BUBBLING UNDER

The hidden lives of seabirds

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Renowned for the shoals of fish that tempt top marine predators along the South African coastline, the so-called sardine run has attracted much interest for the shark and cetacean behaviour associated with it. Less publicised, however, are the underwater exploits of these predators' avian counterparts. **Steve Benjamin** found himself distracted from the shimmering shoals by the antics of Cape Gannets and Cape Cormorants and discovered that these birds are adapted to dominate both sea and sky. Lauren De Vos captures his adventures in text.

The turbulent waters off South Africa's coast boast a spectacular array of marine life and play host to diverse aerial predators that hone their skills wheeling in the skies above. Determined competition among these masters of sea and sky has driven Cape Gannets *Morus capensis* and Cape Cormorants *Phalacrocorax capensis* to become efficient underwater predators that target sardines and other baitfish. Plummeting from a considerable height, the Cape Gannet performs fearless high-speed dives. With a breath-hold that would render free-divers green with envy, the Cape Cormorant doggedly pursues its prey at depth. But the under-water interactions between these two species are difficult to observe and not widely documented. It is a unique series of events and the perfect synchrony of conditions that uncover their underwater skirmishes as they take on one another, fellow predators and the elements.

There is one occasion that most significantly draws these species together in their battle for a prized common resource and, fortuitously, it is the same event that allows phenomenal opportunities for human observation of their interactions. On the annual sardine run, divers have the chance to watch these birds underwater as they prey on static sardine bait-balls (tight formations of fish trying to escape predation). My understanding of and respect for these birds grew immensely during last year's run when, together with photographer Jean Tresfon, I witnessed spectacular feats of agility, determination and perseverance. Dominating both realms of blue, from the sky to the sea, Cape Gannets and Cape Cormorants displayed their prowess as avian predators and revealed their secret underwater lives.

Distinguished by their bright blue eye-rings and creamy white plumage, Cape Gannets breed at only six sites in southern Africa, namely Possession, Mercury and Ichaboe islands in Namibia and, in South Africa, Bird Island at Lamberts Bay, Malgas Island and Bird Island in Algoa Bay. The last is the largest colony and in 1994 supported 68 000 pairs of gannets. Weighing 2.6 kilograms and with a 1.8-metre wingspan, the Cape Gannet is a large bird and its terrific power is evident as it plunges from a dizzying height. Wings back and neck extended, it becomes a 'beaked bullet' moments before impact with the water at 90–100 kilometres an hour. As proficient underwater as it is in the air, the gannet can dive to a depth of 10 metres, its trajectory traced by a contrail of bubbles. As numbers of gannets hit the waves, divers' ears ring with the noise of a battlefield – 'cannons' firing and 'bullets' whistling through the blue. In a fascinating inversion of their above-water behaviour, the birds spread their wings and 'fly' to greater depths (plunging as deep as 22 metres) in pursuit of fish. But this specialised hunter, now classified as Vulnerable, faces a threat to its survival: the 80 per cent population decrease since the 1950s has been attributed largely to the over-exploitation of fish stocks by humans, and there is keen competition by prey species for the diminishing food resources.

A glossy blue-black bird with a striking orange gular pouch, the Cape Cormorant is smaller than the gannet, weighs 1.2 kilograms and is well adapted to long dives in pursuit of its fish prey. Although its population is declining and it is categorised as Near-Threatened, it is common along the Cape West Coast in both inshore marine environments and inland freshwater systems, with the core of its range stretching south from Cape Cross in Namibia to Cape Agulhas. Here the cormorants can be seen in their thousands as they 'leap-frog' one another to chase prey. They are less populous along the Eastern Cape coast, but a few hundred birds roost on the sheer cliffs near Port St Johns. They are well adapted for chasing fast-moving fish and use their large, webbed feet to propel themselves through the water. These birds are in fact quite heavy relative to their body size, an adaptation that helps them to remain underwater for up to 76 seconds at a time.

The sardine run, off South Africa's tempestuous Wild Coast, is considered to be one of the world's most spectacular natural phenomena. Each year between May and July millions of sardines leave their feeding grounds off the Eastern Agulhas banks and embark on a spawning migration that takes them up the KwaZulu-Natal coastline. The fish travel within a cold finger of water that creeps up the coast and facilitates their movement. They can cover as much as 60 kilometres a day, in pulses comprising many small pockets or in a massive shoal that resembles an oil slick. Greatly influenced by ocean conditions, they are not observed at all in some years, possibly because they pass the ▷

Above *A Cape Gannet brakes at the conclusion of a successful dive.*

Opposite *A model of aerodynamic design, a gannet arrows out of the sky in pursuit of fish harried to the surface by common dolphins.*

Previous spread *The underwater battle zone explodes as common dolphins charge through a shoal of red-eye herrings. A Cape Gannet bullets through the water, bubbles streaming in its wake.*

Do diving Cape Gannets ever hit divers?

