



## Artist conception of wave pool creation by WavePoolMag

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“A look at the expanding space of surf-focused wave pools and how their presence will forever change the water park attractions landscape. In this report we look at the companies and projects defining this new landscape”- by Bryan Dickerson, Editor-In-Chief WavePoolMag

### **1. Terminology**

First off, there is a variety of terms used to describe a surf-focused wave pool. Surfers like the term Wave Pool, while developers lean toward the term Surf Park. Names depend on who you ask. But wave tank, wave park, wave tub, surf pool, surf tank are also used and almost any combination is acceptable. The most important distinction is that a surf-focused wave pool is its own waterpark element. It is not a waterslide, but rather a distinct sporting business similar to skiing or golfing.

### **2. A brief history**

1960s Big Surf in Arizona opened in 1969 and was the first surf park. It was dedicated to surfing before it became a wave pool attraction. 1980s & 1990s The second generation of dual-use wave pools include: Typhoon Lagoon, Siam Park, Sunway Lagoon and others proliferated across many countries. Most of these were powered by Barr+Wray or Murphys Wave systems which used water to push out waves instead of sophisticated levers, plows or pneumatics. The result was that

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waves, although impressive in height, were rarely good for surfing.

2005 Wavegarden founders Josema Odriozola and Karin Frisch in the Basque Country begin the journey to produce surf-focused waves. 2010 Wavegarden's foil design hit YouTube and the world is smitten with this new potential. 2015 Wavegarden introduces The Cove, their new modular wave-making system that produces enough waves to ensure a profitable through-put of surfers. Kelly's Wave launches and captivates the world's attention with the perfect surf-focused wave pool. 2018 American Wave Machines PerfectSwell technology debuts at BSR Surf Resort in Waco, Texas. 2020 Surf Loch test pool in Palm Springs shows off this much-anticipated design. More information on the history of wave pools here at WavePoolMag.



Figure 1. Jamie O'Brien at Jamie O'Brien at the Surf Loch test facility at the Palm Springs Surf Club.  
(source: Palm Springs Surf Club)

### **3. Why build a wave pool?**

The world is smitten with surfing. There are 25 million surfers in the world. Two decades ago there were only 5 million. Surfing is growing exponentially at 12% per year. Natural surf destinations make money. Estimates are that

Trestles in San Clemente pulls in close to \$24m annually from visitors who patronize cafes, restaurants and other amenities. The Global Sports Market is near \$50 billion annually. Surfing accounts for just under 20% of that.

### **3.1 Active recreation versus passive recreation**

“The tourism industry is evolving from provider-oriented services to user-oriented services”(Lee, 2020) which simply means people are seeking out more engaging attractions. While a bungee jump facility is thrilling and exciting, there is no skill required to master it. People like challenges. Surfing requires participants to improve upon a few universal techniques. Once these skills are learned, the new surfer will actively seek out waves to improve and grow. As you know, surfing is a very addictive sport. And right now it fits perfectly in our post-pandemic culture as people seek to learn, engage and grow to become the best version of themselves.

### **3.2 Surfing is magical, mysterious and healthy**

There is something inextricably joyous about sliding along on a wave. In its essence, we are riding energy. Other activities, while challenging, work solely off of gravity. Surfing takes the thrill of gravity sports and adds an energy component. Surfing is healthy, mostly non-impact, and now thanks to wave pools - more social than ever. On top of that there are many physical and mental health benefits. Therapists are treating PTSD in both the ocean and in wave pools(Kim, 2020).

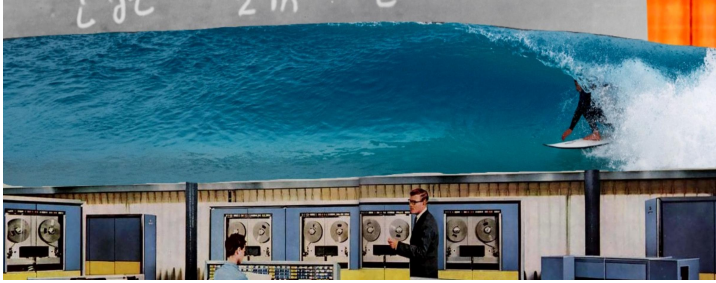


Figure 2. Retro fantasy wave pool engineering rendering(source: WavePoolMag)

### **3.3 Brief list: Surf focused wave technology companies**

Below is a list of wave technology companies and a brief background. For more lengthy descriptions please see the end of this report.

**Kelly Slater Wave Co.** - \$30 million foil design built on an abandoned waterski park that produces the gold standard wave for surfing.

**Endless Surf** - Canadian waterpark giant Whitewater launched this pneumatic system to enter the surf market. A unique heart-shaped pool uses pneumatics to make waves.

