

Laguna Beach boarding scholar uses 'surfonomics' to save surf breaks.

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Chad Nelsen, a lifelong surfer and the Surfrider Foundation's environmental director, surveyed 5,000 surfers for a report on how much money they spend to ride the waves.

CATCHING THE VALUE OF A WAVE

When lifelong surfer Chad Nelsen heads to Trestles, he sees more than the famed surf break at San Onofre State Beach and dozens of wave-riding enthusiasts. He's thinking about how far these people traveled, how much it cost them to be there and how often they visit. Nelsen's feet may be in the sand, but his head is in economics – "surfonomics," to be exact.

As the environmental director of the San Clemente-based Surfrider Foundation, Nelsen has been one of several environmentalists who pioneered the use of economics to determine the value of surf spots to their coastal economies. The idea is to capture the amount of money surfers infuse into a community when they eat, shop and fuel up – and to gauge the value of that surf spot, since nobody's charged an entrance fee for riding the waves.

A growing number of surfing and environmental advocates have been using surfonomics to challenge development projects that threaten to harm or destroy a surf break. They want to prove that conservation is not a barrier to economic growth, but a source of revenue and value in and of itself.

If the notion of a bunch of sun-kissed surf riders crunching numbers seems a little strange, then Chad Nelsen will be downright baffling.

Nelsen, 43, looks like your typical surfer while sipping a cup of coffee in a Laguna Beach café, wearing sandals on his feet and a pair of sunglasses tucked into his mop of curly sandy brown hair.

But when he talks about getting his doctorate in environmental science and engineering, he shatters the slacker stereotype. Especially when you realize his Ph.D. from UCLA followed a bachelor's degree from Brown and a master's from Duke.

"I was definitely the California kid," the Laguna Beach native recalls of his undergrad days. "I wore flip flops to class, and the kids didn't understand why I was wearing my shower shoes out in public."

Several years after receiving his master's in en-

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The \$26 million wave

Environmental advocates are increasingly using surfing economics or "surfonomics" to calculate the value of a surf break. An Orange County surfer with a doctorate in environmental science and engineering has helped pioneer the field.

ECONOMIC IMPACT

Based on average \$25 to \$40 per visit with an estimate of 330,000 trips.

\$8 to \$13 million

Average amount surfers generated on restaurants, shops and gas in 2006.

ANNUAL ECONOMIC VALUE

\$26 million

Consumer surplus of \$80 per surfer (determined by how far and often they travel). Multiplied by 330,000 vists.

Source: A socioeconomic study of surfers at Trestles Beach (Nelsen, Pendleton and Vaughn); Collecting and Using Economic Information to Guide the Management of Coastal Recreational Resources in California (Nelsen)

Fred Matamoros / The Register



PHOTOS: CINDY YAMANAKA, ORANGE COUNTY REGISTER

Chad Nelsen, who has a doctorate in environmental sciences and engineering, has pioneered the field of surfonomics, which calculates the value of a surf break. The Laguna Beach waves were small on this late Monday afternoon.

WAVE: Measuring overlooked revenue

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Environmental management, Nelsen was working on Surfrider's 2001 effort to stop a condominium development from destroying the waves in Rincon, Puerto Rico. He says his colleague Ken Lindeman suggested they make an economic argument. Nelsen brought on Duke economist Linwood Pendleton to do a rapid economic assessment for the project and was amazed at the results.

"We were able to show how much revenue was coming into this little town from all these surfers from all over the place," Nelsen says. "It was a game changer in our campaign."

Due in part to the work Pendleton did in assessing the economic impact of surfing in Rincon, the condo project was blocked and a marine reserve established.

Nelsen again used this practice in 2006 as part of his thesis by determining surfers' economic impact on San Clemente when visiting Trestles. He later submitted his work to the California Coastal Commission in 2007 when Surfrider was trying to block a proposed extension of the 241 toll road, which was supposed to cut through San Onofre State Park and connect to I-5.

Opponents argued that it would interfere with rock and sand flow runoff through the watershed, and that both are important for the waves.

The survey found that on average surfers spent between \$25 and \$40 per visit to Trestles with a total of about 330,000 trips in 2006, generating \$8 million to \$13 million of revenue per year.

Nelsen also discovered that 42 percent of surfer respondents had a minimum of a college degree, 76 percent worked full time and 41 percent earned \$80,000 or more in individual income. The average age of surfers included in the survey was 35.6, which may have been nudged higher because the report excluded anyone under 18 due to University of California requirements.

