

RIF010

ROTTERDAM'S VALUE-ADDED WAVE!

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Introduction:

The value of surfing to the economy has grown significantly over the past years. This combined with the significant growth in participation and rising popularity of surfing in many countries, illustrates the importance of understanding the economic value of surfing to local communities. Due to lack of data and literature available, the impacts and value of surfing is difficult to measure. Moreover, surfing is not often included in recreational research. In reality, surfing as well as similar activities such as windsurfing, skiing or snowboarding, can be extremely important to the local communities that host them. However, there is a growing interest in understanding the economic value of such activities, and in this case, with special reference to Rotterdam's RIF010 surf project. Because empirical data is not yet available on the project, this article explores evidence from other studies that focus on the impact of surf-spots on local communities. This is done by firstly looking at cases of real surf-spots, followed by artificial ones, then a conclusion for RIF010.

It is arguable that regions that are lucky enough to be blessed with a good surf break are able to cash in on the economic gains that surfing brings to them. Along with the waves, a seemingly endless influx of people can be expected: surfers, swimmers, spectators, surf

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schools, and surf competitions, which contribute towards a thriving local economy. Furthermore, directly and indirectly related urban functions, like surf-stores, accommodation, retail shops, and restaurants, arguably provide the infrastructure for booming surf-related economies. Therefore, in support of the RIF010 project, this study investigates several natural and artificial surf spot cases, to check whether these assumptions are plausible. In the table and map (figure 1 and 2) we see the rank and geographical dispersion of the most important surf spots, by country.

The geography of natural surf-spots:

Rank	Country	Surf spots	Rank	Country	Surf spots
1	USA	200	23	Philippines	7
2	Australia	168	24	Netherlands	7
3	Central America	79	25	Japan	6
4	England	75	26	Maldives	6
5	Caribbean	41	27	Channel Islands	6
6	Portugal	40	28	Norway	6
7	Indonesia	38	29	Azores	5
8	New Zealand	37	30	Ecuador	5
9	France	36	31	Madagascar	4
10	Hawaii	32	32	Reunion	4
11	Canary Islands	30	33	Tunisia	4
12	Spain	25	34	Thailand	4
13	Brazil	21	35	Canada	4
14	Ireland	20	36	Senegal	3
15	South Africa	19	37	Denmark	3
16	Pacific	19	38	Chile	3
17	Wales	18	39	Madeira	2
18	Morocco	15	40	Uruguay	2
19	Sri Lanka	11	41	Ghana	1
20	Scotland	9	42	Mauritius	1
21	Peru	9	43	China	1
22	Middle East	7	44	Argentina	1

Figure 1: Table of countries or regions ranked according to number of important surf-spots: Wall and Šlema 2015

