The Natal Sardine Run

Description

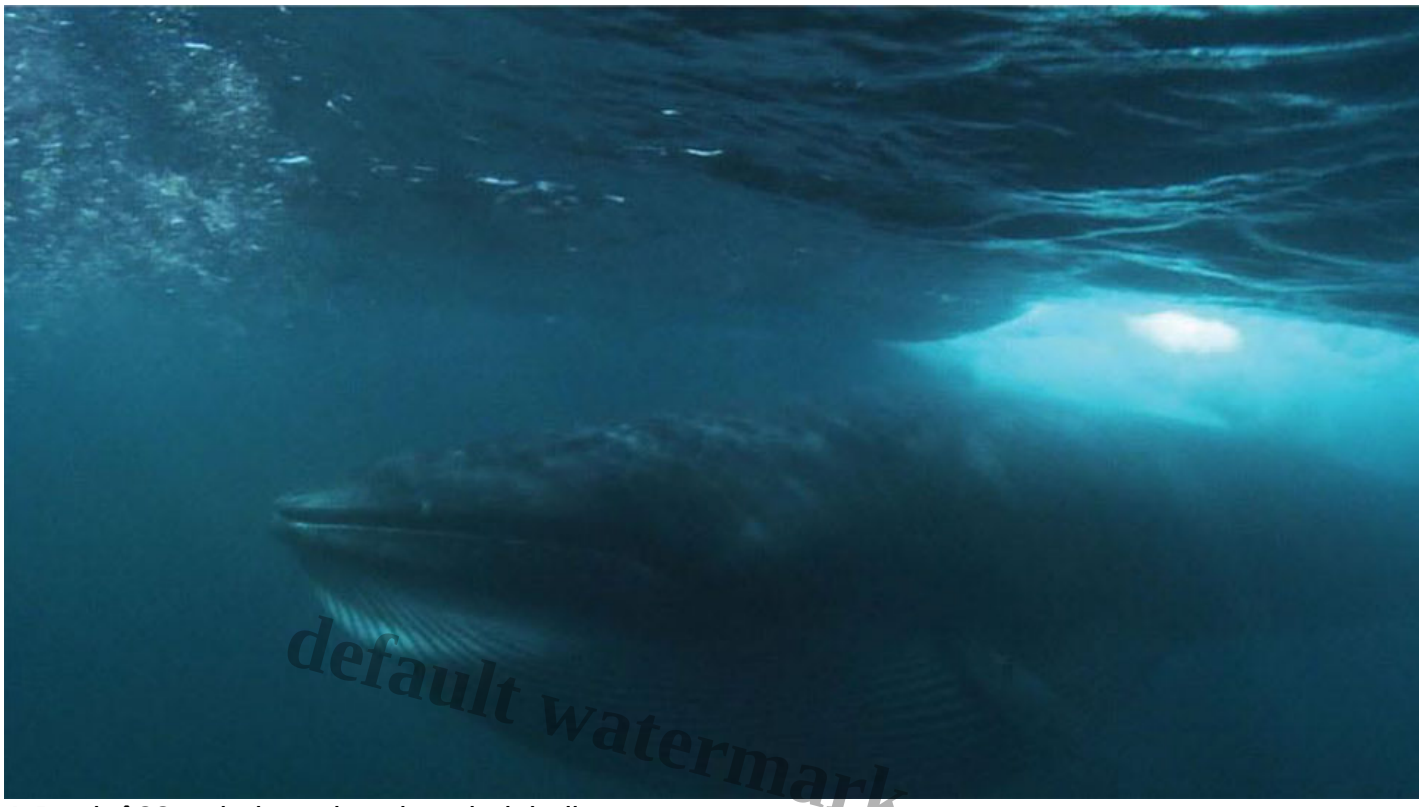
Location: Africa, South Africa, East Coast

The east coast of South Africa sees a phenomenal event every autumn â?? huge shoals of migrating sardines on their northerly journey, followed closely by a selection of charismatic predators. Charles Maxwell relives his experiences of trying to document the Sardine Run.

