

Beauty of the Beast



A TRIBUTE TO *CARCHARODON CARCHARIAS*

WHITE SHARK, DARK WATER

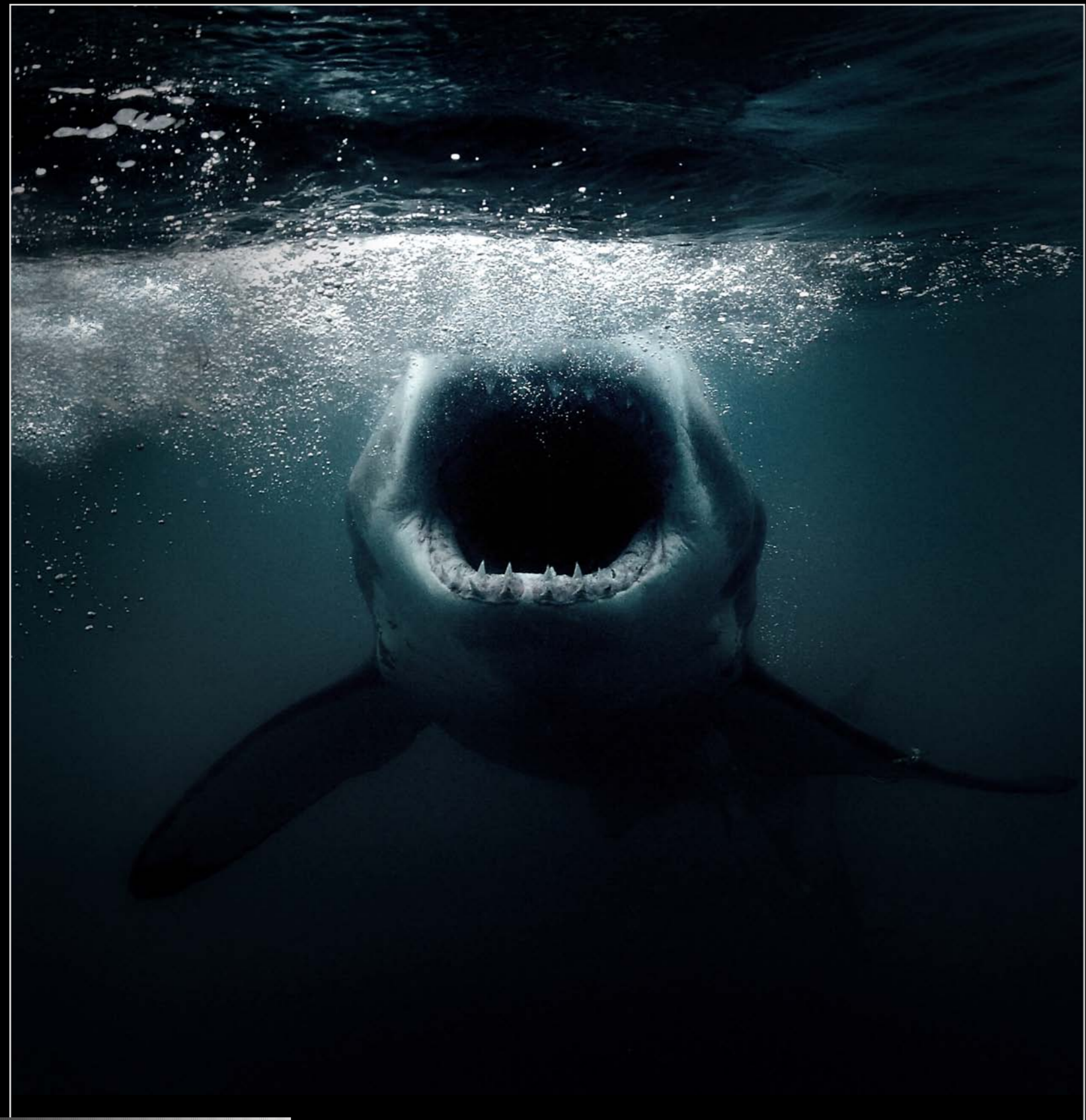
The raw power and exquisite evolutionary adaptation of this marine apex predator shine through a gallery of uniquely mesmerizing photographic portraits



The supreme predator

The Great White Shark *Carcharodon carcharias*, also known as the Great White, White Pointer, White Shark, or White Death, is a species of large lamniform shark which can be found in the coastal surface waters of all the major oceans. This species is arguably the world's largest known extant macropredatory fish, and is one of the primary predators of marine mammals. It is also known to prey upon a variety of other marine animals, including fish and seabirds. It is the only known surviving species of its genus *Carcharodon*, and is ranked first in having the most attacks on humans.

