

Superfoods for Your Skin

Star ingredients from your grocery store are becoming key components in facial products. But is it science or hype? *By Aja Mangum*

Eating a well-balanced, nutritious diet is important for overall health and great for our complexions. But can people who slack off at the table still reap the skin benefits of foods' antioxidants and essential fatty acids by slathering them on their faces? Shoppers and beauty brands seem to think so.

Kale, blueberries, and spinach have become common ingredients in facial products—part of the “clean” and natural beauty movements that continue to gather steam.

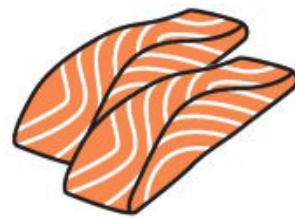
“As consumers reexamine a more holistic approach to beauty, they discover parallels that exist between beauty, nutrition, and wellness,” says Tara Lewis, Yelp Inc.’s trend expert. “The properties of superfoods typically align with many key skin-care staples, from antioxidants to vitamin C.”

In a March 2021 trend prediction report, Whole Foods Market Inc. dubbed the category “juiced-up” skin care. And a new group of entrepreneurs is running into the space with straightforward ideas. Byroe founder Amy Roe was inspired to launch her food-focused beauty line after noticing her Columbia Business School peers grabbing salads for lunch.

“They were quick, easy, and nutritious,” she says. And I thought to myself, ‘Why can’t we apply that same level of nutrition to our skin care routines?’” Her Salmon cream (\$125) aims to brighten, soften, and firm skin using the omega-3 fatty acids and proteins found in salmon caviar extract, egg yolk, and niacinamide. The line also features a Tofu gel cream (\$85), Tomato serum (\$150), and Bell Pepper serum (\$110). It’s a salad indeed.

Pholk Beauty’s Perk Up EyeNectar (\$34) uses linoleic and oleic acids found in okra seed oil to hydrate the eye area. Noonie’s Black superfood face mask (\$18) combines soybean, rice, and sesame extracts to help draw impurities from skin.

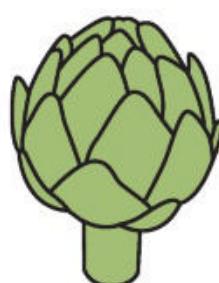
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Brightens and evens tone



OKRA
Hydrates eye area



ARTICHOKE
Protects against damage



BELL PEPPER
Combats photoaging



RICE
Fights aging

There’s a big difference between eating a superfood and smearing it on your face, however. “Mixing these superfoods in a blender [to eat] and putting them into skin care is not the same, as the skin cannot readily extract the key active ingredients from these foods,” says board-certified dermatologist Anthony Rossi, who’s bringing out a clean, clinical skin-care line, Dr. Rossi Derm MD, in March. Formulation is key to help deliver star ingredients. “Certain plant botanicals and peptides can be extracted or synthesized from these and made soluble for skin preparations,” he says.

Orvos Skin Science founder Rob Schwarcz, an oculofacial plastic surgeon, believes there’s potential in these nutritional treatments, but only under certain conditions. “If these products have truly high-intensity extracts of the plant-based products in a really high-end forum, they can be incredible for your skin,” he says.

To avoid falling for a trendy catchphrase, Schwarcz advises consumers to read labels. Ingredients are listed from highest to lowest concentration; if avocado is the hero ingredient, but listed at the bottom, its benefits will be minimal at best.

Schwarcz notes that all this superfood marketing jargon has jump-started research. For example, *Molecules*, a peer-reviewed chemistry journal, in 2018 published an Italian study that found artichoke extract contained polyphenols that may act as an anti-inflammatory, protecting against oxidative damage.

“Skin-care brands jump on the superfood trends because the marketing is done for them through the food industry,” says New York dermatologist Shereene Idriss. “People latch on because they’re chic, they’re of the day, people know about them.”

But Idriss, the creator of the #Pillowtalkderm series on Instagram, is waiting for more data to be released. “I think there is going to be merit to a lot of these superfoods having certain benefits to your skin that are going to be exposed down the road, through studies,” she says. But “the merit has yet to be proven.”