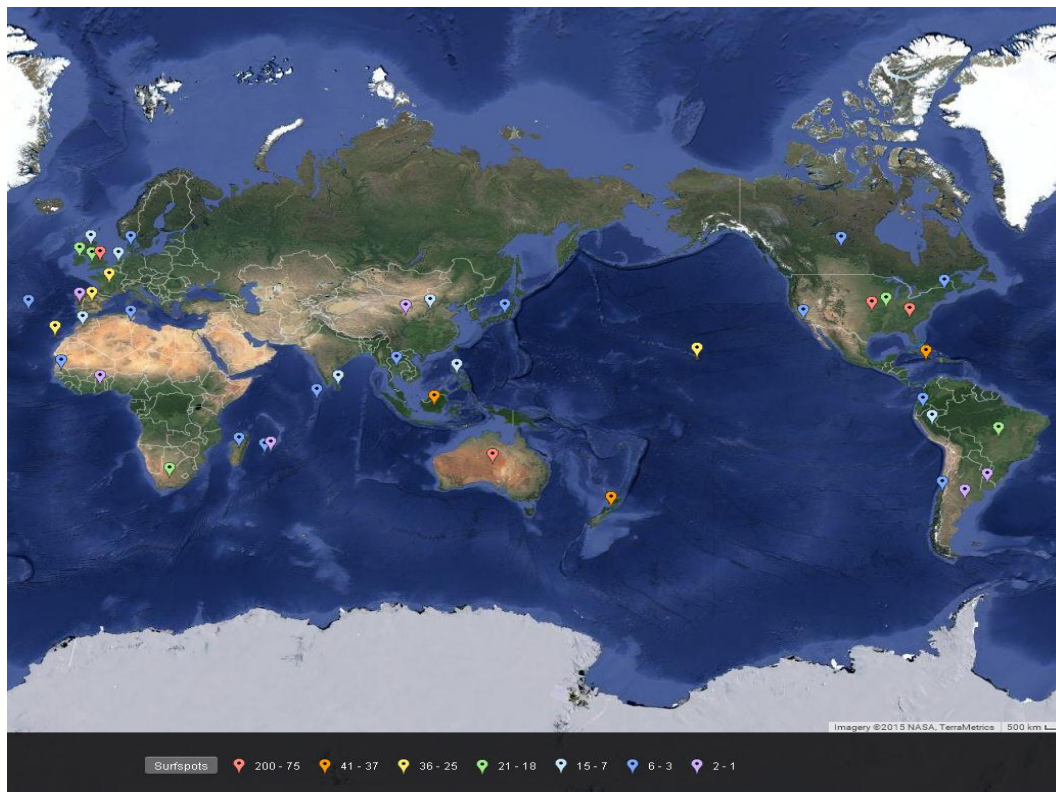


Figure 2: GIS map of the ranks of the most important world surf spots: Wall and Šlema 2015

Natural surf spots¹:

Surf spots, which incorporate all levels of luxury and service, can be found in at least 162 countries. Most of them are located in the United States, Australia, New Zealand, Brazil, Japan, The United Kingdom, Portugal, Spain and France. Moreover, emerging surf tourism markets include also Central and South America and Russia. The International Surfing Association has 90 member countries and aims to reach 100 by the end of this year. The map (figure 2) represents some of the most important surf-spots per country, however this map is not extensive. According to recent research 91% of surfers from

¹ Ponting J., Mach L., *Exploring the feasibility of surf pool attractions*, Centre for Surf Research in San Diego

above mentioned countries had travelled abroad to surf during the past five years. Of those, 82% had taken an international surf trip more than twice, almost 40% more than 10, and almost 20% more than 21 surf trips. The global surf market has been estimated to be worth \$130 billion annually and grows at 12 to 15% per year. In accordance with the Centre for Surf Research in San Diego there are an estimated 35 million surfers in the world, including 3.3 million in the United States. According to the survey average, the typical American surfer is a highly educated 34 year-old male, earning \$75000 a year. Moreover, a study has shown that an average American surfer is inclined to travel 20 miles to surf for on average 2.5 hours. Statistically, the average American surfer owns 4 surfboards and pays between \$59-\$100 for each surfing trip (gas, food, rental equipment, merchandise). Whereas according to Wagner, Nelson and Walker's estimation surfers pay \$1.25-\$5 per wave ridden every time they go surfing. Surf tourism alone in Australia's Gold Coast generates \$819.9 million per year. In 2013, surf spots in South Stradbroke Island generated \$20.7 million revenue, in Spain (Mundaka) around \$4,5 million, in Trestles \$14,5 million, in Mavericks \$23,9 million, in Uluwatu \$8,4 million.

Mundaka, Spain²

A study by Murphy and Bernal (2008) concerning the Mundaka surf break in Spain, estimated the economic impact of surfing on the local community by means of tourism revenue. Surfing at Mundaka has a proven estimated positive economic impact of approximately \$4.5 million per year on the local economy - in a town of approximately 1,900 people. Moreover, surfing adds up to \$1.5 million in annual personal income to the local population, and supports up to 95 jobs (*estimate based on visitation levels of 40,000 per year*). Furthermore, the majority of survey respondents claimed they would no longer visit Mundaka if the waves became significantly degraded. Also, local businesses

² Murphy M., Bernal M., *The Impact of Surfing on the Local Economy of Mundaka, Spain*, September 2008

estimated that up to 40% of their customers are surfers or surf spectators, and that the loss of business due to the degradation of waves, plus the cancellation of the Billabong Pro contest could be as high as 50% (*based on interviews with local businesses*).