The work ended up being included in the Coastal Commission's staff reports during their assessment of the toll-road extension, and he felt it played a small role in their ultimate decision to



Among Chad Nelsen's findings: 42 percent of surveyed surfers had at least a college degree, 76 percent worked full time and 41 percent earned at least \$80,000 a year.

reject the proposed project in 2008.

The conflict has recently been renewed as the Transportation Corridor Agencies, which runs Orange County's toll roads, now wants to do a shorter extension of the 241 toll road. Surfrider and other environmental advocates have reopened a lawsuit to block this newest iteration. A San Diego Regional Water Quality Board permitting vote is scheduled for today.

Christopher Thornberg, founding partner of Beacon Economics, worked on an impact study on the 241 extension for the Transportation Corridor Agencies in

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2011. Although he thinks that Nelsen's argument is clever and that he's probably come up with fairly realistic numbers, Thornberg says "the value to the people on the road is by far and away greater than the value to the people in the water." His group calculated the annual value of the 241 toll road extension to be about \$100 million to drivers.

Thornberg was also taking into account the additional work Nelsen did when he completed his thesis last year by calculating the "non-market value" of Trestles, or how much it's worth to surfers since it can't already be captured using an entrance fee.

In this case, Nelsen used an economic model called the travel cost method. The

premise is that people reveal their willingness to pay to visit an attraction through travel time and costs. For example, surfers who visit Trestles from Riverside would incur higher time and gas costs and therefore visit the spot less often. Conversely, San Clemente residents would pay far less in gas and take no time to travel, making them more frequent visitors.

All those values are compared in calculating the consumer surplus – in other words, the difference between what somebody would be willing to pay for something and what they actually end up paying. Nelsen found a consumer surplus of \$80. When multiplied by 330,000 total annual visits, he settled on an annual economic value of \$26 million per year. He calls that a conservative estimate since it only represents part of the "total economic value," or the value the public places on surfing at Trestles.

Economist and fellow surfer Jason Scorse appreciates this work, but thinks it leaves out one key component – the value of real estate near surf spots.

"The people who live closest who spend all the money on that expensive home don't get counted in travel cost," says Scorse, director of the Monterey Institute's Center for the Blue Economy.

"You ask them, how long did it take you to go to the beach, and they say, 'Five minutes 'cause I walked from my house,' and they get counted at zero. ... I think most of the value of surfing, or at least a huge amount of it, ends up in real estate."

In a paper that's been submitted to the Journal of Park and Recreation Administration, Scorse studies the impact of surf breaks on home prices in Santa Cruz. He used a model that estimates the value of real estate based on its individual attributes rather than the sum of its parts. After controlling for proximity to the beach, ocean views, specific characteristics of the homes and neighborhood effects, Scorse found that a home near a surf break in the area he surveyed in Santa Cruz is worth approximately \$106,000 more than a comparable one a mile away.

Scorse notes that he didn't submit his work to a mainstream economics journal because it's still kind of a fringe topic. He acknowledges that this is preliminary research, but he thinks the results are compelling and looks forward to seeing others replicate the study.

Scorse and Nelsen both know that not everyone is a fan of assigning monetary value to waves, not the least of whom are some surfers.

United Kingdom-based nonprofit Surfers Against Sewage put out a 2010 report emphasizing the value of waves, but stopped short of assigning a dollar amount due to a concern that "some people will start to imply that it is potentially for sale." For example, if a surf break was valued at \$15 million and a proposed resort development was worth \$250 million, could the developers end the dispute by simply "buying" the wave?

Thornberg of Beacon Economics wonders the same thing. "Maybe somehow we need to compensate the surfers for the loss of their beach. But then again, they don't own the beach. We all do. In fact, you could make the argument ... if they value surfing at this beach so much, why don't we make them pay to surf there?"

Nelsen says he isn't arguing the world should be one giant cost-benefit analysis. In the meantime, he's invigorated by new studies being done in Peru and Bali, as well as Scorse's real estate work and that of Jess Ponting, a sustainable-tourism professor at San Diego State University and director of its 2-year-old Center for Surf Research. Ponting's "surf credits" initiative uses consumer surplus and asks visiting surfers to make a donation to a local pre-vetted nonprofit that will directly benefit the community they visited.

Ponting says surfonomics is "really at the tip of the iceberg. I think it's an incredibly powerful way to go and that we'll see a lot of coastal and marine environment protected as a result of this work."

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Another part of the surfonomics discussion, according to a fellow surfer economist, is that people who live close to the waves will be lesser represented, though they spent more to live there.

