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# WHAT IT FEELS LIKE

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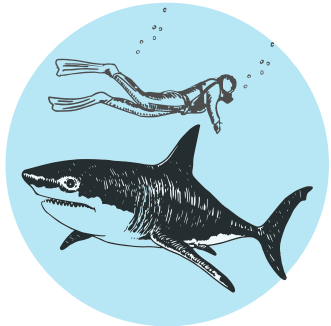
WHAT IT FEELS LIKE

# Shark Cage Diving with Great White Sharks

Enter the world's only ocean floor shark cage on a quest to understand how an almost fatal great white shark encounter fuelled a lifelong mission to educate others about the species

Text by **Anita Verde**
Images by **Anita Verde and Peter Marshall**

Paparazzi, a large great white shark, is in love with cameras



**It is 1963 at Aldinga beach**, 50 kilometres south of Adelaide, South Australia, and Rodney Fox, the South Australian Spearfishing Champion, signals he is in trouble. Rodney's blood quickly taints the water. His aggressor: a great white shark.

With 462 stitches to his chest, right hand, and arm, including 92 to his hand alone, the incident is regarded as one of the most severe shark encounters ever to be survived by a human. Fast forward almost 60 years later, and here we are on Rodney's shark expedition ship – the MV *Rodney Fox*. At the ship's stern, two shark cages beg to enter the blue. The soft morning light gives them a sinister yet ethereal beauty, resembling some kind of strange adult water park.

A great white shark passes beneath the sun's rays


Shutterstock

A *Jaws* set on display at Hollywood Universal Studios in California, USA

## A ROLE IN HOLLYWOOD

Designing the world's first two-man shark cage was a turning point in Rodney Fox's life; and a direct effort towards his rehabilitation and overcoming his newfound fear of sharks. With fellow great white shark encounter victims, Brian Rodger and Henri Bource, and cameraman Ron Taylor, it was from Rodney's homemade shark cage that the first-ever underwater footage of a great white shark was captured. With this followed the filming of live footage for Steven Spielberg's 1975 blockbuster – *Jaws*.

Soon after, the first-ever shark-cage dive expedition for a USA-based dive travel company was launched – the first of hundreds of expeditions that Rodney would eventually lead.

However, following the release of *Jaws*, Rodney felt that despite his near-fatal encounter, great white sharks were being grossly misrepresented and portrayed as more fearsome than they were. Rodney set out on a lifelong mission to dispel the myths and redefine the public's perception of sharks. He empowers people through personal experiences to engage in a conversation about his aggressor that is meaningful, respectful and informed by science. His mantra: "It's better to respect through understanding than kill out of fear."

Born into a life of sharks, Rodney's son, Andrew, along with like-minded business partner, Mark Tozer, now lead Neptune Islands expeditions. An environmental scientist and passionate underwater shark photographer, Andrew has spent more time studying these impressive apex predators than anyone else across the globe. He alone has catalogued almost 1,000 individual white sharks and has spent countless hours carrying out scientific research whilst observing and photographing them. Astoundingly, he knows hundreds of individual sharks – by name, of course.

> **"Rodney set out on a lifelong mission to dispel the myths and redefine the public's perception of sharks"**

Long-nosed fur seals at the north Neptune Islands

## THE NEPTUNE ISLANDS: SHARK CENTRAL

The Neptune Islands are home to Australia's largest colony of long-nosed fur seals; and therefore not surprisingly, a rendezvous point for the vulnerable great white shark.

Male great whites (up to five metres) make the island-duo their home all year round, while the colossal female great whites (up to six metres and twice the weight of the males) visit the islands just in time to devour the long-nosed fur seal pups in the late autumn and winter (April to August). Andrew tells us that the location of the Neptunes is key. "The Neptune Islands just happen to be in the perfect location along the 'shark super highway', which provides us [with] an incredibly unique opportunity to undertake valuable research to better understand the species and the local ecosystem here," he explains.

Andrew tells us that as a top ocean predator, great white sharks are essential to retaining law and order in the marine ecosystem. However, now more than ever, they face severe threats from public fear, misrepresentation by the media, TV and film industry, trophy game fishing, industrial-scale overfishing, shark nets, drum lines and the worldwide shark-finning industry. While great white sharks are not necessarily targeted for their fins, any shark is fair game.





