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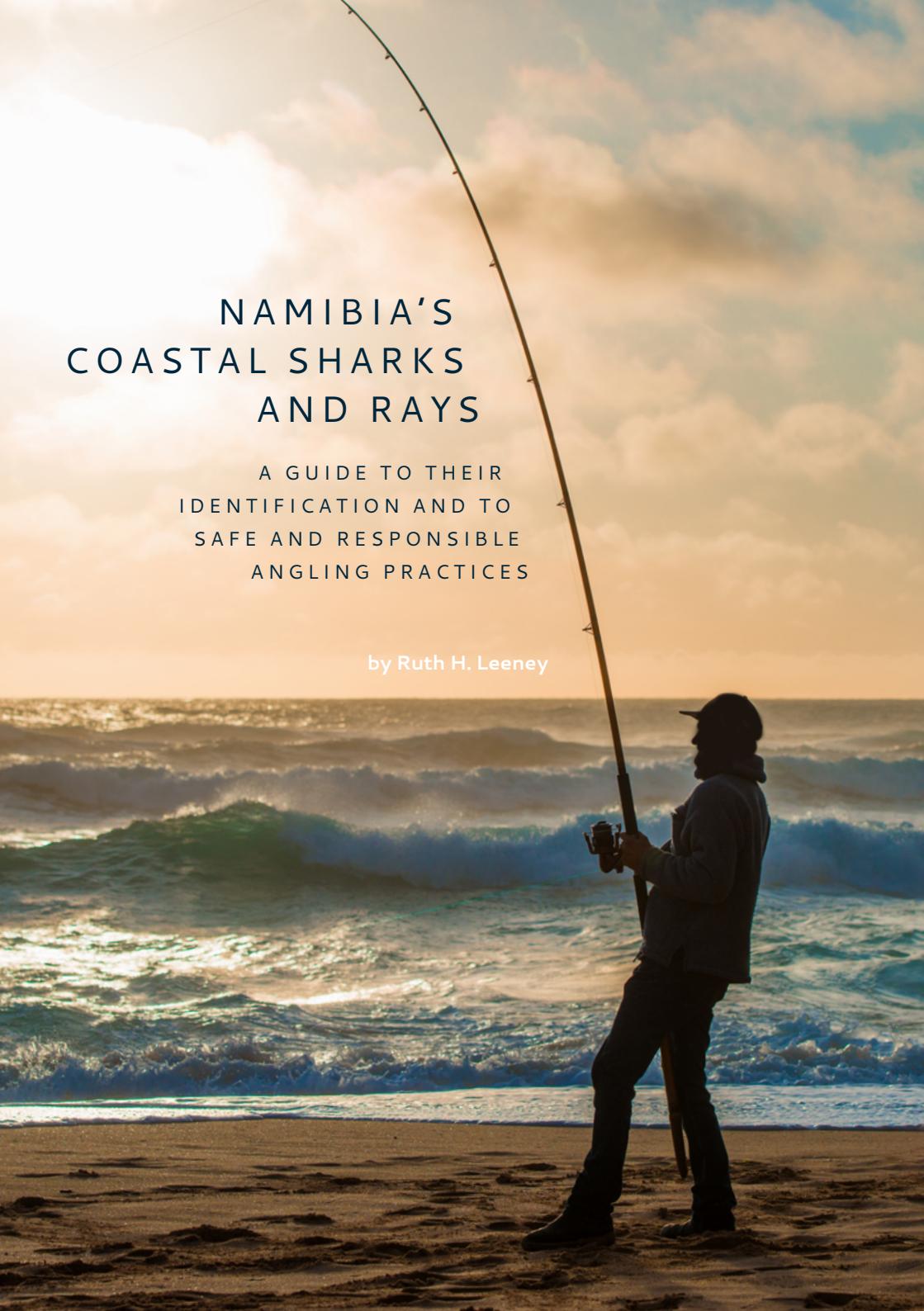
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NAMIBIA'S COASTAL SHARKS AND RAYS

A GUIDE TO THEIR
IDENTIFICATION AND TO
SAFE AND RESPONSIBLE
ANGLING PRACTICES

by Ruth H. Leeney



Written by **Ruth H. Leeney**

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INTRODUCTION

The Benguela Current Ecosystem, which runs along the west coast of South Africa, the entire Namibian coastline and into southern Angola, is one of the world's most productive marine ecosystems and supports a huge array of marine life, including seabirds, cetaceans (whales and dolphins), South African fur seals and chondrichthyans (sharks, skates, rays and chimaeras). However, 4 almost no research has focused on chondrichthyans in Namibia to date, meaning we know remarkably little about which species are found in Namibian waters, where their key habitats are, the roles they play in food webs and the threats they face.



Namibia's Rays and Sharks (NaRaS) is the first research and education project of its kind in Namibia. The project aims to generate baseline data on chondrichthyans – basic information including which species live in Namibian waters, where each species occurs and the threats each species faces. It also aims to connect with the Namibian public, share information on the incredible diversity of sharks, skates, rays and chimaeras living off our coastline, and encourage more people to take an interest in these animals.

This handbook provides an easy-to-use guide to identifying the sharks, skates, rays and chimaeras commonly caught by shore-based anglers in Namibia. The handbook also provides anglers in Namibia with the most up-to-date information on internationally accepted best-practice techniques for catching, handling and releasing chondrichthyans in a way that is safe for both angler and fish. By using these techniques, anglers are ensuring that their activities do not have a negative impact on shark and ray populations in Namibian waters, helping to ensure that these animals are around for years to come, and for future generations of anglers to enjoy.

HOW TO USE THIS GUIDE

For each species that features in this guide, rather than providing a comprehensive summary of everything that is known, key information is provided on its appearance and the areas where it is found. This information, alongside a photograph of the species, is intended to help readers to identify a chondrichthyan they may have caught, recorded on camera or otherwise encountered.

Information for each species is provided under the following headings:

COMMON NAME	Given in English and (where there is a commonly used one) in Afrikaans.
SCIENTIFIC NAME	This is the formal name used by scientists and is unique to each species. By contrast, some common names are used for several species of shark, which can cause confusion when recording scientific information.
DESCRIPTION	Includes colouration, maximum size and any important physical features that will help distinguish this species from similar species.
DISTRIBUTION	This describes the known global distribution of the species. If there are any known distribution patterns of the species in Namibia, these are also mentioned.
HABITAT	This describes the type of marine habitat and the depth range in which the species is found.
IUCN RED LIST STATUS	The Red List category (see below for further details) assigned to the species, as of 2023.

NOTES

For some species, additional information has been included, for example if the species is very rare in Namibian waters or requires special care when handling.

INTRODUCTION TO CHONDRICHTHYANS

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Chondrichthyan (pronounced *kon-drik-thee-yan*) is the term used to refer to any member of the class Chondrichthyes, which is a diverse group of fishes with cartilage skeletons. Sharks, skates, rays and chimaeras (pronounced *ky-mee-rah*; sometimes called ratfish or ghost sharks) are all chondrichthyans. The term elasmobranch (pronounced *eh-laz-moh-brank*) is sometimes used to refer to sharks, skates and rays.

Chondrichthyans inhabit every ocean around the world, from the poles to the tropics, and play a vital role in maintaining the health of marine ecosystems. Worldwide, there are at least 453 species of sharks, over 500 species of skates and rays and at least 52 species of chimaeras, although new species are described every year. The majority of chondrichthyans inhabit marine waters, but some also live in brackish water (estuaries) and a few live only in freshwater habitats. They inhabit a vast array of depths from shallow coastal waters to the deepest parts of the ocean.

Once regarded by commercial and subsistence fishers as an undesirable catch, sharks and rays are now commonly caught in many fisheries around the world. This may be partly because markets have developed for various shark and ray products, but the main cause for the increase in capture of sharks and rays is undoubtedly the decline in populations of the fishes historically targeted by fisheries. As the fish species that humans have traditionally caught and eaten decline due to overfishing, many fisheries are turning to chondrichthyans – mainly sharks, skates and rays – as a primary commercial resource.

