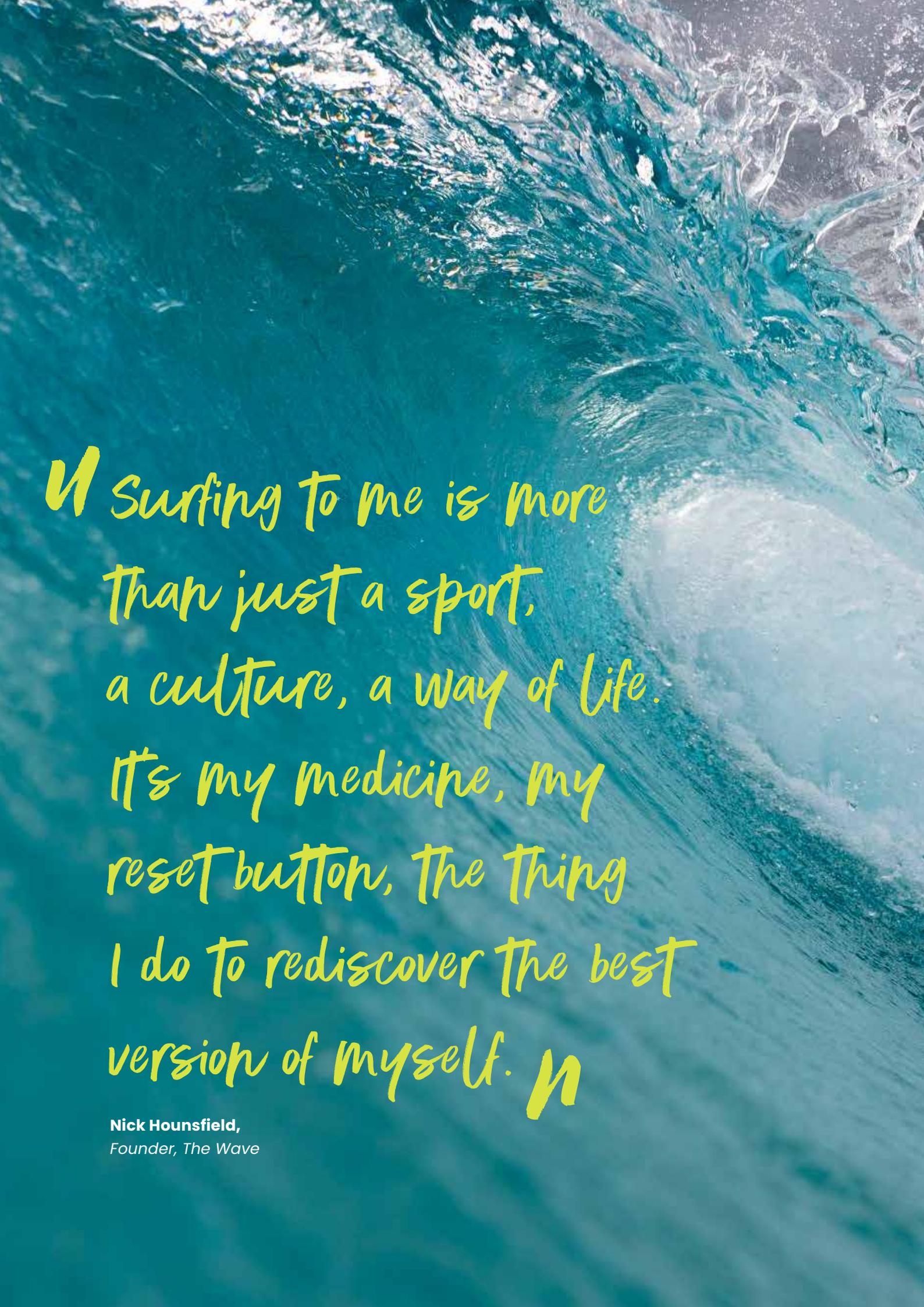




wave
into the
Blue

**Blue Health and Surfing
in the 21st Century**

A Report by
The Wave



N Surfing to me is more than just a sport, a culture, a way of life. It's my medicine, my reset button, the thing I do to rediscover the best version of myself. **N**

Nick Hounsfeld,
Founder, *The Wave*

Contents



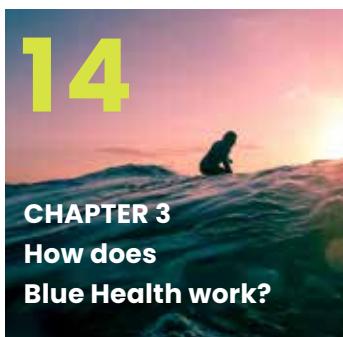
FOREWORD
by Nick Hounsfie ld



CHAPTER 1
Blue Health:
an introduction



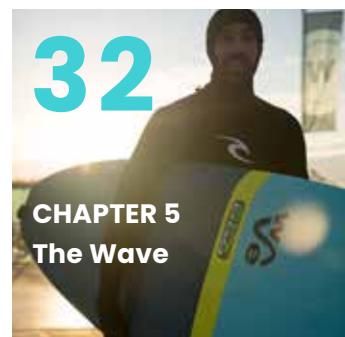
CHAPTER 2
Green and Blue:
a brief history



CHAPTER 3
How does
Blue Health work?



CHAPTER 4
Cold water
immersion



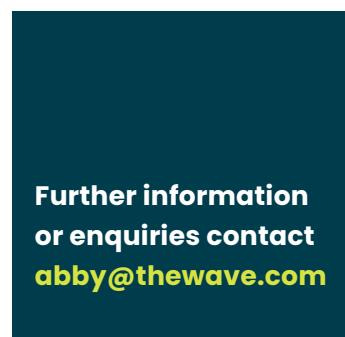
CHAPTER 5
The Wave



CONCLUSION



Report prepared by
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Global Shots

Happiest Times...

W

hen I was a boy, my happiest times were when I was by water: fishing, sailing, swimming, but especially surfing with my dad. We both loved being in the water, and would have spent every day on, in, or just beside it if we could. Being in the ocean and gazing at the far horizon always brought an inner calm and put me in a totally different mindset. I'd always find the best version of myself there.

Surfing to me is more than just a sport, a culture, a way of life... it's my medicine, my reset button, the thing I do to rediscover the best version of myself. I've continued to surf as an adult, and whilst working as an osteopath, it struck me how much being around water and nature seemed to relieve some of the stress and anxiety patients were struggling with. I became increasingly aware of how mental stress manifests itself in physical pain, and vice versa.

The same applies to me. At times of high stress, my wife (sometimes) agrees that I just need to go for a surf to decompress from life. And she's always right. I always come back in a much better headspace, more relaxed, fulfilled, but with renewed energy.

When my dad died suddenly in 2011, I promised him I would build something in his name that would make a positive impact on the health of society. I wondered if there was a way to capture some of those calm yet exhilarating feelings I got from being around water and surfing, and share them with others. I thought about how our health suffers due to the anxiety and stress from the way we live, yet sitting by the ocean for only a few hours can do us so much good.

But how do you bring the ocean to a city like Bristol?