Mundaka- surfing in Pais Vasco



Source:http://www.wannasurf.com/spot/Europe/Spain/Pais_Vasco/Mundaka/photo/index.html?wdaction=lib.WDPagePhoto.show

Gold Coast, Australia³

To date, Australia, New Zealand and the US are the most progressive in surf tourism development. A research conducted by Nelson and Lazarow (2009) utilized a multi-disciplinary approach to measure the value of surfing at two different surf locations: Trestles Beach (California) and South Stradbroke Island in Queensland (Australia). They were able to gather significant socio-economic information on surf participants at both these locations. Their study defines the types of impacts that may affect surfing and then provides an overview of current understanding of the socio-economic value of surfing. Incorporating techniques from economics, anthropology and political science, they showed that the annual impact on both these areas was roughly 20 million AUD. Furthermore Lazarow's study reported that between 65,000-120,000 people surf on the Gold Coast and it was estimated that there were between 6 to 15 million visitors attending surf sessions on the Gold Coast in 2007. The total reported annual expenditure by recreational surfers on the Gold Coast was estimated to range between 126 and 233 million AUD\$ in 2007. Incorporating non-market values, multiplier effects and externalities were shown to substantially increase the total worth of surfing on the region's economy. Furthermore, expenditure per session for recreational surfing was estimated to range between 18, 67 and 30, 36 AUD\$.

³ Lazarow N., *Using Observed Market Expenditure to Estimate the Value of Recreational Surfing to the Gold Coast, Australia*, Journal of Coastal Research, Special Issue 56, 2009.

Gold Coast Australia



Source: <http://hotels-search-engine.org/gold-coast-australia-surfers-paradise>

Trestles, California, United States of America^{4,5}

In this study, surfers were grouped within the general class of beach goers. The authors argued that distinguishing surfers from other beach goers is important because surfers carry unique interests, visitation behaviours, and demographics that uniquely affect local economies. It was shown that economic activity generated by surfers at Trestles strongly contributed to the local economy of San Clemente city. Surfers visiting Trestles provided

⁴ Lazrow N., C. Nelsen., *The Value Of Coastal Recreational Resources: A Case Study Approach To Examine The Value Of Recreational Surfing To Specific Locales.*

⁵ C. Nelsen, N. Lazarow, M. Bernal, M. Murphy, P. Pijoan, *The socioeconomics and management of surfing areas: international case studies from Mexico, Spain, California and Australia*, 21st International Conference of The Coastal Society

economic input to the local economy, by spending at restaurants, buying petrol, shopping, rentals and other beach-related activities. Furthermore, over 83% of Trestles' surfers were shown to originate from outside San Clemente city and represent strong additional expenditures to this city. The average surfing-related expenditure per-person per-visit proved to be roughly \$40 (in 2006 dollars). This can be compared to other recent studies on beach-related expenditures. For instance, the San Onofre Park study used a methodology based on the daily attendance on head counts, a turn-over rate, and surf and weather conditions to record the usage of surfers and other beach-goers visiting Trestles. According to their report (2006) there were approximately 367,000 visits to Trestles, whereof approximately 330,000 were surfers. Annual surfer visits for 2006 made up 90% of all visits. The authors estimated that the annual economic impact of surfers on San Clemente ranged between 8 and 13 million \$ per year.

Lower Trestles



Source: <http://www.surfertoday.com/surfing/7862-surfing-lower-trestles-the-jewel-of-southern-california>

Santa Cruz, California⁶

It is shown in the article by Scorse, Reynolds and Sackett (2011), how by means of the hedonic price method (HPM), the value of surfing on home prices can be estimated. This proved to be the first research that attempted to estimate the value of proximity to surf breaks as a potential contributor to home value. A unique dataset, with significant variation in distance to surf spot across three distinct-adjacent neighborhoods was used

⁶ J. Scorse, F. Reynolds, A. Sackett, *The Impact of Surf Breaks on Home Prices in Santa Cruz, CA*

by authors to estimate this, and showed that on average, similar houses (in size, proximity to ocean view and beach) differ significantly in price based on their distance to a major surf break. More specifically, home values were shown to decrease by approximately \$106,000 by every mile away from a surf break. Essentially, the study shows that homes closest to surf breaks are worth potentially hundreds of thousands of dollars more than equal homes on beaches without surf. Nonetheless, it is arguable that although surfers can benefit by living close to a surf break, that other people might suffer from negative effects such as crowds, noise and parking woes. The authors' results showed that the negative aspects of being close to surf breaks did not significantly impact on home values. Hence, surfing positively impacts on local and regional communities in Santa Cruz. Some of this was captured in the revenue spent by surfers and the associated multiplier impacts associated with this, as well as indirectly generating a stream of revenue for the local government.