**Surf Loch** - Pioneer Tom Lochtefeld invented the FlowRider and for decades has been evolving his wave pool design which is powered by pneumatics. His first public pool will open in Palm Springs.

**Wavegarden Cove** - First-to-market company currently powering four public surf parks, with several others scheduled to come online in the next few years.

**Wavegarden Lagoon** - The first-generation foil design that powered the world's first public surf park, Adventure Parc Snowdonia in Northern Wales.

**PerfectSwell** - Design by American Wave Machines that uses pneumatics to create a wide variety of customized waves. Powers the very popular BSR Surf Resort in Waco Texas.

**Murphys Waves** - First-generation wave pool system currently used at Siam wave park in Tenerife, Canary Islands Spain. Not the best for surfing.

**Barr+Wray** - Powering Typhoon Lagoon and other parks with a water-pushing-water machine design. Pioneers in the late 1980s, but obsolete by today's standards.

**Xing Feng Extreme Sports Center** - Chinese government-funded this sports facility to train surfers for the Olympics. It's a plow system like Wavegarden Lagoon and Kelly Slater Wave Co.

**Olas** - Part of the rising tide of smaller companies designing waves. This Ecuadorian company has positive test-tank results and is seeking financial backing to grow further.

**SwellSpot** - an American company that uses levers to push out waves in sequence. Waves then hit specialized reefs built into the pool. If proven at scale, the company says they can dramatically reduce the cost of a wave pool.

**Surfwrld** - German group pairing with two universities to build a giant (possibly the world's largest) surf-focused wave pool that will double as a research facility in winter.

**Waveprizm** - Sophisticated concept that resembles Wavegarden's Cove design to produce energy-efficient, customizable waves. Currently seeking funding to advance.

**SwellMFG** - USA technology that will power the Revel Surf Park in Mesa, Arizona. The company has buzz within the American surf community with Shane Beschen endorsing the product.

**OkahinaWave** - French circular design that can be deployed in still bodies of water as a surf attraction. Environmental benefits are oxygenation of water and low-power use.

**Webber Wave Pools** - Surfing's mad professor has inked wave pool ideas (he and Kelly shared notes that led to a lawsuit) for two decades. His looped linear technology concept would create an endless wave running through an ovaloid pool.

**WaveSEG** - Argentinian company using air cannons to displace water and create waves. They are scaling up their

tests and will have a 32-cannon prototype ready to unveil shortly.

**Surf Lakes** - Australian company that captured the world's attention with their giant plunger facility in Yeppoon. Almost as well-known as Kelly's system, the waves are pushed out from a central point (like a stone in a pond) across a series of reefs.

**Surf Poel** - Dutch company using a foil track design for an indoor facility. Might have abandoned the design due to COVID delaying the park's launch date.

**Surfpark Resort/Alfatech Machines** - New company that is moving up quickly with branded surf parks in Brazil known as "Surf Park Resorts" which will use the Alfatech Machine to generate waves. There is no information about how the Alfatech system works. For a full list of Wave Technologies see *dedicated page at WavePoolMag (Figure 3).*



Figure 3. Artist mock-up by WavePoolMag with original image by Sarah Beardmore

#### **4. What do these technologies cost?**

The smaller pools and some of the new companies say they can build for \$10-\$12million US in a complication-free scenario. But the average-sized (about 2 acres) pool runs between

\$15-\$20million US. A full-size Surf Lakes facility or a Kelly Slater Wave Co pool is right around \$30million US.

#### **4.1 What guarantees a return on this investment?**

Quality, flexibility and number of waves per hour are key to the surfing component of a successful surf-focused wave pool. If this is in place, surfers and soon-to-be-surfers will visit. Standard business applications such as user experience at the facility and surrounding amenities also help generate revenue.

#### **4.2 Quality of waves**

All of the technologies make a rideable wave. But surfers, all 25 million of them around the world and new ones joining the ranks, want good quality waves on demand. But just like the perfect meal is composed of different menu items to different people, the perfect wave is different to each surfer.

#### **4.3 What surfers want**

Longboarders want gentle, peeling rollers.  
Shortboarders want turns or barrel waves.  
Bodyboarders want thick, heavy tubes.  
Learners want long, gentle waves.

#### **4.4 Wave flexibility**

It's like the car dealership putting a sports car in the display window. Even though that model accounts for a small percentage of sales, it gets buyers through the door. Wave pools do a similar thing, offering energy-intensive professional-level waves that create great social media posts. In truth, only a small percentage of clients will use this setting.

Wavegarden and a few other technologies are limited in terms of the variety of waves they can offer within the same session. Pneumatic systems from Surf Loch and Endless Surf offer the ability to create different waves for the same



hour-long booking of surfers, although this technology is more energy-use intensive.

