

Friends of Penzance B.S.A.C. Conservation Officer's Report April 2013



The world's shark populations are experiencing significant declines with perhaps 100 million—or more — sharks being lost every year, according to a recent study. Sharks have persisted for at least 400 million years and are one of the oldest vertebrate groups on the planet, however these predator are experiencing population declines significant enough to cause global concern. This is a big concern because the loss of sharks can affect the wider ecosystem. Without these predators around it causes cascading changes in the ecosystem, that trickle all the way down to marine plants. Such changes can harm other species and may negatively affect commercial fisheries. Data from the latest study, shark deaths were estimated at 100 million in 2000 and 97 million in 2010. The biggest culprit in the significant population decline is a combination of a global boom in shark fishing—usually for their valuable fins — and the relatively slow growth and reproductive rates of sharks. Sharks are like whales and humans, in that they mature late in life and have few offspring and there is little question that they are being caught faster than they can reproduce.



The discovery that sea urchins use nickel particles to harness carbon dioxide from the sea, could be the key to capturing tons of carbon dioxide from the atmosphere. Experts at Newcastle University have discovered that in the presence of a Nickel catalyst CO₂ can be converted rapidly and cheaply into a harmless, solid material, calcium carbonate. This discovery has the potential to revolutionise the way we capture and store carbon, enabling us to significantly reduce CO₂ emissions. The University experts had set out to understand in detail the carbonic acid reaction—which is what happens when CO₂ reacts with water—and needed a catalyst to speed up the process. At the same time they were looking at how organisms absorb CO₂ into their skeletons and in particular the sea urchin which converts the CO₂ to calcium carbonate. When they analysed the surface of the urchin larvae they found high concentrations of nickel on their exoskeletons. Taking nickel nanoparticles which have a large surface area the experts added them to their carbonic acid tests and the result was the complete removal of CO₂. At the moment the proposed removal of CO₂ is by pumping into holes deep underground, but this is a costly and difficult process and carries with it a long term



risk of the gas leaking back out, possibly many miles away from the original downward source. Scientists have confirmed that the discovery of the first ever two-headed Bull Shark, found in the Gulf of Mexico was a single shark with two heads rather than conjoined twins. There have been other species of sharks, such as blue sharks and tope, born with two heads, but this is the first record of dicephalia in a bull shark. There were 8 reported sightings of Bottlenose Dolphins during March, one of which was rather disturbing. On 19th of the month a pod of about 6 or 7 was watched being very active at Trebarwith Strand, north Cornwall, first thought to be playing, but then seen to be chasing a smaller cetacean, a Harbour Porpoise, and attacking it. It was tossed into the air several times and thought to have been killed. There were 2 sightings of Common Dolphins, and 4 other sightings of Harbour Porpoises. Four Pilot Whales were seen off Botallack on the 14th and 4 whales, thought to be Minke were seen off Watergate Bay on the 21st. These had a forward pointing spout so could not have been Pilot Whales