Santa Cruz Beach



Source: <http://beachboardwalk.com/directions/>

Mavericks surf area in Half Moon Bay, California⁷

The Mavericks region of Half Moon Bay in California is famous for many ecotourism and recreational activities (e.g. boating, surfing and whale watching). In the study by Koffman and Burnett (2009) they estimated the economic impact of visiting the Mavericks surf area in Half Moon Bay, based on an individual travel cost model. The average visitor was estimated to generate roughly \$56.7 in consumer surplus per trip (calculated by the inverse of the coefficient for Travel Cost). With an estimated 421,431 visitors to the Mavericks surf area annually, the total annual net economic value to Mavericks visitors proved to be around \$23.8 million. Moreover, the research showed that surfers visited Mavericks nearly five times more often than other beach goers. This means that surfers accrue more benefit from surf areas annually than non-surfers.

⁷ M. Koffman, K. Burnett, *An Analysis of the Mavericks Region and An Analysis of the Mavericks Wave from an Ecotourism Perspective*, Save the Waves Coalition, October 2009.

Half Moon Bay Beach



Source:http://www.californiasbestbeaches.com/half_moon_bay/half_moon_bay_beaches.html

Artificial surf spots:

For more than 20 million people, surfing has become a metaphor for living a healthy lifestyle and being in tune with nature's rhythms. Surfing is ranked in the top 20 most popular and fastest growing sports in all countries, cultures and demographics.⁸ Around 1 million new surfers per year guarantee a growing market. Therefore the era of the artificial wave is approaching. In the near future, it is argued, it will be possible to schedule surfing around surfers' lives rather than they need to choose between waves and

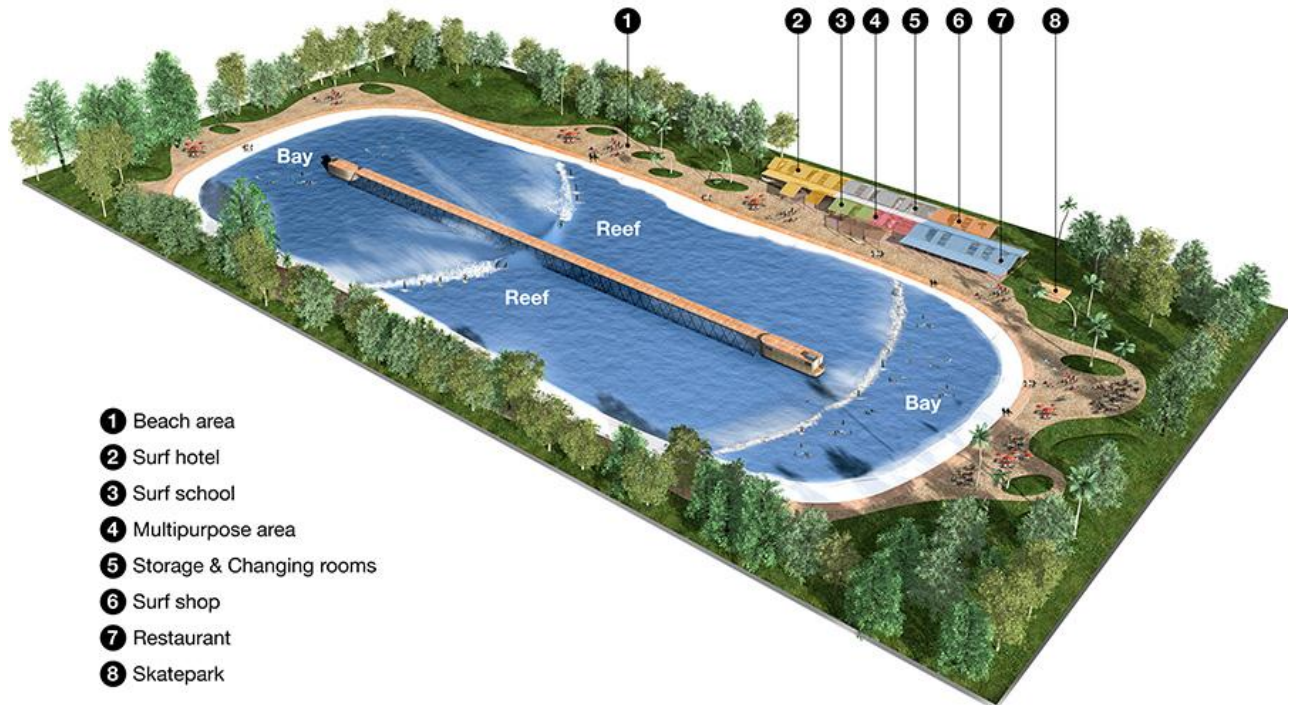
⁸ <http://www.theinertia.com/surf/exclusive-wavegarden-interview-artificial-waves-are-finally-a-reality/>

responsibilities - the classic dilemma that surfers face. In this context, surf pools and surf parks are being installed across the globe, because artificial **waves** represent exciting business opportunities for markets. With relatively low construction costs, high user capacity, and low energy consumption, wave pools provide an affective commercial return on investments, when compared to stand-alone facilities. These functions can also provide additional larger facilities, typically water parks, amusements parks, theme and adventure parks, that further enhance each other by generating important business synergies.

