

The background image shows a wide, rocky coastline. In the foreground, there is a large, dark grey tent pitched on a patch of green grass. A white surfboard with black fins lies on the grass next to the tent. The middle ground is dominated by a vast expanse of brown and grey rocks. In the distance, waves are crashing against a dark, rocky cliff under an overcast sky. A horizontal teal banner with white text is overlaid across the middle of the image.

Sustainable Guide To Surfing

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Thanks to:



1 INTRODUCTION

The following two alternatives were written in 1972, in a U.K. magazine called Surf Insight.



Surf Insight, the UK's first surf mag published in 1972.

It's a beautiful day – the sun clear and strong – sky absolute blue and the air fresh on your nostrils. You wake to a bowl of fresh fruit and two huge farm eggs, grab your board and walk through green, dewy fields to your favourite surf spot. Not another being in sight except for the animals and birds going about their morning's business. The beach is pure and inviting – you dig your toes into golden sand...

It's a beautiful day? – the sun weak – half obliterated by a perfect morning smog, the sky greyish-blue and the air smarting in your nostrils and choking your lungs... You gasp for another deep breath of sweet industrial smog – a yummy bowl of plastic Krunchy Pops with pasteurized milk and two battery-hen eggs you can hardly taste gobbled down with relish before the long walk through a concrete jungle to your favourite surf spot. Smiling, you hassle your way through milling people and honking cars to the crowded beach. Dig your toes into empty beer cans and assorted rubbish and make for the ocean – the sea a murky grey – the taste of effluent on your mouth – brown sludge floating past you on a gentle swell...

They were written to make you think about which alternative you would prefer: the first, or the second. What it doesn't say is that, in the first example, people would not be able to have 42-inch televisions, shopping malls, one-week trips to the Mentawais, four-by-fours, jetskis, economic growth and careers for their kids in the army; but in the second, they would.

But surfers, although dismissed as a bunch of hippies by the rest of society, were living closer to Nature, and had already learned to appreciate things that money can't buy. In 1972, we were one step ahead of the rest of society.

In 1972, the general public knew much less than they do now about global warming, globalization, brand identification, carbon offsetting or the Kyoto Protocol, virtually none of our stuff was made in China, most surf trips were overland, and big-wave surfing was still done with the help of a large pair of cojones instead of a jetski. However, people weren't daft, especially surfers. We realized that, if we were greedy and chose to allow our consumerist way of life to spiral out of control, we would end up ruining our own playground. In 1972, most of the general public had no information about what we were doing to the planet, and perhaps could be forgiven for thinking that economic growth and consumerism was the way forward. But surfers, although dismissed as a bunch of hippies by the rest of society, were living closer to Nature, and had already learned to appreciate things that money can't buy. In 1972, we were one step ahead of the rest of society.

Fast forward to December 2004. Peah'i, Hawai'i, otherwise known as Jaws. The waves are about 40 feet high and there are about 100 people in the water. They are not really surfing, they are towsurfing – fifty tow teams with fifty jetskis, all competing to get photographed on the biggest wave of the day, at any cost. Most surfers are professional or semi-professional, sponsored by multinational clothing companies, caffeine-and-sugar-filled soft-drinks and even petroleum companies, and many of them have flown in from places as far as South Africa and Australia, just for this one swell.

The sole purpose of many of them being out there is the chance to win fifty thousand dollars and become famous in the XXL awards, by being towed into the biggest wave. Helicopters drone overhead, and the cliff-top is bustling with cars and journalists, all competing for that prize-winning photograph¹.

Big-wave surfers all over the world are realizing that it is more fun and more challenging to go back to the traditional way of catching waves: with your bare hands.

Are we still one step ahead?

Well, that was 2004. Now, in 2011, the towsurfing boom is showing signs of fading away. Big-wave surfers all over the world are realizing that it is more fun and more challenging to go back to the traditional way of catching waves: with your bare hands. Although this might seem like a rather insignificant piece of news confined to a very small elite fraction of the surfing population, it is highly symbolic. It shows that surfing is inherently resilient to artificial 'extras' that people try to impose upon it. Even nowadays with surfing being so commercialized, what still matters to most people is being out there in the water, surrounded by Nature.

This report aims to show how surfing can and should be a sustainable activity, how surfers can and should be more environmentally friendly than the average citizen, and how we can help to persuade fellow surfers and wider society to take action for a sustainable future whilst also ensuring clean waves for this and future generations.

The report consists of three main sections: Energy, Travel and Stuff. The planetary changes we are causing are driven by our excessive use of energy, our obsession with getting from one place to another as fast as possible and our obsession with material goods. Each section begins by explaining what we are doing wrong, and then goes on to suggest ways in which we can start to put things right. Most importantly, we first need to make sure we are doing it right ourselves, and then we need to persuade everybody else do the same.

Changing the way we behave as an individual is relatively straightforward to do, and not as difficult as you might think for a surfer. You can continue surfing in a more sustainable way without much effort. If you stripped away all the add-ons that have been accumulating over the past 40 years or so – surf camps, jetskis, brand identification, mass-produced boards and super-stretch wetsuits that last for six months, – surfing itself would still be just as exciting as it was before. If all that stuff suddenly disappeared, it wouldn't take away the essence of surfing, the feeling of riding a wave. We also need to make sure the other aspects of our lifestyle are sustainable. For surfers it should be fairly easy, because we perhaps have a head start – many of us have already learned to sacrifice material comforts and money for more time in the water. Making a few more material sacrifices in order to become sustainable ought to come as second nature to us.



An empty barrel reels along a Cornish beach.

Image courtesy of Greg Martin



Vehicles, clothing, language, associated activities – you name it, if it's connected to surfing, there are huge numbers of people keen to emulate the surfing lifestyle.

How Can You Help?

There are individuals out there who question what one person can do. Well, taken in isolation, a single sustainable individual's footprint will not offset the masses. But we do not exist in isolation and we can help turn the tide. We all know the well used Newton quote from his 3rd law of motion "To every action there is always an equal and opposite reaction."

So exactly what are the actions and reactions we are looking for, and from whom? The answers to this are laid out in detail in Malcolm Gladwell's international bestseller "The Tipping Point". The book details how to transform an emerging concept, like sustainability, from the fringes and cement it into mainstream thinking.

Surfers are afforded a number of dispensations which can help them spread a sustainable message more effectively than many other groups in society. For a start, we are often seen as trendsetters by the general public. Surfing and surfers are perceived, rightly or wrongly, as being pretty cool, which can be used to help carry a more positive message. Most people aren't fortunate enough to be able to actually have surfing, as an activity, at the heart of their lives. They do however want to live the lifestyle as closely as they can. Vehicles, clothing, language, associated activities – you name it, if it's connected to surfing, there are huge numbers of people keen to emulate the surfing lifestyle. Hence surfing being a marketeers' dream. And here in lies the key. This is how a small group of dedicated individuals can influence the masses, people we may never have met or may even meet.

Luckily, surfing brings together a diverse cross section of society and fuses different subcultures, which might not ordinarily mix. Doctors and lawyers sit in the line up next to builders, students and the unemployed. This is incredibly practical as a concept to propagate strong ideas, in this case sustainability, transecting normal social boundaries and like a boulder dropped in a pond, the waves of change can travel with unparalleled speeds and effectiveness.

Within our surfing communities we have all the individual characters needed to breathe life into sustainability, ensuring sustainability is accepted as established behaviour within the mainstream:

- *The Innovator* – the hard core surfer living in their van to ensure they get the most out of every swell. They will have a minimal environmental footprint compared to the average person with a 3 bedroomed house, a flat screen, central heating, running water and a working indoor toilet. However, asking the general public to live in a van to safeguard the environment perhaps a step too far.
- *The Connector*– This is where the 'connector' steps in. The 'connector' will translate the 'innovator's' ideas into a more acceptable form for the public. Delivering the lifestyle approach in a more accessible & palatable form. 'Connectors' know people, a lot of people. And just as importantly, they know how to promote an idea. This is where the concept starts to gain traction. Everyone knows a lot of surfers fall into the 'connector' category.

- Then there are the 'early majority', the general public on the edge of the surfing world. To borrow some of surfing coolness these people will adopt the sustainable lifestyle changes pioneered by the Innovators and Connectors, giving momentum in the mainstream. The sustainable concepts are now reaching their tipping points.
- Finally the 'late majority' come on board and the concept is cemented in mainstream consciousness.

That's the path our sustainable message needs to follow to become accepted by the masses. You might recognise yourself as one of the above. It's likely you are a connector adopting and promoting sustainable lifestyle suggestions you are exposed to through Surfers Against Sewage and other sources.

It may sometimes feel like surfers are a small minority, incapable of influencing change but read the following powerful quotes from The Tipping Point.

- What must underlie successful epidemics, in the end, is a bedrock belief that change is possible, that people can radically transform their behaviour or beliefs in the face of the right kind of impetus.
- We are actually powerfully influenced by our surroundings, our immediate context, and the personalities of those around us.
- With the slightest push, in just the right place - it can be tipped.

This guide should give you even more motivation to take action.

Surfers are very well placed to do some pushing here. This guide should give you even more motivation to take action. And the kind of compromises a sustainable lifestyle needs are nothing compared to the trials and tribulations we put ourselves through for surfing. If we can climb into a wet wetsuit, in the wind and rain, in a car park on a grey February morning, we can turn the central heating down a couple of degrees. So read on, brace yourself to be challenged, and take action with us.

We are not asking you to turn your back on all material goods and body surf naked, an uncomfortable prospect for any of us. But as surfers we are sensitised incrementally to the environment around us and the damage done to it. Due to our immersion (quite literally) in the coast, we should be, and are in most SAS members' cases, some of the most radicalised people in relation to tackling environmental issues.

We can all do even more to reduce our impact, from changing our travel habits to adapting our consumer approach. We can all look at our surfing lifestyle and ask ourselves questions. What elements are fundamental to and sustainable in our surfing experience? Which parts can be changed to create a more sustainable/less damaging dynamic? What elements don't really add anything to our surfing experience but are traded commodities that have been created around the sport? What items do we really need to get in the water as much as possible? What are the most durable and sustainable items we can buy? Should we be buying cheap and buying twice?



SAS beach cleaners make a big difference.



When we're buying things, we can all opt for more organic, recycled, sustainable, ethical and durable items.

We'll all have our different approaches to the issues and can make lifestyle changes which best suit our lives. But we can and should all do something on a continual and progressive basis. Some things might seemingly present big challenges, like changing your weekend flights to surf in Ireland into a week long van-bound surfari. But this in turn may well bring a whole new, fun dynamic to the trip or a revisited nostalgic feeling of how surfers used to do things. After all, being cooped up with every other section of society on a SleazyJet flight is hardly presenting the counter culture, fringe lifestyle so many of us seek through surfing. And let's remember, the travelling should be a fun and integral part of the trip.

Consumerism in surfing is rife, just like in many other sports, and, of course, out there on the high street. We can all ask ourselves whether the fact our shorts are last year's colour really makes them lose their functionality. It probably doesn't... . . . And when we're buying things, we can all opt for more organic, recycled, sustainable, ethical and durable items that will last. Let's champion companies which are trying to make a difference, both big and small. If we can influence the big corporations, from the inside or from the outside, the chances for dramatic change are increasingly possible.

1.1 WHAT IS SUSTAINABILITY?

Before we go on, it would probably be helpful to know exactly what we mean by the terms 'sustainable' and 'sustainability'.

In the most general sense, a sustainable activity is one that can continue to be performed indefinitely, whereas an unsustainable activity is one that can only be performed for a certain length of time; one that cannot be sustained. Within the context of environmentalism, the Merriam-Webster Dictionary says this:

Sustainable: Of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged².

Sustainability involves only using resources at a rate which allows them to be replenished to ensure their long-term survival,

So, obviously, according to this definition, our use of fossil fuels is not sustainable. We are burning coal, oil and gas millions of times faster than they are being produced naturally in the ground. This, of course, means that they will soon run out. Here is another popular definition found in many environmental books and websites:

Sustainability involves only using resources at a rate which allows them to be replenished to ensure their long-term survival, and not exceeding the environment's ability to absorb pollution³.

That one also alludes to the fact that we are not only using the Earth's resources faster than they are being produced, but that the toxic by-products are being produced faster than they can be absorbed. This is changing the composition of the atmosphere, and changing the climate.

As surfers, we are interested in being able to continue to surf, and for our children and grandchildren to be able to surf, not just having to concentrate on struggling to survive, with things like surfing becoming a distant forgotten luxury.

Ironically, the act of riding a wave is inherently sustainable in that it doesn't deplete or degrade the resource upon which it depends – the waves. But many other things we do, some of them related to our surfing, are not sustainable, and will affect our ability to maintain a lifestyle which allows us to surf. If we continue to live in an unsustainable way, surfing will be one of the first things to go out of the window.

1.2 WHAT IS GOING WRONG WITH THE PLANET?

"Modern man does not experience himself as a part of nature but as an outside force destined to dominate and conquer it. He even talks of a battle with nature, forgetting that, if he won the battle, he would find himself on the losing side. [...] many people, albeit

only a minority, are beginning to realize what this means for the continued existence of humanity"

– E. F. Schumacher (1973) ⁴.

There is now overwhelming evidence that something is not right with the planet. The whole system is changing, and it's because of humans. There are so many of us, and we are so powerful that we have begun to alter the

basic functioning of the planet. If we carry on altering it at the present rate, we will simply end up destroying ourselves.

The alteration of the planet by us has, of course, been going on for thousands of years.

The alteration of the planet by us has, of course, been going on for thousands of years. And that's fine, because our effect on the rest of the planet, and the rest of the planet's effect on us, is just all part of the natural evolution of the system. However, in the last hundred years or so, things have really started to get out of balance. Apart from one or two hard-lined denialists, who most of us suspect are being funded or blackmailed by large oil companies, it is now widely accepted that we humans are to blame for the greatly accelerated changes to the environment being seen at the moment. The evidence is unquestionable; in fact we are altering the Earth's system so much that some scientists have suggested that we are now in a special geological era, called the Anthropocene⁵.

At first, once you begin to see the scale of the problems, they start to look really overwhelming, and you might be tempted to just throw your hands up in despair and give up.

Below are a few examples of recent human activities and their effects on the planet. Be warned, there are a lot of problems, big ones. But if we are to solve those problems, first we have to understand what we are up against. At first, once you begin to see the scale of the problems, they start to look really overwhelming, and you might be tempted to just throw your hands up in despair and give up. But then, once you dig a little deeper, understand the problems a little more, and begin to accept the changes that we need to make, it all becomes a lot less daunting. So please, read on.

- **Population:** Over the last 100 years or so, the number of humans alive has risen from about one billion to over six billion. Not only that, but the population is not increasing steadily; it is increasing at an ever-increasing rate. All these people need to share the limited resources of the planet including water, food and shelter. In the so-called developed world, we are putting even more pressure on the environment with our excessive use of resources for entertainment, travel and material possessions.
- **Economic activity:** The amount of money and goods changing hands, roughly termed economic activity, has increased about ten times in the last half century. All that stuff that we've been buying and selling ultimately has to be derived from natural resources or fabricated chemically, which depletes those resources and contaminates the environment.
- **Water use:** More than half the accessible fresh water on the planet is at the moment being used for human purposes. The manufacturing industry, for example, uses vast amounts of water, often for making stuff that is totally unnecessary⁶. This, while over a billion people don't have proper access to safe drinking water.
- **Energy consumption:** The rate that we are consuming energy, for transport, for manufacturing and moving stuff around the planet and for heating and lighting our homes, has increased by more than four times in the last half century, and continues to increase exponentially. Most of this energy is obtained by burning fossil fuels. For example, in the last 150 years, we have burnt up almost half the oil in the ground, which took several hundred million years to generate.
- **Natural food depletion:** Nowadays, most of the food we eat is artificially produced in farms, with animal and plant species that we have

modern methods of fishing we have succeeded in completely exhausting or seriously depleting about 75 per cent of oceanic areas

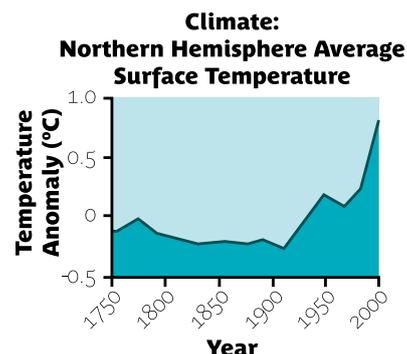
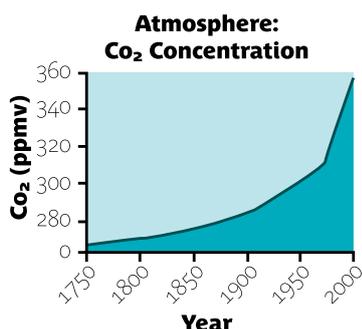
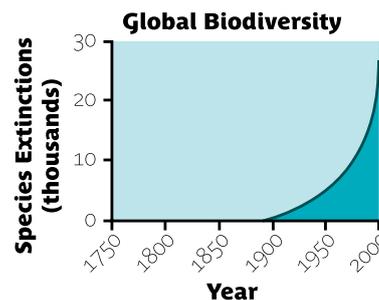
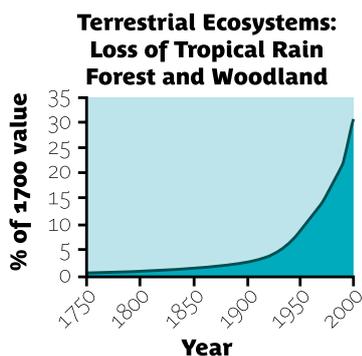
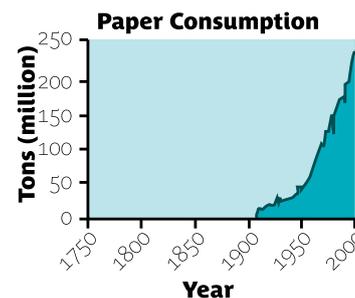
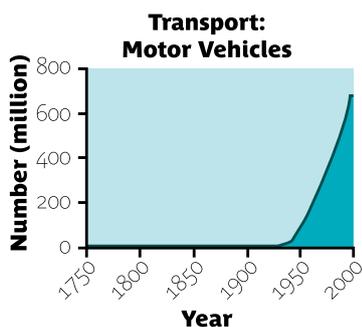
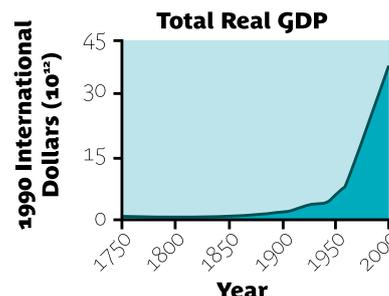
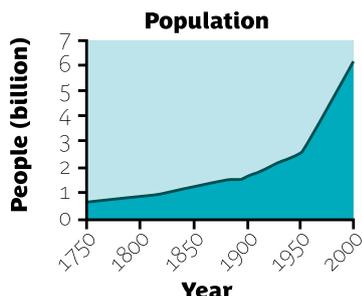
domesticated over the last few thousand years. One of the last sources of food which we still 'hunt' is fish. But of course, with modern methods of fishing we have succeeded in completely exhausting or seriously depleting about 75 per cent of oceanic areas previously containing large amounts of fish. Not only that, but we have hunted the largest animal in existence – the whale – almost to extinction.

- **Land use and deforestation:** Over the past 300 years, the area of land used for agriculture has increased five times, and every year approximately 13 million hectares of forest disappear. At the moment, about half of the total land surface has been transformed for specific use by us humans, not only to make huge urban sprawls covering thousands of square miles, but also massive areas of monoculture farmland, where one species dominates, killing off all the other species and interfering with the chemical structure of the soil. Note that over half the grain production in the world is used for animal feed or for biofuels. Also, forests are natural absorbers of greenhouse gases, so their removal means that more of those gases end up in the atmosphere which, in turn, exacerbates global warming (see below).
- **Loss of biodiversity:** Experts have estimated that the number of species is declining approximately 1,000 times faster than normal⁷. In fact, we are in the middle of the sixth of a series of massive extinction events that wiped out large numbers of species in the past, the most well-known of which was the famous 'K-T' event, which killed off all the dinosaurs about 65 million years ago. The difference this time, however, is that the present event is the only one that has ever been caused by the activities of a single species (humans).
- **Climate change:** The chemical composition of the atmosphere is now completely different from the way it was about 100 years ago, and this is due to human activity. The burning of fossil fuels and the removal of natural absorbers such as forests has increased the concentration of so-called greenhouse gases, such as carbon dioxide, in the atmosphere. Basically, the effect of these gases is to trap the Sun's heat energy and cause the Earth's temperature to be higher than it would normally be. So with the wrong concentration of gases, the Earth is heating up more than it should be which, in turn, is affecting the climate. There is now increasing evidence that this is happening even faster than we thought. For example the polar ice cap is 40 per cent thinner than it was 40 years ago, and getting thinner at an ever-increasing rate.

A summary of some of the ways we have been affecting the planet recently are shown in the diagram below. You can see that all the graphs have a similar profile – a very sharp rise in the last few years. You don't need to be a genius to realize that such sharp upward trends cannot continue forever. We cannot continue to consume the planet's resources and interfere with its biological and chemical balance; otherwise it will just turn around and bite us back.

