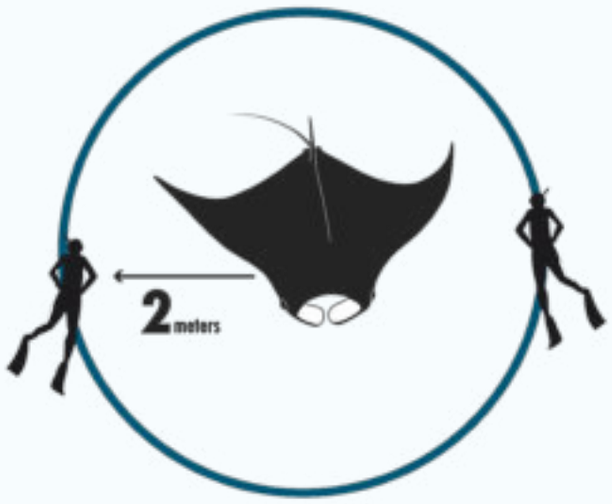
ACTIVITY BRIEFING
Explain clearly the code of conduct of the activity, the safety procedures and the risks related to the activity.

EDUCATIONAL MATERIAL
- Discuss with the group the basic biology, natural history, and conservation status of the manta and/or mobula rays.
- This documentation must be available at dive shops and on board boats.

ENFORCEMENT
- Tourists should be accompanied by a guide to ensure that the code of conduct is followed.
- Inform tourists that non-compliance with the rules will result in removal from the water.

SUSTAINABLE PRACTICES
- Use recyclable materials and environmentally friendly equipment whenever possible. Avoid using plastics and other disposable material.
- Never throw anything into the sea.





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The purpose of this guide is to offer, free tools and practical and scientific information that can be used by dive operators, NGOs and local communities to ensure that interactions between tourists and sharks and rays are carried out in the most responsible and sustainable manner.

Currently many species of sharks and rays are in danger of extinction. This is mainly because the biological characteristics of these fish make them very vulnerable to overfishing. Fortunately, responsible tourism is a powerful conservation strategy that can help to reduce this problem as it generates an alternative source of income for locals, and encourages them to reconsider the future management of their marine resources.

Countries bordering the Republic of Panama, such as Colombia, Costa Rica, Ecuador and Mexico, are recognized worldwide for their shark and ray tourism. Because of this, our organizations agreed that we needed clear guidelines on how to responsibly set up and manage the same activities in Panama. We plan to ensure that future visitors to the country can enjoy amazing encounters with our marine life while also contributing to its conservation.

By committing to responsible tourism, we are helping to build a better future for sharks and rays. Please help us to minimize the negative impacts of marine tourism by following this guide.

For further information or advice contact: rpublicas@miambiente.gob.pa or info.panama@marviva.net

Clockwise from top left: Mobula alfredi, Sphyrna lewini, Carcharhinus leucas, Dasyatis americana, Rhincodon typus, Mobula tarapacana, Triaenodon obesus, Rhincodon typus, Negaprion brevirostris.