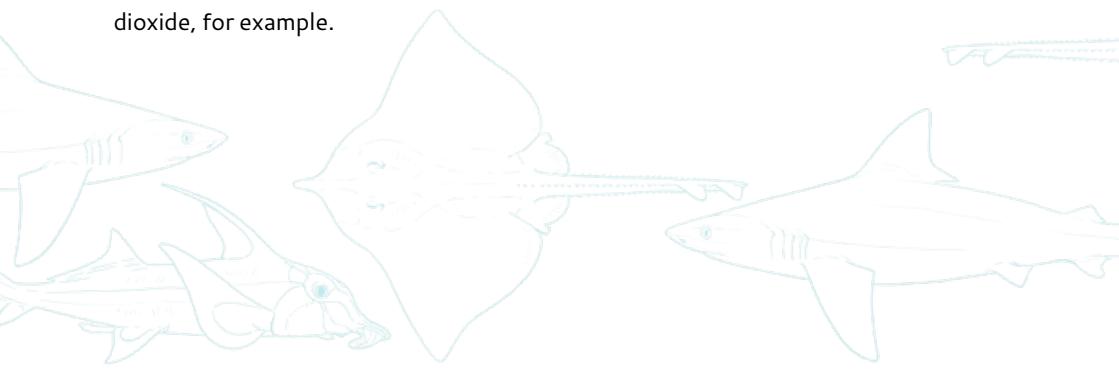


WHY ARE SHARKS, SKATES, RAYS AND CHIMAERAS IMPORTANT?

We need a healthy ocean because as humans, we rely on the ocean in many ways. Most obviously, it is a source of food and employment for fishers. The growing level of carbon dioxide (CO_2) in our atmosphere, produced when we burn fossil fuels (in our cars and power plants, for example), is causing our planet's climate to change. But a healthy ocean absorbs CO_2 , and thus helps in the fight against climate breakdown. Marine ecosystems full of marine life like whales, dolphins and sea birds support many jobs in tourism, and clean beaches and coastal areas where people can go fishing, surf, swim and relax are important for our overall wellbeing and quality of life.

7

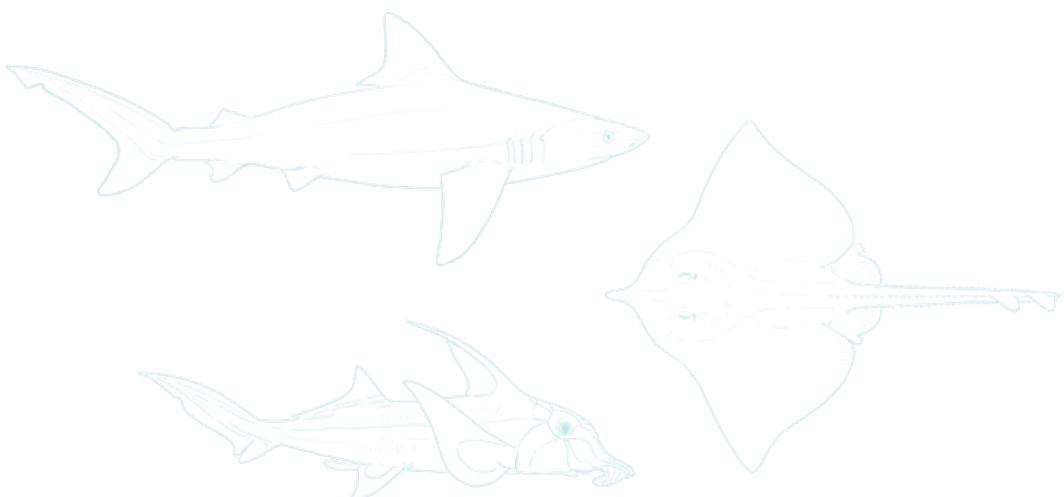
Sharks, skates, rays and chimaeras are important components of marine and coastal ecosystems. Some species of chondrichthyan, like great white sharks, are top predators. Other species are predators but are also preyed upon by larger species. And some, like the huge basking shark, feed on some of the tiniest organisms in the ocean – plankton. Each species has a role in keeping the ecosystem in balance, and removing one or more species, or severely reducing their populations, can disrupt the balance in the ocean. An unbalanced marine ecosystem is one that may not function as well as it should – it may support fewer fish for us to catch, or absorb less carbon dioxide, for example.



CONSERVATION STATUS OF CHONDRICHTHYANS IN NAMIBIA

Recent research suggests that over a third of all chondrichthyan species worldwide (at least 391 species) are threatened with extinction. Overfishing is the main threat to these species, with habitat loss, climate breakdown and pollution also contributing to the declines in some species.

- 8 Of the 87 species of chondrichthyan (52 sharks, 27 skates and rays and 8 chimaera species) recorded from Namibian waters, 6 species are listed as Critically Endangered, 11 as Endangered and 12 as Vulnerable on the IUCN Red List of Endangered Species¹. That means that one third of all species known from Namibian waters are threatened (classified as Critically Endangered, Endangered or Vulnerable).



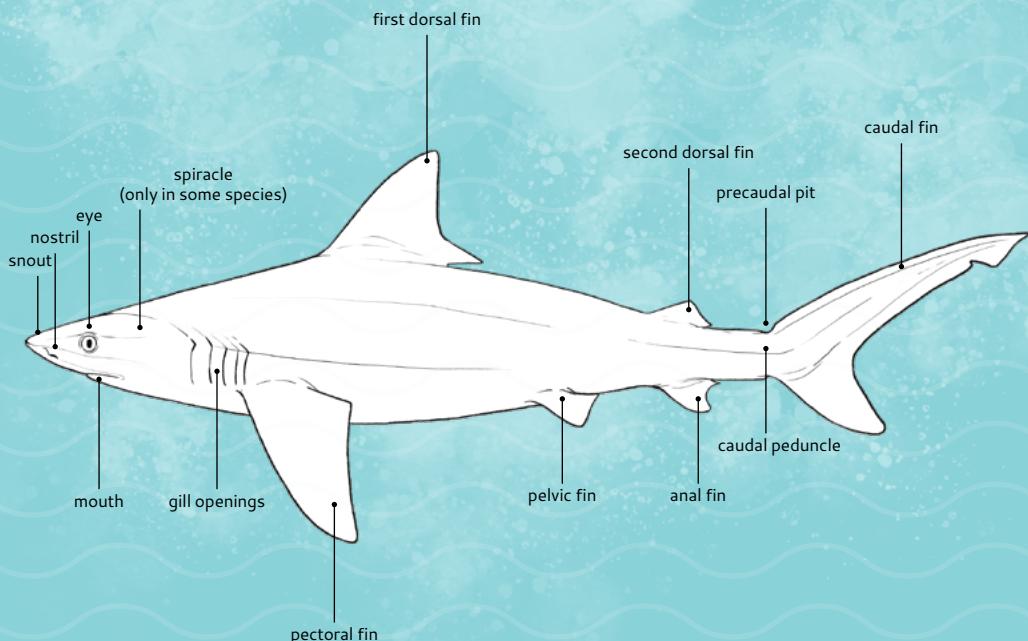
¹ The IUCN Red List is a critical indicator of the health of the world's biodiversity.
www.iucnredlist.org

MORPHOLOGY

The following section provides the terms used for the most apparent body parts of sharks, skates, rays and chimaeras, as well as for some less apparent parts of their morphology which can be helpful in distinguishing similar species.