Another thing that scientists have only begun to realize recently is that the functioning of the Earth’s system doesn’t just respond in a simple, smooth way to the pushes and shoves we are giving it. Instead, it has a tipping point which, until they are crossed, nothing seems to happen; the system has a kind of resilience which keeps it stable. However, if we push it over the threshold it can quickly and irreversibly flip into an entirely different state. That is why it is so difficult to convince people that our abuse of the environment is having any effect whatsoever. If we don’t do something about it right now, it might be impossible to fix things later on.

Examples of human activities and changes to the planet in the last two and a half centuries⁸ Note that the biodiversity one is upside down, i.e. it is showing a loss of biodiversity, not an increase



1.3 HOW WILL IT AFFECT US AS SURFERS?

The waves, without which we wouldn't be surfers, are directly dependent on the weather and climate and highly sensitive to any changes in them

The idea of 'Save the Planet' is quite misleading. The planet isn't what needs saving. Whatever we do, there is no way we will bring the entire system to a halt, wipe out all the life-forms including bacteria and change the planet into something like Mars or Venus. What needs

saving is us, the humans. If we don't do something about our abuse of the environment, it will just end up feeding right back to us. It will make our existence at best somewhat more difficult, or, at worst, impossible.

According to where you live and how you live, things like climate change, loss of biodiversity and natural resource depletion will affect you in different ways. If you are a surfer, the way you live will differ in several ways to the rest of society. We surfers tend to live very near a very sensitive and fragile part of Nature – the coast. The waves, without which we wouldn't be surfers, are directly dependent on the weather and climate and highly sensitive to any changes in them. So, the effects on surfers will probably be more immediate and more profound than on other members of the population. We are more sensitive to things like sea-level rise, changes in storminess, episodic coastal flooding, coastal pollution and atmospheric contamination. Also, because we unfortunately tend to move around a lot, we will be affected more than most by the inevitable drastic reduction of fast modes of travel such as flying, as greenhouse-gas emissions rise and fossil fuels run out.

Any alteration in the climate and its inevitable knock-on effects, particularly on such a fragile interface such as the coast, will be severely felt by surfers. The very source of the waves we ride is the weather and the climate; so we really ought to be concerned about making sure it doesn't get altered so much that it feeds back onto the coast and the waves.

The rise in sea level that will accompany global warming is something that is going to affect us more than most people. If the daily rise and fall of sea level due to the tides has a tremendous affect on our surf by changing the way the waves break, then so will a systematic rise in sea level.

An increase in the temperature of the Earth will lead to an increase in the level of the sea because of (a) thermal expansion of the water already in the sea and (b) the addition of extra water into the sea due to glacial melting. Thermal expansion is already affecting a huge proportion of the water on this planet, and, although the resultant sea-level rise is pretty small, it is still very important. Because of the vastness of the oceans, a tiny rise in sea level due to thermal expansion represents an incredibly large amount of extra energy stored in the water. This energy difference will cause significant changes to oceanic and atmospheric circulation patterns, which will certainly affect our waves for surfing.

The other factor, glacial melting, occurs when ice contained in glaciers and ice sheets, melts and runs down into the sea. Glacial melting has the potential to add vast amounts of extra water to the sea, and hence push the sea level right up. The two areas of great worry are Antarctica and Greenland, where recent evidence shows much more extensive glacial melting than previously thought. If the Greenland Ice Sheet completely



Medium minimum extent
— of ice cover 1979 - 2000

disappears into the ocean it will result in a sea-level rise of about seven metres. If the West Antarctic Ice Sheet does the same it will mean another seven metres on top of that.

Sea-level rise will affect us surfers in various ways. First, it will change the characteristics of surf spots, making some less surfable or not surfable at all, but possibly improving others. Perhaps that is not a disaster in itself, but sea-level rise will lead to other problems in an indirect way. For example, it will exacerbate coastal flooding, which will lead to contamination problems (see below), and, coupled with a possible increase in episodic storms, will encourage coastal developers to build more concrete structures, which will threaten existing surf spots.

Some low-lying areas of the world will actually be in danger of disappearing if the average sea level increases by more than a metre or so. These include surfing destinations such as the Maldives. The Maldives has crystal-clean water and picture-perfect waves, but an average land elevation of about one metre. Already, serious flooding regularly takes place when a tropical storm passes close by, or if the monsoon season brings particularly heavy rain. Just to show how little people really understand (or want to understand) about what is going on, some travel companies are actually advertising the Maldives as a place you should go to “before it’s too late”. They want tourists to fly there from all over the world, which itself will contribute to global warming, sea-level rise and the demise of the Maldives. So the more people who go there “before it’s too late”, the quicker it will actually be too late, and the quicker we will destroy any glimmer of hope that the Maldives people had⁹.

You may also hear a lot about the ice melting in the Arctic Ocean. While this doesn’t pose such a threat for sea-level rise because most of the ice in the Arctic is already in the sea, it is still very important. Because liquid water is much darker than white ice, it absorbs heat much more readily (it doesn’t reflect the sunlight back into space). So, as more ice melts, more heat is absorbed, even more ice melts and even more heat is absorbed – a classic runaway effect, impossible to stop once it passes a tipping point. So the melting of the Arctic ice will accelerate the overall warming of the planet, which will quicken the melting of the land-based ice sheets and further contribute to sea-level rise.

Arctic sea ice minimum extent in September 1982 and 2008. The red line indicates the median minimum extent of the ice cover for the period 1979–2000. This figure compares the Arctic sea ice extent in September for the years 1982 (the record maximum since 1979) and 2008. The ice extent was 7.5 million km² in 1982 and only 5.6 million km² in 2005 and down to 4.3 million km² in 2007. As has been observed in other recent years, the retreat of the ice cover was particularly pronounced along the Eurasian coast. Indeed, the retreat was so pronounced that at the end of the summers of 2005 and 2007 the Northern Sea Route across the top of Eurasia was completely ice-free.



Image courtesy of Juan Fernandez

The Maldives are considered a paradise by many travelling surfers. Soon though, the whole place could be underwater, thanks to global warming.

The increase in storminess and hurricane activity will affect us not only in direct ways because of the height and quality of the swells themselves.

Another possible consequence of global warming is an increase in storminess, or, as is being seen recently, an increase in episodic storm events where windspeeds and wave heights reach record values for short periods of time. The simplest explanation for this change in weather patterns is this. As the planet heats up, the equator and the poles won't heat up at the same rate. This is because a certain amount of heat energy is required to melt the ice at the poles – energy which can't also be used to raise the temperature. So, for the same increase in heat input, the temperature rise at the equator will be greater than that at the poles. Obviously the equator is already much warmer than the poles, but with global warming, that temperature gap will widen. As a result, the atmospheric circulation patterns, including oceanic storms, which exist to even out the temperate gradient between the poles and the equator, will increase in intensity.

Higher ocean temperatures due to global warming will also lead to increased hurricane activity. Not only will there be higher sea-surface temperatures in tropical zones, which will mean more energy for existing cyclones, but there will be larger areas where the sea-surface temperature is high enough for tropical cyclones to form (it needs to be above about 26° C).

The increase in storminess and hurricane activity will affect us not only in direct ways because of the height and quality of the swells themselves, but also in indirect ways. Just like with sea-level rise, increased storminess means that human artefacts built on the coastline will suffer more damage, which will encourage coastal engineers and developers to further interfere with the natural coastline and, hence, threaten the waves.

As the planet heats up, rainfall patterns will also change. Evidence suggests that rainfall is becoming heavier and more concentrated, but is occurring in shorter bursts. This means more chance of catastrophic floods. The inability of drainage systems to cope with all that water means that coastal waters will become more polluted.

The polluted water finds its way into coastal waters in two ways: (a) overflow from sewerage systems that cannot cope with the increased volume; and (b) the running off of surface water from the land into the sea, dragging nasty chemicals and pollutants with it. In urban areas, for example, rainwater from peoples' roofs, from drains in the road and from other sources, often gets channelled into the same sewers that our toilets and sinks are connected to. If the rainfall suddenly increases, all that extra water might

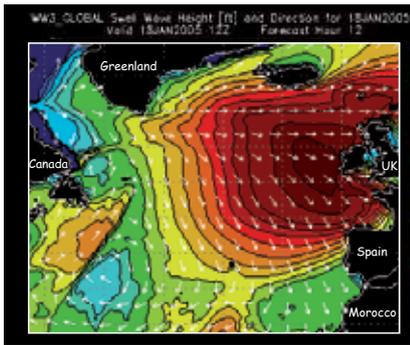


Chart showing contours of wave height in the North Atlantic for 18th January 2005. Will global warming mean more swells like this?

The worst thing is plastic. You see, plastic just won't go away. In fact, plastic can take hundreds or even thousands of years to degrade completely.

not fit into the sewerage system, and often ends up in the sea, dragging the raw sewage with it. When it rains so much that there is a flood, there are even more problems. The excess water begins to pick up all sorts of residues on its way to the sea, including pesticides and animal faeces from farmlands, oil and dirt from roads, poisonous chemicals from industrial areas and every kind of 'nasty' imaginable from landfill-type rubbish dumps.

You can read more about how global warming and rising sea-level will affect various aspects of surfing in the SAS report *Climate Change: a Surfer's Perspective*¹⁰.

A more direct consequence of our incessant consumerism and throw-away culture is the accumulation of human rubbish. We can't keep on manufacturing stuff and then just throwing it away, because all the rubbish is accumulating much faster than the Earth can absorb it back. Just like our use of fossil fuels, the extraction of raw materials and the fabrication of plastics to make products that will just be thrown away, is a one-way, unsustainable process. It is altering the chemical composition of the Earth, interfering with the biodiversity, and causing changes in the atmosphere and ocean, whose effects are just feeding back right onto us.

As far as the effects on surfing are concerned, a lot of that rubbish is thrown into the sea, or in rivers, which ends up on the shoreline or in the line-up. We risk our health by passing through it on the way to the line-up, or actually having to surf in the middle of it.

The worst thing is plastic. You see, plastic just won't go away. In fact, plastic can take hundreds or even thousands of years to degrade completely. It gets broken down into smaller and smaller pieces, but it never really goes away. The reason is that plastic was invented such a short time ago that no natural process exists yet to degrade it at a sufficiently fast rate. The bacteria that gobble up everything from wood to rocks just haven't had time to evolve a species capable of devouring those long, complicated molecules that comprise plastic. Eventually, there will be one, but this could take hundreds of years¹¹. Plastic can break down slowly if it is exposed to strong sunlight, but this has virtually no effect if it is floating just below the surface of the sea.

Nowadays, virtually everything you buy is packaged in plastic – that packaging specifically designed to be discarded as soon as you open it. Does that make sense to you? – An everlasting material being used to make a single-use product?

Plastic that finds its way into the sea breaks down into small pellets that can attract a number of highly toxic chemicals such as DDT. Those pellets and the poisons stuck to them inevitably end up inside fish and other animals, which, of course end up inside us. Plastic debris floating in the sea is at the mercy of the ocean currents, so it gets transported thousands of miles around the globe and sometimes ends up in places uninhabited by humans. For example, the five great ocean gyres – gigantic oceanic whirlpools roughly corresponding with high-pressure systems in the

atmosphere – are where millions of tons of floating plastic end up, taking decades to circle round the system¹². The most well-known is the North Pacific Gyre, which has been called the ‘Great Garbage Patch’. Also, surfers from the Ocean Gybe Awareness Association found immense amounts of plastic rubbish (for example, 200 plastic water bottles and 350 sandals over a ten-metre stretch of beach) on a deserted side of Cocos Keeling Island in the Indian Ocean¹³.



Items littered in our seas can take thousands of years to break down.

Surfers Against Sewage is campaigning on a number of different levels to tackle the torrent of marine litter that washes up and gets deposited on U.K. beaches every year. Organized beach cleans are the most basic form of action and, whilst these can be very affective they don't get right down to the source of the problem. Longer-term initiatives like the 'Return to Offender' and the 'No Butts on the Beach' campaigns are being run by SAS in order to help solve litter problems from a wider perspective. Additional campaigns such as 'Think Before You Flush' are also seeking to reduce the amount of sewage related debris found on U.K. beaches. You can find more information about these campaigns here:

<http://www.sas.org.uk/campaigns/marine-litter/>

Apart from the presence of plastic and other rubbish on the beach and in the line-up, another consequence of our unsustainable consumer existence is noise pollution and atmospheric pollution. You might have been brought up surfing in an urban environment, with the noise of say, a busy motorway or an airport nearby, and the smell of, say, an oil refinery or a paper mill; and you might think that these things are inevitable – just something you have to put up with. But most normal people would agree that surfing with 'natural' noises and smells, such as the sound of seagulls and the smell of salt water, is a lot more pleasant. Of course, those things are not inevitable, necessary or even 'right' – they are indicators of a lifestyle that will have to stop if we are to avoid making the planet unliveable.



Campaigner from SAS with unidentified floating objects found on a beach in the U.K.

Our preference for ‘natural’ sounds and smells over ‘industrial’ ones isn’t a coincidence. Our senses warn us when we come into contact with potentially ear-damaging sounds and poisonous gases; because we evolved to be that way over the 99 per cent of the time we have existed as a species. It’s only during the last one per cent that we have created an artificial world full of loud noises and nasty smells, many of them linked with the extreme rate at which we are burning fuel and altering our environment.

This brings us onto the issue of jetskis and towsurfing, which needs to be touched on here, if only briefly. As we’ve already hinted above, if something makes a loud rasping sound and pumps out unpleasant-smelling gases, chances are it is not very good for the environment. By doing those two things, a jetski is already making life more uncomfortable on a local scale, especially for any surfers in the water who aren’t participating; but it is also burning fossil fuels and pumping greenhouse gases into the atmosphere. Compared with being towed into a wave by a jetski, paddling into a wave is much more environmentally friendly. It doesn’t make a noise and it doesn’t emit greenhouse gases. If you can’t see that then you must be daft.

For a while, towsurfing started to eclipse traditional paddle-in big wave surfing, with people starting to tow into waves far too small to justify it; and the public at large (including a lot of surfers) almost unaware that there was any way of catching big waves other than using a jetski¹⁴.

The good news is, at least in Hawaii, California and South Africa, towsurfing is quickly going out of fashion, with the big-wave elite paddling in at spots such as Jaws¹⁵, Cortez Bank, Phantoms and Nelscott Reef¹⁶. Of course, most of the time, jetskis are still used for getting out there in the first place, and for rescue purposes – still worse than no jetski at all, but infinitely better than having to use one every time you want to catch a wave.

1.4 Measuring our effect on the planet

In order to reduce our effect on the planet, and somehow eventually become sustainable so that the planet continues to support us, it would be useful to know how to measure that effect in the first place.

One way of doing this is by measuring your environmental or ecological footprint¹⁷. Your ecological footprint is the area of land required to support your consumption of food and energy and absorb your waste products. It is commonly measured in global hectares (gha). If your ecological footprint is smaller than the amount of resources available to you, you are living sustainably; but if it is larger, you are living unsustainably. The total amount of resources available to the entire human population is finite (we only have one planet), and so, if the human population as a whole has an ecological footprint larger than the available resources, we are in trouble: we are in a situation known as ecological overshoot. And that is exactly what is happening. The average ecological footprint for one citizen of the Earth is about 23 gha. The Earth, however, only contains about 15 gha for each person. We are consuming about fifty percent more than is actually being made available. That means, of course, that it will all run out very soon.

Image courtesy of Rich Hardy

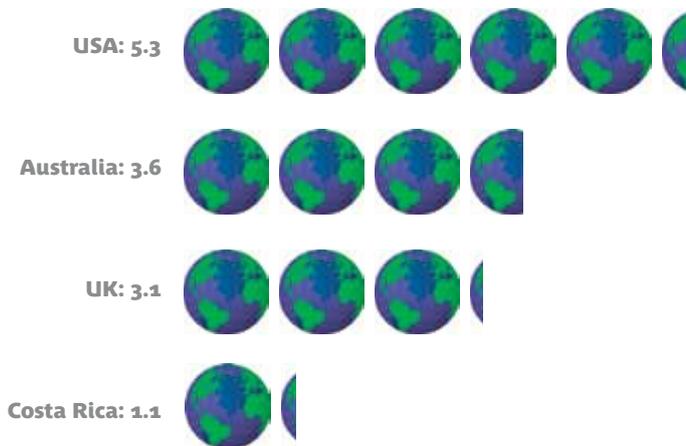


With surf like this is it any wonder the Costa Ricans are so happy?

Put another way, if we wanted to continue consuming at the same rate, but in a 'sustainable' way, so that it doesn't all run out, we would need more resources – we would need one and a half planet Earths. That slightly absurd notion has become the standard way of getting the point home to people, because people really don't get it, that there is only one planet, nothing else.

It doesn't stop there either. For most of us, living in 'developed' countries such as the U.K., we are consuming many times more resources than the vast majority of people on the planet. For example, if everybody in the world consumed as much as the average U.K. citizen (which is what they all aspire to), and we wanted to be sustainable, we would need over three planets.

A simpler, but more common way of estimating our impact on the planet is the carbon footprint. Your carbon footprint is just the part of your ecological footprint associated with your consumption of hydrocarbons, and therefore the emission of greenhouse gases into the atmosphere, which, in turn, is the main cause of global warming. Your carbon footprint depends on how much you travel in vehicles like cars, buses, trains and aeroplanes, but also on the heating of your home, your use of electricity generated by coal-fired power stations, or your consumption of goods which have been transported from one side of the world to the other.



Of course, a lot of the hydrocarbon consumption in the world is beyond your personal control. But it must be under someone's control, so if everybody reduced their carbon footprint then we would have a chance of being sustainable. So, even though perhaps the most important thing is to persuade those who are making the biggest impact to reduce their carbon footprint, it is also very important to measure and try to reduce your own. As we will see later on in the report, we surfers tend to do a lot of travelling, and this puts our carbon footprint a lot higher than it ought to be.

The number of planets we would need if everybody on the Earth consumed the same amount as the average citizen in the countries shown. For example, if everybody consumed the same amount as the average U.K. citizen, we would need 3.1 planets.

There are literally hundreds of websites containing ecological and carbon footprint calculators. Here are some examples:

Calculates your ecological footprint (U.S. based): <http://www.myfootprint.org/>

Carbon-footprint calculator (U.K. based):

<http://www.carbontrust.co.uk/cut-carbon-reduce-costs/calculate/carbon-footprinting/pages/carbon-footprinting.aspx>

Gives the number of planets required if the whole world consumed the same as you: <http://footprint.wwf.org.uk>



2 ENERGY

We humans are the only animals on Earth that rely extensively on energy sources apart from the food we burn inside us, to live our lives. Our closest cousins, the chimpanzees, are capable of making primitive tools and are aware of gravity and weather, and other mammals such as beavers make small environmental modifications such as changing the flow of rivers; but no other animals dig gigantic holes in the ground, extract oil and gas, and then turn these into heat energy to keep warm, move around the planet thousands of times faster than they could normally, and build machines which extract minerals from the ground to make adornments used to show that some members of that species are better than others.

We are supposedly the most intelligent animals on Earth because we can do all those things. Other animals are dumb because they don't live in insulated blocks of concrete, drive around in cars, own televisions and eat food that has been flown half way around the world. But most other animals alive today are living sustainably: they are not using energy faster than it is being produced and they are not modifying the environment so much that it will eventually stop supporting them.

We are using far more energy than we should be – it's that simple.

We are using far more energy than we should be – it's that simple. Economists and politicians still tell us that there is nothing wrong with continuing to consume the same amount of energy, and they even tell us that an increase in our energy consumption is inevitable. All we have to do is build enough windmills and wave energy converters and we will have seamlessly moved over to a sustainable existence, and all those graphs on page 11 can keep on increasing forever. Of course, new types of energy converting devices that don't burn fuel thousands of times faster than it is being produced and don't emit poisonous gases into the atmosphere are obviously better than what we've got now, but it's not going to work on its own. The only thing that will work is if we cut down on the amount of energy we are consuming

As surfers, we are in a good position to at least recognize that it is possible to live happily without consuming too much energy. Surfing, stripped down to its bare essentials, actually consumes very little energy, and usually makes us extremely happy. Riding a wave doesn't burn any fuel and doesn't result in the emission of greenhouse gases. Alright, most of the time you need a board and wetsuit, some wax and a leash, the manufacture of which rely on petroleum; but the enjoyment itself comes from using those things as tools, not buying and owning them just for the sake of it. It follows that we surfers should be happier to consume less energy than other people who get pleasure out of driving their cars, owning a large motor yacht or buying a new 42-inch television every other day. However, it might turn out that all the peripheral activities surrounding surfing such as travelling and buying brand-identified clothing, results in us burning up just as much if not more energy than Joe Public.

2.1 Where does it come from and where does it go?

Apart from geothermal energy, which is principally derived from the cooling down of the planet after it was originally formed¹⁸, most of the energy we use ultimately comes from the Sun. You could trace back the car journey you made this morning, the kettleful of water you boiled to make that cup of tea, or the energy required to manufacture the T-shirt you are wearing, as a 'packet' of energy which arrived at the Earth's surface some time ago as solar radiation.

