

Penzance B.S.A.C. Conservation Officer's Report

April 2012

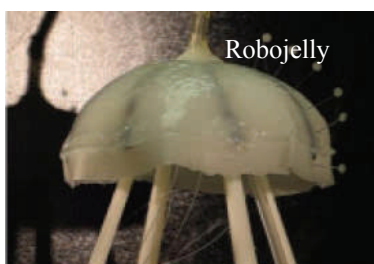


Cheaper, quieter and fuel-efficient biplanes could put supersonic travel on the horizon. For 27 years Concorde provided its passengers with a rare luxury, time saved. For a pricey fare, the sleek supersonic jet ferried its ticketholders from New York to Paris in a mere three-and-a-half hours, just enough time for a nap and an aperitif. Over the years, expensive tickets, high fuel costs, limited seating and noise disruption from the jet's sonic boom slowed interest and ticket sales. On Nov 26th 2003 the Concorde, and commercial supersonic travel retired from service. Since then a number of groups have been working on designs for the next generation of supersonic jets. Researchers at a Group called MIT have come up with a concept that may solve many problems that grounded The Concorde. They say the solution, in principle, is simple: instead of flying with one wing, why not use two, and have shown through a computer model that a modified biplane can, in fact, produce sufficiently less drag than a conventional single-winged aircraft at supersonic speeds. The decreased drag means the plane would require less fuel to fly and would also produce less of a sonic boom. The Sonic Booms were so annoying that Concorde was now allowed to fly supersonic overland.



Artists impression of new biplane

Researchers have created a robotic jellyfish, named Robojelly, which not only exhibits characteristics ideal to use in underwater search and rescue operations, but could, theoretically at least, never run out of energy thanks to it being fuelled by hydrogen. Robojelly is able to mimic the natural movements of a jellyfish when placed in water and is powered by chemical reactions taking place on its surface. The jellyfish is an ideal invertebrate to base the vehicle on due to its simple swimming action: it has two prominent mechanisms known as "rowing" and "jetting". Its movement is down to circular muscles located on the inside of the bell—the main part of the body shaped like the top of an umbrella. As the muscles contract the bell closes in on itself and ejects water to propel the jellyfish forward. After contracting the bell relaxes and regains its original shape. This was replicated in the vehicle using commercially-available shape memory alloys (SMA) - smart materials that remember their original shape, and coated with a platinum black powder. The robot is powered by heat-producing chemical reactions between the oxygen and



Robojelly

hydrogen in water and the platinum on its surface. The heat given off by these reactions is transferred to the artificial muscles of the robot, causing them to transform into different shapes. This green, renewable element means Robojelly can regenerate fuel from its natural surroundings and therefore doesn't require an external power source or the constant replacement of batteries. Researchers are now developing new ways to deliver the fuel into each segment so that each one can be controlled individually. This would allow the robot to be controlled and moved in different directions.

Scientists conducting deep-sea research in the Galapagos have found a new species of catshark. *Bythaelurus giddingsi*. The new shark is about a foot long and has a chocolate-brown colouration with pale, irregularly distributed spots on its body. The spotted patterns appear to be unique to each individual. The scientists collected the first specimens of this new catshark while diving to depths of 1,400 to 1,900 feet aboard the Johnson Sea-link submersible.



Bythaelurus giddingsi

There were 4 reported sightings of Bottlenose Dolphins during March. Pods of 8 and 2 off Gwennap Head and pods of 4 and 2 off Porthgwarra on different days. Harbour Porpoises were also reported 4 times, a pair seen at Gwennap Head, Logan Rock and Porthgwarra on different days and 8 seen well spread out off Gwennap Head on the 1st of the month. The first Basking Shark of the year was seen off Porthmeor Beach St Ives on the 19th, and a Grey Seal was seen off Nanjizal on the 8th.