

Feature

PHOTO BY CLASER

# THE BLUE MIND

PEACEFULNESS, HAPPINESS, SATISFACTION, AND...BETTER SURFING?  
IT TURNS OUT GOING FOR A SURF IS REALLY GOOD FOR YOU, AND IF BIOLOGIST  
WALLACE J. NICHOLS' RESEARCH IS ANY INDICATION, THAT'S ONLY THE BEGINNING

*By Maxwell Klinger*

A few years ago, I sat with Jack O'Neill on a weathered deck overlooking Pleasure Point, Santa Cruz. O'Neill was under a blanket and had just woken up from a nap, looking—with amber beard and eye patch—like surfing's desert father. At the time, he was 89 (he's now 92), and despite a recent stroke he was full of mischievous energy.

We were talking about the ocean's mesmerizing effect on people when, mid-sentence, he grabbed my arm with a pipe-fitter's grip and said, "You oughta quit wasting your time here and just go talk to J. Nichols." He gave me a steady glance out the corner of his eye that turned suggestion into command.

I did, eventually, and was thus thrust into the world of "Blue Mind," a term coined by biologist Wallace J. Nichols for the special neurological state the brain enters when we're around water—what he describes as a "mildly meditative state characterized by calm, peacefulness, unity, and a sense of general happiness and satisfaction." It is also the name of the book he recently published that made a run on *The New York Times* bestseller list.

That the ocean can make us happy might seem like a no-shit observation to the everyday surfer, but Nichols' exploration of neuroscience starts to splinter off into some pretty heady avenues of investigation, like how surfing can lead to long-term happiness, how *Blue Mind* can help us catch more waves, and why surfing will make us more productive, more creative, and improve mental health. No wonder O'Neill was so insistent.

A marine biologist by training, Dr. Nichols, who goes by "J.," is an unlikely person to pen a book that unpacks the dense field of neuroscience. He was the first person to track a turtle's migration across an ocean, he walked a 1,200-mile survey along the coast from Oregon to Mexico with his wife and then 18-month-old daughter, and he's been on the scene of environmental disasters like Deepwater Horizon. But he'd never made tissue slides of the prefrontal cortex or fired up an fMRI machine. His colleagues called the book project career suicide. But having spent his entire life near water—he says he could fish for perch out of his childhood window—and seeing the ways neuroscience advances in the last 10 years have revolutionized our understanding of behavior, he couldn't resist. Soon he was subscribing to neuroscience journals, attending conferences, and listening to MIT lectures on his waterproof headphones as he swam laps. Five years later he published a book that was equal parts hard science (it has 449 footnotes) and compelling anecdotes about people

whose lives have been transformed by water. Unsurprisingly, a lot of them are surfers.

I met Nichols at the California Academy of Sciences, a spacious, modern building in San Francisco's Golden Gate Park, where he is on the research staff. Dressed in slim-fitting khakis, with a sweep of silver-ish hair, the first thing he wanted to show me was a model tule-reed raft that was floating in an indoor tide pool, something similar to the ancient Peruvian surfcrafts called *caballito de totora*. He said that there was a tradition of building these on the coast north of Santa Cruz, California, where he lives, and he showed me a photo on his phone of a small version he was helping design.

"Our desire to be in or near the water is something that stretches far back in human history," he said. "It's central to so many creation myths." Then he showed me another, almost diametrically opposite, piece of technology: a small headset device that connects to his phone and produces rudimentary EEG scans of the brain.

"You put this thing on and it gives you a really simple read of what's going on with the brainwaves under the hood," he said.

These concentrations—water and how it affects specific neural networks of the brain—are the subject of *Blue Mind*. Reiki healing this is not.

To grasp *Blue Mind*, it helps to have a little cheat sheet about two ways the brain allocates attention. The first, "directed attention," occurs when we deliberately delegate our attention to a specialized task or decision. You're sending an email, reading a map, or deciding whether to pack the quad or thruster; that's directed attention. On the other hand, "involuntary attention" occurs when some external stimulus, usually something novel and unthreatening, captures our attention. This is described as "soft fascination" and can lead to states of mental "drift." You might be strolling through a forest, hearing the strains of a street musician, or mind-surfing at the beach.