figure 1 SHARK MORPHOLOGY

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FEMALE

figure 2 RAY AND SKATE MORPHOLOGY

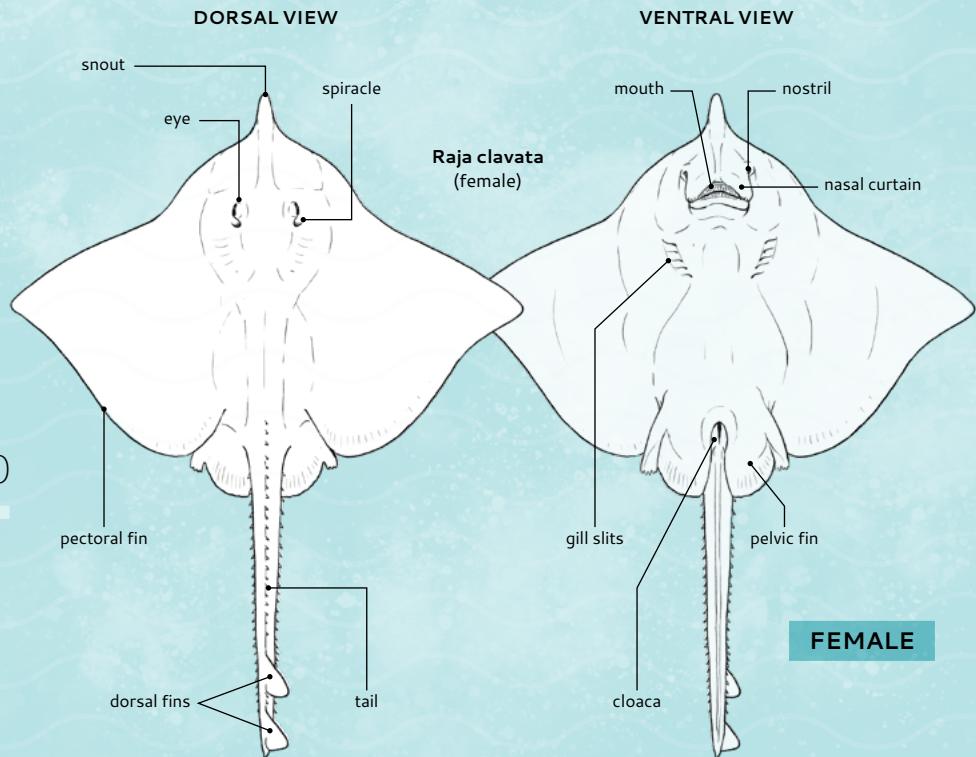
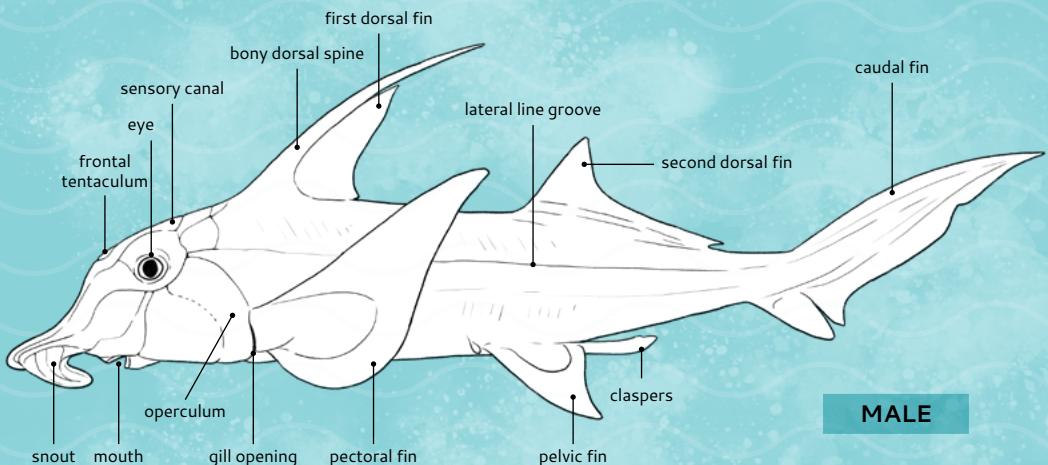


figure 3 CHIMAERA MORPHOLOGY



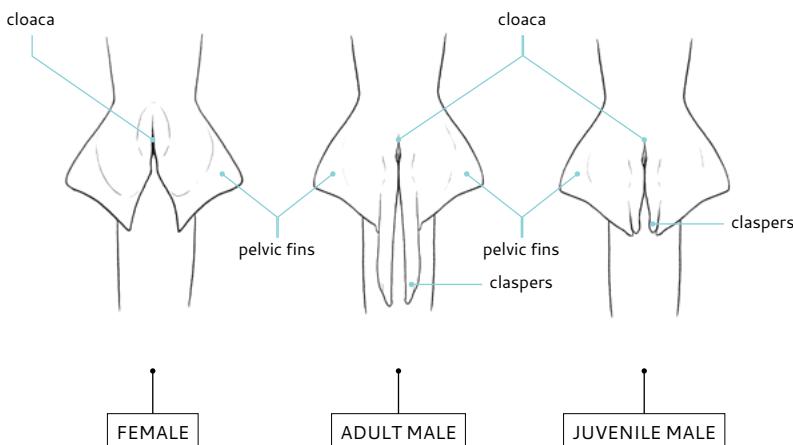
HOW TO TELL IF A SHARK, SKATE, RAY OR CHIMAERA IS FEMALE OR MALE

To work out if the chondrichthyan you observed is female or male, look at its underside (ventral surface), where the inner edges of the pelvic fins meet the body. In male sharks, the inner edges of the pelvic fins develop into claspers. Claspers are external appendages designed to deliver sperm into a female shark, skate, ray or chimaera. In juvenile (young) males, these claspers may be quite short but as the animal matures, they grow longer and become calcified (less flexible).

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figure 4

The ventral surface of a female, adult male and juvenile male shark, showing characteristics used for identifying the sex of a shark, skate, ray or chimaera.



ANGLER CODE OF CONDUCT: RESPONSIBLE HANDLING AND RELEASE OF CHONDRICHTHYANS

A responsible angler uses tackle and techniques which minimise harm to fishes (including sharks and their relatives) when engaging in catch and release angling.

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We encourage respect for the aquatic environment and all living things in it. Practising careful catch and release of chondrichthyans is important because it can drastically decrease the number of animals that die after being released. Every fish released alive and in good condition contributes to keeping Namibia's populations of sharks, skates, rays and chimaeras healthy and abundant.

These guidelines are based on guidance developed for shore-based anglers in other parts of the world, and on scientific research which has shown that careful handling and rapid release can increase the likelihood that a shark, skate, ray or chimaera caught by an angler will survive post-release.

1. PREPARATIONS

Before embarking on your fishing trip ensure you are adequately prepared for handling your catches safely and ethically.

- Choose a sandy location without rocks and reefs, if possible – these can harm the shark as it is being reeled in.
- If you can only fish from a rocky area, bring a tarpaulin with you, to protect your catches from injury when you are measuring them.
- Make sure there is someone who can help land the animal.
- If taking photos, make sure the photographer and camera are ready to keep the time the animal is out of the water to a minimum.
- If you plan to collect data on the animal, ensure you have your recording form or smart phone close by, and a tape measure or ideally, a measuring mat. If you have

to take your catches out of the water to record data, the use of a tarpaulin is recommended, to avoid damage to the animal's skin.

- Use the correct tackle (see next section).

FISHING TACKLE

- Non-offset circle hooks are less likely to hook a shark in the throat or gut than J-hooks. Non-offset circle hooks set in the jaw or the corner of the mouth more often, making removal more accessible and safe for the fisher, and less harmful to the shark. Use of non-offset circle hooks also reduces the risk of catching and fatally injuring sea turtles, which are sometimes caught accidentally by anglers in northern Namibia.
- Use barbless circle hooks (i.e. squash the barb with pliers) – this makes it much easier to remove the hook and does not affect the number of sharks, skates, rays and chimaeras you catch.
- Use non-stainless hooks or corrodible hooks, that way if you are unable to remove the hook, it will likely fall off after a few weeks.
- If you are specifically targeting sharks, skates and rays, use heavy line to reduce the fight time. Wire tracers should also be used to prevent the fish from cutting through the line.
- It is useful to have a bolt cutter with you, to cut off a hook if you cannot remove it.