Here is a typical example: A 'packet' of sunlight lands on some trees about 300 million years ago. Through photosynthesis, that sunlight allows those trees to grow. The trees would have then died and decayed over millions of years, and ended up as coal, a highly-compressed form of energy deep in the ground. Then, some time in the last 20 years or so, somebody extracted that coal out of the ground and burned it in a large machine. That machine was designed to heat up some water, whose increased pressure was then used to turn a wheel which generated a magnetic field which generated electricity. Get the idea? The concept is described spectacularly in the film *Home* by Yann Arthus-Bertrand¹⁹.

In the example above there are two problems in the way that packet of sunlight is converted into energy used by us. Firstly, the conversion process (burning) converts matter into energy and matter, most of which is the greenhouse gas carbon dioxide. Therefore, coal is not a 'clean' energy source. The other problem is that the coal took several million times longer to generate than the speed with which we are burning it up. Therefore, coal is not a sustainable energy source. Of course, this applies in exactly the same way to other fossil fuels such as oil and gas.

Now since that energy comes from sunlight in the first place, wouldn't it be better to just convert that energy directly instead of waiting millions of years for it to convert into matter and then converting it back into energy?

Now since that energy comes from sunlight in the first place, wouldn't it be better to just convert that energy directly instead of waiting millions of years for it to convert into matter and then converting it back into energy? In other words, cut out the middle man. Well, energy-conversion devices such as solar panels and wind turbines do just that. They either convert sunlight straight into electricity or into heat, or they convert wind into electricity. Wind is a result of the different response to sunlight of different parts of the planet, so it's pretty close to the source. In principle, these types of energy converters are sustainable because they can only convert the energy as fast as it is coming in. (Hopefully, a windmill that scoops up ten years' worth of wind in one day or a solar panel that sucks in ten years' worth of sunlight in two hours, will never be invented). They are also 'clean' in the sense that they only really convert energy into another form of energy, the by-products being undesirable forms of energy such as sound and unusable heat, but very little or zero in the way of greenhouse gases or any other form of matter.

So, if we could stop using fossil fuels and instead use windmills, solar panels and perhaps other similar devices such as wave-energy converters, we'd be half way there. I say 'half way' because, in order for this to be practical, we've got to reduce the rate at which we use energy. Fossil fuels

were laid on a plate for us and it was just too easy to gobble them all up. This time we're going to have no choice but to use the energy at the same rate as it is fed to us. In other words, it will just not be practical to build a world in which our energy consumption is the same or more than it is at the moment, but using windmills, solar panels and wave-energy converters instead of coal and oil, because you would need an impossible number of those devices.

Here is a simple example using land-based wind turbines: The typical power output quoted by the company that produce wind turbines is around one megawatt, and the typical output of a coal-fired power station in the U.K. is about 1,600 megawatts²⁰. Hence, according to this principle, if we wanted to substitute a coal-fired power station with windmills, we would need about 1,600 of them. That is a lot of windmills. To construct a 1,600-megawatt wind-farm, among other things you would need about three million tonnes of concrete. And that's not the whole story because that output is quoted assuming that the wind is blowing at exactly the right strength; most of the time the output will be much lower.

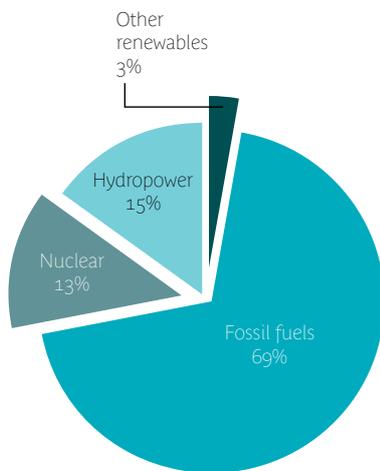
The typical power output quoted by the company that produce wind turbines is around one megawatt.





Image courtesy of Pelamis Wave Power

A Pelamis machine ready to convert wave energy into sustainable electricity



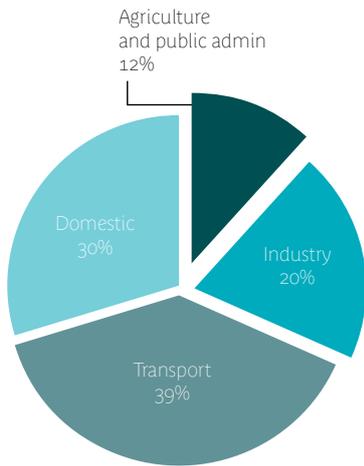
Share of global electricity from various different sources in 2008²⁴

Another simple example, this time more interesting for us surfers, is to use wave-energy converters²¹: The Pelamis is a series of giant floating tubes, linked end-to-end by hinged joints, very much like a string of large floating sausages. It is designed to lie semi-submerged in the water and go up and down in tune with the swell, with the electricity being produced by generators connected to the hinged joints. The commercial version is 150 m long by 3.5 m in diameter and is quoted as being able to supply 0.75 megawatts of power. However, this is the maximum output, only achieved in wave heights of at least five metres. Off the coast of northern Scotland, for example, where a lot of wave-energy converters are being deployed, the average wave height is about 2.2 metres.²² According to the manufacturers of the Pelamis, the output of the device in wave heights of 2.2 metres is around 0.2 megawatts²³ (27% of its maximum output). So, in order to replace a 1,600-megawatt coal-fired power station with Pelamises, we would need about 8,000 of them. That's a lot of giant sausages floating in the sea, with a lot of cables and a lot of maintenance.

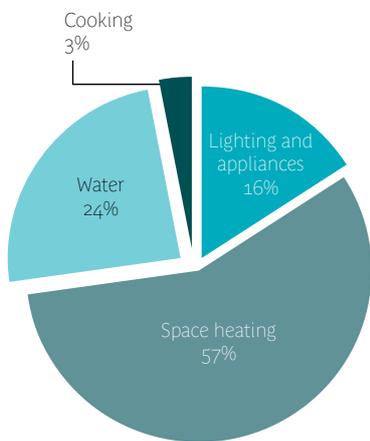
There are a huge number of other forms of potentially clean and renewable energy sources being investigated at the moment, including tidal, hydroelectric, biomass, biofuels, geothermal and solar. But it is still doubtful that it would be practical without drastically reducing our energy demands. Note that nuclear power is often listed as a renewable and clean energy source however, plutonium and uranium are finite resources. It's partially true that nuclear fuel will produce electricity without producing harmful greenhouse (although there are a lot of embedded greenhouse gases in nuclear energy production), but nuclear energy produces incredible environmentally harmful waste. Using nuclear energy to solve climate change has been compared to stopping smoking cigarettes by taking up smoking crack.

So, where does all that energy go? Once it has been generated, at the moment mostly by fossil fuels, what do we use it for? Well, some of that energy is used for keeping us alive and comfortable living in cold climates, and some it can probably be justified for food production and distribution. But a lot of it is used for things that are totally superfluous to keeping us alive; things that are a consequence of our consumerist way of life in so-called developed countries.

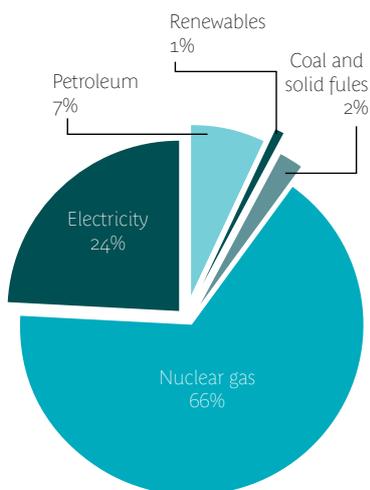
For example, transporting stuff from one side of the planet to the other. This includes clothes and electronic items that are manufactured on one



How we used all the energy generated or imported into the U.K. in 2008²⁵.



How the 30% domestic energy use in the U.K. in 2008 was split up²⁶.



Where the fuel came from that provided the domestic energy in the U.K. in 2008²⁷.

continent, used for a small amount of time on another continent, before being discarded and sent back to the original continent to be 'recycled'. It also includes transporting vast amounts of food all over the globe so we can eat things that are out of season in our country, such as kiwis from New Zealand or apples from South Africa. The global transport network, with all its trucks, vans, ships and planes, is an enormous consumer of energy and it is getting bigger all the time. Obviously, then, it is one of the biggest contributors to global warming, pollution, resource depletion and inequality.

The energy that goes into manufacturing something before you buy it and then disposing of it when you have finished with it is sometimes referred to as embodied energy or grey energy. Embodied energy is really important because it means embodied carbon emissions, embodied resource depletion and embodied pollution. Items that you wouldn't normally associate with energy burning, such as a T-shirt or a bottle of water, sometimes require a ridiculous amount of energy to manufacture, which might result in greenhouse gas emissions many times the weight of the item itself. Embodied energy is very difficult to calculate because it involves a complicated web of processes, for some of which there is no information available. It is particularly confusing when you need to decide whether to buy an 'active' item like a car or an electrical appliance that consumes less than the old version you have, which you'll have to throw away. We won't say much more about this here, as there is a lot more in section 4 on Stuff.

The section labelled 'transport' in the charts below also refers to personal travel – by car, plane, bus, train or basically any vehicle with an engine. This is something that, although strictly superfluous for our survival, would be pretty hard to imagine doing without. Personal travel, especially by car and, even worse, by plane, uses a lot of energy, burns a lot of fossil fuels and contributes in a big way to global warming and resource depletion. And for us surfers, it might turn out to be the one thing that tips the balance and actually makes us less environmentally friendly than your average Joe Public. We'll examine this issue a lot more carefully in Section 3 on Travel.

You'll see from the charts below that the section labelled 'domestic' is a pretty large contributor to the overall energy we use. In the U.K., because the climate is such that, most of the year, we can't just live at the same temperature as the outside air, we use a great deal of energy heating our homes and heating water. Most of this energy comes from gas, which is, of course, a fossil fuel. Then, we use quite a lot of energy for domestic lighting and domestic appliances such as washing machines, fridges and televisions. The electricity that these devices run on still comes largely from coal-fired power stations.

Interestingly, even if we were able to generate all our electricity from renewable sources such as wind and solar power, in the U.K., we would still have to do something about all that energy we use that comes mostly from gas.

2.2 Energy: what to do? **Use less energy at home**

The less energy all of us consume in our homes, the smaller our ecological footprint will be. That means cutting down on things that consume unnecessary amounts of energy first, and then hitting the less important stuff later. You have to get your priorities right, and distinguish between those things in the home that burn the most energy, but we could fairly easily do without, and those things which are most useful to us but don't necessarily burn that much energy. For example, anyone could probably get used to having one shower instead of two baths a day or having the central heating at 18 degrees instead of 25; and this would make a big difference to your energy consumption. But giving up having a computer or telephone, or cutting down on the number of wall clocks, for example, might not save much energy in proportion to the disruption it would cause.

As a surfer in the U.K., a place where the best surf occurs in winter, you will be a lot more used to braving the elements than most people.

As a surfer in the U.K., a place where the best surf occurs in winter, you will be a lot more used to braving the elements than most people. You will have probably grown up with having to put on a wet wetsuit in the pouring rain, surfing while hail stones are stinging your face and going home with numb hands and feet. Also, if you have been surfing for 20 years or more, unless you come from a millionaire family or are part of the WCT top 44, most surf trips you have done in the past will have meant roughing it. To maximise your surfing time for a minimum amount of money you will have lived in a van for six months, on a boat, in a tent, or in your boardbag. So, even if you have grown a little older and got used to some of those home comforts, it should be a little easier for you than for the average Joe to turn that heating down a little, make do with a normal-sized TV instead of a 42-inch plasma (which uses about five times as much power) or take a quick shower every now and again.

Buy more energy-efficient domestic appliances?

Obviously making machines more efficient is always better because less energy is wasted in things that we don't use, like friction, heat and turbulence. However, strange as it may seem, an increase in efficiency doesn't necessarily lead to a reduction in energy consumption. In fact, there is some evidence that simply buying more energy-efficient domestic appliances (or a more efficient car or having cheaper fuel because it is generated in a more efficient way) rather than actually making a conscious effort to consume less, sometimes means that we actually end up consuming the same or more²⁸. This is because, if something is cheaper to run, we are tempted to use it more or buy a bigger one, ending up spending the same but consuming more. For example, cheaper gas or electricity means you might be tempted to turn your central heating up take more hot baths or use the washing machine half full; or if you have a more efficient car you might be tempted to drive it more. So, we need to be careful with that.

Also, when considering buying a new, more energy-efficient machine of any sort, try to do some homework into the embedded energy involved

in manufacturing the new one and recycling the old one. Try to get the timing right: for example, a point will be reached where keeping your 1972 Mercedes on the road for another gas-guzzling year is worse for the environment than the recycling of the Mercedes and the manufacture of, say, a new Toyota Prius.



The BedZeds, sustainable housing project in London.

Insulate your home

If you heat up your house using valuable energy, you really want as little of that heat as possible to be sucked out through the doors or windows into the street or through the roof into the sky. Before you start to think of alternate ways of heating your house, make sure it is properly insulated. Roof insulation, cavity-wall insulation, properly sealed window frames and double glazing are the basic methods of insulating your house. Some of these things, like injecting insulating material into cavity walls, or rolling out insulation in the

loft, are straightforward and help enormously, especially with the array of grants available to help with such projects. But things like replacing all the windows or ripping up the floorboards to insulate underneath them are a bit more complicated and are probably best done if the house has to be renovated anyway. If you are moving into a new home, you would think that they would have to be really well insulated by law, but unfortunately the U.K. is still a very long way behind other European countries. For example, new houses in Norway and Sweden that meet the required standards are about four times as energy efficient than new houses in the U.K. that meet our standards²⁹.

If you're really serious about living efficiently and reducing your ecological footprint right down, there is a type of house that is so well insulated that it doesn't even need central heating. This is the famous passivhaus³⁰ or 'passive house' first developed in Germany around the end of the 1980s. All the heat in a passivhaus is supplied by sunlight coming in through the windows and by the people inside it. The large triple-glazed windows are orientated facing the Sun (south, in our case), and there is a fresh-air circulating system whereby incoming cold air is warmed up by the outgoing warm air via a heat-exchanger. Of course, this is only practical if you are going to build a new house from scratch. In Germany, where the concept was first developed, there are about 4,000 of these houses and in nearby Austria there are about 1,000. In the U.K. there aren't very many yet, except for one interesting housing development in south London called the Beddington Zero Energy Development (BedZed)³¹, which contains 99 homes and workspace for about 100 people.

One of the most difficult things to assess is whether the overall impact on the environment of a particular energy scheme will actually be positive.

For us surfers, the renewable energy device that could have the most direct influence on our lives is the wave-energy converter (WEC).

Support renewables?

This might seem like a no-brainer, but it's a little more complicated than you think. While it makes total sense to support research and development into energy converting devices that do not deplete our resource base and do not emit poisonous gases into the atmosphere, it helps to do a little background reading before we start to support every scheme proposed. One of the most difficult things to assess is whether the overall impact on the environment of a particular energy scheme will actually be positive. We have to try to make a educated guess as to whether the environmental advantages of having these devices – clean, renewable energy – outweigh the possible disadvantages – damaged ecosystems, altered coastal morphology, thousands of machines scattered all over the countryside and, of course, the effect on waves for surfing. Most of these effects are almost impossible to predict, but in a lot of cases the general thinking is that we ought to just go ahead with these projects anyway, because the alternatives would be much worse.

One example of a scheme whose environmental costs are certainly not guaranteed to outweigh its benefits is the Severn Barrier. This is a tidal-power project, which has been proposed, shelved and re-considered several times since it was first thought of in 1925. It consists of a giant concrete dam, ten miles long, with 200 turbines generating almost as much electricity as a coal-fired power station. That is tempting, but chances are that the impacts on the estuarine system would be devastating. Any significant interference with a natural system such as this will always be negative because the system is already in perfect balance. Known potential problems include the killing of thousands of migratory fish in the turbines, the accumulation of pollutants on one side of the barrier, and the affect of increased sediment concentrations on phytoplankton growth .

For us surfers, the renewable energy device that could have the most direct influence on our lives is the wave-energy converter (WEC). These have the potential to extract energy from the waves without permanently depleting the energy source and without causing any pollution. But they also have the potential to seriously interfere with our waves for surfing. If a large enough array of WECs is deployed close enough to a surf spot it will change the waves at the breakpoint; not just by removing energy from the waves and making them smaller, but also – and this is much more difficult to predict – by generating backwash, double-ups, sections and tube shut-downs. If the surf spot is already a high quality one then the odds are massively in favour of the WECs making it worse. In one particular case, Oysters – devices consisting of giant metal flaps over 20 metres wide – are planned to be deployed just offshore of a world-class surf spot in the Orkney Islands. One study on the effects on wave height and has concluded that there will be a significant reduction³³, which suggests that there will be significant wave interference too.

For an assessment of the various types of wave-energy converter and their possible effects on the waves, see the SAS WAR Report and Guidance On Environmental Impact Assessment Of Offshore Renewable Energy

Development On Surfing Resources & Recreation³⁴. Surfers Against Sewage fully support the development of wave-energy converters, but our policy is that they must never interfere with the waves for surfing. If there is evidence that the wave height will be significantly reduced (the easy part to study) then it must be assumed that the waves will be negatively interfered with by the devices. If the wave-height reduction is small, but the developers cannot prove that wave interference will be negligible, we must still assume that there will be interference and persuade them to deploy the devices away from any surf spots.

In summary, a better way of thinking would be to turn the problem on its head and look at the ultimate cause of the problem and not the proximate causes. It is not the burning of fossil fuels or the proliferation of thousands of windmills all over the countryside or the damming up of a huge estuary that is damaging the environment. The real reason is our way of life, our obsession with energy and consumption. If we could just reduce our consumption of resources down to the right level, we wouldn't need to worry about how many devices we could get away with installing without causing more damage to the environment, and how close that would bring us to meeting our ever-increasing demand for energy.

Going off-grid means disconnecting your home from the national electricity or gas networks, and generating your own heat and electricity using clean, renewable sources.

Go off-grid?

Going off-grid means disconnecting your home from the national electricity or gas networks, and generating your own heat and electricity using clean, renewable sources. This means that you cannot fail to only consume what is available. So, in principle, a large part of your life will automatically become sustainable. Before taking the plunge, you need to do a lot of homework and consider which energy-conversion devices are going to be best for your particular situation and what the initial costs are going to be (usually pretty high). If your house is not properly insulated, going off-grid will probably not work very well. Therefore, you must find out beforehand how much you are going to have to spend on insulation. Luckily, in the U.K. there is a lot of information available, and generating your own power is encouraged by organisations like the Energy Saving Trust.³⁵ There are several types of devices you can use to generate heat and/or electricity, depending on your circumstances, for example:

- **Water-heating solar panels:** These consist of arrays of water pipes mounted on the roof and connected to your hot-water system. They work a bit like radiators in reverse: cold water goes in one end and is heated up by the Sun, and warm water comes out the other end. They are relatively cheap to install, require virtually no maintenance and work remarkably well, even in cloudy weather, which is a distinct advantage in countries like the U.K. You will still need a pump to get the water up onto the roof in the first place.
- **Electricity-generating solar panels:** These contain silicone chips called photo-voltaic cells, which convert sunlight directly into electricity. They are great if you live in a fairly sunny environment, but otherwise quite expensive for the amount of power you get out of them. If you only have

room for one type of solar panel on your roof and you live in the U.K., best go for the water-heating type.

- A wind turbine: Small, domestic-sized wind turbines are available, which generate a decent amount of electricity as long as the wind is blowing. Unless you live in an inner city stuck between hi-rise blocks, or in a particularly windless inland part of, say, southeast England, one of these is probably worth considering. If you live on top of a hill or on the coast, even better. If you surf and you don't live near the coast, but you've always fancied having your own windmill, why not consider moving?
- Hydropower: If you are lucky enough to have a river or stream running through your property, then consider installing a domestic-sized hydroelectric generator. Large, commercial hydroelectric power plants involving giant dams are often quite damaging to the environment, altering sediment flows and ecosystems; but as long as thousands of people don't install a domestic hydropower plant in the same river or stream, the effects would hopefully be negligible.
- A wood-burning stove: Although not strictly clean or totally renewable, this is better than using coal or gas. The trick is to only burn wood at the same speed as it naturally grows back. That's difficult, if not impossible to measure, but if your home is well enough insulated and you live near a wood, you might be able to get away with only burning wood that you have collected yourself. Also, you can burn old furniture instead of throwing it on a landfill site.

*Stunning surf somewhere in the
North West of the UK*



Image courtesy of Greg Martin

3 TRAVEL

Travelling is one of the biggest contributors to our personal ecological footprint.

Until the industrial revolution, all the travelling we did was either on foot, on the backs of other animals, or using wind power if we travelled across the ocean. On land, the fuel we used to propel us along came from the food we ate or the food we gave to our horses, camels or elephants. And because of the way our digestive systems had evolved, burning carbohydrates faster than food grows was physically extremely difficult. As a result, the speed with which we travelled was governed by the speed at which we could burn those carbohydrates. Travelling was, therefore, sustainable.

Then, in the last couple of centuries, came trains, cars, buses and, eventually, aeroplanes – all powered by fossil fuels. Today, our world is completely dominated by these vehicles, and we couldn't imagine what we would possibly do without them.