Nichols has taken this dichotomy and shown how being around water, with its sparkling surface patterns, its invigorating breezes, its gentle and rhythmic sounds, and its biotic smells, puts us in a kind of super-version of involuntary state, aka *Blue Mind*. Cutting-edge neuroscience bears this out.

That research explains how earlier-developed parts of our brain, like the stem and the limbic system—parts that evolved first and through which we share an ancestral link with early hominids and even reptiles—receive stimuli from our senses and respond by sending a signal to synthesize chemicals across various networks of the brain's neurons. Nichols cites research that proves being near water releases a galaxy of feel-good neurochemicals like dopamine (pleasure, novelty), serotonin (well-being, peace), endorphins (euphoria, pain inhibition), oxytocin (love and bonding), GABA (calmness), and even endocannabinoids (our very own cannabis-like chemical). It is only later that we begin to process these feelings as actual emotions. Studies have shown that being near water increases test-taking scores, focus, creativity, relaxation, and empathy. (It can even be therapeutic for things like addiction, PTSD, autism, and Down syndrome.) He calls it "our most profound shortcut to happiness." This combination regulates heart rate and steadies breathing, and can ultimately improve cardiovascular health and lower blood pressure. And that's before we even decide where we're going to paddle out.



TRAINED AS A MARINE BIOLOGIST, WALLACE J. NICHOLS MIGHT SEEM LIKE AN UNLIKELY PERSON TO WRITE ABOUT NEUROSCIENCE. BUT WHEN IT COMES TO THE WAY HUMAN BEINGS INTERACT WITH THE OCEAN, HE'S AN EXPERT WITH FIRSTHAND EXPERIENCE.  
PHOTO BY GLASER

THIS PAGE  
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PHOTO BY SHIELD

OPPOSITE  
A GLASSY SUNRISE  
SESSION AT A PERFECT  
POINT IS THE STUFF BLUE  
MIND IS MADE OF. DIANE  
PETERSON, SWIMMING IN  
SEROTONIN AT MALIBU.  
PHOTO BY LOWE WHITE



Nichols walked me down to what he calls his "hiding place" in the Academy of Sciences. It's a dark, subterranean room with 20-foot glass walls that look into an aquarium filled with brightly colored fish. "People of all walks of life come down to this view and they get lost in their thoughts," he said. It's a living example of the kind of environments that spark Blue Mind.

But where there is Blue Mind there is also Red Mind, the busy, directed-attention state when your neurons release the norepinephrine, cortisol, and glucocorticoid that create an "edgy high characterized by stress, anxiety, and fear." Ten thousand years ago, perhaps swimming in a lagoon and looking for dinner, this might have helped us escape the life-or-death scenario of an approaching dorsal fin. This kind of stress can be a good thing, but in the modern world, dominated by multitasking, immersive media, and lives upholstered with video screens, these systems are triggered far too frequently and in far less-consequential contexts. Cortisol causes inflammation in cells and can damage the hippocampus, affecting our ability to "learn, retain information, and create new memories." It ultimately lowers our production of dopamine and serotonin.

Mercifully, your brain has an astonishingly resilient characteristic: neuroplasticity. It can adapt, rewire, and reinforce different neural pathways the more we exercise them. If one area becomes habitually overstressed, repair is attainable. (This is why blind peoples' brains can rewire their nascent visual-processing parts with networks from other senses to give them a sight-like acuity.) I asked Nichols to explain how all this fits with surfing, a sport where it's OK to pee yourself. His response, though qualified, was that we benefit from a combination—what he calls a "creative disequilibrium"—of both Blue and Red Minds. Each of us has our own genetic predispositions, our own baselines, but as far as activities go, surfing provides the ideal tension between the two. The science also explains what makes the best surfers, well, surf better than the rest of us.