2. HANDLING A SHARK, SKATE, RAY OR CHIMAERA

- Playing a shark, skate or ray (or any other fish) to exhaustion depletes its energy reserves and causes lactic acid to build up in its tissues, which can add to stress and contribute to death. Using heavier tackle is a good way to reduce fight time.
- For larger sharks: once the animal is in shallow enough water and is less able to thrash about, hold the shark steady by placing a hand on the upper body, just in front of the dorsal fin. For sharks that are considered dangerous (e.g. bronze whalers, bull sharks), hold the trace to control their head movement. Keep watch of the shark's tail and be sure to keep clear of tail movements by larger sharks.
- Once an animal has been brought into shallow water, you should be able to photograph and measure it. But prioritise the animal's welfare over the collection of data – if an animal is visibly stressed or injured, release it as quickly as possible.
- If you have to take the animal out of the water to release it, remember to support as much of the body as possible and always keep the animal horizontal while lifting it.

- Unless you know otherwise, assume the shark or ray is dangerous and handle accordingly. Stay clear of the mouth if you are handling a shark, and keep clear of the barbs on the tails of rays. For larger animals, you may need to get another person to help you lift and carry it.
- Never pull the animal by the tail or any of the fins.
- Never insert your hands or fingers into the gill slits of a shark or ray.
- It is not recommended to reel in sharks, rays and other fishes that will be released alive, over rocks or reef, as any injuries to the animal may affect its survival after you release it. Cast your line out from a sandy location, wherever possible, or unhook the animal in the shallow water.
- If an animal is visibly pregnant (usually you can tell by the animal being wider than normal), avoid taking it out of the water as the young may be prematurely aborted.
- Use a hook remover or pliers to gently remove the hook, or bolt cutters if necessary for a larger shark. If you cannot remove the hook without causing harm, cut the line as close to the hook as possible.

3. RELEASE

The body temperature of chondrichthyans is similar to that of their surroundings and sudden temperature changes can disturb bodily functions. They can suffer from temperature shock, caused by wind chill, when removed from the water, potentially leading to death. The bodies of sharks, skates, rays and chimaeras are also usually supported by the water around them and the pressure of their own weight, when removed from the water, on their internal organs may injure them. It is therefore important not to keep the animal out of the water for more than 2 minutes.

For larger species, keep the animal in shallow water while dehooking and taking photos. For smaller animals, having a large basin of seawater (which should be refreshed regularly to ensure its oxygen content remains high) at the site where you are measuring and photographing your catches means you can keep the animal in water until you are ready to record your data. But never leave an animal out of its natural habitat for too long – it may be vulnerable to overheating or excessive sun exposure. Return it to the ocean as quickly as you can.

4. WHAT ELSE MAKES A RESPONSIBLE ANGLER?

YOU ADHERE TO REGULATIONS

A responsible angler always has a valid recreational angling permit; adheres to regulations; uses legal roads and tracks when accessing fishing areas; and reports illegal activities such as environmental damage and pollution.

YOU MINIMISE HARM TO FISH

A responsible angler handles all species in a way that ensures their best chance of survival; quickly and humanely kills retained fish to ensure the least amount of suffering; and uses equipment and tackle that minimise stress and injury to fish.

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YOU ARE A CITIZEN SCIENTIST

A responsible angler seeks information on the status of marine resources and the impacts of angling on species and embraces recommendations from informed researchers and fishery managers. In this guide, we have noted which shark, skate and ray species have a concerning conservation status. Anglers should take special care to release those species immediately and with great care.

In addition, responsible anglers collect information on their catches which can support research and a better understanding of our marine environment. If you can handle the shark, skate, ray or chimaera safely and can record some information on it quickly (within one minute) before releasing it, you should record:

SPECIES (and take a photograph)

TOTAL LENGTH or **PRE-CAUDAL LENGTH** (depending on the species) or **DISC WIDTH** (for rays and skates)

SEX (see illustrations in the 'Morphology' section of this guide)

DATE AND TIME

LOCATION OF YOUR CATCH

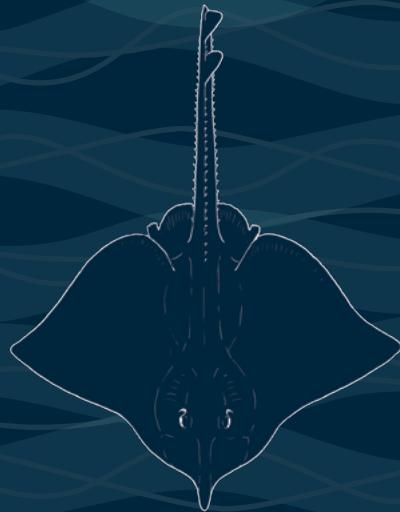
An important component of the NaRaS project is our smart phone app, developed in collaboration with Abalobi², with which we encourage recreational anglers to become 'citizen scientists' and contribute to our research, by recording their angling trips and any sharks, skates, rays and chimaeras they catch. If you or someone you know would like to contribute to this citizen science programme, please contact the Namibia Nature Foundation. With your support, we can all learn more about and protect these amazing animals.

YOU ARE A 'COASTODIAN'

A responsible angler is a role model to other anglers and leads by example; educates others – especially younger anglers – about sustainable fishing practices and is considerate of other legitimate marine users.

The coast is a resource that all Namibians should be able to enjoy safely. Looking after Namibia's beautiful beaches and coastal areas is everyone's responsibility. A responsible angler leaves the coast in a better state than he or she found it. Never leave plastic bottles, cans or other rubbish at the coast – if the wind blows this rubbish into the ocean, it gets broken up into smaller pieces, which some marine animals eat, thinking it is food. Plastic ingestion has caused many marine animals to die. Likewise, never leave glass bottles or broken glass lying around – they might cause injury to other beach users. Take all your rubbish with you when you leave, and perhaps pick up a few extra pieces of rubbish you see lying around. Be sure to remove hooks from all the fish you catch, or at least cut your line as close to the hook as possible, and never leave fishing tackle on the beach – it can entangle birds, or get washed into the ocean where it may injure or kill fish, dolphins, sharks or other marine animals. Be a 'coastodian' – a custodian or caretaker of the coast – and ensure that it remains a place that future generations of Namibians can enjoy.

² Abalobi is a South African social enterprise organisation working towards thriving, equitable and sustainable small-scale fishing communities globally, through the development of Technology For Good. Learn more at <https://abalobi.org/>



SPECIES IDENTIFICATION GUIDE

TO THE
CHONDRICHTHYAN SPECIES
COMMONLY CAUGHT
BY ANGLERS
IN NAMIBIAN WATERS





COMMON NAME	Bronze whaler copper shark
AFRIKAANS NAME	Koperhaai
SCIENTIFIC NAME	<i>Carcharhinus brachyurus</i>
DESCRIPTION	Moderately large, slender shark. Bluntly pointed, broad snout. Long pectoral fins; small dorsal fins with short rear tips.
COLOUR	Olive grey to bronze above; most fins with inconspicuous darker margins and dusky tips; fairly prominent white strips on flank. White below.
SIZE	Up to 294 cm total length.
DISTRIBUTION	Most warm, temperate waters in Atlantic, Mediterranean and Indo-Pacific.
HABITAT	Close inshore to at least 100 m offshore. Common in Namibian waters.
IUCN RED LIST STATUS	VULNERABLE