Travelling is one of the biggest contributors to our personal ecological footprint. Especially if you are one of those people who take a lot of short-haul flights, or you do a lot of driving around in a large car, the travelling part of your footprint probably totally swamps the part associated with, say, energy use in the home. This is unfortunate because, for many of us, travelling is part of the essence of surfing.

Over the last, say, 20 years or so, our use of the two most convenient but least environmentally-friendly forms of transport – the car and especially the plane – has increased dramatically, and is continuing to increase. Cars are worse for the environment than buses or trains, but planes are much, much worse. Aeroplanes produce vast amounts of greenhouse gases, particularly when they take off and land. When the planes are up in the air, these gases are released at high altitudes, which multiplies their effect as greenhouse gases and hence their contribution to global warming.

A few years ago, if you were going on a short surf trip, you would try to cram as many people, wetsuits and boards as possible into one car. Nowadays, everybody has their own car, and we frequently go in convoys of two or more vehicle

A few years ago, if you were going on a short surf trip, you would try to cram as many people, wetsuits and boards as possible into one car. Nowadays, everybody has their own car, and we frequently go in convoys of two or more vehicles, just to save the effort of piling all those boards on the roof or sitting for two hours with your neck bent 90 degrees underneath the nose of a longboard. On medium surf trips, flying was often too expensive, so we'd either do the same – pile as many as possible into a van – or perhaps get their by bus, train and by hitch-hiking. Nowadays, there are super-cheap short-haul flights everywhere in Europe. If you can get from London to Biarritz and back in a couple of hours for under £50, it just doesn't make financial sense to do it any other way. As far as long-haul surf trips are concerned, well, to get from one continent to another we have almost always used the plane. But whereas before we would arrive somewhere and wonder what we were going to do for the next six months, nowadays we go on seven-day package deals to the Mentawais; and professionals go from Hawaii to Maverick's to Ireland, or from Western Australia to South Africa to Chile, just for one swell.

If we just go back to the way we travelled up until very recently, we might be able to reduce our ecological footprint considerably

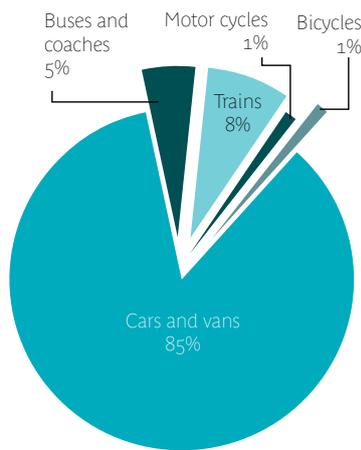
In addition to being a large contributor to our ecological footprint, personal travel is one aspect of our lives that is almost totally under our control. We know how many car journeys we are making a week, and we know how many plane journeys we are making a year, and, in a lot of cases, we could reduce them if we tried hard enough. This makes things a lot simpler than, say, trying to reduce the ecological footprint of the stuff you buy by taking into account all the embedded energy in the manufacture, transport and recycling of that stuff, most of which information is virtually impossible to get hold of (see Section 4 on Stuff).

The problem is that, if you are a surfer, travelling, and all the experiences that go with it, is also one of those things that you will probably value more than any amount of material possessions or home comforts. If we had to give up travelling all together, surfing just wouldn't be the same. Travelling and seeing what is going on in other parts of the planet, and how people live in other parts of the world, also gives us an environmental awareness that makes us realize that the way we live in our part of the world is ruining things for the entire human population. Paradoxically, travelling makes us realize that we should cut down on things like travelling. Hopefully, there is a way out. If we just go back to the way we travelled up until very recently, we might be able to reduce our ecological footprint considerably, while at the same time keeping or even enhancing all that worldliness that comes with it.

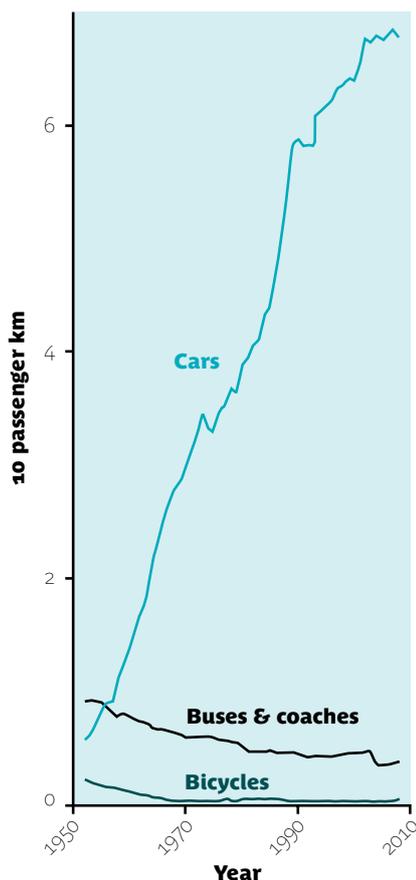
3.1 Driving *"The automobile... can't be blamed for anything... It only fulfils its destiny ... to wipe out the world."* Ilya Ehrenburg (1929)

Driving around in our cars is second to flying as the thing we do that contributes most to our personal ecological footprint. It is also something that we can easily change, but at the same time, something that most of us are reluctant to change. Driving means freedom, particularly if you are a surfer. For us surfers, life without a car would be more difficult than it would be for non surfers. But there are still a lot of things we can do to cut down the amount of driving we do or to make it less damaging to the environment. There are plenty of alternatives: from getting a smaller, more efficient car to making every effort to fill up your car with people, to using public transport, going by bike, walking or staying at home. Many of these changes we can make, especially to journeys that don't involve surfing, like going to work, going shopping, visiting your mates or taking the kids to school.

The world is dominated by the car. In the U.K. in 2008, there were about 34 million cars on the road – just over one car for every two people. That's not a lot compared with, say, Los Angeles, where there are actually more cars than people, but it's still too many. If we compare the type of surface transport in the U.K. between cars and vans, buses and coaches, trains, motorcycles and bicycles, we can see that the car totally dominates (see chart below). We are using public transport far less than we should be.



Comparison of the type of surface transport we used in the U.K. in 2008³⁷



Use of cars, buses and bicycles since 1952 (Don't worry about the units, just compare how the numbers have changed since 1952)³⁸

Why? Because public transport uses far less resources and emits far less greenhouse gases. If you can't see that, just visualize two different ways to carry 100 people: a bus with one engine and about eight wheels, or 50 cars with 50 engines and 200 wheels.

What is worse, our use of the car has been increasing rapidly in the last half century while the use of public transport has decreased considerably (see graph below). The graph does show some hope though – since around the mid 1990s, although the use of the car has still been increasing, that increase has slowed down. At the same time, the use of public transport is not decreasing at such a fast rate as it was a few years ago. To help avoid making the planet uninhabitable, that graph from now on has got to start to show a sharp decrease in the use of the car and a sharp increase in the others. If we are to stand a chance in the next few years, the use of the car must fall below that of public transport, like it was until about 1955.

George Monbiot in his book *Heat: How We Can Stop the Planet Burning*³⁶ points out that bus and coach travel is still associated with poverty and social exclusion in the U.K. It is 'counter-aspirational' which is why politicians have no interest whatsoever in promoting or encouraging it. If you give up your car and start taking the bus, you will be seen as having gone down the ladder of success. Politicians want people to want to go up the ladder, which means getting a bigger and bigger car and consuming more and more; which, of course, suits the car manufacturers perfectly. A quote commonly attributed to Margaret Thatcher sums this up nicely "Any man who finds himself on a bus over the age of 30 can consider himself a failure in life." I'm always happy to try and prove that lady wrong!

But since when has any of that bothered us? We surfers pride ourselves in being above all that. We are immune to those sorts of social pressures because we have a secret: we know how to enjoy things that money can't buy. In theory, we surfers should have no problems travelling on buses and coaches if we think it is practical. After all, many people still consider us social outcasts anyway, so, what the hell, we have nothing to lose.

If you are going surfing, public transport can be a nightmare. Firstly, you have to carry a lot of paraphernalia including your wetsuit, at least one board, leashes, wax, towel and maybe your lunch. If you are a longboarder or a big-wave surfer, that's even worse because your board will be much bigger and you might want to take a spare one just in case it breaks. Although some metro and train systems are surfboard-friendly, most bus and coach services in the U.K. either have a total ban on surfboards or they don't make much effort to encourage them³⁹. But that's not the only problem, especially if we're talking about short trips to get a surf session in and then get back home. You need to get to the beach, which is more often than not a long way away from where the bus stops, plus you need to hit it at exactly the right time to catch the swell, wind and tide. Plus, if the surf's no good at that particular beach, you'll have to wait for the next bus to take you to some other spot. Unless you live in a large city right

on the coast, such as Bournemouth or Brighton, just to get an hour in the water could take a whole day's travelling backed up with careful strategic planning.

So, at the moment, if you surf you'll probably need to use a car at least every now and again even if you try your best to use public transport whenever you can. But do you need a new car every three years, like the adverts say? No, of course not. Nobody needs a new car every three years, but some are made to believe they do. The difference is that we surfers should be more aware that we don't, because of our 'golden armour' that guards us against those same stupid social pressures that try to make us look like failures if we travel on buses and coaches. The manufacture of new cars contains a huge amount of embedded energy, which uses a lot of the Earth's resources and generates a lot of greenhouse gases. Ironically, even though modern cars seem to last longer than they did, say, 20 years ago, manufacturers still try to make us buy them about ten times as often as we should. In fact, some politicians even try to measure our wellbeing by the number of new cars sold, which apparently reflects the 'health' of the economy. Hopefully we're above all that.

Try to fit a couple of nine-sixes in a Porsche.

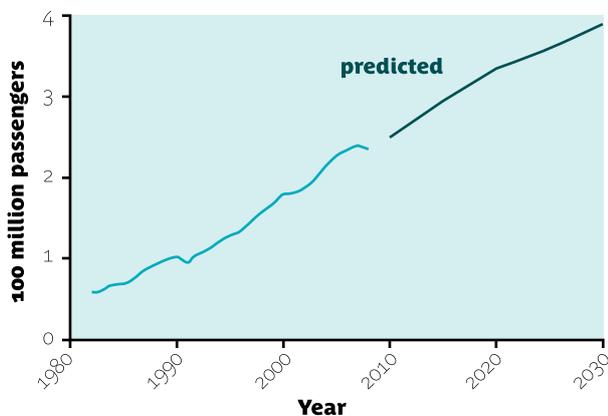
Traditionally among surfers there has always been a kind of 'inverted snobbery' when it comes to cars. A surfer with a really fancy motor is laughed at by other surfers. His car is either too expensive, therefore he is spending too much time on the London stock exchange and not enough time surfing, or it is totally impractical (try to fit a couple of nine-sixes in a Porsche, for example), therefore he is more of a poser than a proper surfer. This works in our favour by reinforcing our immunity to social pressures; but it also works in the environment's favour, because new flash cars use a lot of embedded energy to manufacture.

On the bright side, cars are much more efficient on fuel than they used to be. This is great as long as you don't buy a bigger car or drive more, just because it's cheaper. If you drive a similar sized car and cover more or less the same distances as you did 20 years ago you'll be saving money and doing less damage to the environment. My first car was a 1967 Ford Cortina estate – very practical for carrying surfboards and for sleeping in. It did about 20 miles to the gallon, if you were lucky. I drove that car around for about three years until the engine exploded. Now I have a 2005 Ford Focus estate, almost exactly the modern equivalent of the old Cortina, but it does about 60 to the gallon. So, in that sense, it doesn't pay to keep your old car for too long, and it doesn't make sense to go too far down the inverted snobbery route.

3.2 Flying

Due to the immense distances we can cover in a short time, flying around the world is extremely popular. Half a century ago, if we wanted to get to Australia, we would have probably gone by boat, which would have taken about three months. Then, a few years later, air travel went 'mainstream' and everything changed. Now we take it for granted that you can get to virtually any point on the planet from any other point in just over 24 hours. Flying is now cheap enough and there are so many flights available that we can go to Indonesia for a week, with accommodation and food included– something unheard of 30 years ago.

The graph below shows how air travel has increased in the last 30 years or so, and, if we don't drastically do something to stop it, how it is predicted to grow in the next few years.

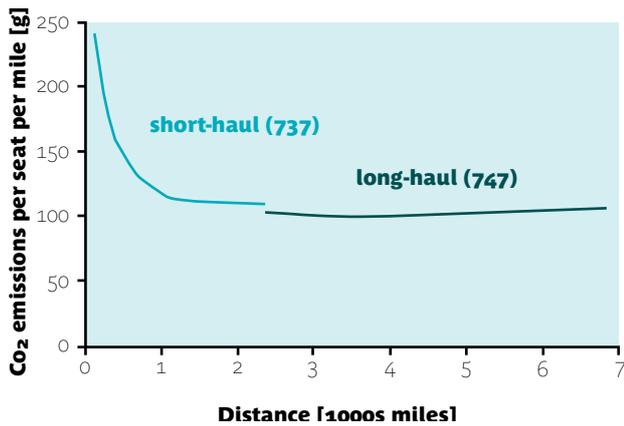


Number of passengers passing through the U.K.'s airports from 1982 to 2008, then predicted from 2010 to 2030⁴⁰

But there is a price to pay. Because planes take us so far in such a short time, they also burn vast amounts of fossil fuels, and therefore are a major contributor to global warming and resource depletion. If you do a lot of flying, it will affect your personal ecological footprint more than anything else.

There are two reasons why flying is probably the most effective way of pushing your ecological footprint sky high. Firstly, the emission of greenhouse gases per person per mile is around the same order of magnitude if you fly or if you drive on your own. But – and this is the important part – we tend to cover a lot more miles by plane. Which is, of course, the whole idea of flying. For example, the average distance travelled by car in the U.K. every year is about 10,000 miles. That distance is easily covered by one long-haul flight. The other reason is that the overall effect on global warming by planes is thought to be a lot greater – more than double, by some estimates – than from just the emission of greenhouse gases from their engines. Among other things, the vapour trails produced by high-flying jets modify the natural clouds, resulting in extra heat being trapped in the atmosphere⁴¹.

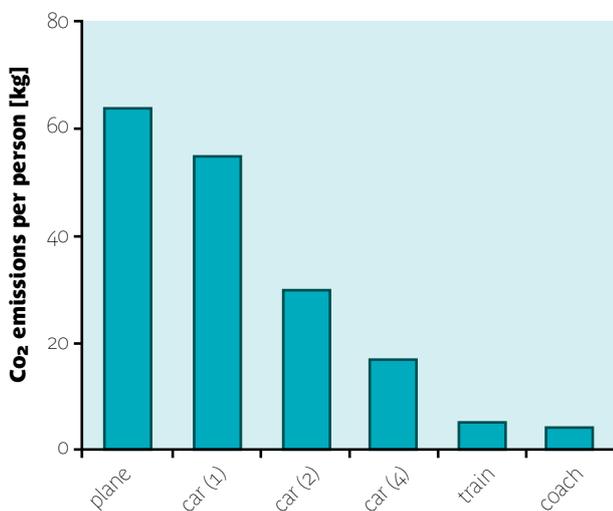
Getting the plane off the ground up in the air in the first place takes an immense amount of energy compared to when it is already up there cruising. Therefore, the fewer times you can take off and land, the better. So, ten 1,000-mile flights are much worse for the environment than one 10,000-mile flight. Unfortunately, short-haul flights in Europe have rocketed in popularity over the last few years, with specialists like Easyjet and Ryan Air making life too easy for us. The graph below shows how the amount of greenhouse gases emitted per mile goes up drastically as the length of your flight goes down.



Approximate carbon dioxide emissions per mile as a function of flight distance: You can see that it is much better to take one long-haul flight than lots of short ones⁴².

Admittedly, it doesn't seem to make sense to sit on a bus from London to Lisbon for three and a half days when you can jump on a cheap flight and get there in two hours for half the price. Until something happens to force us to take a low-carbon option, people will continue to fly from the U.K. to other parts of Europe. Perhaps the first thing we should do is cut down on those very short haul domestic flights; London to Newquay for example. The chart below shows compares the greenhouse-gas emissions from various different ways of getting from London to Newquay. As expected, flying is much worse than going by train or coach (more than ten times the emissions), but it also shows that going in the car on your own is also pretty bad. Sharing a car is a vast improvement, but it still isn't as good as taking the train or coach.

Another negative effect of air travel on the environment is something might not have thought about – the local atmospheric and acoustic pollution caused by the airport itself. Of course, if you live right near Heathrow, or if you regularly go surfing at Watergate near Newquay, then you'll probably be thinking about it all the time. Apart from the noise and fumes, airports take up a massive amount of natural land, and their constant expansion contributes to land destabilization and reduced biodiversity just the same as building a city.



Approximate carbon dioxide emissions for London to Newquay one way, assuming that the plane and the train are 70 per cent full and the coach contains 40 passengers. Car (1), car (2) and car (4) refer to one, two or four occupants (Based on Monbiot⁴³ p180)

It's understandable that the airline companies don't do anything to encourage us to fly less, because they just want to make a profit; and the politicians don't seem to be doing much either, because many of them have vested interests in those businesses. To a certain extent, it is also understandable that the surfing media doesn't tell us we should be flying less, because travelling is part of the essence of surfing, and travelling means flying. However, the surfing mags and websites constantly bombard us with stories of our heroes travelling half way round the world just to surf one swell, or being proud of the fact that they have been to 42 different countries in the last year; and sometimes it's very tempting to want to do the same. More about this in a minute.

Although you might think that cutting down on flying is a big sacrifice, and that every Tom, Dick and Harry is flying all over the place every day (just look how crowded the airports are), flying is a luxury that a huge percentage of the world population will never experience. Unfortunately, it is those people in the poor countries who will suffer most from the effects of climate change, resource depletion and habitat destruction. Compared to those folks in Indonesia or Bangladesh, we will get away relatively lightly, even though it is us who are causing the problem. The more you fly, the worse it will be for our waves and for their lives.

3.3 Travelling: what to do **Stop travelling altogether?**

To be absolutely sure we were contributing as little as possible to global warming, and, therefore, to ensure the preservation of the coastline and the continuation of

surfing for our children and our children's children, perhaps we should stop travelling altogether. Perhaps surfing should only be done by those who live within walking or cycling distance to the coast, or by those prepared to use buses or trains to get there.

What would happen if surf travel suddenly became a forbidden luxury; if we never went to Bali, Hawaii or Jeffery's Bay, or even another part of Europe to go surfing?

Would this work? What would happen if surf travel suddenly became a forbidden luxury; if we never went to Bali, Hawaii or Jeffery's Bay, or even another part of Europe to go surfing? Would we soon forget about travelling, accept it as a thing of the past and continue as if nothing happened?

Probably not. If we weren't able to travel, surfing would end up a more localized activity, each spot having its own dedicated crew. You would rarely see a new face in the line-up, even from a beach just down the coast, let alone from some far away country.

If we couldn't travel, we would lose out on many of peripheral aspects that come with it: things that get absorbed by us effortlessly, like a knowledge of the cultures and languages of the world, an openness and tolerance towards people of those different cultures, and, ironically, an enhanced awareness of the fragility of our environment. If we didn't travel, we would find it even more difficult than we do now to appreciate the frailty of our environment and the finiteness of the planet. We might be less inclined to look try to reduce our ecological footprint and to persuade others to do the same. Think about places like Cocos Kealing, where all the rubbish we throw away ends up on uninhabited coastlines; or places like Vanuatu, where the effects of global warming are being felt by the people least responsible for it; or places like Bali where people need to be educated not to become like us and abuse their own environment. Actually witnessing all this sort of stuff first-hand is bound to make you more inclined to do something about it than sitting at home in front of the box.

Travelling, which increases our footprint, makes us more aware that we should all decrease our footprints – it's a paradox. So is there an answer? Is there some way we can still keep travelling, continue to appreciate the miracle of our environment, without destroying the very environment we have learned to value?

Go back to travelling 'old style'

One solution would be to keep on travelling, but do it in a more sustainable way. After all, it is only recently that surf travel has become 'surf tourism' and, in the process, become a lot more carbon-hungry. Up until a few years ago we tended to travel in a more environmentally friendly way without realizing it. Most of us didn't know much about global warming, resource depletion or loss of biodiversity, so we didn't consciously do anything about it. However, carbon-hungry travel was simply beyond most of us, so, in a

way, we were automatically more sustainable. Splashing out on unnecessary luxuries was frowned upon – not because it was bad for the environment, but simply because it was un-hardcore. The coolest thing was to be able to say you discovered an unriden pointbreak somewhere in West Africa after travelling for five days on top of a crowded train, with chickens, cows, bicycles and 100 other people. Flying anywhere inside the same continent was not for real travellers – not only would you have been laughed at by other surfers, but you would have also blown a month's budget, just like that.

Maybe a useful trick would be to make people want to travel in an environmentally-friendly way, not by making them feel guilty about some boring ecological footprint, but by showing them how cool it can be to travel to remote areas using the least resources.

Maybe a useful trick would be to make people want to travel in an environmentally-friendly way, not by making them feel guilty about some boring ecological footprint, but by showing them how cool it can be to travel to remote areas using the least resources – using ingenuity instead of money. For example, six months in South America on £500 is, admittedly, more challenging than a week in the Mentawais for £3,000, but, because of that very reason, it has got to be more rewarding in the end. Putting more emphasis on travelling as an adventure in itself, rather than as a means to an end has got to be the way to go.