One evening, after work, whilst developing a vision for a healthy, restorative space, I stumbled over a video released that day of a Spanish company who had developed a technology that made waves in a lake. That was the eureka moment for me – that was the start of The Wave. Nine years later, after a long struggle, but with the support of an amazing team of friends and investors, we opened The Wave, the world's first inland surfing lake powered by Wavegarden Cove technology. I wanted it not only to be about surfing, but also about creating a natural, restorative environment, offering good food and with

FOREWORD

respect for nature, because my instincts told me that spending time around water could help your wellbeing and ‘reset’ your mind and body.

Working on The Wave, I’ve become aware of thousands of other people using water and surfing to help restore people’s mental and physical health and boost their wellbeing. I’ve also learned that, while most of us started this kind of work because of an instinctive belief, there is now a global movement of thinkers, scientists and planners dedicated to exploring ‘blue health’. Thanks to them, the body of hard, scientific evidence for the beneficial effects of ‘blue spaces’ is rapidly increasing.

Blue health will undoubtedly become more important in the next decade, and thousands of people are already providing or receiving ‘blue care’ treatments, but many more have yet to hear of it. At The Wave, we believe in the importance of blue health, so we have compiled this overview about how it developed as an idea, what’s been proved so far, how we and other surfers use it, and where it’s heading. In some sections we focus on surfing because it plays a particularly prominent role in blue care, and also because it combines the two areas of my life I am most passionate and knowledgeable about. We hope it will interest you, and help others benefit from Britain’s blue spaces and share the positive benefits of water, waves and surfing.

Nick Hounsfield

Founder, The Wave



H Research has shown blue environments might allow us to tackle major public health challenges such as obesity, physical inactivity and mental health disorders. **H**

About Blue Health,
Bluehealth2020.eu

BlueHealth: an introduction

In 2016, the EU launched a €6m, pan-European research project to investigate the links between inland waterways and coastlines, and human health and wellbeing. BlueHealth, as the project was called, was set up in response to a growing body of scientific evidence to support the commonly held belief that spending time near or in water is good for us. Throughout the 2010s, an increasing number of academic researchers carried out studies indicating that physical and mental health, together with feelings of wellbeing, improve in people who spend time near the coast, or beside waterways. With poor mental health a growing area of concern and financial cost in Europe, the findings seemed to present a potential benefit that could not be ignored.^{1,2} As the studies used different techniques and measures, however, more large-scale studies with agreed methodologies were needed. Led by the European Centre for Environment and Human Health (ECEHH) at Exeter University, more than 90 experts across the continent donned wetsuits, picked up waterproofed clipboards, and set out to answer the call.

The study is due to conclude in 2020 and has already uncovered facts about our relationship with waterways and coastal areas that could change the way we think about health. In September 2019, for example, ECEHH researchers used survey data from more than 25,000 respondents to analyse the wellbeing effects of being beside the sea. The study, one of the most detailed investigations of the subject ever undertaken, found that living in towns and cities near to England's coastline is linked with significantly better mental health, particularly for those in the lowest-income households.³

Other BlueHealth project findings are equally interesting.⁴ At the start of 2020 there are dozens of other independent researchers now investigating blue spaces and blue health.

1 In 2017-18 work-related stress or anxiety accounted for more than half of all working days lost in the UK (Health and Safety Executive, 2018) and the number of anti-depressants prescribed doubled (NHS Digital, 2017) between 2006 and 2016. More than a quarter of adults have been diagnosed with a mental illness at some point in their life; nearly 6% of people in England suffer from generalised anxiety disorders, and 3% suffer from depression. One in five of us will experience suicidal thoughts at some point in our lives (NHS Digital, 2016).

2 BlueHealth, 2020a

3 Garrett, et al., 2019

4 BlueHealth, 2020b

CHAPTER 1

Exposure to blue space has been clearly linked to improvements in physical and mental health and wellbeing, and there is a proliferation of schemes offering forms of blue care such as surf therapy.^{5,6,7} By coincidence, the official colour of 2020 is Pantone's anti-anxiety blue!⁸ But why now? And how did we get to this level of interest in a form of healthcare, which only ten years ago was regarded with widespread scepticism?⁹

5 Völker and Kistemann, 2011

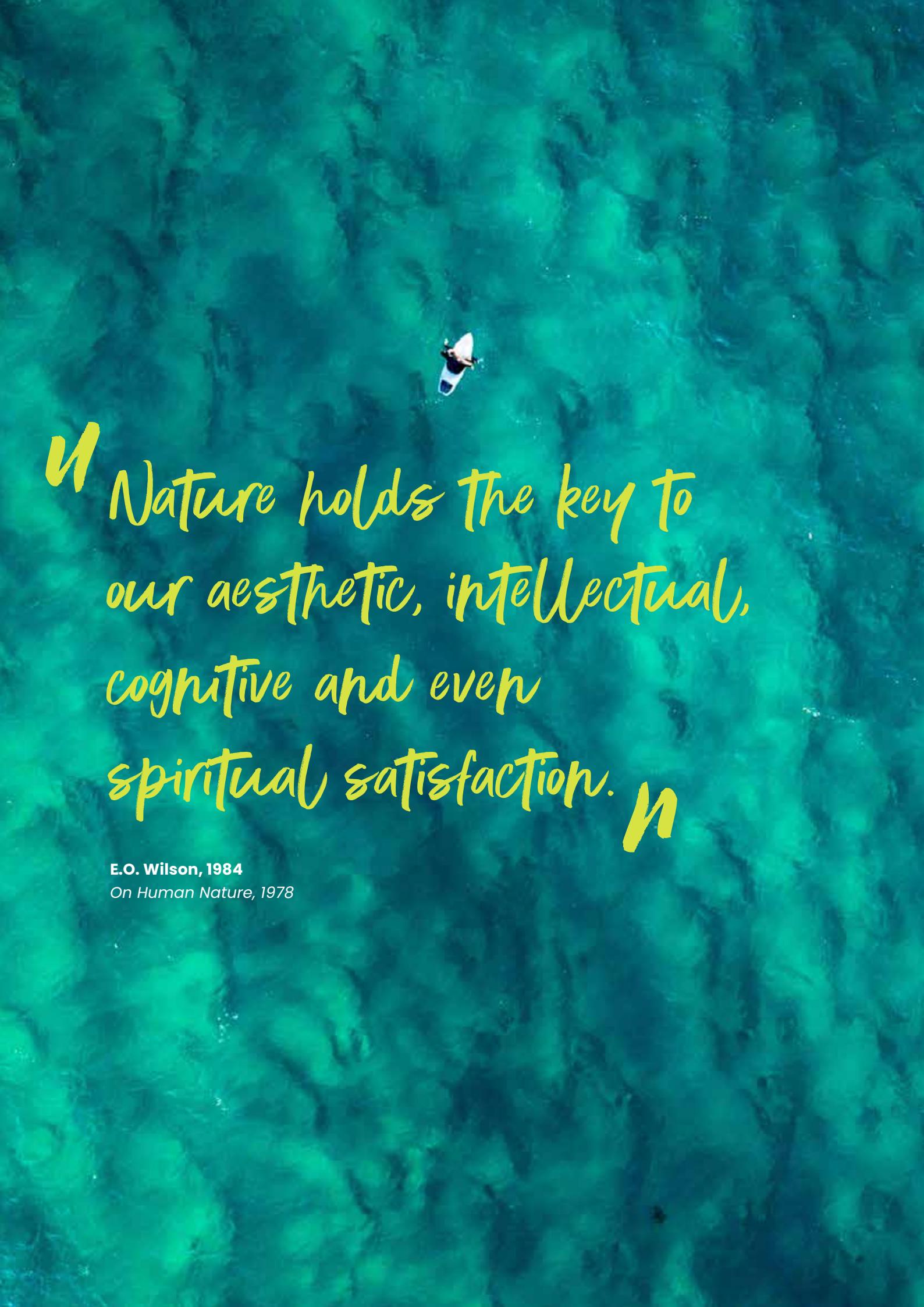
6 Britton, et al., 2018

7 Wheeler, et al., 2015

8 Larkworthy, 2020

9 Taylor, 2013



An aerial photograph of a person standing on a white surfboard with blue stripes, positioned in the center of the frame. The water is a vibrant turquoise color with visible white foam and ripples.

