



running the gauntlet

THOMAS P. PESCHAR

At the southern tip of Africa a deadly game of cat and mouse – or shark and seal – is played out over and over again in the waters off the fabled Cape of Storms, near Cape Town. **Cheryl-Samantha Owen** describes how each species attempts to outwit the other.

Each winter in the southern hemisphere, between May and September, white sharks patrol the breeding colonies of Cape fur seals at Seal Island in False Bay, making their presence known by launching themselves out of the depths and performing spectacular airborne breaches.

The general hunting strategy of the sharks has been recognised for some time: they swim at depth and from there launch ambush attacks on the seals above, whose dark bodies are silhouetted against the light of the ocean's surface. But the range of tactics used by both predator and prey has remained a mystery – until now.

A team of scientists from Simon Fraser University in Vancouver, Canada, the Save Our Seas Foundation (SOSF), and Marine and Coastal Management in South Africa has observed a number

of variables that drive the tactical decisions of both sharks and seals. A seal's swimming and foraging behaviour tries to minimise the risk of being eaten by a shark; dicing with death, its ploy is to avoid attack. A shark patrols the seal-rich waters using tactics that maximise its chance of killing; driven by hunger, it seeks the payoff of a calorific, blubber-rich meal. As researcher Karl Laroche explains, 'The optimal course of action for each species depends on the other's behaviour.'

The breeding colony at Seal Island has a year-round population of between 36 000 and 77 000 seals that range in age from pups to breeding adults. With the entire colony travelling from the island to feed in open water and returning to it to rest or nurse, the shark population, it seems, is spoilt for choice. The new findings challenge

traditional studies that consider predator and prey as uniform groups, suggesting that seals may not be equal players in the game because their behaviour differs according to their age.

The seals, which may stay away from the colony for several days or even weeks, appear to be at most risk from predation between the shallow waters at the island's edge and a distance of

ABOVE The waters around Seal Island in False Bay are a happy hunting ground for white sharks, which often ambush seals from below.

OPPOSITE In the game of catch and be caught – or miss and survive – Cape fur seals employ a number of tactics to evade capture.

Both species base their tactics on variables such as location, swimming depth and the timing of departure and return

about 1 000 metres out to sea. Well aware of their movements, the sharks concentrate within several hundred metres of shore, and the seals, equally well aware of the risk, select the best movement tactic to run the gauntlet.

Both species base their tactics on variables such as location, swimming depth and the timing of departure and return. In addition, seals have another card up their flippers: the option to travel in groups of varying sizes. Large groups of seals of all ages leave from the south side of the island within two hours after sunset, porpoising at the surface in a southerly direction. Group swimming ensures safety in numbers on departure but, because seals are solitary feeders and coordinating large groups requires synchronised timing, they often return to the island alone or in small pods.

Most adult seals choose to return to the island under the cover of darkness, swimming at depth to avoid being conspicuous at the surface. The majority of pups, however, wait for sunrise, returning between 07h00 and 09h00, alone and over the deeper waters of

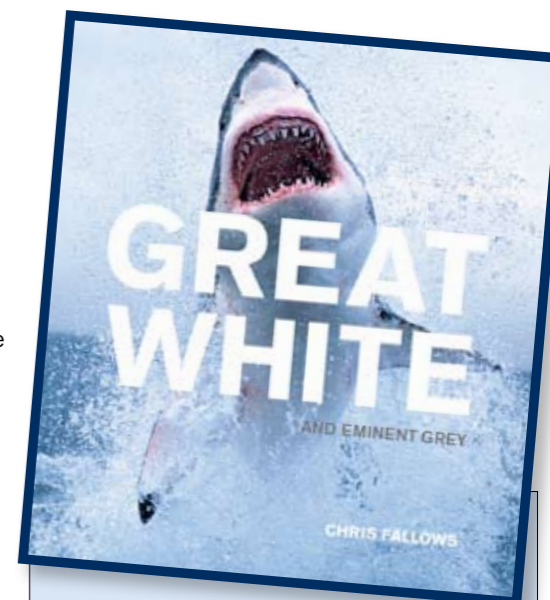
the southern and western approaches. They also spend considerably more time swimming at the surface than the adults do. These are precisely the circumstances that produce the greatest probability of attack. 'It appears that the pups do not account for risk in choosing their game tactics, and the fact that sharks concentrate in the morning, at mid-depth and to the south suggests that they focus primarily on the seals that are playing a high-risk game,' says SOSF scientist Alison Kock.

With the stakes so high, why do the pups take such risks? The scientists are perplexed. Perhaps they are naive or miscalculate the timing, or perhaps there is a trade-off that avoids a risk we don't yet know about. But one thing is certain: with white shark numbers plummeting at many locations due to over-fishing, further research is essential to learn more about these apex predators, and their prey, before it is too late. ■

This research project was funded by the Save Our Seas Foundation. For more information about SOSF and sharks, go to www.saveourseas.com



CHERYL-SAMANTHA OWEN



GREAT WHITE, GREAT SHARK

Like liquid mercury the seals melt through the water, flowing from one short porpoise-like movement into the next with only the slightest noise and disturbance. Despite the refinement and economy of their progress, the gentle splashing is enough to attract the attention of their nemesis, the great white shark. Deep below the seals, a shark follows like a cork poised to pop...

These evocative words come from a new book written – and photographed – by shark watcher Chris Fallows, who has spent his adult life recording in notebook and on camera the behaviour of these apex predators around the coast of South Africa's southwestern Cape and further afield. It was he who drew the world's attention to the breaching white sharks of False Bay, and since then he has amassed a collection of stunning photographs that show the sharks in many guises: aggressive super-predator, graceful athlete and curious but calm observer.

Great White and Eminent Grey showcases many of Fallows's best images and chronicles his journey from young enthusiast to respected authority on the subject of sharks.

For further information about this book, go to www.artpublishers.co.za or e-mail info@artpub.co.za