If you think about it, modern air travel and all the hassle that goes with it is often a lot less enjoyable than slower, old-style travelling. When time becomes a big issue, travelling can really get stressful and is anything but character-building. And when we have to put up with the same madness over and over again, the novelty tends to wear off. For example, how many times have you been stuck in that queue before the x-ray machine, wondering if that tube of toothpaste lost in your hand luggage is more than 100 ml, checking your watch every few seconds, wondering if your boards are going to make it to the other end, and perhaps imagining being dragged off and tortured in your own country for being a terrorist? In the end, you just want to get it over with and get to your destination. Most of the travelling part of the surf trip just fades away as a bad memory, instead of being an integral part of the experience.

So, instead of getting to some spot as quickly as possible to collect up as many surfing hours as possible as if they were marketable commodities, we should step back a little, slow down and enjoy the journey. It would not only give us an experience to remember for the rest of our lives, but it would also reduce our environmental footprint and increase our environmental awareness; both of which would feed off each other.

This syndrome exists in all sorts of walks of life, and was summed up by Yvon Chouinard, talking about how climbing Everest has now become so easy that it is full of “high-powered plastic surgeons and CEOs” most of whom really don't appreciate it:

“The whole purpose of climbing something like Everest is to fetch some sort of physical and spiritual gain, but if you compromise the process, you're an arsehole when you start out and you're an arsehole when you get back”

Instead of living somewhere where there are no waves, or somewhere where you are fed up with the waves you've been surfing for years, and travelling somewhere else to surf every opportunity you can, why not just move?

Live where you want to surf

Instead of living somewhere where there are no waves, or somewhere where you are fed up with the waves you've been surfing for years, and travelling somewhere else to surf every opportunity you can, why not just move?

Enjoy surfing the kind of waves you want to surf for most of the year, and then perhaps, if that place has an off-season (which most places do), take the opportunity to travel somewhere else while you're not missing anything at home. That way you'll be minimizing your ecological footprint and, at the same time, maximizing your surfing all the year round.

Of course, you might have already thought about it long and hard and realized that you just can't move away from, say, London, because of family commitments or because your type of work is unique to that area. However, if you haven't given it much thought, it might turn out to be a lot easier than it seems. In many cases, once you've done it, you'll be enjoying a post work surf, think back and realize how much easier things are now than they were before.

Take one long trip instead of lots of short ones

Perhaps your circumstances are such that you really can't just take off to South America and live like a hippy for six months, or go on a surf trip somewhere and end up staying there and becoming an ex-pat. Perhaps the next best thing, if you can do it, is to just take one long holiday a year instead of lots of small ones.

If you still decide to fly somewhere, taking one long-haul flight instead of lots of short ones is much better because of all those greenhouse gas emissions associated with taking off and landing. But since you'll have more time, taking longer to get there and back, and perhaps discovering something on the way, now becomes more of a viable option. So you might end up having just as much fun if not more, piling a few people into a van, or even going by train.

In the U.K, surfers are often under the impression that the quality and emptiness of the waves are directly proportional to the distance travelled to get to them.

Explore the surf on your own doorstep

In the U.K., surfers are often under the impression that the quality and emptiness of the waves are directly proportional to the distance travelled to get to them. While some of the best waves in the world exist in Indonesia, Hawaii and Australia – almost as far away as you can get – there are also world-class waves in Ireland, Scotland, Spain and Norway. And if you think our waves in the U.K. are all crowded and have all been surfed, then think again; we live in an archipelago, with 6,289 islands in England, Wales and Scotland, and 279 in the Republic of Ireland⁴⁴. You know at least one or two of these islands must contain quality uncrowded or unsurfed waves.

Travelling and finding surf is all about ingenuity rather than spending as much as possible on an air ticket. Discovering special surf close to home has the added satisfaction of knowing that you did it yourself. Also, it will be easier and cheaper to go back to when your newly-found knowledge of that spot tells you that it will be firing. Finally, you'll have the satisfaction of knowing that you did it without pumping thousands of tonnes of greenhouse gases into the atmosphere.

Image courtesy of Greg Martin



swell unloads onto a quality reef set up in the South West.

Make the most of modern technology

Many of us are conned into using technology the wrong way by the media. If we are presented with a new invention like the mobile telephone, we buy a new one every other month; or if we see a picture of some guy on a jetski, we buy one and start towing into six-foot waves. But technology doesn't necessarily have to be bad for us – if we use it right. For example, the internet and the mobile telephone, products that epitomize the modern consumer society, can be very useful if applied in the right way. You can use the internet to make good wave predictions up to, say, three days

in advance, which can save you a lot of unnecessary travelling. It can help you to work out which surf spot to hit, or, indeed, whether it's worth going surfing at all. Likewise, being in contact via mobile phone with a network of buddies helps us to know which surf spots are working right now, and saves us having to go and check it out ourselves.

When you hear people complaining that line-ups have become more crowded because of the internet, and that people ought to be left up to their own initiative to find out where to surf, they are forgetting that the internet can actually be used as an addition to your ingenuity, not a substitute. If you want to stay one step ahead of the pack, you still can, as long as you don't give up using your own brain. More about technology in Section 4 on Stuff.

Carbon offsetting?

Carbon offsetting is a scheme that proposes to neutralize the greenhouse-gas emissions associated with a particular activity. You do this by contributing just the right amount to a scheme that soaks up the greenhouse gases that your activity emitted. Typical ways of doing this range from the distribution of energy-saving light bulbs to developing countries, to replanting the Amazon rainforest.

Now, that sounds great, because it means that we can continue travelling as much as before and even increase our travelling, as long as we mitigate it with a few carbon offsets. Put another way, we can increase our ecological footprint as much as we want as long as we decrease it again using carbon offsetting. When you book a flight, for example, you can choose to pay a bit more and 'offset' that flight, so that its effect on the environment was neutralized.

People will look at carbon offsetting as a kind of environmental abuse mitigator.

So, if it's that simple, why am I writing this report? Well, for a start, if the effects of global warming are so difficult to predict, how can we possibly say that the schemes paid for by our offsetting will work? Surely, the only way to stop the environment supporting us is to stop interfering with it, not interfere with it more. This then leads us to suspect that a lot of carbon offsetting schemes might be just a marketing strategy by companies afraid of losing profits. In fact, according to a recent survey, out of 170 companies that sold carbon offsets, only 30 were considered to be any use whatsoever⁴⁵. Even high-profile companies like Easyjet have been caught with their pants down over carbon offsetting⁴⁶.

Lastly, even if we assume that these schemes work, there is still another big problem: people will look at carbon offsetting as a kind of environmental abuse mitigator. This perhaps could be likened to an extra car park fee for beach cleaning, giving you the 'right' to drop a certain amount of litter. Just imagine: £0.01 for a cigarette end, £0.10 for a coke can, £1.50 to drain your engine oil. It will do nothing to encourage us to look after our environment and, even worse, it will exacerbate social inequalities.

Biodiesel is a plant-based fuel, derived from the oil that comes out of palm trees, sugar cane, corn, soya or sunflowers.

Convert your car to run on biodiesel?

You might have seen this stuff being sold at filling stations, or you might have seen a picture of a big yellow sunflower on the side of a bus somewhere, suggesting that it runs on biodiesel, an environmentally-friendly fuel. Biodiesel is a plant-based fuel, derived from the oil that comes out of palm trees, sugar cane, corn, soya or sunflowers, among other things. In theory, it is sustainable because it only burns the oil from those plants at the same speed as the plants grow.

However, we are back to the same problem: at the scales we need to replace the fossil fuels we are running our cars on at the moment, biofuels do a lot more harm than good to the environment. For a start, to produce the stuff is incredibly inefficient; to produce one litre of biodiesel from sunflowers needs over two litres of fossil fuel. But the worst thing is that biofuel plantations are fast becoming one of the major causes of deforestation and all the environmental destruction that goes with it. In Malaysia and Indonesia, for example, single-crop oil-palm plantations have been responsible for almost 90 per cent of the recent deforestation in that area⁴⁷, which is not only seriously threatening wildlife⁴⁸ but also removing an important mechanism for absorbing carbon from the atmosphere. So, please forget biodiesel, and tell everyone else to forget it too.



Burning rainforest on Sumatra to make space for palm oil plantations, Indonesia,

Large areas of Indonesia's rainforests have been converted to oil palm plantations, driven by rising global demand for the cheap vegetable oil popular with food manufacturers and as a renewable fuel (biofuel). Palm oil and palm kernel oil now make up one of the largest shares of global vegetable oil supply, with Indonesia and Malaysia accounting for 83% of global production. The rapid increase in plantation acreage is, however, one of the greatest threats to orang-utans and forests on which they depend.

Get an electric car or a hybrid?

Even though electric cars have actually been around for a long time (think milkman), only recently have manufacturers actually started doing some really serious development on them. They are now starting to get over problems with things like battery weight, performance and how long the car will run for before you have to recharge it. Hybrids – cars with a petrol engine to back up the electric one – have also come a long way in the last ten years or so, and are probably a little way ahead than straight electric ones. Electric cars and hybrids, even though the original energy to charge the batteries comes from fossil fuels – either from a coal-fired power station if you plug it in at the mains, or from the on-board petrol engine – they are still more efficient than normal cars. So, in principle, they are better for the environment.

All else being equal, even though the energy still ultimately comes from fossil fuels, they are definitely a step in the right direction, especially for people who make a lot of short trips through town and can't avoid using the car to do so. Also, don't forget just like any other car or large machine, a vast amount of embedded energy goes into its manufacture, so think twice before scrapping a perfectly good five-year-old car to buy that new hybrid, but if your old motor is just about to die anyway, and is guzzling a lot of petrol, a hybrid or even an straight electric car could be a viable option.

If you are serious, there is a vast amount of information out there. Here are a few U.K. websites:

<http://www.thegreencarwebsite.co.uk/>

<http://www.green-car-guide.com/>

<http://www.electriccarsite.co.uk/>

<http://www.nextgreencar.com/index.php>

<http://www.greencarsite.co.uk/>

The savings you can make by car sharing are usually much better than any saving you could make by improving the efficiency of the car itself; and it's a lot simpler to do.

Share a car

This is one of the most effective ways of reducing the environmental abuse from cars on the road, because – and this is very simple – it reduces the number of cars on the road. Because most of the energy produced by a car engine is used to move the weight of the car itself, you are wasting a lot of energy driving that car around on your own. The extra weight of each passenger is almost negligible, so it makes sense to fill up the car with as many people as you can. If you drive on your own and your mate does the same thing, the fuel consumption and greenhouse gas emissions will be almost twice what they would be if you both jumped in the same car.

The savings you can make by car sharing are usually much better than any saving you could make by improving the efficiency of the car itself; and it's a lot simpler to do. But for some reason, we are sharing less than before, if anything. This might be due to the fact that cars are cheaper to run, so we don't think twice about, say, going in two cars instead of piling everything in one. It's one of those cases where, paradoxically, an increase in efficiency can lead to an increase in consumption. Obviously the solution is not to make cars less efficient, but as soon as fuel gets even more expensive (which it will, very soon) we might think twice about spending twice as much on a journey just for the luxury of not sharing with another smelly surfer; which would, of course, automatically make us slightly more sustainable.

Going on surf trips in convoys of two or three cars is a very recent thing, not something we've always done.

Again, we surfers should find it easier than most people to share cars, because most of us are used to it. Going on surf trips in convoys of two or three cars is a very recent thing, not something we've always done. Interestingly, we now put our boards inside the car much more than we used to. Even in a small car three surfers plus three boards can all fit inside. Up until recently, boards were practically always piled on the roof. This made the car consume more fuel, but that would be more than compensated for if we filled the car up with people. It makes you wonder whether part of the reason for our recent tendency to have less people inside the car is because they won't fit, with all those boards in there. Obviously the answer is to always have those roof-racks ready, but take them off if you are on your own, or if you're going somewhere without your boards.

Avoid using the car to go to work or visit your grandmother

As we explained above, sometimes it's a struggle not to use the car. For example, if you are going surfing and you need to carry your boards, wetsuits and a whole load of other gear, and particularly if you are heading for some place that is way off the public transport routes. But those occasions when all you need to carry is yourself, what's the point in using the car? If you are just going to work and back, popping to the shop for a something or going to visit your mates, think about the possibilities of cycling or using public transport.

If more people cycled instead of driving it would be safer, which would in turn encourage more people to cycle, which might also encourage local authorities to build more cycle lanes

Going on journeys of less than ten miles in the car on your own pumps thousands of tonnes of greenhouse gases into the atmosphere and fills up the local air with poisonous fumes. It costs money, isn't very enjoyable and often it doesn't even save you time. Doesn't that sound a bit absurd?

Using public transport instead of the car to do those sorts of journeys is better all round – for the environment and, ultimately, for you. But better still is going by bike. If you work less than about ten miles away then cycling to work has got to be an option. It saves you money, is infinitely better for the environment, is much less stressful and you get a free workout. Plus, if you happen to be in a city, chances are you'll get there quicker. Bikes are much more efficient than motorized vehicles (hundreds of times less energy wasted in noise and heat) and obviously much cheaper and easier to maintain. The only possible disadvantages of going by bike are that it is more dangerous because of all the cars and stressed drivers. But if more people cycled instead of driving it would be safer, which would in turn encourage more people to cycle, which might also encourage local authorities to build more cycle lanes etc. etc.

The environmental advantages of working from home are that you cut out those two journeys a day, which could add up to thousands of miles a year, hundreds of tonnes of fossil fuels and thousands of tonnes of greenhouse-gas emissions.

Work from home

Telecommuting, or teleworking, is another one of those things that, in theory, a lot of people could do but they don't. If you have the kind of job where most of your work is on a computer or on the telephone, it might really turn out that working in an office with lots of other people is totally unnecessary. If you get to the stage where you have to communicate with the guy in the next cubicle by sending him an email, then it's probably not worth coming into the office. Of course, in most jobs you can't just tell your boss that you are going to pack up and start working from home tomorrow; but there's nothing stopping you suggesting it. And obviously if you are a gardener, a postman or fire-fighter, telecommuting is meaningless. But about 30 per cent of jobs in the U.K. have the potential to be done at home.

The environmental advantages of working from home are that you cut out those two journeys a day, which could add up to thousands of miles a year, hundreds of tonnes of fossil fuels and thousands of tonnes of greenhouse-gas emissions. There are also a whole stack of other advantages, including one really important one if you are a surfer: flexible hours. Being stuck in an office during daylight on a day when there is good surf drives you crazy, especially when you know you could just as easily do the work after dark.

Some employees are afraid to let their workers out of sight for fear of losing control over them; the idea being that, without someone breathing down your neck, you will get lazy and produce less. But this is not the case with the type of work that can be done at home. For example, a comprehensive study carried out for the Department for Transport⁴⁹ showed that the vast majority of people who had taken their work home ended up with higher productivity, better quality of work and more creative work, due to less disruption at work and more time spent working instead of travelling.

Other advantages reported in the same study include lower levels of absenteeism, a better balance between working life and personal life and individual financial savings.

why not cut out all that work travelling and do it over the internet?

Video conferencing

If you have the kind of job where you are constantly travelling all over the place for meetings, you are probably already going to be fed up with airports, hire cars, hotels and baggage handlers. That kind of a job might seem exotic at first, but you soon get sick of it. Travelling loses its magic, and without that magic you won't appreciate going on surf trips like you did before; they'll seem like work.

So why not cut out all that work travelling and do it over the internet? Videoconferencing and high-speed broadband are getting better by the minute, so, instead of travelling all that way, you can probably achieve the same results by just sitting at your computer. In most cases, the advantages far outweigh the disadvantages. People will tell you that there is no substitute for 'face-time', and there is no doubt that talking to a real person is better than talking to a screen, but that still doesn't justify sending someone half way round the world just to speak to someone for, say, half an hour. The costs, not just in monetary terms, but also in time, stress and, of course, oil-burning and greenhouse-gas emissions, just don't compare.

An empty Welsh left rolls across a stunning set up.

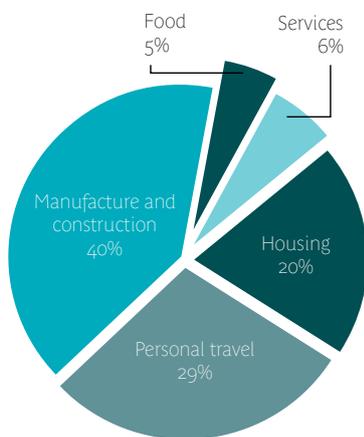


Image courtesy of Greg Martin

4 STUFF

“The specific and explicit function of for-profit corporations is to amass wealth. The function is not to guarantee that children are raised in environments free of toxic chemicals, nor to respect the autonomy or existence of indigenous peoples, not to protect the vocational or personal integrity of workers, nor to support life on this planet. Nor is the function to serve communities... We may as well expect a clock to cook, a car to give birth, or a gun to plant flowers... Limited-liability corporations are institutions created explicitly to separate humans from the effects of their actions – making them, by definition, inhuman and inhumane.” Derrick Jensen⁵⁰.

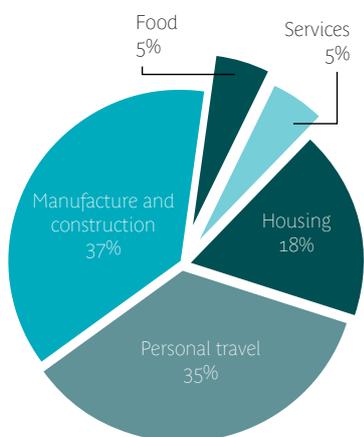
Although personal travel makes up a large part of our ecological footprint, and it is one thing that is very much under our own control, there is something else that forms a huge contribution – something that is a lot more difficult to measure and control. It is the footprint that derives from all the embedded energy and greenhouse gas emissions associated with the manufacture, transport and disposal of all the stuff we consume.



Approximate breakdown of carbon footprint of an average UK citizen⁵³.

This can be seen in the charts below, the first of which shows how the carbon footprint of the average U.K. citizen is broken down. Personal travel accounts for a large proportion of the footprint, but manufacture and construction is quite a bit more. The data for this chart was modified using the results of a survey done as part of an article for *The Surfer’s Path* magazine⁵¹ to incorporate the extra travelling that surfers do compared with other citizens.

So, it seems that, even if we cut right back on our travelling, our footprint might still be too high because of the infrastructure associated with all the material goods in our so-called developed world. It not only includes the stuff that each one of us owns like our clothes, televisions and surfboards, but also stuff that our society ‘owns’ collectively, like the roads and public buildings.



Approximate breakdown of carbon footprint of an average UK surfer

Somehow, over the past century or so, we have become totally obsessed with stuff. We measure each other according to the type of stuff we have bought and how much of it we own. We use our stuff – our clothes, our shoes, our cars, our houses – as ‘indicators’ to show the rest of the world that we are better, different or the same as they are. Even more recently we have taken to keeping stuff for shorter and shorter times; throwing it away and buying a new one instead of treasuring it and looking after it. Now, simply owning a lot of expensive stuff isn’t enough – it has to be the latest model or otherwise we’ll look stupid. And there is a lot of evidence that none of this is making us any happier⁵².

We surfers are no longer as immune to the consumerist way of life as we were at one time. Nowadays, surfing has turned ‘mainstream’, and our obsession with the clothes we wear and the boards we ride has almost become more important to us than the actual waves we surf. With surfing, one particular facet of consumerism seems to have gripped us more than any – that of brand identification, where the logo you wear on the front

of your T-shirt determines the brand of person you are and the particular icon you aspire to emulate. Also, we have been sucked into the planned obsolescence thing, where the more boards you break the more radical you are, and, as long as you can stretch the arm of your wetsuit across the room it doesn't matter if it falls apart after three months.

Although the ecological footprint associated with all that stuff owned collectively by our society or controlled by very large companies, such as the water, electricity and transport infrastructures, is very difficult for us to control, at least we can do something about our personal stuff. We can change our attitude and try to become less dependent on it, like a drug. But firstly, it helps to look behind the scenes a little, to find out where it all comes from and where it all goes.

