

### Fish stew

SIR – Your special report on the sea (January 3rd) outlined the escalating problems caused by overfishing. But simply improving the allocation of quotas, as you urge, amounts to rearranging the deck chairs on the *Titanic*. Marine protected-areas can't work if habitats have lost the capacity to provide fish with food and shelter. Long-term solutions lie in tackling global warming, rising sea levels, pollution and overharvesting; in the short term we can nurse back devastated ecosystems into economically productive habitats. In Indonesia, for instance, 95% of the coral reefs have ecologically collapsed.

With the help of Indonesian community-based groups we are using low-voltage electricity to develop solid limestone reefs that reverse acidification in the surrounding sea. Those reefs attract huge numbers of juvenile fish and brightly coloured corals quickly grow back in devastated areas where no natural

recovery has taken place, restoring fisheries and creating valuable ecotourism.

Subsistence fishermen in developing countries know they are destroying their children's future. They would gladly adopt more productive and less destructive techniques, but lack the training, technology and investment that are given freely to industrial fishing fleets.

THOMAS GOREAU  
President  
Global Coral Reef Alliance  
Cambridge, Massachusetts

SIR – You believe that it is inefficient to harvest fish that must themselves be fed because “it takes at least three kilos of fish meal to add one kilo to the weight of a farmed salmon.” Actually, salmon convert their feed very efficiently and it takes only 1.2 kilos of feed to produce one kilo of salmon. I think your error crept in because producing one kilo of fish meal (which makes up just a third of salmon feed) takes 4.5 kilos of fish by-products. Around 25%

of the world's fish meal comes from by-products such as fish guts, heads and tails. The other 75% comes from whole small, bony fishes, such as anchovy and menhaden, that do not make for good eating. It is important that these are cropped sustainably, but given the correct control measures, the conversion of 1.5 kilos of small undesirable fish into one kilo of highly valued salmon is a fair trade-off.

ANDREW JACKSON  
Technical director  
International Fishmeal and Fish Oil Organisation  
St Albans, Hertfordshire

SIR – Greenland's ice sheet has an average depth of three kilometres, lies mostly undisturbed, and predates climatic periods much warmer than the present. Therefore, your assertion that its ice sheet, “is on course to melt completely” makes about as much sense as the belief, common until very recently, that property prices would rise indefinitely.

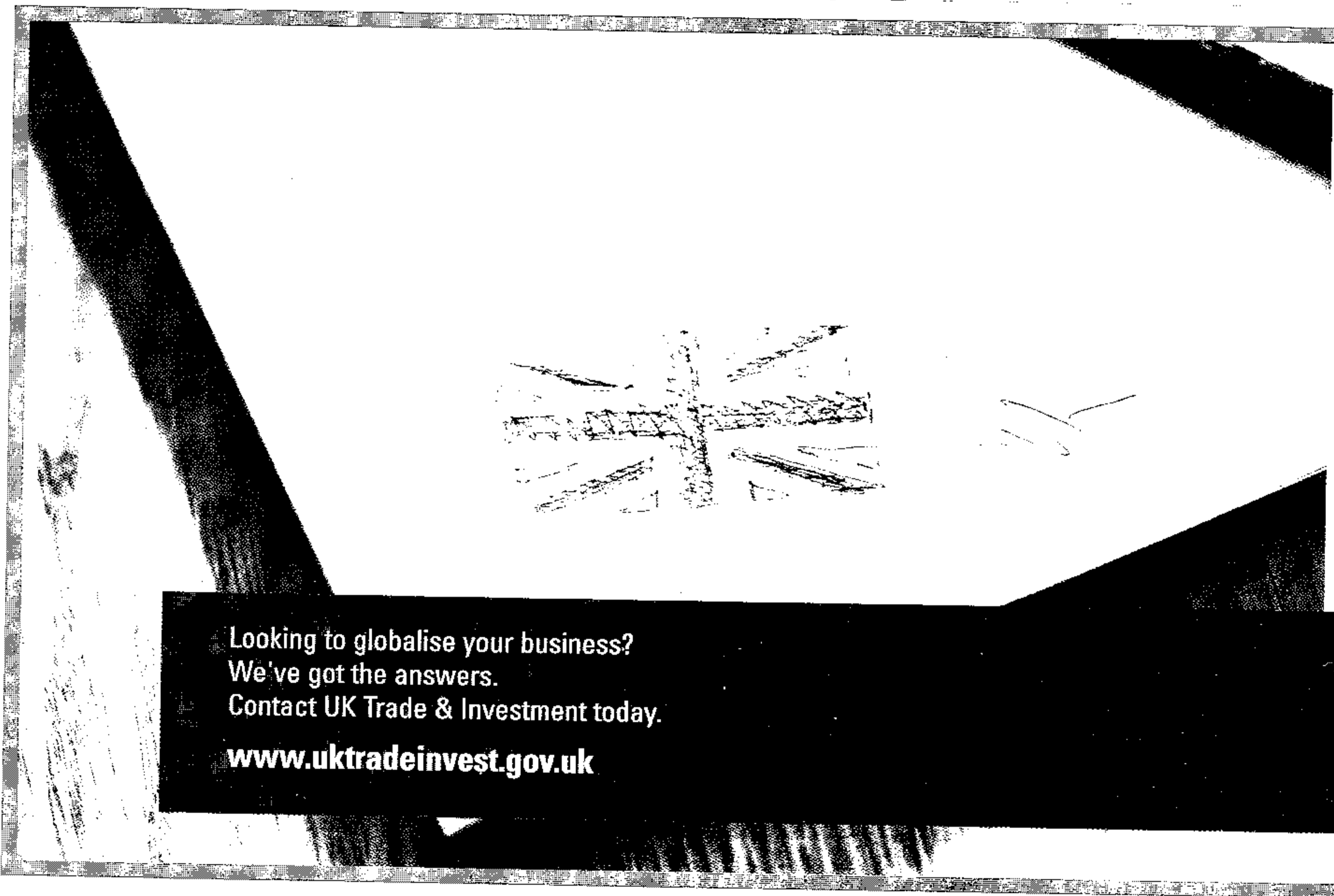
ROBIN GLASS  
Oak Bay, Canada

SIR – You quoted a nautical John Kennedy at the start of your report: “All of us have in our veins the exact same percentage of salt in our blood that exists in the ocean.” In fact, the salt concentration of seawater is about 3.48% and in blood the value is roughly 0.98%. Most fish (but perhaps not sharks and rays) are thought to have evolved in freshwater. It's a nice image, but the science is wanting.

JAMES GOULD  
Professor  
Ecology and evolutionary biology  
Princeton University  
Princeton, New Jersey

### Science and evolution

SIR – I noticed that the line of reasoning in *The Economist's* take on evolution has not got any better (“Why we are, as we are”, December 20th). Everything is ex-post reasoning: we can run fast, detect cheating, kill our stepchildren, because...and here you simply insert anything from the days of being a member of a small, >>



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