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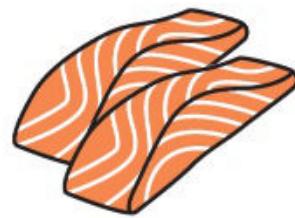
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The Innovator's Dilemma

Management author and guru Seth Godin on how to fearlessly embrace creativity

WE'D ALL LIKE TO INJECT MORE creativity into our work—the chance to stretch, learn new things and expand our skill sets. But too often, we hold ourselves back: What if it doesn't work? What if no one listens? Or cares?

But Seth Godin, author of *The Practice: Shipping Creative Work*, says, "The best way forward is to forget about winning in the short run." Instead, he believes we should con-

centrate on learning from what our audience tells us. That's how we can innovate and create something useful and meaningful.

In a recent interview as part of my weekly *Newsweek* show BETTER (Thursdays 12 p.m. ET/9 a.m. PT), I asked Godin to talk about how professionals can tap into creativity to enhance their work—

Photo: Getty

and the difference they make for others. Here are four strategies he shared.

Don't Wait to "Get Picked"

Many professionals who want to start a new initiative—for instance, launching a blog or a podcast, or creating a new service—hesitate to take the first step. But Godin reminds us that this is a trap we mustn't fall into when starting out. "Every podcast begins with no listeners," he says. "Every blog begins with no readers. You don't wait until you get picked. You don't wait until you get a guarantee. You simply begin." Godin says not to worry if the going is slow at first. "We don't need the biggest possible audience," says Godin. If you're speaking to the right people—who understand and value your message—it doesn't need to be a large number at first.

Build a Streak

Inherent in the art of creation is the power of consistency. Getting in the "habit" of creating—whether it's writing a weekly e-newsletter or giving speeches regularly as part of Toastmasters—helps you hone your craft and shake off performance anxiety. "That's how you become who you seek to become," says Godin. "You're not a runner because the New York Road Runners picked you. You're a runner because you go running every day."

Small practices, compounded over time, can be crucial in leading you to the destination you want—a point I expound on in my new book *The Long Game*. These long strings of consistent actions are what Godin calls "streaks," and he's vehement about the fact that streaks are something we actively choose and maintain, not a series of coincidences. Godin himself has kept up a streak of writing a blog post every day for more than a decade.

GETTY

His writing streak has become second nature. "Tomorrow morning, there's going to be a blog post from me, and it won't be there because it's the best blog post I ever wrote," he explains. "It will be there because it's tomorrow."

It Might Not Work—and That's OK

Trying something new is inherently risky; we have no idea if we'll fail or succeed. While it might be hard to stomach at first, this mantra is a crucial one to accept in any creative undertaking. As Godin says: "This might not work." He reminds us that the modern world is built on industrialism, an obsession with results and a general belief that "if it's not going to work, it's not worth doing." But that sort of thinking is detrimental to creative pursuits, Godin explains. "By definition, work that is creative might not work. That's what makes it creative work."

So how do you move forward, despite the possibility of falling short? Godin recommends going all in with your eyes wide open. "If you can tell yourself, 'I'm doing this with a practice, with a spirit of generosity, understanding the genre, having looked at what has come before, and it still might not work, but I'm going to do it anyway,' now you're onto something."

Recognize That Creation Is an Act of Generosity

We'd all love our ideas and efforts to be applauded out of the gate. But frequently, they're not. Godin says we need to keep going anyway, because creation is an act of generosity. "Generous doesn't mean free," he says. "And generous doesn't mean trading favors. And generous doesn't mean you have to give it away. Generous is the emotional labor we do to help

somebody get to where they ultimately are glad they got."

If you're working hard to help others—whether it's volunteering to share your knowledge at a company lunch-and-learn, or leading a virtual workshop or launching a company newsletter—you may not be recognized by the masses. But if you can stay focused on doing the work and serving your audience—

"Every blog begins with no readers. You don't wait until you get picked. You don't wait until you get a guarantee. You simply begin."

even if it's very small at first—you're doing the world a service by sharing your ideas.

Trying something new and injecting creativity into your work may feel risky—and indeed, it might not succeed. But that doesn't mean you should stop trying. When you put in the work, you can invigorate your own career, stave off the professional ruts that can ensnare many talented professionals and help others in the process.

→ **Dorie Clark**, author of *ENTREPRENEURIAL YOU* and Duke University Fuqua School of Business professor, hosts NEWSWEEK's weekly interview series, BETTER, on Thursdays at 12 p.m. ET/9 a.m. PT at newsweek.com/linkedinlive. Sign up for updates at dorieclark.com.



