RESEARCH HIGHLIGHTS

BIOLOGY

Sniffer sharks

Curr. Biol. doi:10.1016/j.cub.2010.04.053 (2010)

Do sharks track their prey by steering in the direction of the nostril that sniffed the stronger prey odour?

To find out, Jayne Gardiner at the University of South Florida in Tampa and Jelle Atema of Boston University in Massachusetts fitted eight smooth dogfish (*Mustelus canis*) with headgear that delivered squid odour to each nostril. When they presented greatly diluted odour to one nostril half a second before delivering full-strength scent to the other, the animals turned towards the side receiving the first, albeit weaker, stimulus, suggesting that timing trumps concentration differences.

This makes sense, as odour concentration gradients are not smooth, but chaotic plumes of uneven concentration. **J.F.**

For a longer story on this research, see go.nature.com/Z5bGmT

K. ZABARSKY, BOSTON UNIV.

ECOLOGY

Rise of the sources

Phil. Trans. R. Soc. B doi:10.1098/rstb.2010.0038 (2010)

Ecosystems can be said to have a 'metabolism' because their constituent organisms suck in carbon dioxide for use during photosynthesis and release CO_2 by respiration. 'Sink' ecosystems take in more CO_2 than they emit, whereas 'source' ecosystems do the opposite — and climate change is predicted to alter the balance between them.

Gabriel Yvon-Durocher at the Queen Mary University of London, Jose Montoya at the Institute of Marine Sciences in Barcelona, Spain, and their colleagues have developed a theoretical model of the effects of warming on ecosystem metabolism. They tested the model in 20 artificial pond ecosystems, some of which were warmed to simulate climate change, and found that the warmed ponds absorbed less CO_2. Using only a few parameters — the energy needed to photosynthesize or respire and the temperature increase — the team predicted future metabolic balances. In a hotter world, they report, sinks tend to become sources. **E.M.**

MICROBIOLOGY

A strain on the relationship

Proc. Natl Acad. Sci. USA doi:10.1073/pnas.1001261107 (2010)

Resident gut bacteria may contribute to the development of colon cancer.

In 2006, a research team in Europe noticed that certain strains of *Escherichia coli* commonly found in the gut can infect mammalian cells and induce DNA double-strand breaks. These strains harbour a specific genetic sequence called *pks*. Now, group-member Jean-Philippe Nougayrède at the French National Institute for Agricultural Research in Toulouse and his colleagues show that when these strains damage DNA in mouse colon cells, the damage, and the transient cellular response to it, is followed by aberrant cell divisions similar to those that lead to tumours.

The authors suggest that these bacterial strains may be the cause of some sporadic colon cancers. **B.M.**

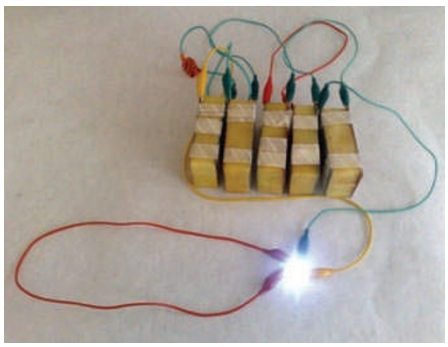
CHEMISTRY

Potent potato power

J. Renew. Sustain. Energy **2,** 033103 (2010)

Schoolchildren are routinely shown how to convert potatoes into makeshift batteries using copper and zinc electrodes. Haim Rabinowitch at the Hebrew University of Jerusalem in Israel and his colleagues now report a way to rev up the power output: by boiling the potatoes first.

Boiled or electroporated *Solanum tuberosum* produced a voltage up to ten times higher than raw potatoes. The authors calculate that energy production from these potatoes is five- to fiftyfold cheaper than commonly used batteries and can produce light, through LEDs (light-emitting diodes, pictured), more cheaply than kerosene lamps.



A. GOLBERG, HEBREW UNIV. JERUSALEM

Potatoes could thus provide an inexpensive way to power low-energy appliances.

The authors suggest that rupturing tissue membranes by boiling or electroporation alters the properties of the tissue sandwiched between the electrodes such that it enhances the energy-generating capabilities of the biological power cell. **D.C.**

ECOLOGY

A watery grave

Integr. Zool. **5,** 143–153 (2010)

Wetter conditions but not warmer ones hasten the demise of Panamanian golden frogs infected with a pathogenic fungus.

Cynthia Carey and her team at the University of Colorado in Boulder investigated whether climate change is contributing to declines in amphibian numbers because higher temperatures stimulate the growth of the pathogenic fungus *Batrachochytrium dendrobatidis*.

On the contrary, the group found that infected golden frogs (*Atelopus zeteki*) survived around 4 days longer at a higher experimental temperature of 23 °C compared with 17 °C. In addition, frogs lived for up to 25 days longer in dryer conditions. But the authors warn against extrapolating the results to other species, and note that all infected frogs died eventually. **N.G.**

EXTRASOLAR PLANETS

Planets form quickly

Science doi:10.1126/science.1187187 (2010)

In November 2003, Anne-Marie Lagrange at the Astrophysical Laboratory of Grenoble in France and her colleagues spotted a faint object just to the north-east of the young star β Pictoris. At the time, they were unsure