4.1 The life cycle of stuff

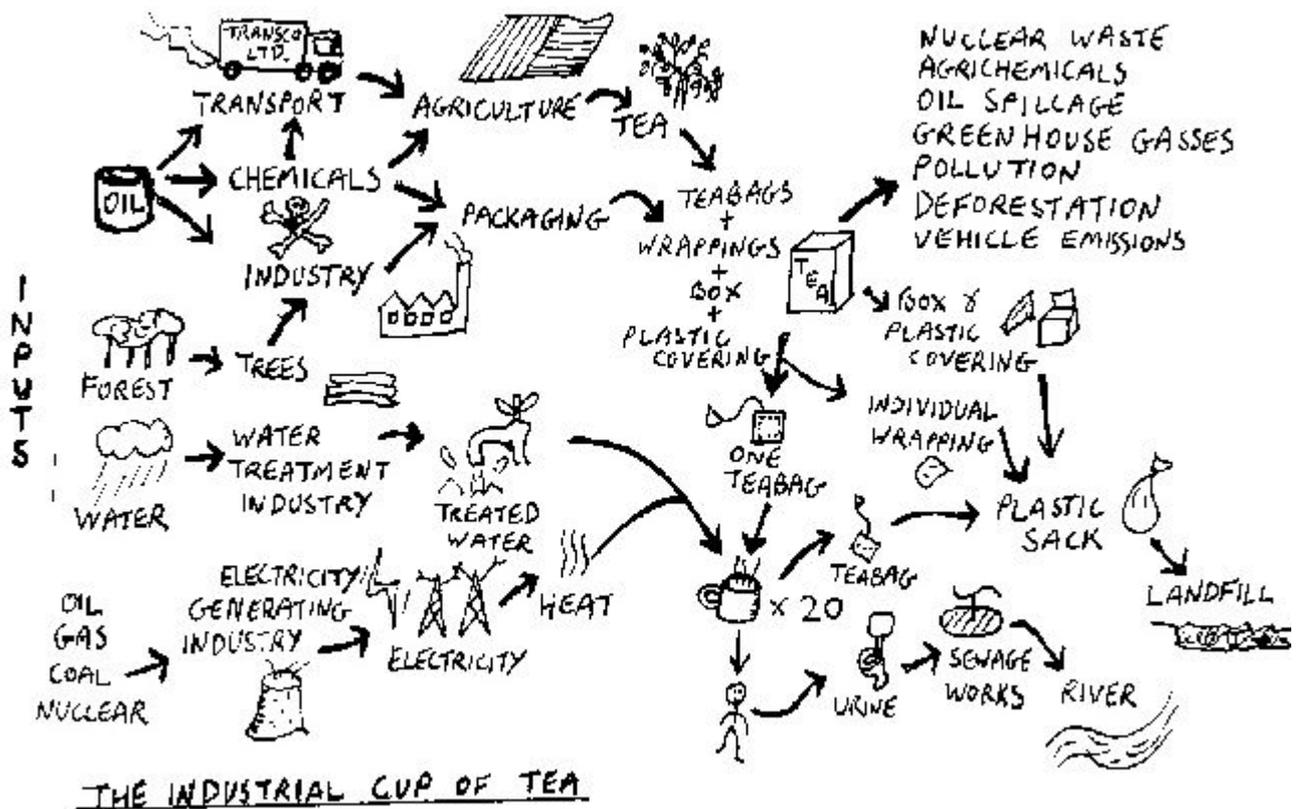
Have a look around you at all your stuff and pick one item. Do you know where it came from? Not which shop you bought it from or which website you ordered it from, but right from the very beginning. You might

have a general idea that something made of metal came from rocks in the ground, something made of plastic somehow came from oil, or something made of paper came from a tree somewhere. But where? And how? Also, are you aware of the average length of time you normally keep something, and then what happens to it after you throw it away?

The majority that ends up back in the ground does so in a chemically-altered state, which is often poisonous for us and will never transform itself back into its original raw material.

There is a trail of stuff, right from its original design stage, to the extraction of raw materials, to their transformation into plastic, metal, paper or whatever, to the manufacture of the products themselves, to their distribution and stockpiling in warehouses, to shops, to the buyer (you), to the dustbin, and then back into the ground again. If you are lucky, some of it might be fed back into the system again before it ends up in the ground (recycling), but the majority that ends up back in the ground does so in a chemically-altered state, which is often poisonous for us and will never transform itself back into its original raw material. That last point is crucial, and is the reason why the entire system is unsustainable. The more stuff we manufacture, the more we are gradually, but permanently altering the planet.

Annie Leonard, in her book⁵⁴ and video⁵⁵. The Story of Stuff refers to “a linear system on a finite planet” explaining that a system such as this, where we expect to continue forever extracting material from a source that is finite, is doomed to fail. It is a one-way street to environmental suicide.



Taken from www.spraised.co.uk courtesy of Graham Burnett

How a product will interact with the environment during its life, and therefore how environmentally friendly it is going to be, is determined at the design stage.

The design phase

First, before anything is made, it has to be designed. The design stage in the life of a product influences how that product will behave during the rest of the cycle, including not just during that short interlude when you own it, but also during manufacture, distribution and disposal. How a product will interact with the environment during its life, and therefore how environmentally friendly it is going to be, is determined at the design stage. Most of the time, no consideration is given to environmental-friendliness. The most important goal is usually to maximize profit; by designing a product that performs better than its competitors while spending as little as you can get away with on materials and manufacturing.

How long a product will last is also determined by design, and this is just as important as the materials it was made with, the manufacturing process and the distance it has to be transported. The length of time that you are destined to keep a product is built into the design stage. The product is specifically designed to either go out of fashion or to break after a certain length of time, whereas others are immune and can last for generations, if looked after. Compare that piece of wooden furniture that your grandmother gave you when you bought your house, to the last mobile phone you had. One could be almost 100 years old and still going strong, and the other either broke or went out of fashion in less than six months. Obviously, if products are made to last, there will be less of them in circulation and we will be destroying our environment at a slower rate.

Some products, such as that mobile phone, are actually designed so that you keep them for as short a time as possible, either because some

component inside breaks and it's easier to buy the entire unit instead of fixing it, or because that model goes out of fashion and your mates laugh at you if you don't buy a new one. This is called planned obsolescence⁵⁶. As that phrase suggests, it is totally intentional as is a strategy for the companies to make as much profit as possible, to keep churning out products as fast as possible. It is also a great way to burn up all the resources we have on the planet and poison ourselves as soon as possible.

At the moment, planned obsolescence is most prevalent in electronic stuff, which we go through at a frightening speed, but it has also been subtly introduced into surfing gear, such as wetsuits that only last one winter, or boards that snap in four-foot beachbreaks.



Image courtesy of Greg Martin

Arsenic from mines has stopped anything growing for at least 150 years

The extraction phase

Before something is manufactured, the raw materials have to come from somewhere. Metals, for example, come from rocks which have to be mined out of the ground. Open-cast mining, in other words, blowing the top off a mountain to access the rocks underneath, and then letting chemicals such as cyanide or arsenic wash into the surrounding soil, is probably the quickest way to destroy a natural area of land. Some raw materials, such as cotton or paper, come from plants. But vast monocrop plantations of cotton or eucalyptus trees also involve some sort of environmental degradation such as deforestation and soil erosion.

Then, of course, you have plastics. It is difficult to think of something that you own that doesn't contain plastic of some sort. Practically all our surfing gear is made from plastic, including our wetsuits. Plastic is chemically formulated from oil, and oil is a fossil fuel which took millions of years to form from decomposing trees. Once you have produced plastic, you just can't make it go away.

In almost all cases, the extraction and formulation of raw materials is irreversible; the surrounding environment is permanently changed, and the raw material itself may never get back to its original state. To get the bodywork of your car back into the rocks it originally came from, or to transform a plastic bottle back into the ancient trees which produced the oil, either takes an absurdly long time, or may never happen at all.

The production phase

After the raw materials have been obtained, they somehow have to be gathered together and made into a useful product. In the past, the people who designed, manufactured and sold a product usually worked for the same company, and often this was done in the same factory. But things have radically changed over the last 20 years or so. Now a lot of companies who sell clothes, wetsuits and even surfboards, don't actually make anything at all because the entire manufacturing process is 'outsourced'.

Other companies, thousands of miles away (usually in the Far East) make the stuff, and the original companies just manage the whole process without getting their hands dirty. They say that they have no choice but to get the stuff made in China or India because, if they didn't, they would be driven out of the market by their competitors. Somehow, stuff that's made in China or India can be sold a lot cheaper, while the people who own the brand still make more profit.

But how could getting something made in China and then shipping it half way round the world possibly be cheaper than making it closer to home?

But how could getting something made in China and then shipping it half way round the world possibly be cheaper than making it closer to home? The only answer is that manufacturing it in China must be so cheap that even when you add on the cost of packaging, warehouses, import-export duties, paperwork, and everything that international transport involves, it still works out cheaper than making it at home. There must be some secret to the manufacturing process over there that makes it so much cheaper than doing it here. In some cases, they might be better prepared, more efficient and happier at doing factory work than us because of something to do with their cultural or genetic background. But in most cases – and it doesn't take a genius to work this out – the secret is cheap labour and non-existent environmental regulations.

The pollution that those factories produce would have to be cleaned up by the companies themselves if the factories were in Europe or North America, but in India or China the environmental laws are either non-existent or easy to get around.

This whole thing of getting stuff made on the other side of the world and then still being able to sell it at absurdly cheap prices is related to a thing called externalization or external costs⁵⁷. The reason we are getting the stuff so cheap is that the people in China and India are paying for it for us. For a start, if they are being paid one hour's money for two hours' work, they are 'giving' us that extra hour's work. Normally, on the money that we pay them, they can't afford to buy the products they make. Then, if the company is not paying for proper health care, sick leave and other basic rights for the workers which would be mandatory in the western world, then they are paying with their health, especially if the work itself is making them ill. Then, the pollution that those factories produce would have to be cleaned up by the companies themselves if the factories were in Europe or North America, but in India or China the environmental laws are either non-existent or easy to get around. Therefore, the companies are saving a lot of money not having to pay for all that. In the end, the local people pay for it.

So that is why the products are still able to be sold so cheaply and why the company executives are still making a fat profit. Because they are simply exploiting people less fortunate than them. But externalization is also an environmental disaster, because of the massive environmental consequences of making something in a place where there are no laws to stop you devastating the local environment or pumping out as much greenhouse gas as you like, and the consequences of transporting it all over the planet.

Lastly, the people in countries such as Bangladesh, where our stuff is made, are going to suffer most from the effects of climate change, which is mostly our fault. But the factories that contribute to climate change are in their countries, not ours. In fact, a quarter of China's carbon dioxide emissions are directly linked to the manufacture of goods that we consume in the west⁵⁸. In effect we are externalizing everything bad, including climate change. In short, this method of manufacturing stuff is unsustainable, and will have to stop if we are to save ourselves.



Factories in the Far East often have lower safety and environmental standards.

The transportation phase

We've already seen that, because companies can manufacture something in a place where they can save millions of pounds on wages, environmental regulations and contamination clean-ups, they can afford to ship it half way around the world before it is sold. While the monetary cost of the transport is all factored in, the environmental cost is not. If the stuff was made closer to home, it might cost us more, and perhaps the big bosses wouldn't make quite so much profit, but in the end it would cost our species a whole lot less. Apart from the local environmental

degradation which would be avoided, a massive amount of greenhouse-gas emissions and resource depletion could be avoided if all those container ships didn't have to be carrying all that crap from China to here the whole time.

The vast majority of stuff is carried around the world in container ships, which aren't as environmentally friendly as you might think. For example, the global shipping business consumes more than 140 million tonnes of fuel a year and in 2005 was responsible for around a quarter of the world's carbon dioxide emissions from fossil-fuel combustion⁵⁹; and, unless we do something about it, container traffic is expected to triple in the next 20 years⁶⁰. Then, don't forget, there are the cranes and fork-lift trucks at those giant ports like Rotterdam and Shanghai, the lorries on the roads that have to carry the stuff after it gets unloaded, and all the consumption associated with the administration of all that, which must be huge.

Just to give you an idea of how far stuff has to travel before it gets to the shop where you buy it, below are a few examples from the Patagonia website⁶¹. Although their stuff is still outsourced in the same way as other companies, at least they are a little more transparent than most others:

Also given are estimated greenhouse-gas emissions for the embedded energy in each product up to the point of sale (i.e. not including ownership by you and disposal). The rucksack, which had to travel 13 thousand miles is responsible for 25 kilograms of carbon dioxide emissions – that's 29 times its own weight.

T-shirt: **8,000 miles**

Shorts: **10,000 miles**

Rucksack: **13,000 miles**

Ski jacket: **20,000 miles**



A massive container ship; each one of those boxes can hold the entire contents of a house

The consumption phase

The part that corresponds to 'ownership' by you or me is actually quite a small interlude during the whole cycle. And it's getting smaller all the time. This is especially true with stuff like electronic goods that either go out of fashion after a couple of months or you have to replace it because some small part inside has stopped working. But it is also smaller than it should be with surfing gear. Instead of keeping a wetsuit for one winter, it should really last us for five or six. And that 'magic' surfboard that made you invincible that snapped after two years should have lasted 20.

But we actually like buying new stuff anyway. We get a boost of endorphins, a little kick of joy, just before, during and just after exchanging money for a shiny new toy. Getting new stuff can be addictive, as the initial excitement wears quicker and quicker the more stuff you buy – you build up a tolerance, just like a drug. If you are not careful, after a while, you end up needing more and more new stuff more and more often. The people who invented planned obsolescence knew all too well about this. Planned obsolescence wasn't rejected by society because it was a kind of justification for doing something that we might have previously thought was a bit naughty.

The companies try to get us to buy more new stuff, so that they can keep the cash flowing, keep the stuff selling and keep their company 'healthy'. But 'healthy' is the wrong word. A faster throughput of stuff means more manufacturing, more transportation and more waste, which, in turn means that more raw materials are extracted out of the ground and more waste and poisonous gases are produced. In other words, if we are to become more sustainable, we need to start to buy less new stuff and keep it for longer.

Think back to since you started surfing. How many boards have you had, and what did you do with the old ones? Where do you think they are now? How many wetsuits have you had? Have you still got all the old ones? If not, where are they?

The disposal phase

Think back to since you started surfing. How many boards have you had, and what did you do with the old ones? Where do you think they are now? How many wetsuits have you had? Have you still got all the old ones? If not, where are they?

When we don't need stuff any more, we can do several different things with it: sell it, give it away, dismantle it and use it for something else, or just throw it away. The last one is the easiest and the most common option that most people take. We put stuff in the dustbin one night and it's gone and forgotten about the next morning.

In the U.K. we throw away a vast amount of stuff. Altogether, we produce almost 500 million tonnes of waste every year. That rate of rubbish generation would fill up the Albert Hall every two hours. A lot of the rubbish that is produced is packaging – stuff whose life cycle barely includes us; as soon as we get it, we throw it away. Other rubbish includes stuff that is designed to be used by us for an extremely short amount of

*Some of it is recycled,
but the majority is still
dumped on landfill sites.*

time and then thrown away, such as plastic bottles and plastic bags. In the U.K. almost 20 billion plastic bags are given away by supermarkets every year – that’s about half a million bags a second⁶².

So where does it really go? Obviously somebody comes and takes it somewhere, but where? Some of it is recycled, but the majority is still dumped on landfill sites. In 2005, about 67 per cent of rubbish in the U.K. was destined for the landfill⁶³. Modern landfill sites are a little more complex than just a hole in the ground, with plastic linings and systems that try to remove toxic gases from the rotting rubbish. The stuff that goes into those coloured recycle bins is sent to a ‘materials recycling facility’. Here, the stuff travels along a conveyer belt and each type of material is systematically removed using various different methods to detect the material. Once it has been separated it is then sent to a re-processing plant, where, for example, metals and glass are melted down, paper is pulped and plastics are ground down. In other words, the original process whereby raw materials are converted into useful items is partly reversed. This then allows the ‘second-hand raw material’ to be used again.

Recycling is much better than just allowing stuff to end up in a landfill, or burning it, but it is not the ultimate solution. The recycling process still uses a lot of energy, not just for the processing and sorting, but also for collecting and transporting it all; and that energy inevitably has to come from fossil fuels. In the end, if we didn’t have as much crap to throw away in the first place, we wouldn’t need to waste so much energy on recycling it all.



e-waste

Apart from surfing gear like boards and wetsuits, clothes and all the packaging that comes with it, we surfers also rely a lot on electronic gadgets like mobile phones and computers. These can be a great help if used in the right way; they can help us to maximise our surfing while minimising unnecessary driving around. But what happens to these devices when you throw them away? You might have noticed that, on the box, it always tells you to never ever throw the device into normal rubbish, always recycle it properly. So you decide to be a good citizen and take all your old mobile phones, computer monitors and power supplies down

to the recycling centre and put it in the right bin. But where does it go then?

Well, if you have ever been surfing in Ghana, West Africa, you might have seen a massive pile of old computer equipment on your way to the beach. You might have wondered what it was doing there, and, if you had stopped and had a look at some of the labels on the sides of the boxes, you might have seen that they had originated in Germany, Holland or the U.K. These enormous dumps containing electronic waste from rich countries such as ours can also be seen in China and India, with workers

manually smashing up and burning the equipment to extract any trace of valuable metals inside, whilst breathing in all the poisonous fumes. A tiny amount of material is recovered, and the rest is usually just left there, in a vast toxic dump, where there might have previously been a forest or wetland area. That's right, the stuff is manufactured in some poor country, transported half way round the world, used and thrown away by us, and then transported right back to the poor countries again⁶⁴. So, think about that when your mates laugh at you because you can't get skype on your old iphone, or when you are told that you must be stupid if your hard disk is only 100 gigabytes.

4.2 Surfwear, marketing and the media

At the same time all that stuff is cycling through its life, there is something else constantly going on in parallel – the companies are trying to persuade us to buy the products; to hand over some of our money to them in exchange for keeping and using those products for a short interlude during its life cycle. They do this mainly by advertising in magazines, on television screens, websites, radios and as many other forms of communication as possible.

Advertising isn't necessarily a bad thing. After all, you've got to know what stuff is available out there; otherwise you won't be able to make an informed decision about what to buy. Without advertising you wouldn't be able compare different products and decide which one is best suited to your particular needs. But advertising nowadays, including what you see in surf mags and on websites, doesn't really serve that purpose any more. Not only that, but there is much more of it than there used to be, and the stuff that is advertised is not the same as before. For example, in 1972, in the magazine Surf Insight, which we mentioned right at the beginning of this report, there were three pages of adverts out of 26 (about 11 per cent) consisting of one full-page and two half-page surfboard ads, one half-page wetsuit ad and one half-page leash ad. All the products were local, made in Cornwall. The magazine sold for 20p. A recent copy of 3sesenta, a Spanish magazine, had 53 pages of adverts out 130 (about 41 per cent), the vast majority of which was clothing ads by multinationals. Just to give you an idea of how much advertising they are doing, the advertising and promotion budget for Quiksilver for 2010 was around \$107 million⁶⁵.

Just to give you an idea of how much advertising they are doing, the advertising and promotion budget for Quiksilver for 2010 was around \$107 million

Magazines also have advertising embedded into things like the cover shot and content of the stories themselves. Have you ever wondered why a magazine might be full of excellent photos (one thing that has improved dramatically over the years) but the cover shot is of the underneath of someone's board, taken from the back of the wave as he is popping an air, with a huge sticker advertising whatever company is sponsoring him, clearly visible? And much of the time the articles are of a group of sponsored surfers on a surf trip paid for by one of the multinationals, the idea being that the reader wants to do that too, and so starts off by buying the same clothes that the sponsored surfers are wearing.

All that's fine, if you can pick up a magazine, enjoy all those great photos and, at the same time, the advertising doesn't make you buy something that you don't need. But if it does, then the multinationals that paid for the adverts will have succeeded in pushing us one tiny step further away from sustainability.

Instead of manufacturing a product and then selling that product to the customer in order to serve a particular purpose, they sell an image, or a label.

In the last couple of decades, the way large clothing companies work has changed completely. Instead of manufacturing a product and then selling that product to the customer in order to serve a particular purpose, they sell an image, or a label. A lot of the time, the adverts don't even contain a particular product, just an image representing that particular brand. Then you, the customer, decide which company you want to buy your stuff from according to which image suits you; which of the people in the adverts you most want to be like, or which logo you think most sums up the kind of surfer you are. In fact, the products themselves might be almost identical, often made in the same factory in China or India, but with a different logo printed on. This is called brand identification, and it is not a new thing – it took off in the 1950s with things like cars, tobacco and alcohol as well as clothing, with images presented to prospective customers via role models⁶⁶. It's just that much more recently has it crept into the world of surfing.

The film *Riding the Wave* by Chris Cutry⁶⁷ describes how brand identification has now become firmly rooted in surfing, and how companies have succeeded in getting young people in inland cities to embrace the image of surfing by buying clothes with surfing logos on. Again, you might think that's fine, unless of course it makes them buy stuff that they don't need, and throw stuff away just because it has gone out of fashion; stuff that was made in poor countries with non-existent environmental laws, then transported half way around the world.

The film suggests that young, gullible kids with low self-esteem end up buying surfwear because they want to fit in: they want to be seen wearing a certain brand so that people will know which 'tribe' they belong to, and, therefore, what sort of person they are. It gives them a sense of identity. The need to belong to a 'tribe' is deeply entrenched in all of us, probably since our days as hunter-gatherers when our clothing and face-paint might have saved us from being speared to death by a member of our own clan. Now, in practice, it's not so important, but our instincts are still just as strong.

We will end up helping them deplete the planet's resources, accelerate global warming and ruin the lives of millions of people in poor countries.

It's not easy: we still need clothes to keep us warm and dry, and we still have a strong need to belong to some sort of group or to let people know what sort of person we are. But if we only rely on the stuff we own and clothes we wear to express our identity, instead of what we do, what we say and how we behave, and if we let the multinationals think for us by giving us 'ready-made identities', then they will control us. We will end up helping them deplete the planet's resources, accelerate global warming and ruin the lives of millions of people in poor countries.

4.3 Surfboards

How many surfboards have you owned? If you haven't still got them all, do you know where they are?

Did you get rid of them because they broke, got so waterlogged and dinged up that they didn't surf any more, or simply because you wanted a little more rocker, slightly softer rails or a slightly wider tail?