## Feature

"We've all seen that guy who's always in the right place at the right time, gets the best waves, seems to know what a wave is going to do before it even breaks," Nichols said. "It's like a Spidey-Sense." In *Blue Mind*, he explains that the brain is basically a powerful pattern-recognition and -prediction system. It's bombarded with information from our senses, deciphers that data, recognizes familiar patterns, and searches for disturbances. The more we surf, the more efficient our brains become at recognizing a whole slew of important patterns, like water texture, motion, shape, and orientation. Repetition and memory become, in effect, just neural signatures in our brains. So when that Spidey-Sensed surfer intuitively paddles away from the pack toward some imperceptible blip that morphs into the wave of the day, it's because unconsciously, and in the blink of an eye, he's picking up swell patterns, processing bathymetry,

feeling the water drawing off the reef, and making the physical adjustments necessary to put himself in the right place to catch the wave. Meanwhile, everyone else is just catching a sunburn.

Fortunately, you don't have to be a savant to reap the psychoactive benefits of Blue Mind. Surfing's ideal tension between Red Mind and Blue Mind is tailor-made for putting the mind in "flow state," those moments of hyper-focus and effortless concentration where "we lose track of time, nothing else seems to matter, and we seem truly alive and at our best." Of all the criteria researchers have identified as prerequisites of flow state, the most crucial is a sense of challenge that "stretches one's ability" repeatedly—an activity whose novelty prevents it from becoming just another habituated routine. Surfing is a dead ringer. Think how elusive mastery is. How no two days are ever the same. Then throw in the variability of conditions, breaks, and the waves within those breaks from one minute to the next. Those dynamics are built into surfing's genome. And when they lead to flow, the resulting cognitive mind-warp allows us to toy with the hands of time, which so little escapes. It can be a nearly out-of-body experience, selfless, an unfuckwithable connection to the moment. The present suspends itself and your consciousness is physically projected out in front of you like a glimpse into the gaping beyond. Next time your boss or teacher asks for a doctor's note because you missed work or school and went surfing, tell him that.



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HERE, MICK FANNING  
INTUITIVELY NAVIGATES  
A WIND-GROOMED FACE.  
PHOTO BY SHIELD

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PHOTO BY ELLIS

Feature



ABOVE  
JOCKEYING FOR WAVES  
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NOT SO MUCH.  
PHOTO BY VAN GYSEN

OPPOSITE  
IN THIS MOMENT,  
TANNER GUDAUSKAS IS  
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DOPAMINE, SEROTONIN,  
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WOULD CALL THIS PLEASURE  
COCKTAIL BLUE MIND,  
BUT GUDAUSKAS PROBABLY  
KNOWS IT AS STOKE.  
PHOTO BY GLASER

A friend of mine only half-jokingly calls surfing the most selfish thing in the world. But then haven't we all met that guy who has succumbed so deeply to this particular brand of selfishness that he can hold down neither job nor girlfriend (and, usually, there's a van involved)? He's lost the plot and he couldn't care less. In this case, the engrossing properties and the rush of neurochemicals (dopamine, adrenaline, and endorphins) that make surfing such a metaphysical kick in the pants can also reorder the reward pathways to create an addiction on par with drug use or gambling. As a neuroscientist and surfer at Stanford named Kevin Weiner told me, "There is certainly such a thing as too much Blue Mind."

As Nichols and I strolled past tide pools and planetariums, snapping turtles and albino alligators, I began to understand the evolutionary connection implied in Blue Mind. There is an actual part of our brain that we share with the reptiles that first crawled onto beaches millions of years ago. We have an ancestral connection to that experience, something that we can feel (and now describe with rigorous science) when we break free from the meatloaf mines of technology and consumerism and do something as simple as go surfing.

Of course, those who would fetishize or spiritualize surfing might not jibe with this characterization of it being just a big game of chemical synthesis. But it actually makes the mystery deeper. The more we know, the more we realize how little we know. You can taste a little of that mystery with every breath of sea air you swallow. ↴