► to kill minorities, but they do incite hatred. Yogi Adityanath, the Hindu-nationalist chief minister of Uttar Pradesh, India's biggest state, declared that the vote was about the 80% against the 20%—that is, Hindus against Muslims.

Some pundits fear the BJP is resorting to divisive rhetoric because it can no longer rely on divisive promises, such as stripping the Muslim-majority former state of Jammu and Kashmir of its special status and starting work on a temple where a mosque once stood in the holy city of Ayodhya. Having honoured those commitments, it needs something new. And with the economy battered by the pandemic, a hostile China poking at the border and slim prospects for the millions who join the labour force every year, it is succumbing to its worst instincts.

The Indian government should realise that by pumping up the ridiculous notion that India's 300m or so non-Hindus represent a threat to the 1.1bn majority, it is unleashing forces that

may become uncontrollable. Sectarian bloodshed can generate a momentum of its own. India has suffered enough in the past for the risks to be obvious: hundreds of thousands died during its post-colonial partition, possibly more. Subsequent decades have seen episodic pogroms. But until recently, although rogue politicians often stirred up hatred for electoral advantage, the secular state mostly acted as a restraint. No longer.

The West, distracted by Russia and China, has paid little attention. Yet a stable, democratic India would be a counterweight to authoritarian China. A Hindu chauvinist India would not only be nastier for its inhabitants; it could also spread instability, prone to even worse relations with its Muslim neighbours. India's friends, starting with America, should use their influence to persuade Mr Modi and his acolytes to check the spread of hate before it explodes into widespread violence. Mr Modi should want to prevent such a calamity, too. Does he? ■

Financial risk

A good idea, until it isn't

Poorly understood cross-border capital flows pose a threat to stability

WHEN GLOBALISATION was at its zenith, huge rewards flowed to those who squeezed out redundancies in the world's supply chains. Only when the pandemic struck—when lockdowns in Asia threatened the supply of goods to the world—was it clear how fragile the system could be. The world's financial supply chains are just as crucial, but even less well understood. A similar shock may lie in store.

Since the global financial crisis, flows of capital across borders have risen unabated. In 2020 the stock of cross-border financial assets reached \$130trn, an increase of almost 60% since 2007. Measured relative to world GDP, at 153%, they now exceed the peak just before Lehman Brothers collapsed.

As the scale of investment has ballooned, so its character has changed (see Finance & economics section). Many European countries' share of the total has fallen, while Asia's share has rapidly increased. Emerging markets are slightly more important, too. The world's largest banks are smaller, better capitalised and less international than they were. Cross-border bank lending was \$34.6trn at the end of June, a fraction above its peak in 2008. By contrast, market-based finance has grown hugely. Insurers, pension funds and a range of stodgy financial intermediaries have become big international investors in their own right. One example is an alliance formed in 2020 between *Algemene Pensioen Groep* and National Pension Service, the largest pension funds in the Netherlands and South Korea respectively, which has invested in a Portuguese toll-road provider and Australian student housing.

Just as supply chains are a source of efficiency, so cross-border investment matches investors from one part of the world who have capital to spare with investors in another who are eager to put it to work. The benefits spill over into jobs and development. Everyone gains.

But there are dangers. Foreign investors, especially staid institutions, may not understand how much risk they are taking on. High-yield bonds offer lower returns today than ten-year

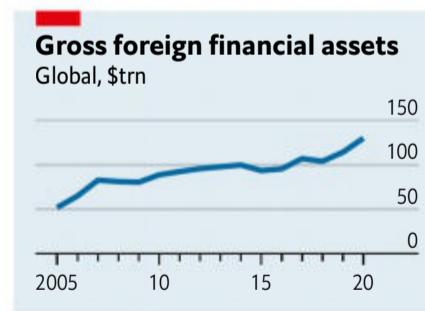
Treasuries did before the financial crisis. That has sent firms in search of higher returns into more risky, illiquid and opaque assets. In economies with more savings than local investment opportunities, that often means heading overseas where investments are less certain and less well understood. Before the financial crisis, several German banks lost money when structured credit in America soured in 2007.