COMMON NAME	Spotted gully shark
AFRIKAANS NAME	Gespikkeld snothaai
SCIENTIFIC NAME	<i>Triakis megalopterus</i>
DESCRIPTION	Broad, blunt snout. Broad, large fins; pectoral fins falcate with concave posterior margins. First dorsal fin almost vertical.
COLOUR	Grey above, usually with scattered small black spots; white below.
SIZE	Up to at least 200 cm total length.
DISTRIBUTION	Southern Angola to South Africa.
HABITAT	In the surfline and shallow inshore waters.
IUCN RED LIST STATUS	LEAST CONCERN



COMMON NAME	Bull shark
AFRIKAANS NAME	Bulhaai Zambezihaai
SCIENTIFIC NAME	<i>Carcharhinus leucas</i>
DESCRIPTION	Large shark with stocky body. Large, broad head and very short, bluntly rounded snout. Long, paddle-like pectoral fins; large rounded first dorsal fin, much bigger than second dorsal. Low interdorsal ridge. Small eyes, no spiracles.
COLOUR	Bronze, grey or brown above; first dorsal fin, pectoral fins and caudal fin (tail) tips can be mottled white. Juveniles have black tips on some fins and black patches on caudal peduncle. White below.
SIZE	At least 340 cm total length.
DISTRIBUTION	Worldwide subtropical and tropical seas.
HABITAT	Usually found close inshore, in hypersaline lagoons and river mouths but can also be found hundreds of kilometres up warm rivers and in freshwater lakes. In Namibia, bull sharks are only known from the Kunene River and the coastal zone close to the Kunene River mouth.
IUCN RED LIST STATUS	VULNERABLE



COMMON NAME	Thresher shark
AFRIKAANS NAME	Fynstert-sambokhaai
SCIENTIFIC NAME	<i>Alopias vulpinus</i>
DESCRIPTION	A distinctive shark – caudal fin upper lobe is nearly as long as the rest of the body. Long, curved, pointed pectoral fins. Fairly large eyes.
COLOUR	Blue grey or dark grey above, silvery or bronze on sides. White below, extending to a patch above the pectoral fins.
SIZE	Up to at least 575 cm total length, possibly longer.
DISTRIBUTION	Worldwide, tropical to cold temperate seas.
HABITAT	Nearshore to oceanic and coastal to depths of 650 m.
IUCN RED LIST STATUS	VULNERABLE



COMMON NAME	Broadnose sevengill shark sevengill cowshark
AFRIKAANS NAME	Platneus sewekieffhai
SCIENTIFIC NAME	<i>Notorynchus cepedianus</i>
DESCRIPTION	Bluntly pointed broad head, wide mouth and small eyes. Single dorsal fin, set far back along the spine. Black dorsal fin apex on newborn sharks fades with age. Seven gill slits on each side of the head.
COLOUR	Grey to brown body; numerous small black spots (occasionally white spots or none).
SIZE	Up to 296 cm total length.
DISTRIBUTION	Patchy global distribution in the south Atlantic and Indo-Pacific Oceans.
HABITAT	Inshore, cool, temperate waters to depths of 570 m; often found very close to shore.
IUCN RED LIST STATUS	VULNERABLE





COMMON NAME	Dark shyshark
AFRIKAANS NAME	Donker skaamoog
SCIENTIFIC NAME	<i>Haploblepharus pictus</i>
DESCRIPTION	Slender body when juvenile, stocky when mature. Broad, slightly flattened head. Very large nostrils.
COLOUR	Light brown to dark brown or blackish above; dorsal saddles and sparsely scattered white spots; white below. Colour and patterning can vary considerably.
SIZE	Up to 60 cm total length.
DISTRIBUTION	Found only in Namibian and South African waters.
HABITAT	An inshore, bottom-dwelling shark, found in kelp, sandy and rocky habitats, close inshore to a maximum depth of 35 m.
IUCN RED LIST STATUS	LEAST CONCERN

SHARKS

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COMMON NAME	Tope shark school shark soupfin shark
AFRIKAANS NAME	Vaalhaai
SCIENTIFIC NAME	<i>Galeorhinus galeus</i>
DESCRIPTION	Large, slender shark with a long, conical snout and large arched mouth. First dorsal fin is much larger than second. Second dorsal fin is same size as anal fin. Triangular, sharp teeth (unlike the blunt, flattened teeth of smoothhounds). Snout is translucent when held up to the sunlight.
COLOUR	Grey above, white below but colour may vary, with darker spots sometimes present. Juveniles have black fin markings and sometimes a few dusky spots.
SIZE	Up to 200 cm total length.
DISTRIBUTION	Worldwide, in most temperate waters.
HABITAT	On or near the seabed, on the continental shelf, to a maximum depth of 826 m but commonly in waters less than 200 m deep.
IUCN RED LIST STATUS	CRITICALLY ENDANGERED



COMMON NAME	Smoothhound shark
AFRIKAANS NAME	Hondhaai
SCIENTIFIC NAME	<i>Mustelus mustelus</i>
DESCRIPTION	Large, fairly slender houndshark. Short head and snout, large, close-set eyes. Nostrils widely spaced. Unfringed high dorsal fins and first dorsal slightly larger than second dorsal. Has rows of flat, blunt grinding teeth rather than sharp points (helps to distinguish this species and the whitespotted smoothhound from tope).
COLOUR	Grey to grey-brown above, usually no spots but colour can be variable, with darker spots sometimes developing on animals living in areas with dark seabeds. White below.
SIZE	Up to 176 cm total length.
DISTRIBUTION	East Atlantic Ocean, including the Mediterranean Sea, between Portugal and the east coast of South Africa.
HABITAT	Sandy and muddy substrates on the continental shelf and slope at depths of 5 to 438 m, but more commonly encountered in shallow waters to depths of 50 m.
IUCN RED LIST STATUS	ENDANGERED

NOTES

This species has been used as bait for larger sharks by anglers in the past. Given its critical conservation status, these sharks should be released alive.



COMMON NAME	Whitespotted smoothhound
AFRIKAANS NAME	Witkol-hondhaai
SCIENTIFIC NAME	<i>Mustelus palumbes</i>
DESCRIPTION	Fairly large houndshark, short head and snout, nostrils widely spaced. Unfringed high dorsal fins and first dorsal fin slightly larger than second dorsal. Large pectoral fins (larger than <i>M. mustelus</i>).
COLOUR	Grey to grey-brown above, usually with small white spots along the body, on either side of the spine; white below. The only southern African smoothhound with white spots.
SIZE	Up to 113 cm total length.
DISTRIBUTION	Southeast Atlantic and southwest Indian Ocean (Namibia, South Africa and southern Mozambique).
HABITAT	Continental shelf and upper slope, nearshore to depths of 443 m but most often below 70 m. Found on or near sandy and gravel seabeds.
IUCN RED LIST STATUS	LEAST CONCERN

COMMON NAME	Shortnose spiny dogfish bluntnose spurdog
AFRIKAANS NAME	Stompneus-penhaai
SCIENTIFIC NAME	<i>Squalus acutipinnis</i>
DESCRIPTION	Small, slender shark with short, angular snout.
COLOUR	Unspotted bronze-grey back and sides; lighter below. Black tips and white edges of dorsal fins fade in adults. First dorsal fin originates over pectoral fins, and both dorsal fins bear spines.
SIZE	Up to 85 cm total length.
DISTRIBUTION	Southern Angola to the east coast of South Africa. Southeast Atlantic Ocean and western Indian Oceans from Namibia to KwaZulu-Natal, South Africa, and Mauritius.
HABITAT	Inshore to upper continental slopes, to 450 m depth.
IUCN RED LIST STATUS	NEAR THREATENED



COMMON NAME	Sand tiger shark ragged-tooth shark grey nurse shark
AFRIKAANS NAME	Spikkels-skeurtandhaai
SCIENTIFIC NAME	<i>Carcharias taurus</i>
DESCRIPTION	Flattened conical snout; large, slender, pointed teeth that protrude slightly from the mouth. Large dorsal fins and anal fin of similar sizes. First dorsal fin is closer to pelvic fins than pectoral fins. Caudal fin has short ventral lobe.
COLOUR	Light brown-grey above, often with scattered dark spots, and white below.
SIZE	Up to 325 cm total length, possibly longer.
DISTRIBUTION	Circumglobal distribution, in all oceans except for the eastern Pacific.
HABITAT	Demersal and pelagic in tropical and temperate seas on the continental shelf from the surf zone to a depth of 232 m. It occurs mainly in shallow waters of 15–25 m and aggregates in or near underwater caves, gullies, and rocky and coral reefs. The species regularly returns to the same breeding area.
IUCN RED LIST STATUS	CRITICALLY ENDANGERED

NOTES

In South Africa, this species is captured in the recreational shore angling fishery, but it is very rarely encountered in Namibia.