“Nature holds the key to our aesthetic, intellectual, cognitive and even spiritual satisfaction.”

E.O. Wilson, 1984

On Human Nature, 1978

Green and blue: a brief history

In 1984, E. O. Wilson, a biologist at Harvard University, introduced the concept of 'biophilia' – essentially a bond with nature and animals that evolution has left in humans' genetic makeup. Wilson's hypothesis posed that, because we spent most of our evolutionary history in nature, we have an instinctive physical, cognitive and emotional attachment to natural environments. In the same year, environmental psychologist Roger Ulrich seemed to tap into this concept when he demonstrated that recovery from surgery was accelerated when patients were in hospital rooms with a view onto nature.^{10,11}

During the 1980s and 1990s, increasing numbers of medical and environmental researchers became interested in 'green health' – a branch of medicine that encompasses sustainability, philosophy, and the relationship between human health and the environment.¹² As scientists studied different natural landscapes, measuring people's heart rates, stress levels and fitness as they spent time in 'green spaces', some began to suspect there were distinct health benefits from being in landscapes featuring water.¹³

Those scientists began to study 'blue spaces' and 'blue health'. In



10 Ulrich, 1984

11 Sternberg, 2012

12 Falcon and Lueck, 2009

13 Britton, et al., 2018

CHAPTER 2

2014, scientist and activist Wallace J. Nicholls published an influential book called *Blue Mind: The Surprising Science That Shows How Being Near, In, On, or Under Water Can Make You Happier, Healthier, More Connected, and Better at What You Do.* Nicholls demonstrated how technology has enabled us to understand how human brains carry an ancient connection to water, which Nicholls calls ‘blue mind’:



Blue Mind: a mildly meditative state characterised by calm, peacefulness, unity, and a sense of general happiness and satisfaction with life in the moment.

It is inspired by water and elements associated with water, from the colour blue to the words we use to describe the sensations associated with immersion.



Not everyone agreed with everything Nicholls claimed, but he had expressed a belief that was now garnering scientific support.

In the mid-2010s, a team from the Barcelona Institute for Global Health analysed the 35 best investigations of blue space and health and wellbeing, and showed that, although research methods were inconsistent, blue space had been shown to instil positive feelings and a sense of wellbeing.¹⁴ According to the report’s co-author, Mireia Gascon, ‘These findings suggest that outdoor blue spaces have potential benefits for health, particularly in terms of mental health, general wellbeing and physical activity.’

Of course, all this has taken place against a growing acceptance of the benefits of spending time in natural settings.¹⁵ There is now a growing consensus that being in contact with nature contributes to good physical and mental health; once seen as an eccentric concept

14 Gascon, et al., 2017

15 Nisbet, et al., 2008

CHAPTER 2

in the UK, green health is now a part of the National Health Service (NHS) strategy.^{16, 17} Recent studies, for example, have shown that viewing natural scenes can lower heart rate and improve focus – both of which benefit physical and mental health – and that even natural smells can lower physiological stress.^{18, 19, 20}

Such findings have helped to generate a new paradigm for thinking about wellbeing, sometimes called ‘ecopsychology’. Some doctors have argued that our ideas of self, illness and wellbeing relate to where we are, and therefore we should always treat people as if they’re embedded in our environments.²¹