#### **4.5 User experience**

In truth, many surfers are perfectly happy to enjoy a low-amenities wave pool with good surf at a reasonable price. But developers know that F&B is key to the financial success of a project.

### **5. Examples of successful business models**

Just as there are several different types of waves, there are several different ways to make a wave pool successful. Below are examples of what's working in the world today.

**Adventure Parc Snowdonia** - The first of the surf generation of pools to open to the public, realized quickly that the wave pool itself was not enough to draw visitors. They expanded with zip lines, rock wall climbing and other activities branded as adventure activities and team building devices. They've also added a hotel and more amenities helping secure it as a destination set within one of the most picturesque zones in the UK, Snowdonia.

**BSR Surf Resort** - A uniquely American and to a further extent, very much no-nonsense Texan. It's high on wave delivery and low on amenities. At \$90 per hour they are consistently booked up. But many visitors share the same issue, unless you bring your own food or time your session to visit an offsite restaurant before closing, it will be hard to find a good meal. However, a new company has purchased the park and will be adding more amenities to profit from F&B.

**The Wave Bristol** - The first public Wavegarden Cove to open to the public in Europe. During my last visit just before COVID they were still fine-tuning what works for their clientele. The weekends are booked solid with urban adventurers and the weekdays were slower. To help, they added an "Experts Day" on Thursdays to draw core surfers from the nearby beaches. It's been quite successful. They've

added camping and cabins that blend seamlessly with their organic Neo-hippie vibe and help ensure money spent on-site.

**Urbnsurf Melbourne** - Opened around the same time as The Wave and despite a few technical problems at the onset, was booked up from day one. Urbnsurf offers more advanced wave options because Australia has a more hardcore surf culture. It's been very successful and they are breaking ground soon in Sydney with two other Australian locations set to open after that. To sum up their business vibe, it's hip, urban, hardcore surfer.



Figure 4. Image of Urbnsurfl, Melbourne (source: Urbnsurf)

**The Surf Ranch** - Although Kelly's wave pool suffers from a low wave count per hour, it charges the highest fees of any wave pool in the world. The customer-facing service side is dismal with a non-existent booking service or clear instructions on how one is able to go surfing here. And although this system makes no sense from a customer perspective, it still makes money. Why? The quality of the wave is amazing. Kelly Slater's name and branding is a strong pull. The wave pool sits near enough Silicon Valley and Los Angeles wealth that groups of 12 are willing to book it at up to \$70,000 per day.

**Wave Park South Korea** - Captured the core surf world's attention with the largest Wavegarden Cove to date and amazing barrels and air sections. Learner surfers and

longboarders delight in the clear water and long, gentle waves(Figure 5). When combined with seamless customer service and full amenities, Wave Park has set the standard for other surf-focused wave pools to follow.

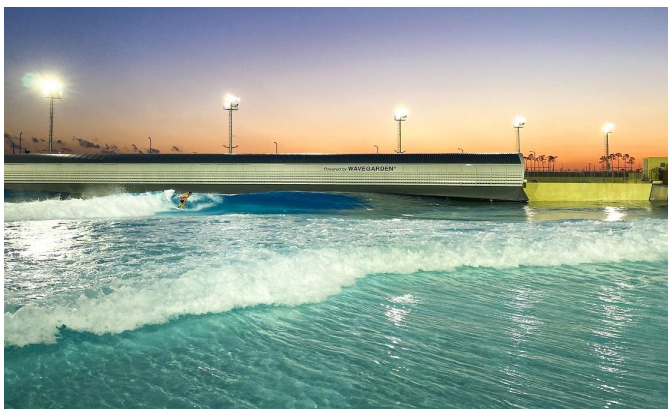


Figure 5. Image of Wave Park, South Korea. (source: Wave Park)

**Alaia Bay** - The first WaveGarden Cove in Continental Europe opened last week. Despite having a small patch of land, they were still able to use a full 46 module Cove by changing the pool length and bathymetry (cutting off the shallow end). When beginner and learner sessions are in play, they get full waves from the point and reef sections as this pool has no “beginner bay.” Switzerland has an appreciation of healthy outdoor activity and as one of the wealthiest-per-capita countries in Europe in the world, Alaia Bay is expected to do well. Being in close proximity to surfers in Italy, France and Germany helps ensure steady visitors.

## 6. Conclusion

When creating a wave pool to attract surfers and soon-to-be-surfers, each of these businesses has found a way to customize their brand to meet the demands of their local surf community while attracting new participants. And in the process, many of these surf-focused wave pools have siphoned

off clientele from standard water parks as visitors seek out new skill-based fun. Wave pools fit perfectly as people seek to learn, engage and grow to become the best version of themselves through a new thrill like surfing.

## References

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