A good surfing beach is normally an ideal environment where nature offers more than just a great place to stay; it also offers entertainment, sport and a diversion from daily life. As such, most surf beaches are precious real estate in which to live and establish business. A lagoon well integrated into its natural environment can be aesthetically very beautiful, but a wave pool adds another element that transforms a lagoon entirely. It recreates a sea with waves that attracts both public and business. According to Instant Sport, the economic impact generated by a wave pool on its immediate environment can be estimated to be at least €3 million annually. And as it usually happens with surf beaches, an artificial wave also adds value to the area where it is installed⁹. Hence, artificial waves provide authentic surfing experiences at desired locations, providing fun, uniqueness, and healthy activities. Furthermore, wave pools provide an ideal laboratory for elite surfers and surf companies to experiment with new gear, surfing techniques and new technologies under controlled conditions.

⁹ <http://www.wavegarden.com/>

Wavegarden concept



Source: <http://www.wavegarden.com/>

Artificial surf-spots offer a dynamic business opportunity with many possibilities, where the center piece is a world-class wave designed and adaptable for all surfers and wave sports. Furthermore it provides the opportunity to create perfect waves anywhere at any time of the day or night, but also possibly put surfing onto a global stage, including the Olympics¹⁰. In this sense, there are already several projects around the globe that have licensed the technology to build surf parks at their respective locations, but most are still in a test model phase. Furthermore, due to lack of funds these artificial surf-spots will still take some time before they can be completed.

¹⁰ <http://worldwaveguide.com/wave-garden-spain.html>

Wavegarden



Source: <http://shop.tikisurf.co.uk/new-waves/>

Wavegarden in Basque Country (Test model with 1 meter wave)



Source: <http://www.theinertia.com/surf/roxy-pro-canceled-carissa-moore-lakey-peterson-surf-wavegarden/>

Siam Park Wave Pool in Tenerife

Siam Park is a wavepool located on the island of Tenerife. It has a wave of 3 meters. The disadvantage of this wavepool is there is only one wave every 30 seconds, so capacity is limited.

Siam Park



Source: <http://www.siampark.net/en/Como.aspx>

Melbourne's surf beach proposal¹¹

Melbourne surfers are hoping to someday ride 1.5 meter waves in the city under a proposal to construct a beach and wave pool at Dockland's Victoria Harbor. The concept includes a man-made sandy beach, filtered salt-water and a 160 meter long, heated wave

¹¹ <http://www.abc.net.au/news/2014-11-10/docklands-surf-beach-proposal-firm-wants-to-build-wave-pool-/5878632>

pool with waves ranging up to 1.5 meters high. Architect Damian Rogers says that although he is looking at the technologies that allow the wave to be suitable for competitions - not unlike the famous Victorian Bells Beach Classic, at the core of this idea is the opportunity that the surf park will be a place for the city's public to experience the beach. Surfers would be charged an entrance fee but access to the beach and extended deck will be free to the public. However, this project still awaits authorization and funding.

Artist's impression of the proposed Melbourne surf beach



Source:<http://www.abc.net.au/news/2014-11-10/docklands-surf-beach-proposal-firm-wants-to-build-wave-pool-/5878632>

RIF010 surf spot Rotterdam¹²

As the last example we will discuss the RIF010 surf spot in Rotterdam's Steigersgracht Canal, which is due to be completed by June 2016. Of all artificial surf-spots this is uniquely the most urban in the world, where residents of the city and visitors will be able to enjoy a 1.5 meter, artificial 9 second wave that barrels in the city center¹³. Every 7 seconds a new wave will be generated, which will accommodate three surfers at one time, on two reefs. Furthermore, the wave pool will not only focus on surfing, but also cater for other popular water sports like rafting, kayaking, diving and snorkeling, while simultaneously generating clean water and revenue for continued green infrastructure throughout the city. The 'stoke', or feeling of surfing, which has been limited to the lucky few who live near quality surf, will now become accessible to almost everyone. This revolution in wave riding can provide quality surfing waves at all hours of the day and not only during the summer. The artificial wave will replace unsweetened pond water with naturally-purified water inside the canal. Profits from the wave pool are intended to be re-invested into green urban expansion such as building the canal's independent windmill which will generate electricity and help the park become energy independent.