16 DEFRA, 2011

17 Pencheon, 2014

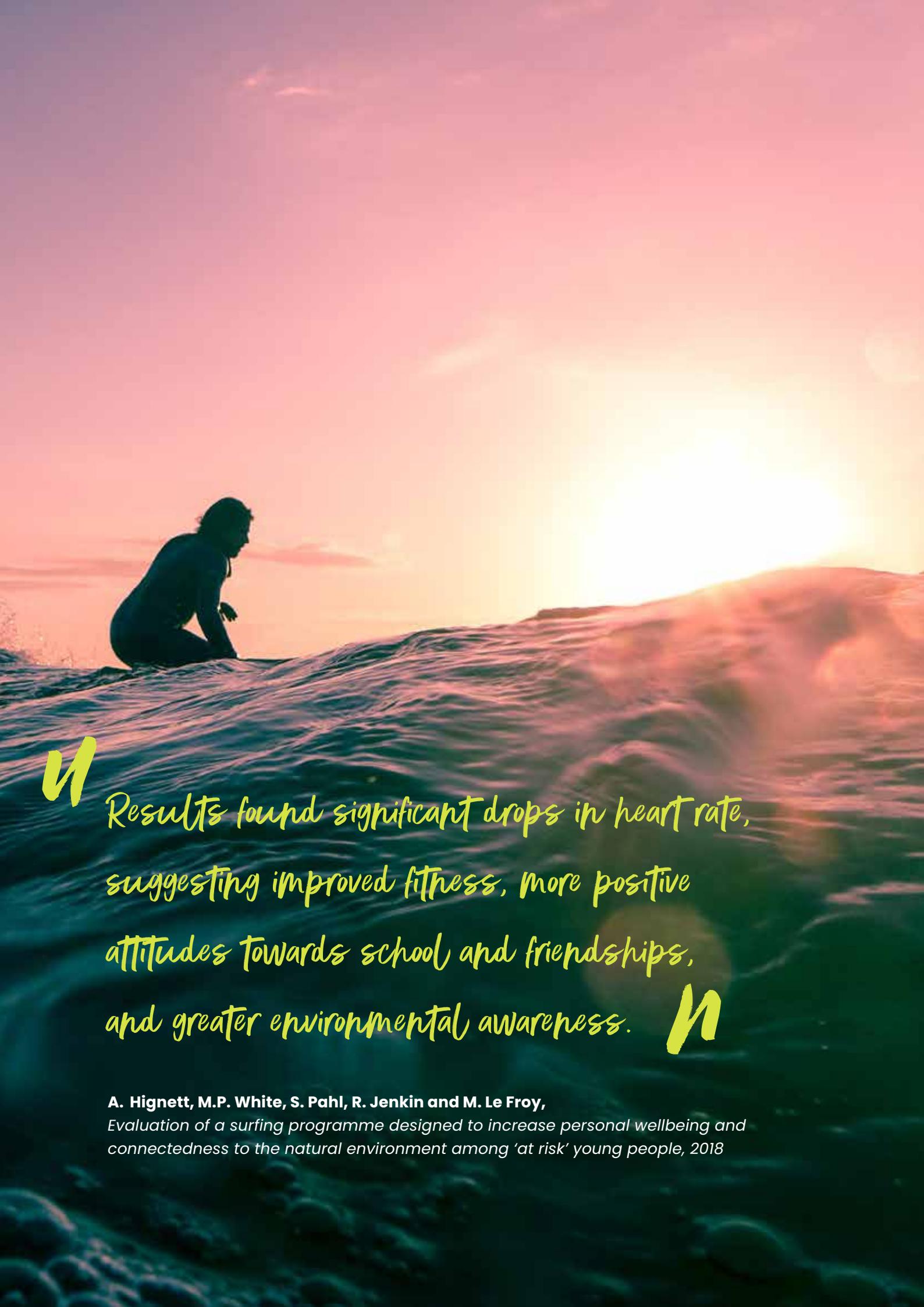
18 Laumann, et al., 2003

19 Kaplan and Berman, 2010

20 Yeagar, 2020

21 Stevens, 2010



A photograph of a person sitting on a surfboard in the ocean. The person is silhouetted against a vibrant sunset sky, which transitions from deep orange to a pale yellow. The ocean waves are visible in the foreground and middle ground, with sunlight reflecting off their surfaces. The overall atmosphere is peaceful and contemplative.

H

Results found significant drops in heart rate, suggesting improved fitness, more positive attitudes towards school and friendships, and greater environmental awareness. H

A. Hignett, M.P. White, S. Pahl, R. Jenkin and M. Le Froy,
Evaluation of a surfing programme designed to increase personal wellbeing and connectedness to the natural environment among 'at risk' young people, 2018

How does blue health work?

3.1 A brief introduction to blue health

As mentioned in Chapter 2, in recent years an increasing number of people have been using water-based activities as therapy, or blue care, to treat people with various health issues or other challenges.

Surfing therapy in particular is currently being used to help people with physical disabilities, military veterans with PTSD, young people with mental health problems, and women seeking to become more confident and fulfilled in cultures that inhibit them.^{22,23} A 2018 review of 33 studies of blue space interventions found that they could have significant benefits to health, especially mental health, psycho-social wellbeing and ‘social connectedness’.²⁴

There are a few, fairly simple, underlying reasons why natural environments featuring water make us feel better mentally and physically.²⁵ For one thing, they generally have far fewer of the irritants that cause stress in urban environments, such as noise, pollution and traffic. For another, they tend to be more conducive to physical exercise than built-up areas, and physical activity boosts mental health and wellbeing as well as the body. Research also suggests many of us find it easier to get along with people in natural ‘aquatic environments,’ particularly at the coast.²⁶ ‘At present, there is more evidence for the health and wellbeing benefits of coastal blue spaces than inland ones,’ says Matt White, Senior Lecturer at the University of Exeter and a lead academic for the BlueHealth project. ‘But more work on inland waters has been done in Germany and Ireland and more recently the US – the findings are broadly similar: blue spaces on the coast or inland tend to enhance

22 Armitano-Lago, et al, 2015

23 Britton, 2018; Britton, 2015

24 Britton et al, 2018

25 MacKerron and Mourato, 2013

26 Britton, et al, 2018

CHAPTER 3

the natural element typified by “green”. Optimal environments for mental health seem to be the water’s edge with a mix of blue and green.²⁷

But how do blue spaces really impact our health and wellbeing? And what about specific activities, such as surfing?

3.2 Defining mental health and wellbeing, and the impact of blue spaces

While closely related, mental health and wellbeing are distinctly different, but can be tricky to define precisely. This report is guided by the following definitions.

The NHS states that good mental health is ‘a positive state of mind and body, feeling safe and able to cope, with a sense of connection with people, communities and the wider environment’,²⁸ but it may be helpful to break this down further. One widely accepted approach comes from the psychologist Carol Ryff, who divides what she calls ‘optimal psychological functioning’ into six areas:

- **self acceptance**
- **sense of personal growth**
- **purpose in life**
- **environmental mastery**
- **autonomy**
- **positive relations with others**

The World Health Organisation (WHO) defines health as ‘a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity’. Definitions of wellbeing tend to reference a need to feel satisfied and positive about your life as a whole.^{29,30}



27 White, 2020

28 Strathdee, 2015

29 WHO, 2014

30 New Economics Foundation, 2012

CHAPTER 3

Some researchers separate it into two different states: a sort of ‘neutral’ wellbeing, which is really about the absence of mental distress or fatigue, and a positive version in which we consciously feel good about our lives.³¹

Blue spaces can be said to affect our mental health and wellbeing in three ways: boosting us when we’re OK; helping to prevent mental distress, and finally restoring wellbeing when we’re having problems.

3.3 Restoration

If you’re looking for evidence of blue health being taken seriously by healthcare professionals, and proof of how effective it can be, you might start with the use of surf therapy for military veterans suffering from Post-Traumatic Stress Disorder (PTSD). In America, the US Marine Corps routinely use surfing as part of its Ocean Therapy programme for wounded veterans because, according to Lt. Col. Greg Martin, commander of the so-called Wounded Warrior Battalion West at Camp Pendleton: ‘There’s nothing like surfing to touch the mind, the body and the spirit all at the same time.’ Several studies confirm Lt. Col. Martin’s claim, documenting soldiers’ recovery of balance and control over their limbs as well as recovering from depression.^{32, 33}

Surf-therapy schemes for UK veterans have been similarly effective, with one study finding them well suited to remedying the particular problems experienced by men and women suffering from PTSD and depression.^{34, 35} For some men, ‘manning up’ and ‘just getting on with it’ are key elements of their masculinity, and these perceived obligations can deter them from getting treatment for mental health problems or lead to a lack of wellbeing. Because surfing has a fairly masculine image historically, and because it’s a physical challenge, it can seem more comfortable than, say, straightforward counselling, as British military veterans with PTSD on a surf therapy course in Cornwall confirmed in interviews with researchers.³⁶

31 White, et al., 2013

32 Moore, 2018

33 Fleischmann, et al., 2011

34 Caddick, et al., 2014

35 Caddick, et al., 2015; see also Rochlen and Rabinowitz, 2014.

36 ‘I’m determined to stand on that surfboard,’ one veteran told researchers in the UK. ‘You know, one of the things that the military does – it throws challenges at you. And my civilian counterparts would most likely say ‘Well, we’re not sure we can do this’, whereas the military attitude is ‘Yeah, get on with it’, and then cope with what comes up at the time – not look for the problems first, deal with the problems as they arise. I’ve got to stand on that bloody thing! I’ve got to and it’s an immediate short-term goal that I can achieve and I’m going to achieve it. And that in itself then helps with the PTSD because you’ve done something.’ (Caddick et al., 2015)

CHAPTER 3

The UK – particularly the southwest of England – has been among the world leaders in exploring the potential of blue health, and in 2010 it saw the launch of the world's first surf-therapy course, funded by the NHS.

The course was entitled The Wave Project (not to be confused with The Wave surfing lake) and began at Watergate Bay in Cornwall in September 2010, with a group of 20 young people who all had mental health disorders, some suffering from self-harm, depression, schizophrenia or severe anxiety. Having met with considerable success, the project has since set up as a community interest company (CIC), and established operations in London, North Yorkshire, Scotland, Wales, and Northern Ireland. Funded from various sources, including supporters and the National Lottery, the scheme is free to participants and staffed by volunteer surf mentors, of whom there are now 900 across the UK. Mentors help with surfing lessons, of course, but also provide emotional support.