Outside observers are no clearer about the risk than investors. Information on cross-border banking is extensive, partly because the Bank for International Settlements (BIS), which supports central banks, has collected data on international claims and liabilities for traditional lenders since 1963. However, disclosure for other financial institutions is limited. By definition, cross-border investments involve issuers covered by regulators

in one country and buyers covered by regulators in another. Often, nobody has a grasp of the risks. You can tell that the value of global portfolio investment has soared, but not precisely where it is invested or by whom.

Some investors will not properly gauge the risk of default. Others will overestimate the liquidity of their investment or how it is exposed to currency fluctuations. One potential example is the Formosa bond market, in which international companies sell debt denominated in a range of currencies to Taiwanese life insurers. Around \$200bn in bonds is outstanding, a total that has more than doubled in the past five years. Because there has been a lot of financial engineering, the debt is hard to price.

In March 2020 investors caught a glimpse of the dangers that may lie ahead. During turbulence in dollar-funding markets, large institutions in Asia exacerbated the squeeze by stampeding to cover their exposures. Regulators are alive to the threat. In December the BIS warned about the opaque activities of non-bank financial institutions in currency markets. The Financial Stability Board, a group of regulators, has also recently called for a better understanding of the systemic risks. Whether investors are sufficiently cautious is more doubtful. ■



► will be unable to conjure the easy answers and ready fixes that are his style.

Before the parties, it was inflation that was keeping Conservative MPs awake at night. Consumer prices rose by 5.1% in November compared with a year earlier, the biggest annual increase since September 2011. Over the next few months, increases should beat anything seen since the early 1990s. Pay is unlikely to keep pace with the prices of cars, clothes and cigarettes. State pensioners, a big chunk of the Tories' electoral coalition, and people on state benefits will be squeezed particularly hard.

A large part of the problem is caused by high global prices for oil and gas, compounded by Britain's poorly designed regulatory framework (see next story). In April the government will raise its cap on retail-energy prices. The average household's annual bill is expected to rise by 50%. The Labour Party is feasting on Tory discomfort: it has proposed a temporary cut to VAT on domestic energy bills.

This is artful politicking, designed to irritate Tory backbenchers. The measure was promised by Mr Johnson's Brexit campaign as a potential dividend from leaving the EU, though was not enacted. But such is the scale of the problem, notes Robert Joyce of the Institute for Fiscal Studies, that even if it were, it would offset less than a fifth of the average increase in energy bills. All this is reminiscent of the early 2010s, when Ed Miliband successfully exploited what he termed a "cost-of-living crisis" to torment David Cameron's government.

Also coming in April is a rise of 2.5 percentage points in national insurance, a payroll tax, half each from employees and employers. Senior Tories are unhappy, including Jacob Rees-Mogg, the leader of the House of Commons. The extra money is supposed to support the National Health Service for three years, before being diverted to fund a new social-care regime.

But the NHS is in the midst of a waiting-times crisis, the result of doctors halting routine work during the pandemic. The national-insurance rise will barely make a dent. Some 6m people are already waiting for a procedure; by 2024, when the next general election is due, that could be 13m, or one Briton in five. Everyone will know someone on a waiting list; Labour will be able to pick and choose between heart-rending stories for its campaign ads. After his apology in the Commons, the first question the prime minister faced came from James Davies, a Tory, who raised his constituent's eight-week wait at a breast-screening clinic.

It is not in Number 10's garden, but in supermarkets, petrol forecourts and doctors' waiting-rooms that Mr Johnson's fate will be decided. The past week has been the most miserable of his career. The coming year will be worse. ■

Energy and inflation

It's not cheap being green

Rows about the cost of energy are here to stay

AT NOON ON January 7th the twin nuclear reactors at Hunterston B power station, on the Firth of Clyde on Scotland's west coast, were shut down for the final time. The plant was once the future. Part of a fleet of high-tech British reactors designed—unsuccessfully—for export, it was connected to the grid in 1976, just after the great oil-price shock of 1973.

Its closure is another small tightening of the screw for a country facing a different kind of fossil-fuel shock. Just before its closure Hunterston B was supplying a steady 1 gigawatt (GW) of electricity to the grid, about 2% of demand on a typical winter's day. Most of the slack will be taken up by power stations burning natural gas, the price of which has roughly trebled over the past year. Britain is unusually reliant on gas, which—on average, over a year—accounts for about 40% of its electricity generation, and heats 85% of its (mostly old and poorly insulated) houses.