Agulhas Current

During summer, warm water flows south in the Agulhas Current along the east coast of South Africa. At this time, the surface water temperature can reach 28Â°C (82.4 Â°F) plus, when itâ??s too warm for temperate marine species such as Southern African pilchards (*Sardinops sagax)*. Each autumn this warm water recedes offshore and northwards, to be replaced by a narrow band of cooler water suitable for the sardines that embark on a northerly migration in huge shoals. The magnitude of these shoals is such that they attract a large number and variety of predators.

Some fish are driven inshore and netted by fishermen, while others are trapped in the breakers then washed onto the beach. The Sardine Run is a fascinating event with sharks, whales, dolphins, game fish, sea birds and man coming to the feast. People wade into the water to collect sardines in buckets and bags, while copper sharks (Carcharhinus brachyurus), bloated by overindulgence, beach themselves in the quest for more. In an effort to prevent damage to the shark nets that are deployed to protect bathers from shark attack, the Natal Sharks Board works hard to lift their nets ahead of the shoals.



A Brydeâ??s whale cruises by a bait ball.

A Brydeâ??s whale feeds very close to the camera.

On a typical morning we leave at first light from the deep and imposing Port St Johns river gorge, through the crashing surf at the river mouth and into the sea. Once at sea, we look back to view the gorge shrouded in mist and a lighthouse perched high on the sea cliffs flashing towards the dark sea beyond.

Bracing against the early morning winter chill, we immediately begin looking for action. An unforgettable sight is the sun, rising over the sea as a large red ball, with swooping gannets silhouetted against its brightness. The 20-degree water temperature appears warm by comparison to that of the air.

As the sun rises, we begin to see common dolphins (Delphinus capensis) in their thousands churning up the sea surface while Cape gannets (Morus capensis) swoop overhead. These are the vital indicators that baitballs â?? the most exciting aspect of the Sardine Run-are present, as they concentrate the many aspects of this phenomenon into a small area. Dolphins, operating in cooperative groups, work the sardines up from the deeper cooler water using a combination of charging actions and bubble blowing. The gannets are a vital tool for guiding us to the action. Along with a variety of sharks, gannets take advantage of the common dolphinsâ?? herding skills.

Action zone

Gannets fly over the baitball and the air is alive with their excited squawking. Other gannets rain down from above, hitting the water at incredible speed with a resounding thud. Once their impact velocity decreases, the gannets have the ability to use their wings and feet to continue chasing sardines to a depth of over 20 metres. Common dolphins charge in from all sides. Shark fins break the surface as they rush to the action. One can only describe the scene as organised chaos. We have found a baitball and now it is time to get into the water without further delay. Underwater, baitballs can be very noisy affairs, with the sound of plunging gannets mixed with dolphin echolocation clicks and distant humpback whale *(Megaptera novaeangliae)* songs.

These sounds add to the intense atmosphere. Predation on the baitball will sometimes go quiet for a short period, during which time the sardines regroup to form the classic round ball thousands of little fish moving as if one entity. A single blacktip shark (Carcharhinus limbatus) penetrates the baitball that opens up around the shark, closing immediately behind it as if it never existed. Sometimes the sharks are so relaxed that they appear to be swimming in graceful slow motion. Suddenly the dolphins charge in from below, exploding through the sardines in a curtain of bubbles, which gives the circling sharks an excuse to come in for the attack. Once the baitball is sufficiently shallow, the gannets join in. Chaos reigns once more.

Looking towards the surface, I can see the birds flying overhead and plunging into the water, leaving a long line of silver bubbles behind them. It is impossible to describe the noise of the gannetsâ?? aerial bombardment â?? so intense that you can feel each of the thousands of thuds. It is like being in a war zone, adding to the feeling of exhilaration of being so close to one of Planet Earthâ??s greatest natural events. The 2009 Sardine Run differed from those of previous years in that the sardine biomass was far lower and did not penetrate as far as the Kwa-Zulu Natal south coast. This resulted in mostly small baitballs and many very hungry and frustrated predators. The sharks became very aggressive towards us on these small baitballs, perhaps seeing divers as feeding competition.

