

Sardine run

Last Updated Wednesday, 29 July 2009

The warm waters of the Indian Ocean, sunny sands and mild winters turn the KwaZulu-Natal coastline into a scene of migration between May and July. Many flock to the welcoming waters and hospitable beaches … and we're not just talking people.

Every year a seething silver mass of sardines travels up the east coast of South Africa, moving north. They leave the cold southern oceans off the Cape and travel up past the Eastern Cape and on to KwaZulu-Natal in huge shoals, commonly known as the sardine run.

The sardine run is a unique and unexplained natural phenomenon of mass migration. The shoals of *Sardinops sagax*, visible on satellite photographs of earth, can stretch for up to 15 km in length, with a width of 3.5 km and a depth of 40 metres. Within the shoals the fish pack close together relying on the principle of safety in numbers for their survival.

The spectacle of millions of tiny red-eyed fish (also known as pilchards) travelling in a tight shoals into the warm sub-tropical waters of the Indian Ocean causes a frenzy among all who come into contact with them. The mere presence of so many sardines attracts a frenetic following of predators - birds, dolphins, sharks, whales and game fish - all diving and darting into the shoals in their hundreds.

Copper, dusky, black-tip, and spinner sharks turn the waters into a foaming frenzy as they gorge themselves. Bottlenose and common dolphins also follow the shoals with great excitement. The dolphins hunt cooperatively, literally herding a group of sardines into a tight ball (called a baitball) and direct them to the surface where they are gobbled by mammals, fish and squadrons of gannets, gulls, terns and cormorants. The Greatest Shoal on Earth

Described as one of the greatest marine spectacles on the planet, the more than 1 000-kilometre run of millions of sardines begins when the water cools with the onset of winter, and a portion of the sardines off the Eastern Cape head north.

In the winter months a cold south to north-flowing current develops just off the eastern shore, moving contrary to the Agulhas current. The massive shoals follow this narrow band of cool water north to Port Edward, swimming up between the coast and warm Agulhas current.

After reaching Port Edward their passage becomes restricted by a continental shelf and the shoals become concentrated in a narrow inshore band of water, virtual lemmings on the way to slaughter at the beak and jaw of waiting predators no longer in need of cunning hunting tactics.

However spectacular the scene of a sea teeming with fish, battling for survival amidst a maelstrom followed by ravenous predators, the seemingly suicidal mass migration is a curiosity for which scientists have yet to find a reasonable explanation. The Mystery Behind the Run

"It is believed that the sardines may be taking advantage of a temporary extension of habitat when the water drops to 20 degrees Celsius or less - this may help sardines move in a north-easterly direction," said Dr Sheldon Dudley from the Natal Sharks Board.

"The great bulk of South African sardines do not undertake the run," said Dudley, explaining that they remained near Port Elizabeth, Cape Town and the West Coast of Africa.

"Most of South African sardines do not come anywhere near KwaZulu-Natal … KwaZulu-Natal does not offer a very suitable habitat. The water is warmer than sardines would choose and there is less food available for them," said Dudley, who admitted that the scientific community was still baffled by the seemingly illogical behaviour of the sardines.

Following a conference in Cape Town last year, various researchers into sardine behaviour are pooling their knowledge in an attempt to understand why the sardines continue to run off the KwaZulu-Natal coast when, on face value, it is not a wise survival strategy, said Dudley.

It is a popular misconception that there are some years when the sardines fail to run. Scientists researching fish eggs off the KwaZulu-Natal coast find sardine eggs every year, obvious evidence that the fish did pass the coastline, even if there was no reported 'run'.

"The sardine run appears to vary in magnitude," said Dudley. "As far as the general public is concerned a good run is when the sardines are visible and come close to shore. However, contrary to popular belief the sardines do run every year. Sometimes the cooler water is either further off shore or at a deeper depth. The sardines are still there - they're just not on the surface and we don't see them." Feeding Frenzy

The arrival of the shimmering shoal is usually heralded by the arrival of large pods of common dolphin, by far the sardines' most prolific predator. It is widely believed that the female dolphins use the arrival of the sardines as a means to wean their young and rebuild their own reserves.

These pods (with up to 5 000 dolphins in a pod and 20 000 dolphins following the shoals) form hunting lines that can stretch for over a kilometre just below the surface. When the shoal is spotted the dolphins force a section of the shoal to the surface and the feeding frenzy begins.

The bubbling turmoil at the surface serves as a cue for marine birds to join in the onslaught, joined by game fish like shad, garrick and geelbek salmon, and the occasional whale, Cape fur seal … and the much maligned shark.

"The Natal Sharks Board closely monitors the movement of the shoals via aerial observation and on the ground," said Debbie Hargreaves, Public Relations Manager for the Natal Sharks Board.

"Shark nets and drumlins are removed ahead of the arrival of the sardines to allow the 'run' to pass the popular bathing beaches unhindered, and to prevent high catch rates," explained Hargreaves.Sardine Spotting

The best spots for sardine spotting are Splash Rocks at Port Edward, nearby Leisure Bay, the walkway between Kidds Beach and Glenmore Beach, the head at Southbroom, the pier at Margate, Lilliecrona Boulevard between Margate and Uvongo, Saint's Walk between Uvongo and St Michaels-on-Sea, Shelly Beach, the lighthouse at Port Shepstone, Ifafa Beach, Rocky Bay, Scottburgh and Warner Beach.

It used to be word of mouth that called us humans out in droves to catch a sight (or even collect a skirt or bucketful) of writhing fish, but today information on the progress of the sardine run is just a phonecall away. The sardine hotline on 082 284 9495 gives regular reports and updates on the shoal's progress up the coast.

The sardine run's progress is closely monitored by anglers, who congregate on the beaches for some excellent game fishing. Commercial fishing of the sardines themselves is done from shore, using beach seine nets.

About 200 000 tonnes of sardines are netted along the Western Cape coast each year and are either canned in that familiar-tasting tomato sauce or ground into fishmeal, depending on the quality of the catch. Up the east coast the annual catch drops progressively from about 10 000 tonnes in the Eastern Cape to several 100 tonnes in KwaZulu-Natal waters.

In some years, certain wind and current conditions force the sardines close to the beach, and people flock to the beaches to gather their catch using baskets, buckets, nets or anything else at hand, competing as garrulously as their seafaring counterparts for their share of sardine spoils. Sardine Facts

- Sardines are small cold water fish that live in large shoals in the surface layers of the ocean.
- Sardines comprise nearly a quarter of the world's fish catch by weight.
- Sardines are commonly found in large shoals on the west coasts of California, South America, Japan, Australia and South Africa.
- Sardines live for two to three years, and grow quickly, reaching 23 cm in length in about two years.
- Sardines are filter feeders, straining plankton from the water as it flows over their gills.
- Some sardines breed in KwaZulu-Natal, but these waters are not ideal for sardines.

This article by Sharon Davis appeared in the September edition of By The Way