Its soaring price has therefore helped drive inflation above 5%, the highest rate in a decade. That has already pushed more than two dozen energy companies into bankruptcy, and piled pain on businesses suffering from covid-related lockdowns and staff absences. In April a government-imposed cap on the price suppliers can charge households is due for revision. Energy UK, a trade body, reckons prices could rise by 50% or more, taking the average bill to over £2,000 (\$2,700) a year.

Worried ministers are pondering several ideas to take the edge off the pain. One is to scrap value-added tax on energy bills, though the rate is just 5%. Others include increasing handouts for poor households,

loans to surviving suppliers to spread the cost of absorbing customers of defunct firms, and shifting subsidies for renewable energy from bills to general taxation. The opposition Labour party wants a windfall tax on oil-and-gas producers in the North Sea, which have seen their fortunes rise along with prices.

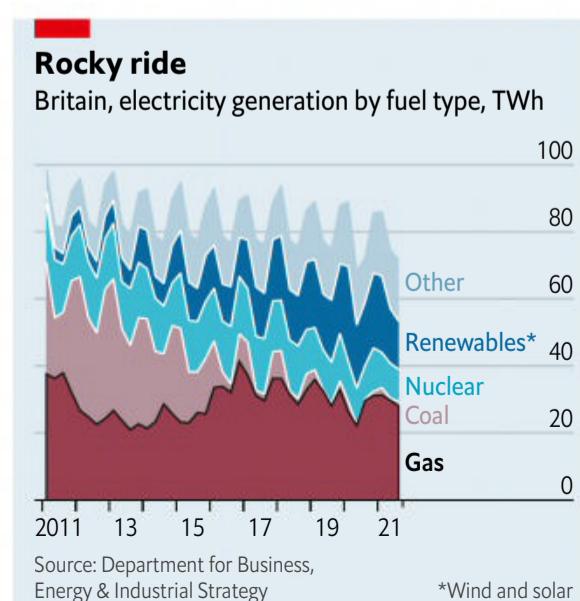
All those policies involve unpleasant trade-offs. Most imply higher taxes, which are unlikely to prove much more popular than higher bills. In any case, says Dieter Helm, an energy economist at the University of Oxford, none does more than tinker around the edges of an energy system that is likely to remain heavily reliant on gas, and to get pricier, too.

The chief reason is the government's drive to decarbonise electricity generation. The share of wind and solar on the grid has risen sharply over the past decade, displacing dirty coal-fired generation (see chart). The government wants that to continue: it hopes for a 25% rise in offshore wind power by 2030. But renewable energy is unreliable. The past few months have been some of the stillest for decades, reducing the amount of power generated by Britain's wind turbines. The more renewables are added to the grid, says Mr Helm, the more backup must be built as well, even if much of it sits idle much of the time. With coal too polluting, and grid-scale batteries still in their infancy, gas-fired electricity is a likely candidate.

At the same time nuclear power, which is both low-carbon and reliable, and which provided around 16% of Britain's electricity last year, is shrinking, leaving an even bigger gap to fill. Three of Britain's six remaining stations are due to close by 2024; by 2028 just one will be left. Ministers had been keen on building more, but so far only one, in Somerset, is actually under construction. It is due to be ready by 2026, but is already late and over budget.

Even when global gas prices fall back, the green transition will bake in higher costs. The more renewables on the system, the bigger—and more expensive—their backup has to be. (Mr Helm thinks that, taking intermittency into account, wind power may be even pricier than the nuclear sort.) The government has set a strikingly ambitious target to decarbonise electricity generation completely by 2035. That means gas plants will have to be fitted with carbon-capture technology, in which emissions are buried underground. That has not been done at scale anywhere in the world. But if ministers are serious, it will push prices up even further.

One way or another the public will pay, whether through higher bills, higher taxes or a combination of both. Whatever the government does about the immediate problem, arguments about the cost of energy will continue. ■



▶ by such changes. Almost 65% of Russian soil is permafrost, and it is here that 60% of the Arctic's human settlements and almost 90% of its population can be found (see maps on previous page). Russian sites are also more likely than those in other parts of the Arctic to contain heavy apartment buildings and large industrial facilities. North America's permafrost, which makes up half of Canada's territory and more than three-quarters of Alaska's, tends to be more sparsely populated than Russia's, with human impact dominated by roads, airstrips and oil pipelines. Nonetheless, degradation is still an issue. Authorities in the Northwest Territories, one of Canada's largest and most northerly regions, calculate that permafrost-induced damage amounts, even today, to \$41m a year, which is about \$900 per resident.