â??IT SEEMED TO ME THAT THE CORMORANTS WERE THE MORE SUCCESSFUL OF THE TWO HUNTERS.â?• â?? CHARLES MAXWELL

Sardine Run Predators

From what I personally saw, the predators included common dolphins, bottlenose dolphins (Tursiops sp.), Cape gannets, Cape cormorants (Phalacrocorax capensis), blacktip, copper, bull (Carcharhinus leucas) and dusky (Carcharhinus obscurus) sharks, Brydeâ??s whales (Balaenoptera edeni) and small tuna (Euthynnus affinis). During this time, humpback whales on their northern migration pass this area, entertaining us with huge breaches and underwater songs. Other sardine run predators, unfortunately absent from this run, include Cape fur seals (Arctocephalus pusillus pusillus), African penguins (Spheniscus demersus) and even orcas (Orcinus orca).

Blacktip sharks in a feeding frenzy.

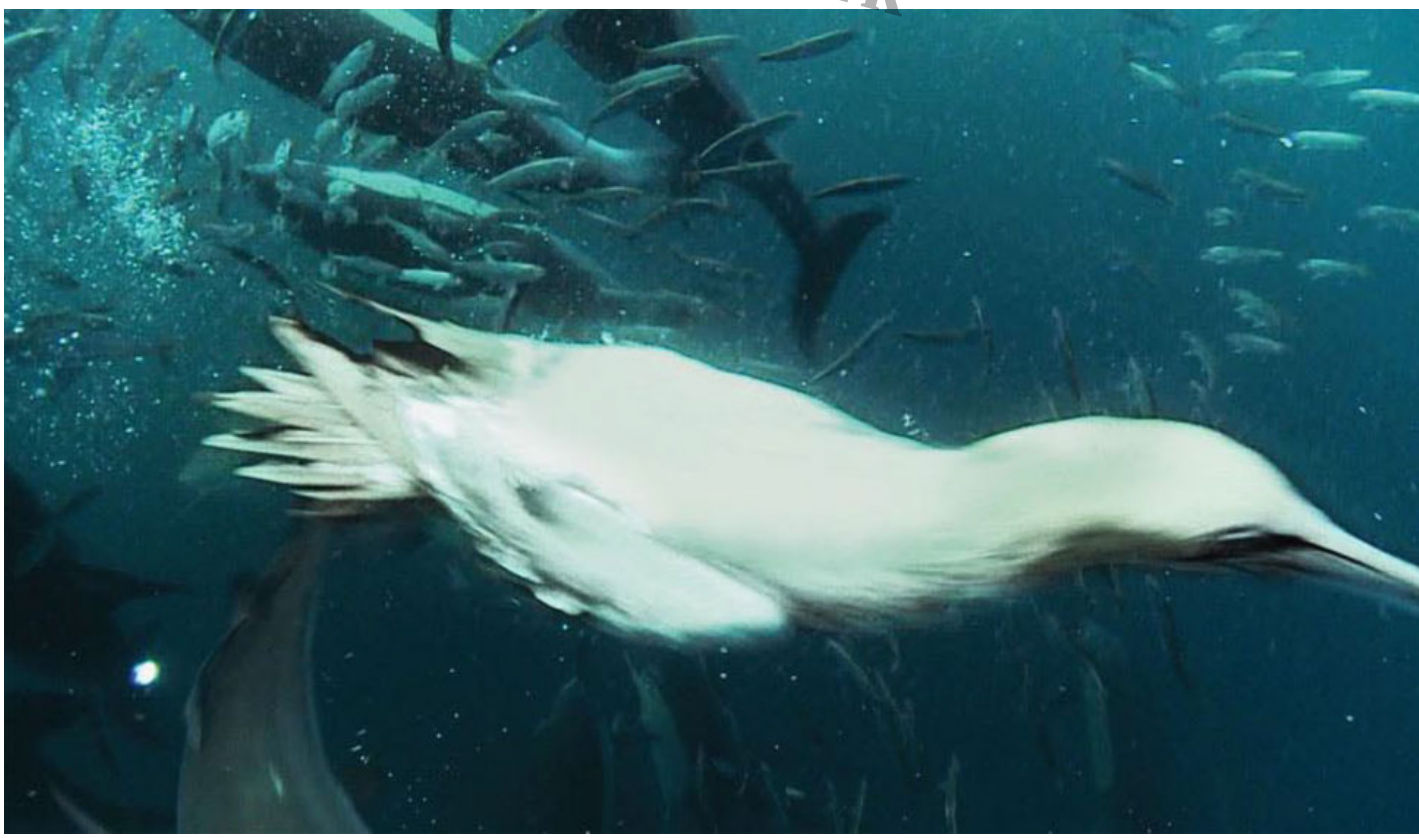
This is a true meeting place of marine animals. It was interesting to observe the different hunting strategies of the gannets and cormorants. Gannets use a combination of a high impact dive and wing action underwater, whereas the cormorants rely on their webbed feet to propel them down from a floating position on the water surface. It seemed to me that the cormorants were the more successful of the two hunters.