A big wave board after a big wave crashed down on it.

The truth is that we go through a lot more boards than we should do, sometimes because we need something different (if you want to perform, you have to have the latest equipment, right?), and sometimes because they break unnecessarily. If you like surfing big or hollow waves, a snapped board every now and again is inevitable. A broken board is actually something to be proud of, it shows how committed you were on that take-off or in that tube. The fact that those boards might be a bit weaker than they should be, or the fact that we might be victims of planned obsolescence (see page 46) won't have crossed your mind. For example, one of the most epic days at Mundaka in the last couple of years, in the three hours after low tide, around 40 boards were snapped. That's about one board every third or fourth wave ridden. In many cases, the front half of the board ended up out to sea in the rip or on the rocks somewhere down the coast, and the back half probably ended up in the dustbin, on its way to a landfill.



The Cobra surfboard factory in Thailand: the production of surfboards is now more and more being outsourced to the Far East

The vast majority of surfboards are made of plastic – a substance derived from fossil fuels and one that takes an almost infinite length of time to be absorbed back into the natural environment. Moreover, the manufacturing of surfboards generates a lot of waste and involves a lot of poisonous by-products. These either end up inside the people who work in the industry or in the local environment. Lastly, although many of us still insist on having our boards custom made by a local shaper who we know and trust, which cuts right down on the global transport network, boards are now starting to be outsourced to the Far East, just like everything else. It is being done for exactly the same reasons: cheap labour and slack or nonexistent environmental laws. All that extra transport and local contamination adds to the environmental cost.

It has been estimated that about a million surfboards are manufactured every year throughout the world⁶⁸, most of which are still being made using the same materials as 50 years ago, namely polyurethane foam, fibreglass and polyester resin. Surveys have estimated that about 70 per cent of all boards are still using these materials⁶⁹, which contain some pretty nasty substances. For example, polyurethane foam contains toluene diisocyanate, which can be released when the foam is cut. It is known to cause asthma, lung scarring and skin disease, and is suspected of causing cancer. Polyester resin contains styrene, which evaporates when the resin is going off, and is known to cause cancer. The catalyst that you have to mix with the resin is terrible stuff: methyl ethyl ketone peroxide, a high explosive that can cause severe corrosion of the skin and blindness if you even get the vapour in your eyes. Even the acetone that's used to clean up the resin is highly toxic – if you don't wear gloves it gets absorbed into your system through your skin and attacks your liver and kidneys.



Light high performance PU surfboards are not made to last.



SAS campaigner testing his 'green board'. The blank's made with 36% plant based materials and the resin's made with 96% plant based materials

Wooden boards

If you make things out of wood that is grown at its own natural speed, then it must be sustainable. That means not creating thousands of hectares of artificial monocrop forest and destroying the natural environment in the process (see page 47). It turns out that balsa wood naturally grows quickly enough to harvest in a sustainable way, is not poisonous to work with, and can be used to make surfboards. The only environmental issue is the fact that the trees only grow in certain parts of the world, such as Ecuador, and so the wood has to be transported in container ships. Also, you can't get away with making the entire board out of wood; it normally has to be sealed with resin and cloth. Balsa boards tend to be stronger than normal ones, which is a great advantage (see below). The major disadvantage, which is probably why we all don't have them, is that they are much more painstaking to build, and are therefore very expensive.

Some companies are also starting to experiment with replacing about 30 per cent of the chemical composition of the foam with substances derived from vegetable matter.

Less-poisonous foam

That awful toluene diisocyanate in polyurethane foam can be replaced by a slightly less horrible substance called methylene diphenyl diisocyanate. It is still harmful to the skin and respiratory systems, but not as bad. Blanks made with this stuff are more expensive, but can be made lighter and stronger. Some companies are also starting to experiment with replacing about 30 per cent of the chemical composition of the foam with substances derived from vegetable matter such as sugar cane, which is a big step in the right direction.

Greener resins

Some manufacturers are starting to develop resins based on vegetable products, which is a huge step in the right direction⁹⁰. The resin typically contains about 96 per cent vegetable oil and the other four per cent a type of catalyst which allows the resin to cure in ultraviolet light (including sunlight, although standard solarium-type bulbs are normally used). This avoids all those horrible gases given off by polyester resins, and, again, is of course sustainable as long as the oil doesn't come from biodiesel-type monocrop plantations. You don't need acetone to clean it up, which is another advantage. Unused resin can be returned to the working container as long as it hasn't been exposed to ultraviolet light. Possible disadvantages are that the resin stays slightly softer, which could affect the flexibility of the boards, and the colour is a dirty off-white, which might be less attractive depending on your particular indoctrination.

The resin typically contains about 96 per cent vegetable oil and the other four per cent a type of catalyst.



Ocean Green's Balsa surfboard

Some sustainable materials such as wood are also inherently stronger than the normal polyester and polyurethane option, which means you and the environment gain on two counts.

Greener fibres

Instead of using fibreglass cloth, vegetable-based cloths can be used, such as hemp. Hemp is a plant which yields a very strong cellulose fibre, already used for things like rope for many years. Just like trees, as long as you harvest it at the same rate as it grows, and don't do the monocrop thing, it is sustainable. It is stronger than normal fibreglass cloth, but more difficult to work and soaks up about twice as much resin. So what you gain on cloth you lose on resin.

At the moment it is too difficult to combine hemp cloth with the vegetable-based resin described above, because the resin is cured with ultraviolet light and hemp is too opaque to let the light through. So, the choice is either vegetable-based resin with normal fibreglass cloth, or hemp cloth with normal polyester or epoxy resin. Epoxy is stronger and less poisonous to work with, but more expensive.

At SAS we helped to fund some research and development with Ocean Green, a company who makes hollow balsa boards coated with hemp cloth⁷¹. The boards are made of about two-thirds sustainable materials.

In addition to making boards out of more environmentally-friendly materials, making them stronger in the first place automatically makes them more sustainable, because you are likely to keep them for longer. Manufacturing less and throwing away less means less materials and less contamination. There is no reason why snapped boards cannot become a thing of the past or, at least, something extremely rare. Instead of having 40 broken boards every time the surf gets half decent at Mundaka, how about one or two?

Luckily, some sustainable materials such as wood are also inherently stronger than the normal polyester and polyurethane option, which means you and the environment gain on two counts. It is important for manufacturers to stress when advertising that the longevity of the board is just as important as the sustainability of the materials, which will hopefully convince people that it is worth the extra investment⁷².

There are several ways in which boards can be made stronger using non-sustainable materials, which is still a step in the right direction. For example, simply understanding how the board gets stressed under various conditions, and then properly reinforcing the right areas of the board so that it doesn't break is not difficult to do, but could make the board last twice as long. Strategic placement of stronger types of cloth such as carbon fibre or Kevlar, (around the rails for example) can help tremendously. Epoxy resin is stronger than polyester, and is used with polystyrene blanks. Polystyrene is much lighter than polyurethane, so a board made with these materials can be lighter and stronger at the same time.

In summary, the more boards we use, and the less environmentally-friendly the materials we make them out of, the bigger our ecological footprint will be. Having said that, our use of surfboards probably represents quite a small fraction of our total environmental footprint, once we have included

all the other stuff we buy, all the energy we use and all the travelling we do. However, it's really important that people see us making an effort, because the boards we ride are the most visible piece of gear we use in our surfing - they tell the rest of the world something about us. If people see you surfing well on a board made of wood and covered in hemp, people will be curious about it, and ask you all about it when you come out of the water.

The problem is, you can't just go surfing with a towboard – you need a whole load of other paraphernalia, such as a towrope, life-vest, giant sled, helmet, radios, trailer and, of course, the jetski itself. It's not very sustainable

Afterword about towboards – an elephant in the room

Something that needs mentioning before we go on is the issue of towboards. Really, towsurfing is a completely different activity from surfing and, as such, shouldn't really even deserve a mention in this report (see page 17). However, many people still consider towsurfing to be part of surfing; and any pro surfer would normally be expected to have a towboard in there as part of his quiver along with, say, a fish and a longboard. The problem is, you can't just go surfing with a towboard – you need a whole load of other paraphernalia, such as a towrope, life-vest, giant sled, helmet, radios, trailer and, of course, the jetski itself. It's not very sustainable. Apart from the fact that the ski itself burns hydrocarbons and is so bad locally for the environment that it tends to get banned from marine reserves, it contains a lot of unsustainable materials like plastic and metal. A jetski weighs around 400 kg, which, when combined with all that other gear, adds up to more than 100 times the mass of an average surfboard.

4.4 Wetsuits

Every new wetsuit on the market is the product of years of expensive and painstaking scientific research, with the latest space-age materials that make the suit so flexible and comfortable that you never knew you had it on. With words like 'Annihilator', 'psycho freak', 'zirconium', 'pyro-fibre', 'H-bomb', 'vortex', 'X-flex' and 'zero-gravity', to describe your suit, you can really tell that your surfing will reach levels unattained by anyone in the universe. Right?

It doesn't matter how long the suit will last, or, if the seams come undone that you can't simply take it back and get it repaired, or that it loses its hyper-stretch after three months. As long as it's comfortable when you try it on in the shop, and it looks cool, you'll buy a new one every six months. It doesn't actually matter that the suits only last six months, because the science is advancing so rapidly that last year's model just looks plain stupid compared with the this year's one.

It seems that fashion is really important when it comes to wetsuits, and people have largely forgotten about function and durability. Maybe that's because wetsuits are something you wear, like clothes, so maybe some people actually think of them as clothes. Maybe people forget that a wetsuit is an expensive piece of gear that is supposed to be functional, like your surfboard. A few years ago, most wetsuits in this country were made to measure by small companies working locally. Nowadays, while 'made to measure' boards manufactured by local shapers in small factories can still be found, wetsuits are practically all made in anonymous outsourcing

factories in the Far East, just like your clothes. So, the fact that we buy new suits and throw away the old ones much more frequently than we should, and the fact that they are made on the other side of the world, means more resource depletion, more greenhouse gas emissions and more local contamination.

At the moment, most wetsuits are still made of fossil-fuel based materials. If you thought neoprene was a type of natural rubber you'd be wrong; it is a 'synthetic rubber' also known as polychloroprene. In other words, it's a type of plastic, which is derived from oil. Nylon, which is the other main ingredient of a wetsuit, is also a type of plastic. So, it's the same story: the raw materials for wetsuits are derived from unsustainable sources, and when you throw them away they take hundreds of years to get absorbed back into the natural environment. Also, in the manufacture of wetsuits there are a lot of off-cuts and other waste which can contaminate the local environment, and, although wetsuit materials are not as toxic to work with as those used for surfboards, although the solvents given off by the glues can be pretty nasty.

In the last few years, most wetsuits seem to have taken a step backwards as far as durability and local production are concerned.

In the last few years, most wetsuits seem to have taken a step backwards as far as durability and local production are concerned. However, some manufacturers are starting to use materials that are more environmentally friendly. People have started to use wool, recycled polyester or bamboo for the lining instead of nylon, and they have also started to use limestone-based instead of petroleum-based neoprene. Some claim that this is better for the environment⁷³, whilst others admit that it isn't, and clearly explain why⁷⁴.

In summary, the advances that have recently been made in materials are nowhere near enough to offset the general lack of interest in making a suit that lasts. There is no reason why a suit can't be made to last ten years, especially if it can be repaired and you are encouraged to look after it. Of course, longer-lasting suits would be more expensive, but the extra initial outlay in monetary terms would be more than worth it in the long run. For a start, a suit that lasts three times as long probably doesn't cost three times as much to produce; secondly, if you paid more for it in the first place you will probably be more likely to look after it, and, most importantly, the extra monetary cost will be far outweighed by saving made in environmental terms. There is also no reason why clever innovations in suit design and materials can't be made by small manufacturers close to home. They might need a sewing machine and a few samples of novel materials, but not need million-dollar wind tunnels or supercomputers. The argument that we have the large companies to thank for the recent advances in wetsuit technology – something you hear incessantly – is a total myth. Unless, of course, you believe that a pyro-fibre suit with X-flex panels, chemically-bonded and scientifically-tested, actually means anything.

The argument that we have the large companies to thank for the recent advances in wetsuit technology – something you hear incessantly – is a total myth.

4.5 Other surfing gear

What other surfing gear do we use, and how could the way we use it help us to reduce our ecological footprint?

Well, there are a whole stack of things that we use when we are surfing, such as Allen keys for your fins, sunscreen for your face or that plastic bucket to carry your suit in, that aren't necessarily exclusively surfing equipment. To avoid an endless list of gadgets, here we'll just stick to two things that are for surfing and surfing only: the bar of wax and the leash.

Where does the wax we us end up? Well, most of it just accumulates on your board until you clean it off and throw it in the dustbin, from where it usually goes to a landfill.

Wax

If you forget about all the peripheral activities associated with surfing, like travelling and buying clothes, and if you don't count the buying of boards and suits, the only true 'consumable' in surfing is wax. Wax is the only thing that gets used up according to the amount of time we spend in the water, and it is something that we have to have a constant supply of. If you compared surfing with a motor sport, wax would be equivalent to something like the engine oil. The waves themselves are the fuel, and the vehicle and other equipment need to be bought and replaced just the same.

Where does the wax we us end up? Well, most of it just accumulates on your board until you clean it off and throw it in the dustbin, from where it usually goes to a landfill. A tiny amount probably ends up in the sea. So really, despite what we just said, wax is really more like equipment that gets manufactured somewhere, which we then buy, keep for a while and finally throw away. The life cycle is practically the same. Therefore, to make it more sustainable, it needs to be made to last longer, made closer to home, and/or made out of sustainable materials.

the wax itself is nowadays made thousands of miles from where it is sold.

You won't be surprised to hear that surfboard wax is traditionally made of petroleum-based materials – paraffin wax and petroleum jelly, with other chemicals to make it sticky, scents to make it smell good and dye to make it look appetizing. The packaging is usually made of plastic, and the wax itself is nowadays made thousands of miles from where it is sold. Fortunately, there are now one or two people making wax out of sustainable materials including beeswax, tree resin and coconut oil, in relatively small factories close to where it is sold, including in the U.K⁷⁵.

The leash

One piece of surfing equipment that can be very important is your leash. If you are surfing a crowded spot and your leash breaks, your board, as it bounds in towards the short sideways in the whitewater, might end up hitting someone else on the head or putting a big hole in someone's board. If there are rocks on the shoreline, your board might get smashed to pieces. If the surf is big, your leash becomes even more important. If the leash is too short, the board can pull you along horizontally underwater, not giving you a chance to get to the surface; if the Velcro around your ankle is not easily releasable and your leash gets wrapped around a rock underwater, you might be in serious trouble; and of course if the leash breaks you might be in for a long swim.

Considering their importance, you'd think leashes would need to be researched, developed and constantly improved.

But despite their importance, leashes don't seem to be marketed in the same way as other stuff. For a start, they are rarely advertised. In the recent copy of *3sesenta* mentioned earlier (the one with almost half its space devoted to ads – page 52) there were adverts for surfboards, wetsuits, sunglasses, shorts, shoes, skateboards, surf-camps, 4x4s, watches and even shavers, plus the usual generic ones that don't advertise anything in particular except the brand itself; but out of all those pages, not one leash advert. That is strange because, considering their importance, you'd think leashes would need to be researched, developed and constantly improved; and that companies would be highly competitive, bringing out a new design every few months and making sure we bought at least three or four leashes a year. But no.

The reason might be something to do with the fact that the only selling points are its practical characteristics, like how easily you can get the Velcro off, how good the swivel is and, obviously, how strong it is and how long it will last before it breaks. In fact, with leashes there is really only one selling point: whether it breaks or not. Therefore, the idea of planned obsolescence is simply a non-issue. A leash is not like a wetsuit: even if it is comfortable to wear, is a cool colour or has hyper-vortex Velcro and a cyber-swivel, people are not going to buy it if it breaks. Unlike a wetsuit, people are going to remember if it only lasts four surfs, because a broken leash can cost you a lot more than the value of the leash itself.

By spending an extra £10 you have saved yourself £500.

Here is a simple example: Leash 'A' costs £20 and leash 'B' costs £30. Leash 'A' unexpectedly fails after four surfs, which means that your £500 gun ends up destroyed on the rocks. Leash 'B', on the other hand, starts to show signs of wear after about a year, so you retire it (or maybe downgrade it to your beachbreak board) before it breaks. By spending an extra £10 you have saved yourself £500. Leash 'A' would clearly be described as false economy. But it is also false economy in environmental terms as well as monetary ones. Having a leash that doesn't break saves you having to buy another board, which saves all that plastic, transport, contamination and waste associated with the board. In the end, the environmental cost is much higher than that of the leash itself.

As far as making leashes out of sustainable materials, there are very few people who are doing it.

You won't be surprised to hear that leashes are made from unsustainable materials. The main component of a leash – the cord – is normally made of urethane, yet another petroleum-based product, and the other parts are made from synthetic fibres such as polyester. As far as making leashes out of sustainable materials, there are very few people who are doing it. One company, for example, makes the cord out of recycled urethane, and give you a free leash if it breaks in under a year⁷⁶. But the above argument suggests that the utmost priority has to be the strength and durability, because even a leash made of sustainable materials will mean an overall environmental loss if it breaks and your board is destroyed.

Big-wave leashes, where the design, development and feedback are even more important, are starting to be made by small-scale specialist manufacturers, in some cases themselves big-wave surfers who are fed up with poorly-designed leashes. Interestingly, the design of big-wave leashes has gone back to the most basic, most foolproof design: super sturdy with no gimmicks like pull-out pins or extra swivels⁷⁷. The fact that the best big-wave leashes are being made by small manufacturers is proof that we don't need the large multinationals; claims that good innovations in surfing gear can only be made with their help are totally false.

4.6 Stuff: what to do **Buy less stuff**

If you want to reduce your ecological footprint as far as stuff is concerned, then the first priority must be to simply buy less stuff in the first place. If we all bought less stuff, then less stuff would be manufactured, fewer resources would be used and less waste would be generated. Importantly, buying less stuff is not the same as spending less money on stuff; you've got to reduce the actual amount of physical material that is pushed through that cycle of extraction, production, transportation, consumption and disposal. You could decide to spend less money, but then end up just buying cheaper stuff, which, in the end, is worse. Cheap crap is more likely to be made in China or India somewhere taking advantage of a lack of environmental regulations and cheap labour – that's why it's cheap. So it is better to pay more for better quality stuff, keep it for longer and try to slow down that life cycle. As the saying goes, buy cheap, buy twice.

Bottled water costs about 2000 times as much as tap water, there is no evidence whatsoever that it is better for you and there is no evidence that anyone can distinguish the taste from tap water.

Don't buy stuff you don't need.

Sometimes we don't even realize we are buying stuff that is totally unnecessary. There are many examples, but bottled water is probably one of the best. Fine, if you are in Peru or Sierra Leone, then it's probably sensible to buy bottled water instead of drinking it out of the tap; but here in Europe, there is nothing wrong with tap water. Bottled water costs about 2000 times as much as tap water, there is no evidence whatsoever that it is better for you and there is no evidence that anyone can distinguish the taste from tap water. In short, it is a total con. But worse than that, it is devastating for the environment; all those millions of bottles that have to be manufactured from fossil fuels are thrown away after a single use, and either end up on landfills or in places like India to be 'recycled'. Ironically, the manufacture of the plastic bottles themselves, which is also carried out in places like India, is a major contributor to contamination of drinking water in those countries⁷⁸. Ironically, if you don't think bottled water is a scam, spell the word 'Evian' backwards and see what you get ('Naive').

Cut down on packaging

According to the U.K. government agency DEFRA, we threw away about 10.7 million tonnes of packaging waste in 2008⁷⁹, a lot of which went into landfills and a lot of which is made of un-biodegradable plastics. So try not

to buy stuff that is encased in umpteen layers of unnecessary packaging. Try to recognize the packaging which is not actually intended to protect the product, but rather to advertise the brand. You have already bought their product, so don't be a free advertising banner for them. If they offer you a plastic bag and you are already wearing an empty rucksack, say no.

Try to visualize where all that packaging came from and where it will go after you throw it away. If you can't avoid packaging, then don't just blindly throw it in the dustbin – think about keeping it and using it again. Cardboard boxes and envelopes can be used over and over again, and if you do get stuck with plastic bags, keep them in a drawer to be reused.

Hopefully the amount of packaging used by large stores and supermarkets will start to go down in the next few years. Recently, Sainsbury's was fined for using excess packaging in one of their products⁸⁰. Although the fine was miniscule, the case generated a lot of publicity.



Packaging waste outside a shop

Footprint what you buy

The next priority is to try to reduce the footprint of the stuff you actually buy. Do some research. Where was it made? Who made it? What is it made of? How much energy was used to produce it? How long is it going to last? What will happen to it when you don't want it any more? Obviously a lot of these things are not easy to find out, especially when the companies who sell the stuff usually have no interest in telling you. So, a good starting point might be to just not buy it in the first place if you can't find out at least something about where it came from. Assume that companies that withhold information about their products are scared to tell you the truth.

One or two clothing manufacturers are actually starting to give a breakdown of the environmental impact of their products up to the point of sale, which takes a lot of courage⁸¹. It would be ideal if a lot more companies did this, but of course the numbers would either have to be strictly controlled by some outside organisation or the companies would have to be self-motivated to tell the truth. If the only thing they are interested in is making a profit, and they notice that more people will buy their product if they are told it has a low environmental impact, then they will lie about it. In the end the whole thing will become a 'greenwashing' competition.