Catches by anglers should be handled carefully and released immediately.



COMMON NAME	Bramble shark
AFRIKAANS NAME	Braamhaai
SCIENTIFIC NAME	<i>Echinorhinus brucus</i>
DESCRIPTION	Irregular, scattered, whitish denticles (which can fuse into plates) all over the body. Two dorsal fins very close together, close to the caudal fin. Fin edges blackish.
COLOUR	Uniformly grey or brownish to black on back and sides; usually light below.
SIZE	Up to 310 cm total length.
DISTRIBUTION	Atlantic, Mediterranean and Indo-west Pacific.
HABITAT	On or near the bottom, usually between 200 and 900 m but may be found closer to shore.
IUCN RED LIST STATUS	ENDANGERED

NOTES

Extremely rare, with only a few records of this species being caught by shore-based anglers.



COMMON NAME	Smooth hammerhead shark hammerhead shark
AFRIKAANS NAME	Gladde hamerkop
SCIENTIFIC NAME	<i>Sphyrna zygaena</i>
DESCRIPTION	Large shark with a broad, narrow-bladed head (with a 'hammer' shape) with broadly arched front edge, no indentation in at the mid-point of the blade but clear indentations to either side. First dorsal fin moderately high; second dorsal and pectoral fins low. Short snout and broadly arched mouth.
COLOUR	Olive-grey or dark grey-brown above; white below with dusky undersides of pectoral fins.
SIZE	Up to 400 cm
DISTRIBUTION	Worldwide warm temperate and tropical seas. Rare in Namibia; generally only encountered by anglers in the far north, near the Kunene River, and in summer months.
HABITAT	Continental and insular shelves, found both in inshore and offshore waters to 20 m depth and greater.
IUCN RED LIST STATUS	VULNERABLE

NOTES

Hammerheads are less able to recover, even from short fight times, than other sharks and have an extremely high rate of post-release mortality. If you know that you have caught a hammerhead shark, the most responsible action is to cut your line.



COMMON NAME	Blue stingray
AFRIKAANS NAME	Blou pylstert
SCIENTIFIC NAME	<i>Dasyatis chrysonota</i>
DESCRIPTION	Broad rhombic disc; tail short and gradually tapered before caudal sting. Large, protruding eyes. Tail length less than twice disc width. Pelvis fins rather broad with broadly rounded apices. Small, skirt-shaped nasal curtain with strongly fringed margin.
COLOUR	Above, disc golden brown with complex blue marbling pattern. Edge of disc and tail greyish-blue. Uniformly white ventral surface.
SIZE	Up to 75 cm disc width.
DISTRIBUTION	Southeast Atlantic and southwestern Indian Ocean.
HABITAT	Mainly coastal and estuarine in summer, moving to offshore waters (to depths of 110 m) in winter.
IUCN RED LIST STATUS	NEAR THREATENED



COMMON NAME	Lesser guitarfish (commonly referred to as 'sandshark')
AFRIKAANS NAME	Sandfis Kleiner sandkruiper
SCIENTIFIC NAME	<i>Acroteriobatus annulatus</i>
DESCRIPTION	Large guitarfish with a broad, wedge-shaped disc. Disc length 1.1 times disc width. Spiracle with 2 prominent fleshy folds (this easily allows it to be distinguished from the bluntnose guitarfish, which has only one fleshy fold per spiracle).
COLOUR	Dorsal surface light brown with distinctive pattern of fairly symmetrically arranged dark spots or small ocelli (central dark spots, each surrounded by a pale ring). White ventral surface.
SIZE	May reach 140 cm total length but usually encountered at smaller sizes.
DISTRIBUTION	Southeast Atlantic and southwest Indian Oceans, between Namibia and Natal.
HABITAT	Benthic, common in shallow waters and as deep as 75 m.
IUCN RED LIST STATUS	VULNERABLE

NOTES

Very uncommon or possibly not present in Namibia – past records of this species may have resulted from the misidentification of bluntnose guitarfish.



COMMON NAME	Bluntnose guitarfish (commonly referred to as 'sandshark')
AFRIKAANS NAME	Sandvis Stompeus-sandkruiper
SCIENTIFIC NAME	<i>Acroteriobatus blachii</i>
DESCRIPTION	Medium-sized guitarfish with shovel-shaped disc. Short, bluntly pointed snout. Spiracle with a single fleshy fold.
COLOUR	Dorsal surface uniformly brownish in adults. Young have a pattern of symmetrical light spots with cloudy outlines, which gradually disappear with growth. Ventral surface uniformly white.
SIZE	Up to 96 cm total length.
DISTRIBUTION	Southeast Atlantic, between Cape Province and Namibia.
HABITAT	Lives on the seafloor in shallow, sandy bays.
IUCN RED LIST STATUS	LEAST CONCERN





COMMON NAME	Spearnose skate white skate
AFRIKAANS NAME	Spiesneus
SCIENTIFIC NAME	<i>Rostroraja alba</i>
DESCRIPTION	Huge skate with broad, rhombic disc and long, pointed snout.
COLOUR	Dorsal surface reddish-brown in young, greyish-blue in adults with a pattern of pale spots which may be more or less apparent. Ventral surface white with dark disc margins.
SIZE	Up to 240 cm total length.
DISTRIBUTION	Eastern Atlantic and southwest Indian Oceans.
HABITAT	Benthic on continental shelf and slope between 10 and 750 m.
IUCN RED LIST STATUS	ENDANGERED





A medium to large skate with a moderately long snout with pronounced tip and firm rostral cartilage. Dorsal disc usually prickly. Two dorsal fins with rounded margins towards the end of the tail.

COMMON NAME	Biscuit skate
AFRIKAANS NAME	Vals doringrug-rog
SCIENTIFIC NAME	<i>Raja straeleni</i>
DESCRIPTION	A medium to large skate with a moderately long snout with pronounced tip and firm rostral cartilage. Dorsal disc usually prickly. Two dorsal fins with rounded margins towards the end of the tail.
COLOUR	Upper surface of the disc is greenish or greyish-brown, with numerous pale circular blotches and darker grey bands encircled by small dark spots and lines. Tail marbled with dark blotches or entirely dark; undersurface white or grey.
SIZE	Up to 91 cm total length.
DISTRIBUTION	Eastern Central and Southeast Atlantic Ocean from Morocco to South Africa.
HABITAT	Lives on the seabed, in shallow waters and to depths of 930 metres. Little else is known of its biology.
IUCN RED LIST STATUS	NEAR THREATENED