Concerned that the new concept of surf therapy would be viewed with suspicion back in 2010, the Wave Project's directors have been keen to have their scheme evaluated, which means there is ample data documenting the results of the programme. After the second-ever session, for example, kids who had been on the programme completed pre- and post- forms assessing their feelings of wellbeing.³⁷ Scores rose on all six measures, most notably on confidence, where the mean score rose from 5.9 to 8.6 out of ten. Feedback was also positive, not least from parents and referrers: for example, this comment from a deputy head teacher about a 14-year-old pupil's experience:

W She was on the verge of school refusal, and it was often very difficult to get her into school. But since starting the Wave Project, she has been brighter, more communicative in school and sociable. H

Referrals to the scheme come from schools, doctors, social services and other child support agencies. Most of the children had not surfed before, but after the course, 70% of them continued as members of surf clubs. Another study in the same report found that clients felt better (96%), happier (98%), made friends (89%) and felt fitter (87%). Meanwhile, 79% of parents of children who participated in the scheme said their kids had a more

37 Taylor, 2013

CHAPTER 3

positive attitude afterwards: 62% said they had better communication skills; 62% reported children being more active; 56% thought they showed a healthier lifestyle, and 46% knew of improved progress in education since the course.³⁸

'These findings,' concluded the report, 'demonstrate a valuable and cost-effective way to deliver mental health care, to mentor and encourage social integration of young people.'

In 2017, The Wave Project joined a group of six other surf-therapy organisations from different countries to form the International Surf Therapy Organisation (ISTO). Isto now has more than 30 members worldwide, each using surfing for social good. Recognition in the UK came when Olympian Victoria Pendleton became a patron, and again when the Duke and Duchess of Cambridge visited a session on Towan Beach in Cornwall in September 2019. Other schemes have had similarly positive results and some have recorded marked improvements in physical health too.^{39, 40} Clearly, surf therapy is not viewed with suspicion now: last year a postgraduate student began the first-ever PhD thesis on the subject.⁴¹

There are dozens of other blue care initiatives around the world, including projects for children suffering from autism, physical disabilities, women who have survived breast cancer, and adults coping with drug and alcohol addiction.^{42, 43, 44, 45} Surfing is commonly used in blue therapies, and despite its reputation as an activity requiring high levels of skill, inexperienced participants take to it with great enthusiasm. It's interesting, given it's a physically demanding sport, that when asked to rank what they like about it, young people put 'fun' and 'surfing' way out in front, with 'exercise' and 'achievement' last.⁴⁶ This seems to be in keeping with an old surfing maxim: 'The best surfer is the one having the most fun.' In other words, having fun in the water quickly becomes equal to, or even more important than, surfing prowess.

This may partly explain why surfing programmes appear to be successful when it comes to boosting self-esteem. Surfing, when taught well, allows for 'self-selected pacing and progression'; a novice can start on small waves and build up to larger ones at their own pace.⁴⁷ James, 14, quoted in a 2019 study of The Wave Project said:

38 Godfrey, et al., 2015

39 Hignett, et al., 2018

40 Armitano-Lago, et al., 2015

41 Wavegarden Scotland, 2019

42 Smith, 2019

43 Armitano-Lago, et al., 2015

44 BDA, 2019

45 White, et al., 2016

46 Hignett, et al., 2018

47 Marshall, et al., 2019

CHAPTER 3

H Starting off with the smaller waves, I kept on working my way up. Medium ones are quite difficult. Eventually, I get used to them then I selected a bigger one. They really worked, so I went on a few more medium ones, working my way up.⁴⁸ **H**

This situation lends itself to the creation of a 'safe space' – a space where everyone performs as they wish, with no judgement or mockery.

Dan, another participant in The Wave Project, said:

H When I was out there, if I got some of it wrong, I didn't get told off. It was just to have fun. They weren't bothered about if you could do it or not.⁴⁹ **H**

Even experienced surfers say the water has a calming and restorative effect on their feelings and boosts their wellbeing. Sophie Hellyer, former British and English surfing champion, says:

H The ocean can change your mood: if you think you're sad it makes you happy, if you're feeling stressed it makes you calm. It's like hitting the reset button. I struggled with depression when I was younger, and it was a great help to me then.⁵⁰ **H**

48 Marshall, et al., 2019

49 Marshall, et al., 2019

50 Hellyer, 2019

CHAPTER 3

3.4.1 Attention restoration and 'soft fascination'

We don't have to be suffering from extreme stress or poor mental health to benefit from blue spaces. One influential 1991 theory, known as 'Stress Recovery Theory', suggests that after being in a stressful place, humans have a biological impulse to leave that place in order to recharge our energy levels, renew our positivity and ease the effects of the stress on our bodies.⁵¹ The same can apply if we find ourselves in any sort of debilitated mental state – if we're anxious, for example, or even if we're under-stimulated.⁵² According to this theory, in natural environments we take more notice of things and respond more positively to them, and so recover better from stress in natural settings.

Rachel and Stephen Kaplan, psychology professors who have extensively studied the effects of nature on people's health, suggest that natural environments similarly help us with focus or 'attention restoration' when we are mentally fatigued.⁵³ Humans, they propose, have two kinds of attention: directed, which is strongly focused, the kind of concentration we might use driving a car; and involuntary or non-directed, which is the kind we might give to unthreatening distant noises, for example, or passing clouds. Nature, for the Kaplans, gently stimulates our involuntary attention, while giving our directed attention a rest, allowing our minds to relax and restore themselves. The Kaplans' term for the stimulation of our involuntary attention is 'soft fascination'.⁵⁴

3.4.2 'Pink noise'

Soft fascination in blue spaces might come from the sound of water flowing over rocks, or the sight of breaking waves. It's also been suggested that the reflection of light on water, which tends to be pleasing and unpredictable, may also be a reason that we find water-filled environments so restorative. And it may even be that the fresh smells of fresh- and seawater work on us too.^{55, 56}



51 Ulrich, et al., 1991

52 Ulrich, 1993

53 Kaplan and Kaplan, 1989

54 Berman, et al., 2008

55 White, et al., 2010

56 Yeagar, 2020

CHAPTER 3

The sounds of water alone can be enough to reduce stress in people.⁵⁷ Staff at The Wave surfing lake observe that visitors often comment on how the constant sound of the waves breaking relaxes them, and makes them feel at ease even if they have not been surfing in the lake themselves. This may be because many of the sounds made by water in natural settings – gentle river currents and the soft sound of waves washing ashore, for example – fall into the category of ‘pink noise’ – the name given to a range of sound made up equally of all the sound frequencies that humans can hear, but with more volume at the lower frequencies ('white noise with the bass turned up' as it's sometimes called).⁵⁸ Pink noise may do more than reduce stress levels: several different researchers found it improves deep sleep and memory.⁵⁹



3.4 Calmness from being close to water

Spending time in or around water certainly appears to help keep us in relatively good mental health. People living near expanses of water, particularly the coast, tend to be healthier and happier than those living inland, and beach environments have been shown to enhance mental health, and reduce poor moods.^{60, 61} In 2016, a study of people