Cape Gannets are highly sensitive to human activity around bait-balls. If observed from a distance, the birds continue to plummet out of the sky as they feed, but once snorkellers enter the water the gannets generally stop diving and move away. On occasion, they continue to dive if the bait-ball is large or if they are particularly hungry, which can occur after long periods of extremely rough weather or a lack of fish moving into the area. The risk of injury as a result of colliding with an unpredictable moving object (such as a snorkeller) in their feeding zone is clearly one that is not worth taking. The birds may continue to dive if a small number of scuba divers are underwater and near the bait-ball.

coastline at some depth and away from predators' scrutiny.

Unsurprisingly, an army of marine marauders pursues these rich, oily fish and, prizing them as a meal, the predators go to great lengths to gorge themselves in the brief time of plenty. Long-beaked common dolphins can form super-pods of up to 5000 individuals as they travel in search of the sardine shoals, while squadrons of tens of thousands Cape Gannets follow them closely from above. Below the surface, unknown numbers of copper and dusky sharks congregate along the inshore waters in anticipation of the sardines. All the species rely on this huge food resource and their life cycles are timed to take advantage of its abundance.

Predictably, the occurrence of the sardine run draws wildlife photographers and adventure divers from around the world. Unlike the predators, the ultimate prize for the divers is not a meal but the opportunity to witness a bait-ball wrestled by a host of top predators. It's easier said than done and it can take many expeditions before this goal is realised.

On last year's run, in crystal-clear water 10 metres below the churning surface, a bait-ball of red-eye herring and sardines glittered and swirled in a bid to escape the barrage of predatory action from common dolphins, Cape Gannets and Cape Cormorants. Photographers were there, primed to capture images of the frenzied action. Cormorants raced around like wind-up toys between the fleeing fish, paddling their webbed feet to propel themselves through the confused blur of silver scales.

A symbiotic pattern emerged: first, the common dolphins rallied and raced towards the fish, causing a shimmer of panic. The high-pitched clicks and whistles signalling this cetacean charge were followed by a gannet blitzkrieg as hundreds of white, feathered streaks bombed the water and seized the bewildered fish. Meanwhile, in a clean-up action, opportunistic cormorants lunged at potential escapees.

Given the lightning speed at which the events occurred, it wasn't until I reviewed photographs and video footage one frame at a time that I really saw what the birds were doing during their dives. Targeting a specific fish as they plummeted out of the air, the gannets could deftly alter their trajectory as they catapulted themselves through the water. A number of the birds exited their dives upside-down, with a fish grasped in their bill. To achieve this, they had to keep the prey in sight throughout the dive. They often seized the sardine midway along its body or by the tail and then, after flicking the fish around underwater, they would hastily gulp it down.

Often one fish was not sufficient and the gannets would pursue one another to steal catches. Alternatively, an individual would keep going, pumping its wings and feet to chase down more fish. These birds don't give up easily: divers have witnessed a single gannet catch and consume three fish during one plunge.

Cormorants employ a very different tactic to hunt their prey. Descending into the swirling shoal, they swim hard and extend their necks to grasp hold of fish. Although they were dogged in their pursuit, these birds did not appear to have as high a strike rate as the gannets. Their talent, it appeared, lay in robbing one another – and the gannets. With their smaller bodies, cormorants are agile swimmers and faster than the heftier gannets underwater. Often, a black smudge of paddling cormorants harassed gannets that had failed to swallow their oily prize quickly enough. On one occasion I watched as, like a band of impatient underwater mobsters, 10 cormorants aggressively latched onto a single gannet as it fought its way to the surface in a vain bid to retain possession of its sardine.

Flurries of activity such as this boil just below the surface of the water and the epic battles remain hidden from general view. The birds' patience, skill and determination are tested to the limit as they not only clash with one another, but fend off a host of other specialised marine predators in order to eat and survive. Ironically, their feathered appearance belies their prowess as highly adapted swimmers and divers that are able to compete on a par with their shark and cetacean counterparts. It truly seems to be a secret life that seabirds lead. □

Above *A pair of streamlined Cape Cormorants are clearly intent on a meal as they penetrate the shoal.*

Opposite *Three Cape Cormorants gang up on a Cape Gannet in a bid to wrest its hard-won catch from it.*

Previous spread *If you can't catch a fish, steal one. A pair of gannets tussle over a red-eye herring.*