It is well documented that more than 100 million sharks are killed for their fins every year to feed the insatiable appetite for traditional shark fin soup across Asia. Many species, including great whites, are threatened almost to extinction, leading to an imbalanced food web and therefore, lower marine diversity, affecting reefs all over the world.

**"Many species, including great whites, are threatened almost to extinction, leading to an imbalanced food web and therefore, lower marine diversity, affecting reefs all over the world"**

A great white shark alongside the many trevally that inhabit the north Neptune Islands

## ENTERING GREAT WHITE TERRITORY

So here we are, about to enter the world's only ocean floor shark cage. While a surface cage is also in operation, as qualified scuba divers, we are privileged to enter the deep and secretive realm of the great white shark. We cannot help but feel the symbolism of the cage itself. While we are grateful for the reassurance the metal bars provides us, it seems somewhat fitting that we are the ones behind them – just like at zoos, where dangerous animals are kept in cages. It's a poignant reminder that it is the sharks that need protecting these days, not us.

The cage door slides shut and the onboard crane slowly lowers us to a depth of 25 metres. We have entered the great white's realm; an aquarium of rocky outcrops, blinding white sand and mystic seagrasses. The waters are teeming with reef fish, and we are greeted by a myriad sea creatures. Giant blue groupers survey the area, while elegant stingrays sweep gracefully across the grassy meadows surveying the ocean floor.

We wait patiently, but it is not long before we are joined by our first sharky visitor. It is a young male, who also takes first prize for being the happiest shark on the expedition – you only have to look at him to see why. With friendly beaming eyes and grinning gill to gill, he closely inspects the cage, nudging it to test its vulnerability. Clearly, he is checking us out, and we cannot help but wonder what he is thinking!

On his snout, we see a cluster of little black dots. These electroreceptors, known as the ampullae of Lorenzini, provide the shark with a sixth sense, allowing it to detect electromagnetic fields and temperature changes in the water column.

**Below left:** Divers descend in the ocean floor cage
**Below right:** Paparazzi was an interesting subject to photgraph

The happiest shark on the expedition

These specialised organs are connected to the shark's nerve receptors so it can sense the Earth's electromagnetic field to enable navigation and migration. These sensory organs also help the shark to find its prey by detecting the electrical fields of other animals (like us) in the ocean.

We immediately feel privileged to spend time in the company of this majestic and formidable animal. After all, there is no guarantee you will see a shark on this trip. "Sometimes we don't see sharks for weeks, and we have no idea where they actually are," Andrew admits. "Despite all our research, so very little is known about the species – but that in itself is part of their magic."

To our delight, we are soon joined by more great white sharks. Our Cage Captain Nick pulls on a rope that leads back to the surface, indicating to the crew (via a complex ritual of tugs) the number of sharks at our cage below. Incredibly, we had eight individuals circling our cage. Andrew later tells us that this is the best they have seen over the last six years!

We have come to know many different sharky personalities: Deadly (so named because he is small, of course), Tom, Cosmo, McQueen and Slash.

And then there is Paparazzi, as we affectionately named him, a large 4.2-metre male who had an obsession with cameras; ambushing us from behind and having a taste of one of our strobe lights as he passed. "Every shark we encounter here at the Neptune Islands has its own individual personality. We find the sharks that are new to the experience with us tend to be more active, come closer to the cage, move faster, and show greater interest," Andrew says.

Effortlessly, the great whites glide through the water, pivoting back and forth from the cage, each time more curious of the wild animal confined within. We cannot help but feel a great sense of awe and immense respect for these animals. At this depth, they are both imposing and majestic, and behave differently than when near the surface. They are far from the man-eating menace portrayed in Spielberg's film.

**"At this depth, they are both imposing and majestic, and behave differently than when near the surface. They are far from the man-eating menace portrayed in Spielberg's film"**

A great white shark makes a rapid vertical ascent from a depth of 20 metres to breach the surface

## TRACKING PREDATORS

Over the next four days, we spend numerous hours in the ocean floor cage, fine-tuning our talent for shark identification by photographing them and ensuring we get a clear shot of their dorsal fins. This technique, which scientists coined "finprinting", uses the unique contours of a great white shark's dorsal fin as biometric identification. Just like a human fingerprint, a shark's dorsal fin is full of patterns of distinctive notches, and even the fin's colouration is exclusive to each shark. This, coupled with the shark's "countershading boundary" (the boundary line you find along the middle of the shark), provides scientists with the best tools for identification outside of satellite or acoustic tagging.