TEXTS AND PHOTOGRAPHS
BY DR. DIRK SCHMIDT



A perfect bite

Great White Sharks, like many other sharks, have rows of serrated teeth behind the main ones, ready to replace any that break off. When the shark bites, it shakes its head side-to-side, helping the teeth saw off large chunks of flesh.

Is there “beauty” in a beast, a predator, one that hunts and devours prey with frightening efficiency? How do we define “beauty”, or even a “beast”? Is there more than just the sheer beauty of design and evolutionary efficiency which has shaped the Great White Shark into one of the most awe inspiring creatures, and magnificent marine predators? This ancient predatory “beast” has adapted over millions of years of evolution and fine-tuning to a state, in the authors opinion, of near perfection. Their graceful torpedo-like shapes glide near effortless through the water, armed with sensory abilities able to detect weak electrical currents, movements, and the faint smell of passing prey. Predominantly a mid-water and surface feeder, they can dive to depths of more than 1000m in search of food. Their bodies, able to retain heat generated from their muscles, allow for explosive speed, at times leading to magnificent aerial breaches in the pursuit of prey. Highly selective in their prey selection, Great Whites prefer fish, cetacean and mammalian prey with high calorific values. Despite being found in most oceans around the world, they are considered rare with only a few isolated congregation sites having been identified. Some experts estimate that there are less than 7.500 of these sharks left in our seas, their slow maturity rates, and limited litter sizes has self-regulated these apex predators

over millions of years of evolution to remain in sync with their food sources. This very primordial self-regulation places the species under direct threat of extinction from human exploitation. Despite international protection, they are caught as millions of other sharks are, for their fins, to feed to an insatiable oriental appetite for shark fin soup, or for their jaws and teeth, to make jewellery and other trinkets. Migrating over thousands of miles between continents and along coastlines, they are exposed to the constant peril of fishing, passing millions of long-line hooks and hundreds of miles of nets as they transit along unknown migratory paths, only to return to the exact bay or congregation site months later. The Great White shark has mesmerized mankind for decades. Vilified through an era of *Jaws* movies, labelled as insatiable beasts, these predators remain largely misunderstood. Yet the “beauty” of this magnificent creature does not lie in the label of being a “beast” but in the sheer magnificence of its evolutionary perfection, its reproductive self-regulation in harmony within its environment, its enigmatic behaviour, its very survival and development through the eons of time. The Great White Shark is a magnificent, mysterious and misunderstood predator, and one of the oceans most ancient and beautiful “beasts”.

www.whitesharkenigma.com



Surface raider

Great Whites live in almost all coastal and offshore waters which have water temperature between 12 and 24 °C (54 and 75 °F), with greater concentrations in the United States (Atlantic Northeast and California), South Africa, Japan, Oceania, Chile, and the Mediterranean. One of the densest known populations is found around Dyer Island, South Africa, where almost all of the shark research is done. Recent studies suggest the possibility of migrations and interaction between shark populations that were previously thought to have been discrete.



Full power

Male Great Whites reach maturity at 3.5–4.0 m (11–13 ft) long and females at 4.5–5.0 m (15–16 ft) long. Adults are 4–5.2 m (13–17.1 ft) long and have a mass of 680–1,100 kg (1,500–2,400 lb). Females are generally larger than males. This species can reach 6.1 m (20 ft) in length and 1,900 kg (4,200 lb)–2,268 kg (5,000 lb) in weight. It came into existence during the mid-Miocene epoch, as the earliest known fossils of *Carcharodon carcharias* are about 16 million years old. *Carcharodon* comes from the Greek words *karcharos*, which means “sharp” or “jagged”, and *odous*, which means “tooth”.



Unmatched elegance

Great Whites reach maturity around 15 years of age and can have a life span of over 30 years. The IUCN lists it as a vulnerable species included in Appendix II of CITES.