COMMON NAME	Backwater butterfly ray diamond ray
AFRIKAANS NAME	Rem-vinderrog
SCIENTIFIC NAME	<i>Gymnura natalensis</i>
DESCRIPTION	Very large butterfly ray with a rudimentary tentacle on inner posterior margin of spiracle. Very short tail with 3 to 5 black bands (often poorly demarcated), one or more caudal stings and without a dorsal fin. Very broad disc, 1.8 to 2.2 times disc length.
COLOUR	Dorsal surface greyish or brown; sometimes with small dark spots or irregular pale spots or blotches, often in a marbled pattern. Ventral surface white or brownish.
SIZE	Up to 250 cm disc width.
DISTRIBUTION	Southeast Atlantic and southwest Indian Oceans, between Namibia and southern Mozambique.
HABITAT	Benthic inshore, mainly on muddy and sandy seabeds, between 0 and 75 m.
IUCN RED LIST STATUS	LEAST CONCERN



COMMON NAME	Duckbill eagle ray
AFRIKAANS NAME	Bulrog
SCIENTIFIC NAME	<i>Aetomylaeus bovinus</i>
DESCRIPTION	Moderately long fleshy rostral lobe extending from the head below the level of the eye. Caudal sting behind dorsal fin. Falcate pectoral fins; broad and short disc (length is about 54% of disc width). Long, whip-like tail 2.4 to 2.5 times length of body, bearing 1 or 2 caudal stings just behind dorsal fin. Dorsal fin small and pointed backwards.
COLOUR	Dorsal surface is greenish to brownish, with broad bluish or pale transverse bars across the body.
SIZE	Up to 222 cm disc width (294 cm total length).
DISTRIBUTION	Eastern Atlantic and southwest Indian Ocean, between Spain and Mozambique and including the Mediterranean Sea.
HABITAT	Coastal demersal, regularly enters lagoons and estuaries; from surf zone to 150 m depth.
IUCN RED LIST STATUS	CRITICALLY ENDANGERED



COMMON NAME	Common eagle ray
AFRIKAANS NAME	Arendrog
SCIENTIFIC NAME	<i>Myliobatis aquila</i>
DESCRIPTION	Medium to large-sized eagle ray without spots or banding on dorsal surface. Short, fleshy, rounded rostral lobe is joined to pectoral fins by a ridge below the eyes. 1 or 2 large caudal stings behind dorsal fin. Pointed, slightly falcate pectoral fins.
COLOUR	Dorsal surface uniformly dark purplish-brown to black; no markings. Ventral surface mostly white with brownish pectoral fin tips and posterior margin of disc.
SIZE	Up to 150 cm disc width (at least 260 cm total length) but mostly less than 83 cm disc width.
DISTRIBUTION	Eastern Atlantic and southwest Indian Ocean, between the British Isles and Kenya, including Mediterranean Sea.
HABITAT	Largely coastal demersal, preferring shallow bays, estuaries and lagoons with muddy or sandy seabeds, but can be found to depths of 537 m.
IUCN RED LIST STATUS	CRITICALLY ENDANGERED

Cape numbfish | Cape sleeper ray

COMMON NAME	Cape numbfish Cape sleeper ray
AFRIKAANS NAME	Eenvin-drilvis
SCIENTIFIC NAME	<i>Narke capensis</i>
DESCRIPTION	Small to medium-sized sleeper ray with one dorsal fin. One low, rounded dorsal fin which originates over the pelvic fin rear tips. Tail broad and slightly flat. Caudal fin elongate, close to and larger than dorsal fin.
COLOUR	Almost uniformly yellowish or greenish-brown dorsal colouration, slightly darker outer disc margin. Sometimes with a few poorly defined darker brown blotches or streaks on central disc, or small dark spots. Ventral surface creamy white or yellowish with brownish outer disc margin.
SIZE	May reach 38 cm total length.
DISTRIBUTION	Namibia and South Africa.
HABITAT	Benthic species; inhabits soft and rocky substrates over the continental shelf at depths of 3 to 115 m.
IUCN RED LIST STATUS	DATA DEFICIENT

NOTES

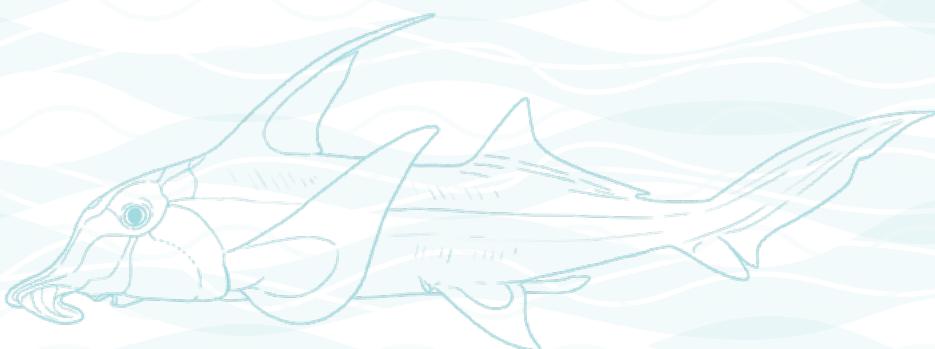
Can deliver a powerful shock if touched –
try not to bring the animal out of the water or touch it.



COMMON NAME	Brown stingray
AFRIKAANS NAME	Bruinrog
SCIENTIFIC NAME	<i>Bathyrajah lata</i>
DESCRIPTION	Large, plain-coloured stingray with broad, rhombic disc bearing sharp thorns (in adults). Disc width 1.2 to 1.3 times disc length. Short snout, broadly triangular; tip extended slightly. Tail broad and depressed at base, length about twice disc width. Usually 1 caudal sting.
COLOUR	Uniformly greyish-brown to blackish. Tail is dark above before sting, and white ventrally, remainder of tail is dark. Ventral surface white.
SIZE	Possibly up to 260 cm disc width.
DISTRIBUTION	Eastern Atlantic (southern France to northern Namibia), including Mediterranean Sea, and Indo-Pacific Oceans.
HABITAT	Largely demersal on sandy and muddy substrates, on continental and insular shelves, and on upper slopes. Between 0 and 800 m depth.
IUCN RED LIST STATUS	VULNERABLE

Chimaeras are also known as ghost sharks or ratfishes. There are about 47 species of chimaeras worldwide, ranging in length from about 60 to 200 cm and in colour from silvery to blackish. They are found in temperate to cold waters of all oceans, in diverse habitats including rivers, estuaries, and coastal waters but also the deep ocean, in depths of 2,500 metres or more. They are weak swimmers and are delicate when caught, dying quickly out of water. Their food consists of small fishes and invertebrates. Females lay large, elongated eggs protected by thick, flexible coverings called eggcases, which you may find washed up on the beach.

Although there are several species of chimaera found in Namibian waters, only one species – the St. Joseph shark – is commonly caught by anglers.





COMMON NAME	St. Joseph shark Cape elephantfish
AFRIKAANS NAME	Josef
SCIENTIFIC NAME	<i>Callorhinichus capensis</i>
DESCRIPTION	Smooth body, slimy to the touch. A single gill opening on each side of the head. Unusually long snout (a sense organ used to detect prey). Venomous spine protruding from the front of the dorsal fin. In males, a frontal clasper usually lies flat against the top of the head but may extend out from the head when the animal is caught – this is thought to be used in mating.
COLOUR	Silver or bronze, but the body can flash with various colours when the animal is captured and handled by anglers.
SIZE	Up to 120 cm total length.
DISTRIBUTION	Mainly along the southern and western Cape of South Africa but extending into eastern Cape waters and Namibia.
HABITAT	Shallow coastal waters (the only chimaera in Namibia found in coastal waters).
IUCN RED LIST STATUS	LEAST CONCERN

NOTES

When handling, take care as these chimaeras have a venomous spine protruding from in front of their dorsal fin.

EGGCASE IDENTIFICATION

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Biscuit skate | *Raja straeleni*

The eggcase surface has a smooth texture but very fine striations (ridges) are visible. When rehydrated*, these eggcases are between 6 and 10 cm in length (excluding horns). There is a visible 'keel' along the long edges of the eggcase and the horns taper to very fine tips.