The wave pool is expected to also attract supporting businesses and facilitate revenue from different sources such as food, retailing, branding and merchandising, competitions, events, sponsorship, corporate and group bookings. The water park will be open all year, and will be suitable for use by children and the elderly. The project will enable Rotterdam to take its outdoor activities to a new level, by offering an exciting and innovative attraction to its inhabitants and visitors. The RiF010 project will enable the city to become an international destination, in which surfing is not limited only to coastal locations

¹² <http://www.rif010.nl/>

¹³ <http://www.gizmag.com/rotterdam-steigersgracht-canal-surfing-rif010/33334/>

anymore. Where naturally, favorable surf conditions only occur about 30-50% of the year, in the case of Rotterdam, people will be able to surf on artificial waves up to 12 months per year. It is aimed at being a safe surfing environment, perfect for people of all ages, fitness and skill levels, and will be ideal for introducing the sport to those who do not have access to waves.

RiF010 Project Visualization



Source: <http://www.rif010.nl/>

Conclusions for RIF010

This study has been directed towards studies that show the impact of surf spots on local communities, and builds up an argument for the positive impact of RIF010 on its local community and economy. These studies all show that the surf image of the area positively impacts on local economies. First of all, waves bring increasing numbers of tourists. Thanks to the RiF010 project, Rotterdam can also take advantage of the growing surfing tourism market. According to the Centre for Research in San Diego, surfers usually travel long distances to surf uncrowded quality waves. They are often able to pay a lot for travel costs without the guarantee of getting a certain number of waves. Thanks to surf pools, we can increase the number of surfers by removing the geographic barriers. Another suggested advantage of surf pools over natural surf resorts is said to be crowd control, and this is proving to be increasingly profitable. Wave pools are in the position of not only guaranteeing a higher quality and quantity of waves, but also crowd control.

Obviously, surfing will not serve as a key source of tourism income in Rotterdam, but based on the research on other surf spots, the wave pool can contribute well to tourist visits. An increase in the number of visitors staying overnight in hotels would directly yield increased sales in the hotel sectors e.g. hotel payments, taxes, wages and salaries, supplies and services. Surfers visiting Rotterdam can provide economic input to the local economy by spending money at restaurants, shopping, transport or rentals. As is the case with other surf spots, the opening of new shops (e.g. with surfboards or wetsuits), bars, cafes, motels and surf schools are expected effects stemming from the artificial wave. The possibility of leveraging the attraction with bars, restaurants and shops, not only enables onlookers to enjoy watching the surfers in action, but also creates incremental revenue opportunities. Moreover, it will expectedly increase household spending of income earned directly or indirectly as a result of tourists spending. But tourists are only one of the benefits of the wave pool. The RiF010 can be regarded to be an incubator

project, and extension of the market and internationally acclaimed Market Hall, which can stimulate various public and social functions. The wave pool can stimulate the local economy by adding a unique activity that generates greater interest, while promoting local employment and revenue. Moreover, according to research e.g. the paper “*The Impact of Surf Breaks on Home Prices in Santa Cruz, CA,*” surf spots have a statistically significant effect on real estate prices. Hence, RiF010 project can expectedly contribute to the local demand for new residential areas and upgrades at a competitive price.

In summary, surfing is a global multibillion dollar industry that includes manufacturing and retail of both hard and soft goods (equipment and clothing), rental and instruction, media publications, contest, camps, surf-parks and wave pools. Therefore, Rotterdam’s artificial wave project may be very important not only for local business owners but for the whole city. For instance, various items cannot be manufactured within the wave pool area, but may have a spillover effect on the region’s local economy. Local business will make expenditures to other local business to replace goods consumed by visitors. As a whole, the RiF010 project expectedly will stimulate the local economy and tourism sector. It may also become a unique source of employment and serve as a powerful tool in developing and maintaining the surf market and culture. Furthermore, surfing will play an important role for the local water sports community, providing more than prosperity, but more importantly, wellbeing of citizens and visitors. The wave can therefore offer the opportunity to create an attraction where elite surfers can inspire crowds, contribute to the local economy and environment, and form a space that stimulates social interaction and urban regeneration.

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