

# Penzance B.S.A.C. Conservation Officer's Report January 2012



Beaky



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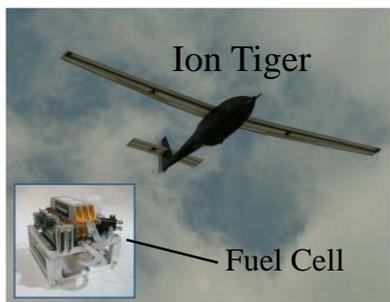
Nitrogen from human activity has been polluting lakes in the northern hemisphere since the late 19th century. The clear signs of industrialisation can be found even in very remote lakes, thousands of kilometres from the nearest city. Research is on studies of sediment from 36 lakes in the USA, Canada, Greenland and Svalbard, Norway. Both the species composition and production of diatoms, microscopic siliceous algae, have changed dramatically in the lakes of Svalbard since the start of the 20th century, with the most significant changes over the past decades. Combustion of fossil fuels and use of fertilisers are the main sources of the increasing amount of nitrogen which is transported with air currents for thousands of kilometres and reaches the ground in rain or snow. Nitrogen is an important nutrient for plants, but overuse in more intensive farming can lead to pollution of watercourses, smog and acid rain in urban environments. However little is known about the effects in the more remote areas, but an increasing number of studies in Arctic lakes are now showing major changes in the ecosystem.



Svalbard

A hydrogen-powered fuel cell unmanned air vehicle (UAV), called Ion Tiger, developed by The Naval Research Laboratory, has set an unofficial flight endurance record for a fuel-cell powered flight of 23 hours 17 minutes. The electric fuel cell propulsion system onboard the Ion Tiger has the low noise and signature of a battery powered UAV, while taking advantage of hydrogen, a high-energy fuel. Fuel cells create an electrical current when they convert hydrogen and oxygen into water, with only water and heat as

byproducts. The 550 watt (0.75 horsepower) fuel cell onboard the Ion Tiger has about 4 times the efficiency of a comparable internal combustion engine and the system provides 7 times the energy in the equivalent weight of batteries. The Ion Tiger weighs approximately 37 pounds and carries a 4 to 5 pound payload. Small UAVs are growing in importance for naval missions, as they provide capabilities ranging from surveillance collection to communication links. It is now possible to do long endurance missions with the Ion Tiger thus allowing a large cruise range and reducing the number of daily launches and landings, while saving time and effort on the part of the Naval Crew.



Ion Tiger

Fuel Cell

A 50 million year old skull reveals that huge birds with a five metre wingspan once skimmed across the waters that covered what is now London, Essex., and north Kent. These giant ocean-going relatives of ducks and geese had a rather bizarre attribute for a bird: their beaks were lined with bony teeth. The pantomime season may be over, but this new fossil from the Isle of Sheppey is giving 'Mother Goose' an entirely new meaning. The skull belongs to *Dasornis*, a bony-toothed bird, or pelagornithid, and was discovered in the London Clay, which lies under much of London, Essex and north Kent. With a 5 metre wingspan, these huge birds were similar to Albatross in their way of life. Albatross have the largest wingspan of any living bird, but that of *Dasornis* was over a metre and a half greater. The strange thing about them was that they had sharp tooth-like projections along the cutting edges of the beak. This may have been linked to its diet. for *Dasornis* probably skimmed across the surface of the sea, snapping up fish and squid on the wing. With only an ordinary beak these would have been difficult to keep hold of, and the pseudo-teeth probably evolved to prevent meals slipping away.



There were very few sightings of marine creatures during December, and these were all from around West Penwith from Carbis Bay to the Minack, and what's more all from one dedicated watcher except for one report, of Bottlenose Dolphin, off St Ives. There were pods of 35 to 45 Common Dolphins on the 1st of the month at The Runnelstone and another pod of 20 to 30, with juveniles at the Runnelstone on the 2nd. All the other 9 sightings were of single or small groups of Harbour Porpoises.