Dark shyshark | *Haploblepharus pictus*

Dark shyshark eggcases are often washed up on beaches in Namibia. When rehydrated, they measure about 5.5 cm long and about 2.5 cm wide. They are black, dark brown, reddish or amber in colour, and have thin, curly tendrils extending from each corner.



Spearnose skate / white skate | *Rostroraja alba*

These are the biggest eggcases you will likely find on Namibian beaches. When rehydrated, the empty eggcases are between 12 and 19 m long (without the horns, or around 28 cm including the horns), and between 10 and 14 cm wide. The horns on one end are short and tapered, while on the other end of the eggcase the horns are long, tapered and flattened towards the tips. The surface of the eggcase has coarse ridges or lines on it.



St. Joseph shark / Cape elephantfish | *Callorhinichthys capensis*

St. Joseph sharks produce spindle-shaped eggcases with a broad frill around each edge, that are laid directly on the seabed. They often wash up on beaches during the peak summer egg-laying season. These eggs take around 9 to 12 months to hatch. When rehydrated, these eggcases are pale yellow to dark brown or black, and measure between 13 and 18 cm from one pointed tip to the other.



*To rehydrate an eggcase, soak it in a container of water for several hours. Bigger eggcases can take up to 24 hours to fully rehydrate.

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GLOSSARY

For terms relating to the body parts of chondrichthyans, please refer to the illustrations on pages 9 and 10.

Apex – the point or tip, e.g. of a shark's fin.

Apices – plural of Apex.

BCLME – See Benguela Current.

Benguela Current – The broad, northward flowing ocean current which extends from roughly Cape Point in the south, along the length of the Namibian coastline, to the position of the Angola-Benguela front in the north, at around 16°S. The upwelling system inshore of the Benguela Current sustains the productive Benguela Current Large Marine Ecosystem (BCLME).

Benthic – Referring to organisms that live on the seabed.

Brackish water – An environment which is more saline (salty) than freshwater, but less saline than the ocean, such as a river mouth or estuary.

Carbon dioxide (CO₂) – A colourless, odourless gas which is naturally present in air (at about 0.03 %). It is added to the atmosphere naturally when organisms respire or decompose (decay), and through other natural processes, but is added to the atmosphere in excessive quantities through human activities, such as the burning of fossil fuels.

Cartilaginous fishes – Fishes with skeletons composed mostly of cartilage; includes all sharks, skates, rays and chimaeras. In contrast, bony fishes have a skeleton composed mostly of bone.

Caudal sting – A sharp spine or barb on the tail of stingrays. It can injure directly by piercing its attacker, but also can transmit a venom from the mucus coating on the barb.

Chondrichthyan – A member of the class Chondrichthyes, which includes all sharks, skates, rays and chimaeras.

Chondrichthyes – The taxonomic class containing aquatic, gill-breathing, jawed, finned vertebrates with primarily cartilaginous skeletons, one to seven external gill openings, oral teeth in transverse rows on their jaws and mostly small, toothlike scales (dermal denticles). Sometimes broadly referred to as 'sharks'. The term chondrichthyes is from the Greek chondros (cartilage) and ichthos (fish).

Circumglobal – Distributed around the world within a range of latitudes.

Claspers – Paired copulatory organs present on the pelvic fins of male chondrichthyans, which facilitate the internal fertilisation of eggs.

Climate breakdown – The most recent term for what was previously known as 'global warming' or 'climate change'. Climate breakdown is the currently accepted term for the unprecedented changes in the global climate, caused by human activities.

CO₂ – See carbon dioxide.

Demersal – See Benthic.

Denticle / dermal denticle – A small, tooth-like scale found in cartilaginous fishes. Usually small, close-set and covering the whole body, but many batoids, chimaeras and some sharks have enlarged dermal denticles in reduced numbers.

Disc – The combined head, trunk and enlarged pectoral fins of many rays and skates.

Disc width (DW) – The standard measurement for rays (and in some cases, skates); a straight-line measurement from the tip of one pectoral fin to the other (from wingtip to wingtip).

Dorsal – on the top (upper side) of the body.

Ecosystem – A living community of different species together with their non-living environment.

Eggcase – Hard casing deposited by a female shark, skate or chimaera, which contains a fertilised egg that will develop into a pup (a baby shark, skate or chimaera), and a yolk sac that will nourish that embryo during its development. Eggcases are made from a type of collagen and feel tough and leathery when wet, but brittle when they have dried out. They are often called mermaids' purses. Eggcases often have pairs of tendrils or horn-like structures extending from their corners, or flat flanges on their sides or a flange that spirals around the eggcase, which can anchor it to the seabed or to a structure (e.g. kelp) near the sea floor.

Elasmobranch – A term used to refer to sharks, skates and rays.

Fossil fuels – Fuels such as coal, oil and natural gas, found in the Earth's crust and formed in the geological past from the remains of living organisms. They contain carbon and hydrogen, and can be burned for energy.

Habitat – the area(s) where an animal lives.

Hypersaline – An aquatic environment that is saltier than typical seawater.

Inshore – Close to the coast.

Mermaid's purse – See Eggcase.

Nasal curtain – A fleshy apron extending between the nostrils and partly covering the mouth of some rays and sharks.

Pelagic – Referring to organisms that live in the water column and not on the seafloor.

Plankton – The small and microscopic organisms drifting or floating in the sea or freshwater, consisting chiefly of diatoms, protozoans, small crustaceans, and the eggs and larval stages of larger animals.

Posterior – relating to the rear part of the body or a body part; situated further back than something else.

Predator – An animal that naturally preys on other animals.

Rhombic – Diamond-shaped.

Rostral lobe – A large, protruding head or snout, as in eaglerays.

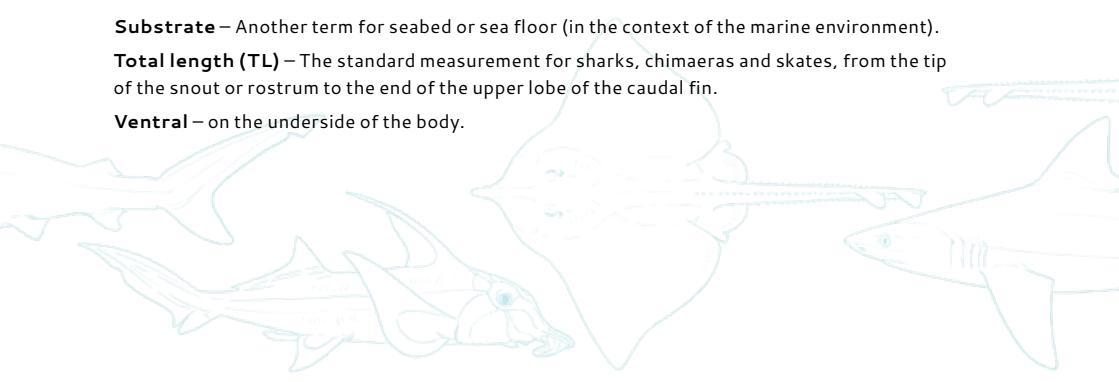
Saddle – A blotch extending across the dorsal surface from one side to the other.

Spiracle – A small to large opening between the eye and first gill opening of most sharks and rays, representing the modified gill opening between the jaws and hyoid (tongue) arch. It has been lost in chimaeras and some sharks.

Substrate – Another term for seabed or sea floor (in the context of the marine environment).

Total length (TL) – The standard measurement for sharks, chimaeras and skates, from the tip of the snout or rostrum to the end of the upper lobe of the caudal fin.

Ventral – on the underside of the body.



PHOTOGRAPH CREDITS

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- Backwater butterfly ray:** Chris Quayle
Biscuit skate, St. Joseph shark: Ruth H. Leeney
Blue stingray: Donavin Bezuidenhout
Bluntnose guitarfish: Kolette Grobler
Bramble shark: photographer unknown
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