Although protected throughout Australian waters, the great white shark is undeniably feared by the public, and has gained a reputation – particularly in Australia – for unprovoked encounters with humans. To better understand and educate others about the species, in 2001, the Fox Shark Research Foundation was established. Its mission: To inspire the appreciation and understanding of great white sharks through research and education. Working in partnership with the Commonwealth Scientific and Industrial Research Organisation, the South Australian Research and Development Institute, and Flinders University, the Fox team, in collaboration with renowned white shark scientist Professor Charlie Huveneers, photographs and catalogues great white sharks encountered on all trips. The team uses non-invasive satellite and acoustic tracker tags to provide insights into great white shark behaviour, particularly breeding, migration, social interaction and population trends, along with biological variations like sex and weight. One of the tagged great white sharks travelled 3,800 kilometres in just 66 days, averaging over a whopping 57 kilometres a day!

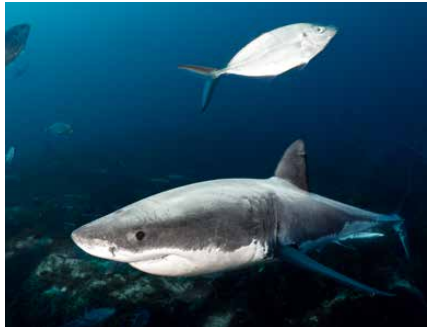
When necessary, tissue samples are also taken for genetic sampling. Through stable isotope analysis, researchers can obtain an empirical evidence base to ascertain white shark feeding habits at and away from the Neptune Islands. Elements such as nitrogen and carbon exist in two forms (called isotopes), one of which is heavier than the other. As these elements work their way up the food chain and ultimately, to great white sharks, the heavier forms are kept in the tissues of the shark.

The carbon isotope gives an indication of the types of habitats the shark has been frequenting, while the heavy nitrogen isotope tells researchers what the shark has been feeding on. As Andrew explains though, seals aren't the only thing on the great white's menu. "The sharks that frequent the waters here in the Neptune Islands don't just gorge on the fur seals, but also have a healthy appetite for [a] juicy snapper and the odd dolphin."

## SHARK TOURISM

To minimise shark interactions with ocean users, the Fox team also undertakes on-board testing of shark repellents such as the widely-used Shark Shield Freedom 7. They discovered it to be only 60 percent effective against great white sharks – we guess that is something at least! Laser technology is also used to get an accurate reading of the size of the great white sharks that live in these waters. "We have measured and documented some of the world's largest white sharks here at the Neptune Islands; with the large females getting near to the mythical six metres long," Andrew explains.

Like many destinations around the world where shark tourism prevails, the sharks here at the Neptune Islands have been hugely beneficial to the local visitor economy, providing local employment and supporting South Australia's strong tourism brand proposition. In light of this, the Fox team is very conscious of the impact of their own and other operators' interactions with the great white sharks at the Neptune Islands. They are constantly striving to better understand any potential negative impact of their operation on the sharks, ensuring the industry there remains regulated, well-managed, and non-invasive to the species.



A clear photo displaying the white shark's countershading boundary – a unique "fingerprint" to identify the shark

Part of this research looks at the calorific content of the tuna bait used by the Fox team for shark attraction compared to the great white shark's natural diet. It even attempts to ascertain how much energy the sharks expend as they attempt to ambush the bait. This is to determine if there are any negative health impacts when the sharks expend energy going after the bait but are not rewarded when the Fox team pulls the bait away. While research is ongoing, Andrew says: "So far, the research indicates that the sharks don't spend enough time with us throughout each trip for it to have any long-term health impacts. Even though they may spend time chasing baits at the surface, this does not detract from their natural diet and feeding behaviours. They tend to visit us during the middle of the day, outside of their normal feeding times of dawn and dusk."

Attracting sharks via bait is controversial, with some people believing it teaches sharks to associate boats and humans with food. However, shark cage diving and baiting provide the scientific community with an unparalleled opportunity to undertake leading-edge great white shark research that would otherwise not be possible.