However, there is evidence that things are improving, with software applications being developed to enable you to independently trace the environmental footprint of a product⁸². The pioneer of this concept is called the Good Guide which offers a way of tracing the footprint of thousands of different products through their barcode, and gives users the opportunity to send feedback to the manufacturers. The website is well worth a look at: www.goodguide.com

You can ask the maker where he got his materials from (e.g. the blank or the neoprene), which still be a long way away, but at least he will know, so you can make a comparison

Get it made locally

When it comes to surfboards and wetsuits, it is usually easier to compare the ecological footprint than it is with things like clothes or electronic goods, particularly when you can actually talk to the person who makes the product. If your board or suit is made locally by someone you know and trust, you are onto a winner in several ways. Firstly, the product is manufactured right near home, so the transportation costs are reduced and the factory will have had to comply with European environmental and employment regulations. You can ask the maker where he got his materials from (e.g. the blank or the neoprene), which still be a long way away, but at least he will know, so you can make a comparison. Then, you can discuss the sustainability of the materials themselves; you can take the product back if it has a problem or needs to be repaired, and, finally, the manufacturer might even be prepared to take back your old item for re-sale or recycling.

Keep it for as long as possible

If you feel stupid because you aren't up to the minute with the latest gimmick, then you really are a bit daft. Not because you are wearing last year's wetsuit or riding a board that your favourite pro stopped riding six months ago, but because the marketing tricksters have conned you into replacing something that you could have probably kept for twice as long. Try to get rid of the notion that having the latest gadget is clever; in fact it is far cleverer to keep something that is perfectly functional for as long as possible, either until it completely wears out or until some chronic design problem that you have been living with for years has suddenly been solved. Keeping a surfboard, wetsuit or pair of trousers for twice as long means you will buy half as many of them, which slows down the product life cycle to half the speed, reduces resource depletion and contamination and reduces your ecological footprint. Tell yourself that buying a new gadget every five minutes is for people with short attention spans, and it is much better to look after your gear, treat it well and it will treat you well. If you buy a wetsuit and it falls apart after three months, don't just accept that you might as well throw it away and buy another one, especially since there is a new laser-flex hyper-stretch model out anyway – that's exactly what the company wants. Instead, decide to never buy those suits again and look for another brand that lasts longer. The same goes with boards, most other surfing gear, domestic appliances and cars. Living proof that things can be made to last is Irv Gordon's 1966 Volvo, which had 2.8 million miles on the clock in September 2010⁸³.

Tell yourself that buying a new gadget every five minutes is for people with short attention spans, and it is much better to look after your gear, treat it well and it will treat you well.

Re-use it

Instead of just throwing something away, think about how you might be able to use it for something else. The idea of recycling something yourself has been around ever since stuff existed, but now seems to be something that people are forgetting about.



The front half of the author's snapped ten-foot gun, recycled into the perfect board for the junior big wave rider

There are countless examples of how things can be dismantled and re-used several times after they have got beyond repair. Here's one: You go to your local wetsuit manufacturer (hopefully closer than China) and ask him for some neoprene offcuts, which you use to patch up your wetsuit as many times as you can until it is just too leaky, at which point you buy a new one. As suit number two wears out over the next five years, you use suit number one to patch it up. Eventually, suit number two becomes unusable, and you get another new one (number three). Suit number two is then used to patch up suit number three, while what's left of suit number one is used for laptop cases, mouse pads, cold beer holders and insoles for your trainers. The remainder of those last items, plus all the offcuts would then have to be thrown away, but you would have succeeded in keeping the material in circulation for a much longer time than if you had just thrown away each suit after it started chafing a bit under the arms.

Get the idea? With a bit of imagination you can apply the above principle to just about anything you own, including your surfboard. Below is a picture of the front half of my broken ten-foot gun after having been re-shaped into a board for a seven year old. After it becomes unusable, the foam could once again be re-shaped into smaller items like those clocks you sometimes see. The fins and plugs of course can be salvaged and used over and over again.

Sell it on

One way of keeping stuff in circulation for as long as possible is to hand it over to someone else, by either giving it away, selling to them privately, via a second-hand shop or build up some good karma and donate stuff to charity shops. Instead, we seem to just throw that stuff away. Some stuff, like plastic bottles or newspapers, is clearly designed to be thrown away after a single use; and some other stuff, like your house or a piece of antique furniture, can be passed on from one owner to another for hundreds of years. Things that we traditionally buy and sell second-hand include cars, boats, bicycles and (luckily) surfboards; and it used to include a lot of other stuff like clothes, electronic equipment, books and wetsuits, but since planned obsolescence and outsourcing has really taken a hold, those things are now largely thrown away.

So, consider trying to sell or give away your stuff rather than throw it away. If you buy better quality stuff in the first place and look after it, people will be keener to buy it. All this helps to keep stuff out of the landfill and helps to slow down the demand for the manufacture of new stuff. Once again, it reduces resource use and reduces contamination.

Recycle it

After all the above options have been exhausted, only then should we really think about taking our stuff to the recycling centre and feeding it to those coloured bins. Try to find out what actually happens to the stuff that you put in those bins (see page 62). Hopefully it will be sent to a recycling

plant somewhere nearby. However, if you suspect that it might not be being recycled locally but instead sent to places like India or Ghana, then you have a real dilemma. Either put it in the recycle bins anyway, and risk poisoning all those poor workers, destroying thousands of square miles of natural habitat and burning all those fossil fuels to transport it there; or put it into the normal rubbish, and make sure it ends up in a landfill here in the U.K.

One or two companies are starting to take responsibility for their own waste, which is a huge step in the right direction.

Support product take-back schemes

One or two companies are starting to take responsibility for their own waste, which is a huge step in the right direction. In the same way as being transparent about their own ecological footprints, most corporations have no motivation whatsoever to do this because it does nothing for their profits. However, if take-back schemes did get off the ground, it would automatically encourage manufacturers to make longer-lasting products, because longer-lasting products mean less waste; and if the companies themselves have to pay for the waste management, then less waste means less money spent, and less money spent means more profit⁸⁴.

SAS's Return To Offender campaign forces the take back concept onto manufacturers by returning identifiable marine litter to them challenging the company to adopt less harmful materials within their packaging whilst also reducing their packaging materials and challenging their customer to dispose of responsibly. We've successfully managed to influence the mighty Coca Cola amongst others.

We need to get away from the polyurethane foam and polyester resin surfboard, once and for all.

Get an eco-friendly surfboard?

We need to get away from the polyurethane foam and polyester resin surfboard, once and for all. Almost everything about those materials is bad – fossil-fuel derived, toxic to work with, non-biodegradable and not even very strong or long-lasting. So getting a surfboard made out of any of the other alternative materials is a big step in the right direction. As we mentioned earlier (page 54) your board is the centrepiece of your surfing equipment, and is something that people will notice and ask you about, so having a board made of different, more sustainable materials might persuade more people to do the same.

However, there are a bewildering number of different options, and it's not clear which ones are the most sustainable once you have taken into account all the factors such as transport and durability, and the particular type of board you need. It might turn out that a wooden board is more sustainable than an epoxy one, but the rocker just doesn't come out quite right; or perhaps a shortboard glassed with hemp is too heavy but that extra strength and weight might be welcome in a big-wave gun. The two things that matter most are probably durability: getting a board that you know you're going to keep for a number of years, and local manufacture: getting it made by a local shaper rather than some gigantic factory in Thailand.

Despite what you might be told in the ads, a truly sustainable wetsuit just doesn't exist.

Get an eco-friendly wetsuit?

Despite what you might be told in the ads, a truly sustainable wetsuit just doesn't exist. Neoprene made out of limestone, for example, certainly avoids using fossil fuels, but it still needs to be mined out of the ground and still won't disappear when you throw it away, so really it is no less damaging to the environment than petroleum-based neoprene⁸⁵. Other parts of the suit, such as the lining, can be made out of more sustainable materials than normal nylon, such as wool or recycled polyester, which is certainly an improvement. However, as we explained earlier (page 57), the overriding factor with wetsuits at the moment is durability. Try to get a suit that lasts, and if the lining is made of something more eco-friendly than normal nylon, then all the better. Look for manufacturers that do both. Even if the suit is a lot more expensive initially, you'll probably be better off in the end; and so will the environment. Lastly, if there is still someone nearby who makes custom suits in a small factory, support them by buying their suits. You'll get a made-to-measure suit, personal attention and the assurance that it wasn't made in some sweatshop in India and transported in a container ship. You might also be able to give them some useful feedback on suit design, and even suggest how they can use more sustainable materials.

If you want to be as eco-friendly as possible when buying a block of wax, try to make sure it was either locally manufactured or made from non petroleum-based ingredients.

Use eco-friendly wax?

Wax represents a very small part of your ecological footprint, but every little helps. For example, instead of building up several kilograms of layer upon layer of wax on your board, use a wax comb. If you've already got a decent thickness, all you need to do is remove that shiny surface layer – something a wax comb does perfectly. You might already have a deck-grip on the tail, which could end up being better for the environment than wax, depending on how long it lasts. And if you want to be as eco-friendly as possible when buying a block of wax, try to make sure it was either locally manufactured or made from non petroleum-based ingredients, or, if possible, both.

Don't use a leash?

Not wearing a leash will teach you to stay on your board at all costs and, if you lose your board it will force you to keep in shape.

A lot of surfers at Sunset Beach in Hawaii still don't wear a leash. In fact, Dick Brewer will make you a board for Sunset without leash plugs if you want. Not wearing a leash will teach you to stay on your board at all costs and, if you lose your board it will force you to keep in shape. Also, a leash that you leave at home or in the car isn't wearing out, so you are prolonging the time until you have to buy a new one, which is good for your environmental footprint. So, even if you don't quite feel up to surfing Sunset with no leash, try it out at your local beachbreak, if you can. Obviously don't do it if there are hundreds of other surfers sitting inside of you or paddling out, and don't do it if your board is likely to get smashed on the rocks.

Modern electronic and information technology can be extremely useful for surfing and things related, and can reduce your ecological footprint a lot.

Don't lose faith in electronic gadgets

Despite the huge pressure by the large corporations to persuade us to buy and discard electronic equipment at ever increasing rates, don't lose faith altogether. Some electronic gadgets reach a kind of equilibrium level where their design is almost at an optimum, and it becomes less tempting to keep getting a new one. For example, I bought a digital watch about 20 years ago, which is still in perfect working order now, with the same battery. The strap broke about 18 years ago, but I replaced it with a piece of Velcro. I also have a calculator of about the same age, from when I was a student; it still works perfectly even though I have forgotten how to use most of the scientific functions.

Modern electronic and information technology can be extremely useful for surfing and things related, and can reduce your ecological footprint a lot. The trick is to use them sensibly and try not to keep buying new gadgets. There are lots of examples, but three in particular stand out: the internet, the mobile phone and the e-book. Weather charts and wave model predictions on the internet can help us to predict surf, which can save a lot of fuel driving to the wrong places at the wrong time; on-line surf magazines save a tremendous amount of raw materials and fuel when compared with traditional printed magazines; email and skype keep you instantly in touch with people all over the world and use infinitely less paper and fuel compared with writing letters; the mobile telephone saves you driving all over the place looking for surf, which saves fuel; and the e-book reader (e.g. Kindle), which can hold well over 1,000 books, will drastically reduce the need for printed books and newspapers, and will save an enormous amount of raw materials and fuel. The e-book reader is only just catching on, but it could be very useful on long boat journeys or surf trips to foreign lands, where running out of reading material can be a frightening prospect for some of us.

Realize that happiness is more than just Stuff

Going back to those ecological footprints (section 1), you'll see by looking at the diagram on page 18 that Costa Rica comes in at about 1.1 planets. In other words, the average Costa Rican consumes about five times less than the average US citizen, and would only have to consume about ten percent less to set the perfect example for sustainability: one planet. But we all know that the United States is the most advanced country in the world, and that U.S. citizens are much happier, healthier and better off than those poor people down there in Central America, right? In fact, they ought to be about five times happier, because they consume five times as much. Wrong. Costa Ricans live about a year longer and consider themselves to be slightly happier than U.S. citizens. But they do this while burning vastly less of the planet's resources. In other words, Costa Ricans are much more efficient at converting the planet's resources into 'well-being' than the U.S. citizens are.

This suggests that 'well-being' does not necessarily depend on the amount of resources you consume. Stuff does not equal happiness.

This whole subject has been analysed by scientists from the New Economics Foundation⁸⁶ using a vast amount of data from 143 countries. The result is a parameter called the Happy Planet Index (HPI), which is based on life expectancy and perceived happiness divided by ecological footprint. The country with the highest HPI is Costa Rica, followed by the Dominican Republic. These countries have happy people who consume few resources. The United States does a lot worse, coming in 114th behind Madagascar, and the United Kingdom doesn't do too well either, coming in 74th just behind Slovakia. We, on the other hand, have unhappy people who consume a lot of resources.

In the first version of the HPI, a lot of island states were included that haven't been included in the second version, with the winner being Vanuatu in the Pacific Ocean. According to the authors, one reason why island states do so well is that

"It is impossible to be removed from Nature [which] may lead societies to develop more culturally ingrained notions of environmental stewardship."

Sound familiar? Shouldn't we surfers be like that too?



Image courtesy of Greg Martin

One of many world class reefs in the North East

In fact, the inventors of the Happy Planet Index have gone a step further. Previous research had suggested that people who place a lot of importance on the 'material' aspects of their lives – money, looks, fame, material possessions – typically report being less happy than people who think those things are not so important. So the authors took a huge amount of data from surveys asking people what aspects of life they thought were the most important for making them happy, such as adventure, friends

and family, work satisfaction, fitness and health, and, of course, material wealth. They then combined that data with other surveys asking the same people how happy they considered themselves to be.

When they analysed the results they found that material wealth was highly negatively correlated with happiness. In other words, the more you worry about money, the less happy you become. In contrast, adventure and creativity were highly positively correlated with happiness. In summary, if you consider that adventure and creativity are important things to live for, you will probably be a much happier person than if you think money and material possessions are the most important. Of course, if you are a surfer, then none of this should come as a surprise to you. It's well worth a look at the Happy Planet website, where you can download the report itself:

<http://www.happyplanetindex.org/>

5 Conclusions

After reading this report, hopefully you will be convinced that there really is a problem, but also, that you have the power to inspire others into action. And now you know doing your bit to help isn't quite as daunting as you might have thought.

A lot of people find it easy to think of an excuse to do nothing about it. For example, you might be highly optimistic and decide that, whatever happens, somebody else will always think of a solution. So just relax and let them get on with it. But really that's a bit of a cop-out – just letting someone else solve a problem that you are continuing to exacerbate. Alternatively, you might be pessimistic and decide that things are already so bad that it's not even worth trying. So, what the hell? Enjoy the planet while you can. In this case, your deciding to do nothing is a self-fulfilling prophesy: it will help to ensure that it really is too late.



Image Courtesy of Jason Feast

If you do nothing, you might just get away with living the rest of your life without too many major changes affecting you. But our over-consumption here in the rich countries is affecting people the poor countries of the world right now, and if it doesn't affect us in our lifetimes it will certainly affect our children and their children. So, if you decide to do nothing, you will be condemning your own children to paying back the environmental debt that you yourself created.

Whether we do nothing, or do something, our lifestyle in a few decades' time will be nothing like our lifestyle at the moment.

Easter Island has surf like this, but it also has a rather gloomy history

If we decide to do nothing, we will change by default. The changes we will have made to the planet will force our children to be sustainable, because in a few tens of years' time they will probably be struggling to survive. Change by default is what happened on Easter Island a few centuries ago. Jared Diamond in his award-winning book *Collapse* points out how the entire population of the Earth could end up sharing the same fate as the Easter Islanders, who deforested their entire island, depleted their own resource base, and then, finding themselves with no resources and nowhere to run, ended up cannibalizing each other:

The changes we will have made to the planet will force our children to be sustainable, because in a few tens of years' time they will probably be struggling to survive.

“The parallels between Easter Island and the whole modern world are chillingly obvious. Thanks to globalization, international trade, jet planes, and the internet, all countries on Earth today share resources and affect each other, just as did Easter's dozen clans. Polynesian Easter Island was as isolated in the Pacific Ocean as the Earth is today in space. When the Easter Islanders got into difficulties, there was nowhere to which they could flee, nor to which they could turn for help; nor shall we modern Earthlings have recourse elsewhere if our troubles increase. Those are the reasons why people see the collapse of Easter Island society as a metaphor, a worst-case scenario, for what may lie ahead of us in our own future.”

Once we ourselves start living in a more sustainable way, we'll quickly find out that we don't actually miss all those things we thought we would.

Or, we can change our lifestyle by design, not by default. That means changing our attitude now and convincing everybody else to do the same. Hopefully after reading this report you'll have an idea how to begin, if you didn't already know before. If you're a surfer and you're not already living in a more sustainable way than most other people, it won't take much effort to do so. Because surfers have that 'secret' – we already know how to enjoy things that money can't buy. We can still be happy without a 42-inch television or a new pair of shoes. We know that after being out in the ocean at dawn on a six-foot day with light offshore winds (or whatever your preference) the feeling of owning a more expensive car than your next-door neighbour is somewhat empty.

Once we ourselves start living in a more sustainable way, we'll quickly find out that we don't actually miss all those things we thought we would. Once we realize that being more sustainable is actually less stressful and, in many ways, more fulfilling, we won't find it too scary to try to become even more sustainable. Just like the natural systems of the planet, human behaviour is non-linear; it works on thresholds and critical masses. Hopefully, once we realize that consumerism is not all it's cracked up to be, and sustainability can actually be more fun, we'll quickly start to change the way we live, without looking back. What we must also do, at the same time, is convince all those non-surfers out there to do the same.

Ironically, the commercialization of surfing has helped it to become increasingly more visible to the public, and has helped the number of surfers to grow exponentially. Both of these factors give us more power than ever to influence the rest of society. All we need to do is start exercising that power – starting by getting some of the ideas in this report and propagating them in the right direction.

Is this Scottish slab world class enough for you?



Image courtesy of Greg Martin



6 Further reading (and viewing)

Books

Carson, Rachel. 2000. *Silent Spring*. Penguin Classics; New edition, 336 pp. Originally written in 1962, now considered essential reading for anyone interested in the environment. The message – that the lust for money and greed leads to environmental suicide – is just as relevant now as it was all those years ago.

Chouinard, Yvon. 2006. *Let My People Go Surfing*. Penguin, 258 pp. Autobiography of the legendary rock-climber, surfer and environmental philanthropist who founded the Patagonia company, demonstrating how you don't necessarily have to be greedy, selfish and disregard the environment to be a successful businessman.

Diamond, Jared. 2006. *Collapse: How Societies Choose to Fail or Survive*. Penguin, 616 pp. Gripping account of several past societies who have depleted their own resource base and, in doing so, ended up dead. The parallels between those societies and the modern entire world are disturbingly obvious.

Henson, Robert. 2006. *The Rough Guide to Climate Change*. Rough Guides, 341 pp. The basic facts about climate change, with easy descriptions, clear diagrams and plenty of practical information.

Leonard, Annie. 2010. *The Story of Stuff*. Constable & Robinson Ltd., London, 396 pp. Reveals where all the stuff we consume comes from and where it goes, and how our ridiculous obsession with material possessions is making the planet unliveable. A vast, complicated subject made easy to understand using everyday terminology and fun diagrams.

Monbiot, George. 2007. *Heat: How Can We Stop the Planet Burning?* Penguin, 279 pp. Ruthless account of how we really need to change our attitude towards the environment right now, without the help of self-interested politicians and businessmen

Muren, Dominic. 2009. *The Eco-Worrier's Handbook*. Ivy Press, 144 pp. Simple, everyday guide to changing to a more sustainable lifestyle, topic-by-topic. Dispels some of the myths and clears up some of the confusion about things like air travel or renewable energy sources.

Weisman, Alan. 2007. *The World Without Us*. Virgin Books Ltd, 324 pp. Describes what the world might be like once humans have departed. A very clever way of revealing the ways in which we have modified – and are destroying – our environment

Films

Home the Movie, 2009. Yann Arthus-Bertrand. 120 mins. Shows what we have been doing to the planet using spectacular aerial photography, including images of gigantic areas of land transformation by humans, and evidence of global warming in untouched areas of the planet. Free to download or watch.
<http://www.homethemovie.org/>

Riding the Wave, 2007. Chris Cutri. 40 mins. Based on interviews with CEOs of major surf brands, marketing experts and long-time surfing gurus, lets you make up your own mind as to whether the commercialization of surfing is a good or a bad thing. Video can be ordered through <http://www.ridingthewave.byu.edu/>

The Story of Stuff, 2007. Annie Leonard. 21 mins. If you don't buy the book, at least watch this video. Highly-entertaining, densely-packed presentation on where Stuff comes from, where it goes and why it is 'trashing the planet'. Includes highly-original, easy-to-understand graphics. Free to download or watch. Constantly being added to, with recent presentations on the stories of Bottled Water, Electronics, Cap and Trade and Cosmetics.
www.storyofstuff.org/

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