57 Thoma, et al., 2018

58 Barone, 2017

59 Zhou, et al., 2012

60 Wheeler, et al., 2012

61 Peng, et al., 2015



CHAPTER 3

in Wellington, New Zealand, found that people living in homes with views of blue spaces experienced lower levels of mental distress even if they lived relatively far from the sea.^{62, 63}

The calmness that seems to be instilled by being closer to water seems particularly noticeable in surfers. Compared to the general population, they show significantly lower levels of depression and anxiety, and they're much less likely to get emotionally upset by stress; researchers suggest that this is down to the nature of surfing, specifically its combination of physical exercise and absorption in riding waves. Surfers qualitatively describe the surfing sensation as a hybrid of meditative and athletic experience. As the authors of a 2011 report put it: 'Numerous empirical studies link both meditative experience and exercise with reduced incidence of depression and anxiety.'⁶⁴

More research is needed in this area before we can explain simply and certainly why surfing makes us calmer, but we do know that exercise lowers stress levels and is more effective when done in the presence of water.^{65, 66} We also know that over time, surfing can help to reduce heart rate – an indicator of lower stress levels and better health.⁶⁷ Researchers have speculated that surfing also boosts wellbeing through its intense pattern of risk and reward.⁶⁸ A surfer may have to wait some time for a wave, and even when it comes along, they may fail to catch it; the sense of joy felt if they do catch it is assumed to trigger the release of the pleasure-giving neurochemical dopamine in the brain. (As well as giving pleasure, dopamine also reduces pain which, according to a 2011 report, explains why some injured military veterans find that surfing reduces their need for painkillers.)⁶⁹



62 Nutsford, et al., 2016

63 Dempsey, et al., 2018

64 Levin and Taylor, 2011

65 Zschucke, et al., 2015

66 Barton and Pretty, 2010

67 Hignett, et al., 2018

68 Peck and Lagopoulos, 2019

69 Fleischmann, et al., 2011

CHAPTER 3

3.4.1 Surfing, mindfulness and 'flow'

Surfers often say that riding a wave enables them to momentarily become 'at one' with the powerful combination of natural forces that make up a wave coming into shore. This is seen by some as a spiritual experience, as good for the sense of wellbeing as a religious experience can be for people of religious faith.⁷⁰

One might struggle to find scientific evidence to support the view of surfing as religion, but there is support for the idea that it transports you to a different mental plane. Hungarian-American psychologist Mihaly Csikszentmihalyi identified the psychological concept of 'flow': a hyper-focused mind state that makes us more productive.⁷¹ He argues that having experiences in which we are completely absorbed to the exclusion of all else can benefit our overall sense of wellbeing. Ulrike Schmidt, a psychiatrist at Georg-August-Universität, Göttingen, Germany, who studies PTSD says it's reasonable to think that surfing could change someone's brain chemistry. 'We already know that moving your body is fundamentally good for healing,' she says. 'And there's evidence that through movement and physical effort you can encourage metabolic processes in the brain.'⁷²

3.4.2 The 'small self'

Surfers often talk about therapeutic feelings of awe and smallness in the face of natural forces which some observers refer to as the 'small self'. Researcher, activist and Irish National Surfing Champion, Easkey Britton says:

*H It's so amazing being able to jump in the sea and hit
reset - in that sense it's always been therapeutic for me.
There is often so much to learn and it's very humbling to
be immersed in an environment that is so powerful and
unpredictable, that you have to surrender the need for
control and just be in the moment.⁷³ H*

70 Kerby, 2010

71 Csikszentmihalyi, 1990

72 Schmidt, 2018

73 Britton, 2019

CHAPTER 3

These feelings of awe when interacting with nature and their effects on our wellbeing have been investigated a good deal in recent years. An influential 2015 study found that feelings of awe induced by nature could boost the immune system, and make people more ‘prosocial’ (that is, more inclined to get along with other people).⁷⁴

The authors of the 2015 study argue that this is because feelings of awe give people a sense of a ‘small self’, which they define as ‘a relative diminishment of the individual self and its interests vis-à-vis something perceived to be more vast and powerful than oneself.’ In other words, huge or powerful natural phenomena reduce our sense of self-importance, which in turn makes it easier to connect with other people. Some commentators thought the study particularly interesting because the authors showed that feelings of small self also made us more likely to help others – an insight with important social and even political implications.⁷⁵

People running conservation-based waterside projects find that when strangers work together in natural, blue space environments, social barriers break down. ‘The bit I love about these projects,’ says one, ‘[is that] they actually break down barriers and they create this lovely opportunity for people to become resilient by working together and valuing each other’s role in society.’ Writers Phillips and Lyons called this ‘eco-social healing’.⁷⁶

3.5 Boosting

Being near water can boost your sense of wellbeing and happiness even if you’re feeling OK to begin with. In 2013, academics George MacKerron and Susana Mourato used a smartphone app to enable 20,000 people to tell them where they were, and how happy they were feeling at any given moment.⁷⁷ They collected more than a million responses, and while almost every kind of non-urban outdoor environment scored higher than urban ones, marine and coastal margins were by some distance the happiest locations, with freshwater, wetlands and flood plains coming lower, just below enclosed farmland but still above urban areas.⁷⁸



74 Piff, et al., 2015

75 Lewis, 2015

76 Phillips and Lyons, 2019

77 MacKerron and Mourato, 2013

78 The only outdoor environment scoring lower was ‘inland bare ground’.

CHAPTER 3

Of course, these figures may have been influenced by people going to the coast to enjoy themselves. We tend to be more physically active there, and exercise boosts already-positive mental states.⁷⁹ However there is plenty of other evidence to suggest people get a lift from the presence of water, even if they're pretty happy to begin with. Our enthusiasm for pictures of landscapes increases as expanses of water are added and this seems to be a preference we're willing to pay for.⁸⁰ We're prepared to pay 10–20% more for hotel rooms with views over water and 8–12% more for a house overlooking water (one US report claimed the figure was 116%)^{81, 82, 83, 84} Some scientists have suggested that because we have an ancestral fondness for water, and positive memories of bathing in it, the mere sight of it is enough to make us feel happier and reduce our stress levels.⁸⁵

As well as directly boosting contentment and resilience, surfing can also help with other skills that can underpin good mental health, such as communications, problem solving, relationship skills and positive thinking.⁸⁶ Alice Hale, a teacher from Bristol's St. Mary Redcliffe and Temple School, who brought classes of non-surfing children to surf at The Wave said in October 2019, 'They're often surprised by the fact they can stand up on the small waves in the first lesson. But the real value isn't just the surfing; it's in realising they can do something they had previously assumed they wouldn't be able to.'

Although we can benefit from blue spaces, having the right frame of mind can make even more of a difference. Gammon and Jarratt's 2019 research showed that we benefit more from blue spaces if we're in a relaxed, 'leisure' state of mind than if we're in, say, an everyday work mindset: 'Individuals are more open and more sensitive to the health-giving properties of blue spaces when there is time to focus and savour the moment.'⁸⁷

Surfers find that if you are receptive to aquatic influences, the improvement in mental health can be a foundation for genuine personal growth. Sophie Hellyer finds the ocean and surfing teach her valuable skills and strength:

79 Basso and Suzuki, 2017

80 White, et al, 2010

81 Lange and Schaeffer, 2001

82 Luttik, 2000

83 Shortsleeve, 2017

84 Hopkins, 2014

85 White, et al., 2010

86 Cefai, 2017

87 Gammon and Jarratt, 2019

NI remember going stand-up paddling one day, and I must have got knocked down about 20 times. Surfing really does teach resilience - strength, confidence and courage. I've learned things from surfing that help with work. The reason I had the confidence to become freelance and have my own business comes from what I've learned in the ocean. The water has been hugely empowering, and I have seen it change other people's lives. I have seen people who thought they could never go in the water, but then did go in, and then felt, 'If I can do this, I can do anything.'



