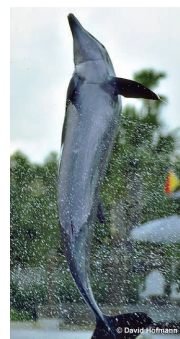


# Penzance B.S.A.C.

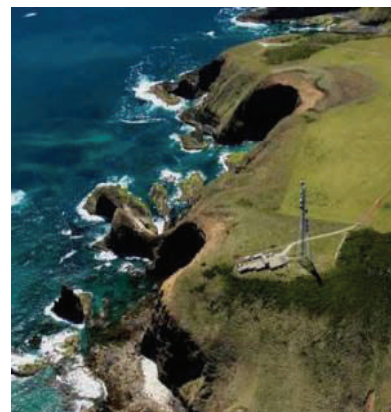
## Conservation Officer's Report

### June 2012



Research Chemists have found a smoking gun proving that increased use of fertilizer over the past 50 years is responsible for a dramatic rise in atmospheric nitrous oxide, N<sub>2</sub>O, which is a major greenhouse gas contributing to global climate change. Since 1750, nitrous oxide levels have risen 20% - from below 270 parts per billion (ppb) to more than 320 ppb. It is a most potent greenhouse gas, trapping heat and contributing to global warming. It also destroys stratospheric ozone, which protects the planet from harmful ultraviolet rays. N<sub>2</sub>O has 300 times the climate change effect of CO<sub>2</sub> and Methane CH<sub>4</sub> has 21 times the effect.

The picture shows The Cape Grim Baseline Air Pollution Station in Tasmania, where air samples have been collected since 1978. these samples show a long-term trend in isotopic composition that confirms that nitrogen based fertilizer is largely responsible for the 20% increase in atmospheric nitrous oxide since the Industrial revolution



A group of Chinese and Australian scientists have developed a handheld battery powered plasma-producing device that can rid skin of bacteria in an instant. The device could be used in ambulance emergency calls, natural disaster sites, military combat operations and many other instances where treatment is required in remote locations. The plasma flashlight is driven by a 12 volt battery and doesn't require any external generator or wall power; it also doesn't require any external gas feed or handling system. In experiments, the plasma flashlight effectively inactivated a thick biofilm of one of the most antibiotic – and heat resistant bacteria



*Enterococcus faecalis*. The biofilms were created by incubating the bacteria for 7 days. The biofilms were around 25 micrometres thick and consisted of 17 different layers of bacteria. Each one was treated for 5 minutes with the plasma flashlight and then analysed to see how much of the bacteria survived. Results showed that the plasma not only inactivated the top layers of cells, but also penetrated deep into the bottom of the layers to kill the bacteria. Some bacteria form thick biofilms, which make them enormously resistant against inactivation, which is extremely difficult to implement. High temperatures are commonly used but they would obviously burn the skin. In the plasma flashlight experiment they chose an extreme

example to demonstrate that it can be very effective even at room temperature. For individual bacteria, the inactivation time could be just tens of seconds.

Scientists have made what they believe to be the first sighting of an adult white orca, or killer whale. The adult male, which they have named Iceberg, was spotted off the coast of Kamchatka in eastern Russia. It appeared to be healthy and living a normal life in it's pod. White whale of various species are occasionally seen, but the only known white orcas have been young, including one with a rare genetic condition that died in a Canadian aquarium in 1972.



There were 4 reports of Bottlenose Dolphins during May, largest pod, 20 off The Lizard.. Two reports of Common Dolphins were off the south coast with the largest pod again off The Lizard, a pod of 70 to 100. Two sightings of Rissos Dolphins were of a pod of 5 off the south Penwith coast and a single off Perranporth. Nine sightings of Harbour Porpoises were all from Mounts Bay west to Gwennap Head. There were 18 reports of Basking Sharks from The Brisons around the south coast as far east as Portwrinkle , all single animals except a pair off the Brisons on the 20th. The first Ocean Sunfish arrived, with a pair seen in Mounts Bay on the last of the month. A 6ft Porbeagle Shark was caught and released by boat anglers off Boscastle on the 30th