MARINE ECOLOGY

Blue whales bounce back

A population of blue whales has reached pre-whaling levels and is no longer endangered.

Cole Monnahan at the University of Washington in Seattle and his colleagues modelled a population of blue whales (*Balaenoptera musculus*) in the eastern North Pacific along with the number of ships and their collisions with the mammals between 1905 and 2050. They found that whale numbers in this region were at their lowest in 1931 and have since increased to about 2,200 — nearly the maximum population size that the ecosystem can sustain.

The team also estimates that ship strikes are unlikely to threaten the population in the near future, but says that collision numbers are currently above legal US levels.

Mar. Mammal Sci. **http://doi.org/vh8 (2014)**

MICROBIOLOGY AND IMMUNOLOGY

Early diet shapes gut flora

Breast- and bottle-fed monkeys develop distinct immune systems and communities of gut microbes.

Populations of gut flora vary among adult primates, but little is known about what drives these differences. Dennis Hartigan-O'Connor of the University of California, Davis, and his colleagues found that breast-fed rhesus macaques (*Macaca mulatta*) reared by their mothers had different gut flora from bottle-fed macaques raised in a nursery.

Breast-fed infants also developed a larger population of immune-system cells called T_H17 cells, which are important mediators of anti-pathogen responses. These differences persisted for six months after the infants began receiving identical diets.

Some metabolites, including arachidonic acid, in the macaques' stool correlated with these differences, suggesting that these compounds could be mediating the effects on gut flora and the immune system.

Sci. Transl. Med. **6, 252ra120 (2014)**

NEUROSCIENCE

Music training aids speech processing

The more music training children receive, the better their brains become at distinguishing between similar speech sounds.

Nina Kraus at Northwestern University in Evanston, Illinois, and her colleagues studied children aged six to nine years from low-income neighbourhoods in Los Angeles, California, who took part in an after-school programme of musical instruction. The authors found that children who were in the programme for two years had faster and more-sensitive brainwave responses to syllables such as 'ba' and 'ga' than those who had been enrolled in the class for only a year.

This kind of speech processing is important for reading and language skills, the authors say, adding that music training could improve brain function in children.

J. Neuro. **34, 11913–11918 (2014)**

BIOFUELS

Bacteria generate propane gas

Genetically engineered bacteria could one day be harnessed to make renewable propane fuel.

Patrik Jones at Imperial College London, Kalim Akhtar at University College London and their colleagues introduced genes for various enzymes from different species of bacteria into *Escherichia coli*, so that the microbe could convert glucose into propane gas. With genetic tinkering and by increasing the levels of oxygen to which the engineered bacterium was exposed, the team boosted propane production by two orders of magnitude.

Propane is an ideal biofuel because as a gas, it can be separated from the cultivation medium and easily liquefied for efficient storage, the authors say.

Nature Commun. **5, 4731 (2014)**

SOCIAL SELECTION

Popular articles on social media

The language of deception

A *PLoS ONE* paper on language patterns in fraudulent papers has sparked social-media speculation about new ways to spot dishonest work. Researchers at Cornell University in Ithaca, New York, took advantage of a singular resource to study the linguistics of fraud: the collected works of Diederik Stapel, a Dutch social psychologist who confessed to faking data in many of his papers. The Cornell team analysed papers that had been deemed fraudulent by three investigative committees, and compared them with his genuine publications. They found that the falsified papers had a linguistic signature. Among other things, they tended to have fewer qualifying words (such as 'possibly') and more amplifying words such as 'extremely'. "Lucky he had enough false papers for analysis!" tweeted Grace Lindsay, a neuroscience graduate student at Columbia University in New York City.

PLoS ONE **9, e105937 (2014)**

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ZOOLOGY

Archer fish show how to sharpshoot

Archer fish can control the water jets they shoot from their mouths to nab prey from a variety of distances.

Peggy Gerullis and Stefan Schuster at the University of Bayreuth in Germany trained the fish (*Toxotes jaculatrix*; **pictured**) to fire at specific targets from defined locations. They then used a high-speed camera to film the animals as they shot at targets of different heights. They found that the fish adjusted the jets of water so that they were most focused and forceful just before reaching the target. For a target 60 centimetres above the water, the fish produced a jet that remained stable over a longer period of time — by opening its mouth more gradually — than when aiming for a target 20 cm above the water.

This ability is analogous to throwing in humans and could similarly have contributed to the evolution of cognitive skills in the fish, the authors say.

Curr. Biol. **http://dx.doi.org/10.1016/j.cub.2014.07.059 (2014)**

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