3.5.1 The biophilia hypothesis: foundations of the boost?

When we consider the reasons that so many of us feel better around the coast and inland waterways, it's hard to counter Wilson's early biophilia hypothesis that, because elements in nature were so vital to us as we evolved, we have retained a built-in impulse to interact with nature and we feel good when we do. Water was especially important to us because it was a source of food, drink and fertility, and land-based predators rarely came out of it.^{88, 89} As Nicholls shows in *Blue Mind*, advances in neuroscience seem to lend weight to this idea. According to recent neurophysiological research, natural environments directly affect our nervous system, triggering nerve impulses that make us feel more positive and less stressed, and neuroscientists have shown how evolution left us with certain emotional attachments to our environment.^{90, 91}

88 Kellert and Wilson, 1993

89 Dutton, 2010. See also Eriksen, M. cited in Nicholls, 2014.

90 Kim, et al., 2010

91 Nicholls, 2014 (Chs.2, 3)

CHAPTER 3

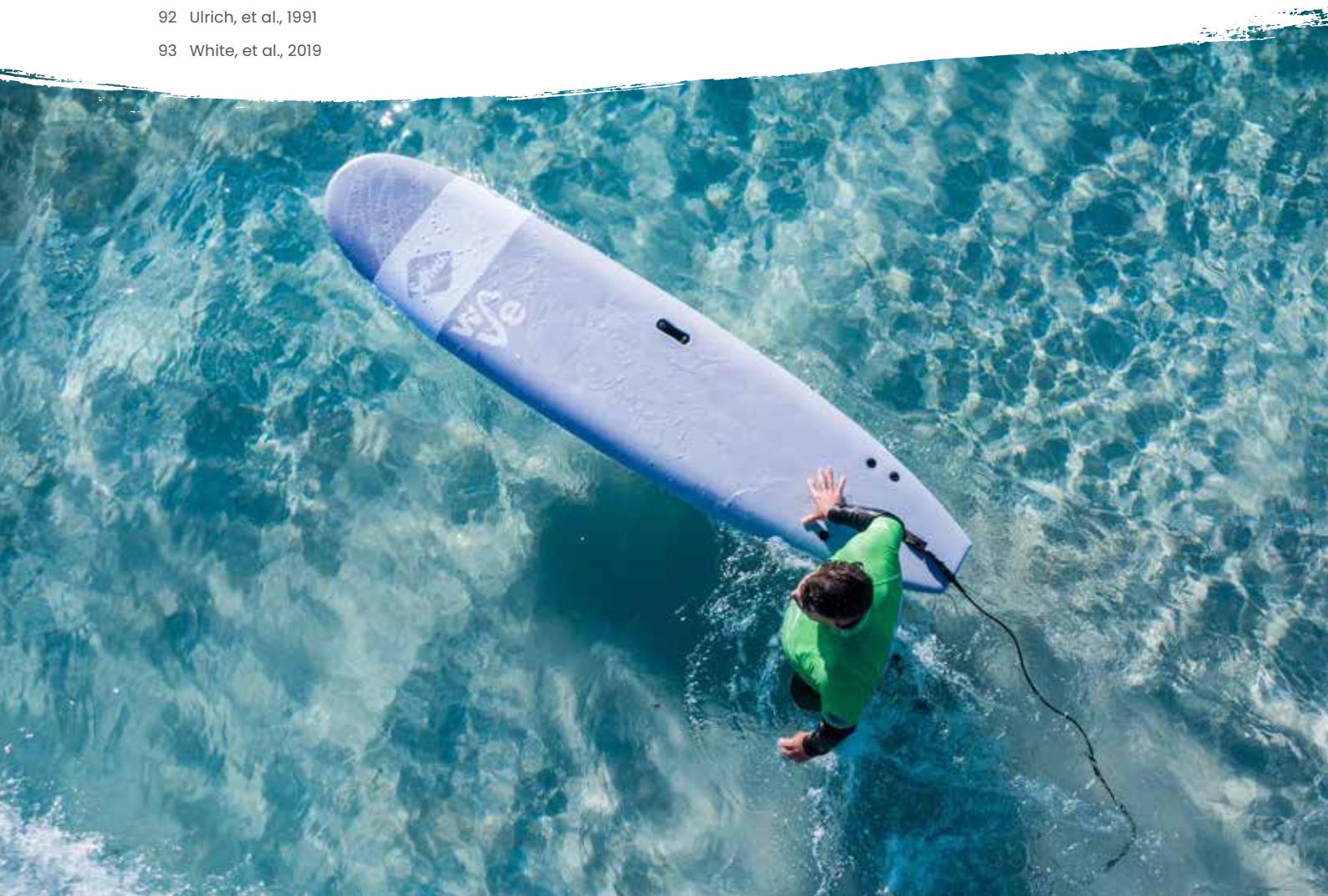
Nicholls claims the brain's responses to environmental stimuli produce complex emotions in us when we sit by the ocean, '[And] the same could be said for rivers – a source of fresh water and food,' he writes. 'Lakes would also offer some of the same. It's not hard to imagine early humans acting on their innate (that is, honed over thousands of generations) emotional responses by setting up camp nearby, likely within view of water... the resulting neurochemical release would mean that a great view that encompassed such safety and access would feel beautiful.'

Not all scientists subscribe to the biophilia hypothesis – it's more accurate to say that most think it's an interesting idea, but ultimately untestable – and it leaves much unexplained. Why did Britons in some historical periods shun the coast, for example? And why do some people fear water? Like *Blue Mind*, such questions remain a thought-provoking part of the debate.

One final point is worth making: spending time in blue spaces will not have the same effect on everyone, and you don't have to spend days and days in the presence of waterways to feel their effect. Simply changing environments can have an effect in itself, and as mentioned above, just two hours in a natural setting can be enough to benefit.^{92, 93}

92 Ulrich, et al., 1991

93 White, et al., 2019





After cold water immersion and cold-pressor tests, increased concentrations of dopamine, serotonin and endorphins have been reported; These changes are associated with improved mood or the 'post-swim high'. 

M.J. Tipton, N. Collier, H. Massey, J. Corbett, and M. Harper

Cold water immersion: kill or cure? 2017

Cold water

Cold-water surfing – surfing in colder, remote places where the water is around eight degrees or lower – has its own health and wellbeing benefits.

Cold-water surfing has something in common with other activities grouped together under the banner of cold-water immersion (CWI), from cold-water surfing and wild swimming to simply taking cold showers.⁹⁴ However, cold-water surfing is significantly different from wild swimming in that its practitioners wear insulating wetsuits.