Two great whites cruise past each other

## DISCOVERING SHARK NURSERIES

Despite extensive research, very little is known about great whites, particularly when it comes to breeding. The shark's gestational period is believed to be around 11 to 12 months, but some researchers believe it could be up to 18 months. On a documentary expedition in March 2021 with Discovery Channel for Shark Week, the Fox team ventured across the Great Australian Bight from Port Lincoln, Southern Australia, to Esperance, Western Australia, in search of baby great white sharks.

The Fox team will soon return to undertake vital research in the waters of the great white shark nursery off the Recherche Archipelago. Some might question the importance of this research, but Andrew says it is simple: "It's about giving sharks a voice. The more we understand about these incredible animals, the more we can protect them, especially when sharks get attacked by humans."

While the great white sharks are the real stars of the show, there is also another endangered encounter to be had in nearby waters. In the summer months, the days are long and warm, and the spectacular scenery of the Thorny Passage and the nearby Hopkins Island provide the stage for a meeting like no other. Enter the "jester of the sea" – the friendly and curious Australian sea lion.

**"While the great white sharks are the real stars of the show, there is also another endangered encounter to be had in nearby waters"**





## HOW SHARK CAGE DIVING WORKS

Rodney Fox Shark Expeditions cater for both qualified scuba divers and non-scuba qualified guests aboard the 32-metre MV *Rodney Fox*. Qualified divers enjoy the benefit of the ocean floor cage, which is lowered to a depth of 15 to 25 metres depending on the seafloor, while non-qualified guests can view the sharks from the surface cage.

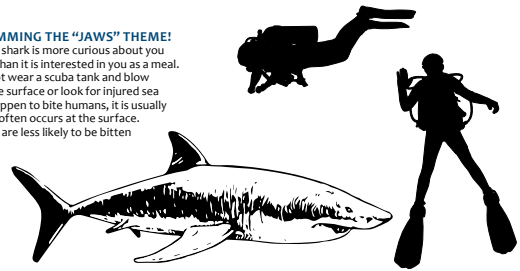
It is important to note that sharks are attracted via the use of bait, predominantly tuna gills sourced as waste from the local tuna farming industry. Without baiting, you would not be able to get this close to great white sharks in these waters. In reality, the sharks are never fed. Strict regulations limit the amount of bait that can be used each day, and the intentional feeding of great white sharks in these waters is prohibited. The use of bait must also cease for 15 minutes if a shark happens to outsmart the crew, stealing a rare treat. Whilst not ideal, some great white sharks do occasionally catch and consume the bait – they are highly evolved and intelligent ambush predators after all!

On specific trips, guests can partake in vital on-board great white shark research and are encouraged to submit their photographs for shark identification purposes.

## WHAT TO DO IF YOU ENCOUNTER A GREAT WHITE SHARK

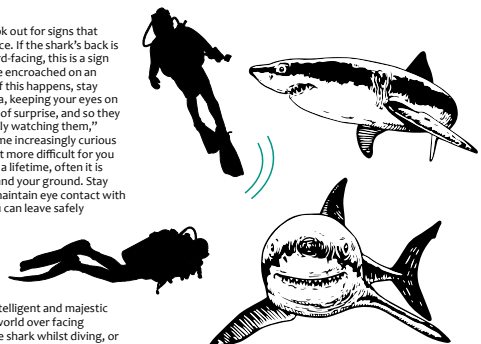
**1 STAY CALM AND STOP HUMMING THE "JAWS" THEME!**

You will soon recognise that the shark is more curious about you and your electromagnetic field than it is interested in you as a meal. The shark's normal pray does not wear a scuba tank and blow bubbles. Most sharks hunt at the surface or look for injured sea creatures, so when sharks do happen to bite humans, it is usually a case of mistaken identity that often occurs at the surface. If you are deep underwater, you are less likely to be bitten by a shark



**2 RESPECT THEIR ENVIRONMENT**

Remember, you are in their territory. Look out for signs that they may feel threatened by your presence. If the shark's back is arched and its pectoral fins are downward-facing, this is a sign that they may be scared, or that you have encroached on an area where they may be trying to mate. If this happens, stay calm and slowly leave the immediate area, keeping your eyes on them at all times. "They like the element of surprise, and so they tend to stay further away if you are closely watching them," Andrew Fox notes. If the shark has become increasingly curious about you, it may begin circling, making it more difficult for you to leave the area. While this may feel like a lifetime, often it is only a few seconds. The key here is to stand your ground. Stay back to back with your dive buddy, and maintain eye contact with the shark until its interest wanes and you can leave safely