Another striking difference in hunting techniques is found between the common and bottlenose dolphins. I have described how the common dolphins do the hard work in creating the shallow water

baitballs. They are sleek, fast and serious predators. By comparison, the bottlenose dolphins are far more relaxed, swimming slowly through the sardines. When not feeding they spend time playing, jumping out of the water and even surfing, so you cannot fault their lifestyle. Without doubt, the Brydeâ??s whales were the highlight of the 2009 Sardine Run.

While I have seen them on previous runs, this time around they were on the majority of baitballs. Whilst normally timid, this time they were lunging past me at high speed, at times so close that the wash from their bodies would push my camera off frame. While not large by whale standards, having a 25-ton animal charge past you, mouth agape, is an unnerving experience. â??Brydeâ?•, pronounced â??broodaâ?•, is named after the Norwegian consul to South Africa, Johan Bryde, who helped set up the first whaling station in Durban in 1908 (closed 1975). These whales are interesting in that the northern hemisphere population feed mostly on krill whereas southern hemisphere Brydeâ??s whales feed on small shoaling fish such as sardines.

â??DOLPHINS DO THE HARD WORK IN CREATING THE SHALLOW WATER BAITBALLS. THEY ARE SLEEK, FAST AND SERIOUS PREDATORSâ?• â?? CHARLES MAXWELL



Cape Gannets can reach a depth of 20m.

Even off the South African coast there is some distinction between offshore and inshore Brydeâ??s whales food preferences â?? to the extent that they may eventually be described as two separate taxa. The last day of the Sardine Run was particularly eventful. The seawater had become very dirty due to

river water that had been pushed to the north by the prevailing current, thereby reducing visibility, however after a slow start we found some action and jumped in.

We found a tiny baitball with every predator competing for a mouthful â?? sharks charging through the fish, snapping at everything, gannets everywhere and dolphins showing huge amounts of enthusiasm. This intense predation was putting fish scales, blood and entrails into the water, contributing to the poor visibility. As the size of the baitball diminished before our eyes, the aggression intensified. Sharks were hitting me hard in the legs and stomach, causing me to nearly lose my camera. In the meantime, my safety diver was fending off sharks that were attacking both of us from all sides.

The dusky sharks were the most aggressive and the largest of the feeding predators. As I tried to fend off a large dusky, my hand was scratched on its razor sharp teeth and when I saw blood streaming from it, I decided to get away from the carnage as quickly as possible. As I swam away from the baitball, I noticed that the dolphins and sharks continued to swim past me in tight formation, while gannets continued to dive close by. I thought this unusual as the predators are normally only this concentrated when close to the action. On turning around, I realised that the sardines were following me, seeking the only refuge in this orgy of feeding.

As we made for the surface, the underwater visibility had deteriorated to only about four metres. On surfacing, I was relieved to see our dive boat close by, so climbed aboard, leaving a rather unimpressive trail of blood in my wake.

I have often marvelled at how one can dive with potentially dangerous sharks and escape largely unscathed. However, I never take nature for granted.

Common dolphins hunt at first light

The Port St Johnâ??s river estuary.

Common dolphins race past a successful gannet.

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Author
kerryn