Cold-water surfers may be driven more by the strong sense of a challenge and comradeship. Tom Kay is the founder of Cornish clothing label Finisterre, which makes, among other things, garments for cold-water surfers. He says:

HAs warm-water spots got more crowded, it pushed people to go further, discover more and travel to new places. We're not saying that people shouldn't go off somewhere nice and hot and surf for a fortnight. But sometimes it's about the reward of going through the hardship, knowing the conditions, reading the charts and studying the maps to find that next secret gem. The people you have with you, the camp, the adventure, getting off-grid - the whole experience feeds off that camaraderie.⁹⁵ **H**

⁹⁴ The modern CWI movement may date back to the mid 1990s, when doctors in Germany discovered that swimming in cold water reduced uric acid and enabled patients to cope better with stress. (Siems et al, 1994)

⁹⁵ RNLI, 2015

CHAPTER 4

Anyone who has ever plunged into a cold pool knows how our bodies react to cold water in the short term, and certainly there are some cosmetic benefits. Cold water makes your skin's pores tighter and your hair follicles flatter and therefore shinier (that's why hairdressers often give your hair a final cool rinse). Cooler water also boosts lymphatic drainage and blood circulation, and it can stimulate brown fat, leading to reductions in weight; scientists have suggested that a daily cold shower could lose you 4kg a year.⁹⁶

There are deeper health benefits too. Firstly, repeated cold water immersion can reduce the body's propensity to become inflamed and people with low inflammation have been shown to be more likely to live up to 100 years or longer.^{97,98} Secondly, low inflammation has also been associated with lower rates of depression.⁹⁹ Although the effect seems to reduce as the body becomes used to regular cold-water dips, researchers have found that colder water appears to trigger the release of the chemicals dopamine and serotonin and beta-endorphins, which are linked to improved mood and reduced feelings of depression.^{100,101,102}

Thirdly, it is possible (as some cold-water swimmers claim), that CWI boosts the immune system because when your body enters cold water, the shock triggers the release of stress hormones; some researchers argue that this short-term stress readies the immune system to deal with injury or infection.^{103,104}

96 Cypess, et al., 2009

97 Tipton, et al., 2017

98 Arai, et al., 2015

99 Miller and Raison, 2016

100 Šrámek, et al., 2000

101 Hirvonen, et al., 2002

102 Suzuki, et al., 2007

103 Brenke, 1990

104 Dhabhar, 2014



*U ... in surfing, the event
of a transformation of
consciousness is not the
exception, but the rule.* n

Leslie Kerby

*Surfing and Spirituality, Pacific University
Social Sciences Capstone Project 2010*

The Wave

There are, then, numerous attempts all over the world to make the apparent benefits of blue spaces and blue health and green health more accessible to the general public. The Wave, an inland surfing lake near Bristol, is one such attempt. It was created to make the benefits of surfing, and green and blue health accessible to everyone. Unlike some of the projects mentioned elsewhere in this report, The Wave is a commercial project, and relies on attracting visitors to cover its costs and to pay back the investors who made it possible. Having said that, it was conceived by its founder, Nick Hounsfeld, as a restorative space, inspired by natural blue spaces, which would benefit mental health and wellbeing.

The Wave lake relies on waves created by cutting-edge technology that can be calibrated to create different sized and shaped waves, opening up the experience to everyone from the novice to the expert. The lake is set in 75 acres of beautiful green space that is being rewilded with 16,000 trees, 13 acres of wildflower meadow and new hedgerows. Creating this green space around the blue aims to maximise the health and wellbeing benefits. In this way, The Wave hopes to reproduce some of the many proven benefits of spending time in open water (typically swimming), such as green therapy, blue therapy, the enjoyment aspects of being with other people, and a sense of achievement.^{105, 106, 107}

The Wave is also open all year round, embracing seasonal changes, with different food menus and events, embodying and reflecting natural change through the year. People can take advantage of its facilities at almost any time, in any weather. Being open during the winter months means The Wave caters for people interested in spending time in outdoor water during the colder winter months.



105 Gilbert, 2016

106 Nutsford, et al., 2016

107 Waters, 2016

CHAPTER 5

It is hoped The Wave will roll out to venues across Europe; land has been identified in London's Lee Valley Regional Park for The Wave London and, subject to planning, it is expected to open in 2023. Hounsfeld hopes that locations in urban areas will make surfing and aquatic environments accessible to people who might not otherwise visit them, thus bringing blue health into new areas.

Surfing is very much at the heart of The Wave experience and, while the waves are machine-made, they rely on a lake floor intricately shaped to mimic the seabed, thus creating waves that mimic nature as closely as possible. One of the governing ideas of The Wave is one commonly found in surf culture: that riding a wave enables the surfer to momentarily become 'at one' with the powerful combination of natural forces that make up a wave coming into shore, so it becomes both a meditative and an athletic experience.¹⁰⁸ (See page 23.)

In 2020, The Wave is working with the Avon and Wiltshire Mental Health Partnership NHS Trust to run a pilot trial looking at the impact of introducing surfing, as part of the Trust's Recovery Through Sport Programme, which is run by the Early Intervention in Psychosis team. It will also be running a surf therapy programme with The Wave Project to help improve mental wellbeing and resilience for vulnerable children in Bristol.

108 Kerby, 2010



H Overall, the studies suggest that blue care can have direct benefits for health, especially mental health and psycho-social wellbeing.

**E. Britton, G. Kindermann,
C. Domegan and C. Carlin**

*Blue care: a systematic review
of blue space interventions
for health and wellbeing, 2018*

The rising Tide

For thousands of years humans have particularly enjoyed spending time on or near water. Ancient Polynesian cultures appear to have enjoyed surfing, and even in Ancient Rome, 'the serene beauty of a waterfront view, the healthy sea air, the simple pleasure of boating during the hottest months of the year... were all powerful draws,' according to archaeological writer Heather Pringle.¹⁰⁹ Each age finds its own relations with water, and today more than 200 million people live in Europe's coastal regions. Aquatic environments are Europe's top recreational destinations, and millions of people around the world have experienced the benefits of natural environments featuring water. Blue health may well be the logical extension of that, as well as a new kind of health therapy for the 21st century.



At the moment, the interest in blue spaces and blue health is so strong that people are innovating and experimenting more quickly than experts and scientists can formulate hard evidence and policy. As Easkey Britton has written, 'The recent and rapid proliferation of NBS (nature-based solutions) and interventions... is outpacing policy and knowledge base. This creates challenges to understanding and assessing their impact for public health benefit.'¹¹⁰ As White points out: 'I think it is still seen pretty sceptically compared to standard medicine. Of course, it wasn't always so – with several sea bathing hospitals set up in England in the 18th and 19th centuries. I think a few medics get the idea and are possibly interested, but this is in no way mainstream.'¹¹¹

¹⁰⁹ Pringle, 2016

¹¹⁰ Britton, et al., 2018

¹¹¹ White, 2020.

CONCLUSION

White also adds that the BlueHealth project, due to conclude in 2020, has thrown up some significant stories on mental health, bathing water use, recreational activities, which will be published in the next two years.

As long as everyone in the field remains as responsible and caring as they have been so far, this will remain a positive state of affairs. Blue health, blue care and surf therapy are in the early stages of development as serious treatments, but the field is all the more exciting for that; discoveries that will be made in the next few years may well improve the lives of countless people in years to come. For millions around the world, blue health is a journey, and one that is only just beginning.





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