**3 FEEL PRIVILEGED**

Great white sharks are highly evolved, intelligent and majestic creatures. With many shark species the world over facing extinction, if you encounter a great white shark whilst diving, or any shark for that matter, consider it an immense privilege

## JESTERS OF THE SEA

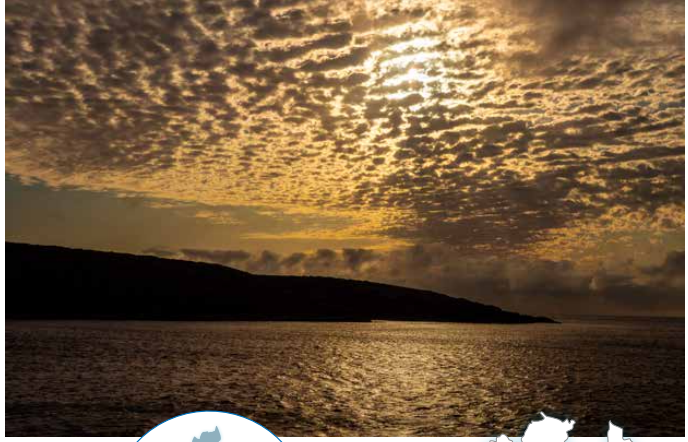
Protected by Australian State and Federal government legislation and listed as "Endangered" on the IUCN Red List of Threatened Species, Australian sea lions are sparsely distributed in comparison to other seal species in the area. The Australian sea lion, alongside other species of fur seals, was commercially hunted and almost wiped out during the 19th-century sealing period. While populations of most fur seal species have steadily recovered, Australian sea lion numbers have historically been far slower to improve.

Pleasingly though, recent reports estimate that there are now between 10,000 and 12,000 individuals in the wild, indicating a gradual recovery in the population. Their inquisitive nature gets them repeatedly caught in fishing nets, lobster pots and gill nets set on the ocean floor, often in places where they forage for food. Spending time with these jesters of the sea is indeed a privilege, albeit another strong reminder of the fragility of our ocean and the species that call it home.

## PUTTING IT RIGHT

During our trip, we were entertained in the shallows by friendly sea lions, discovered the value of vital great white shark research, and witnessed a shark-first approach to understanding the ecology, habitat and environment at the Neptune Islands. Yet most importantly, we left these islands with an incredible firsthand experience, alongside increased knowledge and an appreciation of the huge responsibility we have to "put right" the conversation about great white sharks to engender greater respect for the species and sharks the world over. *SDAA*

Two young Australian sea lions play in the shallows




### WHEN TO GO

Rodney Fox Shark Expeditions run great white shark cage diving expeditions all year round. Although you can dive with the sharks at any time of the year, the sharks themselves are seasonal. Male great white sharks visit the Neptune Islands all year round, whereas the impressively larger females grace divers with their presence in autumn and winter. The late spring and summer months have the added attraction of scuba diving or freediving with the endemic and endangered Australian sea lion.

Trips run from two to six days depending on the season, with longer expeditions in autumn and winter (April to August), where the days are shorter and the weather is less stable – maximising the opportunity for great white shark interactions.

### HOW TO GET THERE

All trips depart from and return to the relaxed coastal town of Port Lincoln on the eastern tip of the Eyre Peninsula in South Australia. Port Lincoln is a 7-hour drive or a 50-minute flight from South Australia's coastal capital, Adelaide. Adelaide is serviced internationally and domestically from all major Australian cities.

If you have time, South Australia also offers several other endemic marine encounters. Leafy and weedy seadragons are found at numerous jetty sites along the coast, while the annual Australian giant cuttlefish aggregation from late May to early August is an experience not to be missed, as it happens nowhere else on Earth.

For more information, visit Rodney Fox Shark Expeditions at: *www.rodneyfox.com.au*

**Anita Verde and Peter Marshall**
Australia

Anita Verde and Peter Marshall have a passion for the planet's wild places, and through their images and narratives hope to inspire better appreciation and protection of the natural world. Based in Melbourne, Australia, they have professional backgrounds in tourism strategy, environmental sustainability, and government relations. When they are not underwater or on a mountaintop, they also work professionally as strategic consultants, advising governments and industry on sustainable destination planning and development, investment attraction, government relations, brand strategy and marketing. Read more about them at *www.summitstoseasphotography.com.*