



# THE BRAIN AQUATIC

TAKE TWO WAVES AND CALL ME IN THE MORNING. **by Zachary Slobig**

**W**HEN TULSI GABBARD, the U.S. Representative for Hawaii's second congressional district, heads home from Washington, D.C., a couple of times each month, the first thing she does is drop her bags, slip into a bathing suit, and make a beeline for the ocean. For Gabbard, the only current member of Congress who is known to surf, gliding across the face of a wave delivers the kind of deep serenity that's hard to come by amid the rancor of Capitol Hill.

"It's a way to keep sane in an insane world," Gabbard says. "The effect is physical, emotional, and psychological. Even if it's just a 6 a.m. paddle out before I head into the office, it's a necessity for me because of the clarity and perspective it provides."

A feeling of enhanced well-being around water seems almost universal, and not just among surfers. It's why everyone flocks to the beach come summer, and why real estate with ocean views commands top dollar. Yet while the impact of drinking water on our physical health is obvious—it's essential to everything from our skin and muscles to kidney and heart function—cognitive scientists are just now amassing evidence that proximity to water has measurable benefits for our minds, promoting calm, focus, creativity, sleep quality, and overall happiness.

Some benefits to the brain may accrue simply from exposure to the Great




Outdoors—your brain on nature. Deploying tiny wearable EEG meters and refinements in fMRI scans, scientists have measured the effects of natural settings on emotions. Even casual and nonimmersive contact with nature triggers the parts of the brain associated with empathy, positive emotion, and self-awareness—the building blocks of happiness.


There's evidence that aquatic locales spur more happiness than any other natural setting. In 2011, researchers George MacKerron of the University of Sussex and Susana Mourato of the London School of Economics and Political Science developed a smartphone app called Mappiness to track subjective well-being. Throughout the day, respondents were randomly pinged with queries about what they were doing, whom they were with, and how they were feeling. Based on 3.5 million responses from 60,000 subjects, MacKerron reports that being in a marine or coastal environment predicts that you will be about six points happier on a scale of 100 than in an urban environment—a greater happiness bump than reported at farms, mountains, or woodlands. "It was the largest effect of any natural environment we looked at," he says.

If simply being near water boosts happiness, being immersed in it may be even more powerful. The effect is akin to that of meditation, Wallace J. Nichols reports in *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*. Nichols, a marine biologist and research associate at the California Academy of Sciences, coined the term *blue mind* to describe the "calm, peacefulness, unity, and sense of general happiness and satisfaction with life in the moment" that people feel in and around water.

The blue-mind effect, Nichols says, may result at least in part from the action of catecholamine neurotransmitters. The neurochemicals, which relay stress signals in the brain, recalibrate in water



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to low levels similar to those delivered by meditation—reducing stress and anxiety. "The best way to handle stress," Nichols says, "may be to get to the closest beach."

Simply bringing water to mind may be of help, psychologist Paul Piff finds. The University of California at Berkeley researcher asked lab subjects to write about a personal experience of awe. "They are often in nature, usually entailing water," he says. "People write about watching the sunset over the Golden Gate Bridge or the first time they swam in the Mediterranean."

He then asked them hypothetical questions, allowing them to choose, for example, whether or not to return money to a cashier who has given too much in change. "When reminded of the awe-inducing experience, they become significantly more ethical," Piff reports.

Water can be powerful even in represented forms. In one study, when cancer patients suffering chronic pain were shown a nature video that included 15 minutes of the sounds of ocean waves, waterfalls, and splashing creeks, they experienced a 20 to 30 percent reduction in the stress hormones epinephrine and cortisol. In another study, teenagers exposed to water fountain sounds at the dentist's office experienced reductions in anxiety levels.

Our preference for aquatic environments may be explained by their critical role in our evolutionary history: Fresh water has always been essential to human survival, and salt water was and is a primary food source and portal for migration. Being drawn to aquatic environments, researchers say, was optimally adaptive for our ancestors—and the adaptation may still echo in our brains.

For Nichols, understanding why water affects the mind so deeply is an important step in harnessing it for our own wellness. (He half-jokingly imagines a doctor handing out a prescription: "Take two waves, a beach walk, and some flowing river and call me in the morning.") But as a conservationist, he hopes this line of inquiry underscores the imperative to protect our natural waterways.

"When you protect your water, it protects you back," says Nichols. "Change can feel abstract to most people. But by connecting healthy oceans, rivers, streams, and lakes to our mental health, I think we nudge our relationship with and protection of water forward, one splash at a time."



## Hack Your Way To a Bluer Mind

**DON'T HAVE READY** access to a vast body of water? Nichols has tips for getting the blue benefits just about anywhere, anytime:

■ Fill a tub, throw in some bath salts, light a candle, and turn on an ocean-sound app. "Go all the way down until just your nose is poking out," he says. "Fully immerse yourself in the water."

■ Be mindful of small bodies of water you encounter: fountains, ponds, pools, and streams.

■ Next time you're on a beach vacation, pay close attention to how you feel when you finally get to the shore.

■ Capture the ocean in images or words on a page. Refer to the material in later, drier circumstances to "ignite your blue mind."