Night stalker

With a single bite a Great White Shark can take in up to 14 kg (31 lb) of flesh, and can also consume several hundred kilograms of food during a single feeding session.



Breaching at dawn

Hunting techniques shown by Great White Sharks vary according to the species of the prey. Off Seal Island, the sharks ambush brown fur seals from below at high speeds, hitting the seal mid-body. They go so fast that they can completely leave the water. The peak burst speed of these sharks is largely accepted in the scientific community to be above 40 kilometres per hour (25 mph). They have also been observed chasing prey after a missed attack. Prey is usually attacked at the surface.



The Look

Carcharodon carcharias is one of only a few sharks known to regularly lift its head above the sea surface to gaze at other objects such as prey. This is known as *spy-hopping*. This behavior has also been seen in at least one group of blacktip reef sharks, but this might have been learned from interaction with humans (sharks may also be able to smell better this way because smell travels through air faster than through water). White Sharks are generally very curious animals, display intelligence and may also turn to socializing if the situation demands it.



Death Loop

Great White Sharks are carnivorous and prey upon fish (tuna, rays, other sharks[]), cetaceans (dolphins, porpoises, whales), pinnipeds (seals, fur seals and sea lions), sea turtles, sea otters, and seabirds. Great whites have also been known to eat objects that they are unable to digest. Upon approaching a length of nearly 4 metres (13 ft), Great Whites begin to target predominately marine mammals for food, preferring prey with a high content of energy-rich fat.



Lunar Beauty

A Great White displays its unmistakable countershading, showing its white underside and grey dorsal area (sometimes in a brown or blue shade) that gives an overall mottled appearance. The coloration makes it difficult for prey to spot the shark because it breaks up the shark's outline when seen from the side. From above, the darker shade blends with the sea and from below it exposes a minimal silhouette against the sunlight.



Attack from below

A breach is the result of a high speed approach to the surface with the resulting momentum taking the shark partially or completely clear of the water. This is a hunting technique employed by Great White Sharks whilst hunting seals. This behavior often takes place on cape fur seals at Seal Island in False Bay, South Africa as sharks launch their predatory attack from the deeper water below. They can reach speeds of up to 40 kilometres per hour (25 mph) and can at times launch themselves more than 10 feet (3.0 m) into the air.



White thrust

Carcharodon carcharias' reputation as a ferocious predator is well-earned, yet they are not (as was once believed) indiscriminate "eating machines". They are ambush hunters, taking prey by surprise from below. Near Seal Island, in South Africa's False Bay, shark attacks most often occur in the morning, within 2 hours after sunrise, when visibility is poor. Their success rate is 55% in the first 2 hours, falling to 40% in late morning after which hunting stops.



Full speed roll

The Great White is an epipelagic fish, observed mostly in the presence of rich game, such as fur seals, sea lions, cetaceans, other sharks and large bony fish species. In the open ocean, it has been recorded at depths as great as 4,000 ft (1,200 m). These findings challenge the traditional notion about the Great White as being a coastal species. A similar study tracked a *Carcharodon carcharias* from South Africa swimming to Australia's northwestern coast and back, a journey of 20,000 km (12,000 miles) in under nine months.



A balance of power

The species' behavior and social structure are not well understood. In South Africa, White Sharks have a dominance hierarchy depending on the size, sex and squatter's rights: females dominate males, larger sharks dominate smaller ones, and residents dominate newcomers. When hunting, they tend to separate and resolve conflicts with rituals and displays. White Sharks rarely resort to combat although some have been found with bite marks that match those of other White Sharks. This suggests that when another shark approaches too closely, they react with a warning bite. Another possibility is that Great Whites bite to show their dominance.



Awed by the breach

Great White Sharks - a relatively small one is seen here breaching - infrequently attack and sometimes even sink boats. Only five of the 108 authenticated unprovoked shark attacks reported from the Pacific Coast during the 20th century involved kayakers, however in a few cases they have attacked boats up to 10 metres (33 ft) in length. They have bumped or knocked people overboard, usually attacking the boat from the stern. In one case in 1936, a large shark leapt completely into the South African fishing boat *Lucky Jim*, knocking a crewman into the sea.