Dr Hjort's paper also looks at the Arctic conditions which prevail in mountainous regions at lower latitudes. Nearly half of the Tibetan plateau, for example, is covered by permafrost, and this area contains 200,000km of roads and 3,900km of railways. The cost of repairs here runs into the tens of millions of dollars a year. In the European Alps, by contrast, a combination of higher investment and more favourable conditions mean that damage is minimal.

Dr Hjort and his colleagues suggest three approaches to increasing resilience, some of which have already been implemented to various extents in different Arctic locations. First, enhance the extraction of heat from thawing soil near structures which need protecting. This can be done by adding porous stone layers to road beds to generate convection, which helps hot air to escape. Decreasing the angle of embankment slopes also helps, by increasing wind flow and reducing the accumulation of snow, which traps heat. Second, limit heat intake by the ground. This means insulating the embankments of roads by increasing their thickness, and also increasing the reflectivity of paved surfaces to minimise the amount of solar radiation absorbed. Third, the ground can be reinforced to create better foundations. One way to do so is to replace layers of permafrost with more stable materials. Another is to thaw the permafrost in a controlled manner, and then build on that consolidated layer.

None of this innovative construction will help, however, if there is a lackadaisical approach to maintaining what has been built. In an earlier study cited by the authors, which looked at the period from 1980 to 2000, most damage to structures in areas of Russia where permafrost abounds was found to have arisen as a result of poor maintenance. Climate change will make that worse. But if local authorities cannot even get the basics right, then large sections of the Russian Arctic may end up being abandoned altogether. ■

Xenotransplantation

Happy news

Why the first successful pig-to-human transplant is a really big deal

ON JANUARY 7TH David Bennett became the first person to have a heart transplanted successfully into him from a pig. In press material issued three days after the operation, the University of Maryland confirmed Mr Bennett was doing well, and was capable of breathing on his own. While he continues to rely on artificial support to pump blood around his body, the team behind the surgery, led by Bartley Griffith, plan gradually to reduce its use.

This operation is a milestone for xenotransplantation—the transfer of organs from other species to human patients. It comes hot on the heels of another, in October, when a pig's kidney was successfully attached for three days to a brain-dead patient in a hospital in New York. On that occasion, mere surgical success was the goal. But Dr Griffith's team hope to save a life.

The operation itself received exceptional authorisation from America's Food and Drug Administration under a provision

which lets doctors use experimental treatments as a matter of last resort. Prior to it Mr Bennett was diagnosed with terminal heart disease, but was judged too ill to qualify for a human transplant. Having spent months in a hospital bed with no improvement to his condition, he gave his consent to the surgery.

The field's recent flowering has long-established roots. For decades, researchers have attempted to tackle xenotransplantation's fundamental problem. This is that the human body, when it recognises foreign tissue, has a tendency to turn against it. In the case of pigs, the most important marker of foreignness is a sugar molecule called galactose-alpha-1,3-galactose (alpha-Gal), which is found on the surfaces of their cells. While this molecule does not exist in humans, antibodies to suppress it do. Consequently, no transplant from a pig with alpha-Gal would last more than a couple of minutes in a human body.

In 2003 pigs were produced with a genome modified so as to suppress the enzyme responsible for making alpha-Gal. This was a step in the right direction, but other barriers popped up in its place. With each of these requiring years of work to overcome, many researchers—and much research funding—abandoned the field.

One collaboration which survived was that between the University of Maryland ►



Baby-boomers

This is a tiny part of the largest fish-breeding ground yet discovered. It occupies more than 240km² of the floor of the Weddell Sea, off Antarctica. Each nest is guarded by a notothenioid icefish, usually the father. Altogether, there are about 60m nests, housing more than 100bn eggs. The site was discovered by Autun Purser of the Helmholtz Centre for Polar and Marine Research, in Bremerhaven, and is reported in *Current Biology*. Dr Purser saw the first nests on a dive. Further dives revealed more. He and his colleagues then towed cameras over the site to discover its full extent. One reason animals live in crowds like this is to swamp predators. That can, though, backfire when the predator is a modern fishing vessel. For decades, there has been talk of making the Weddell Sea a protected area. Dr Purser has come up with yet another reason to do so.