

AMERICANWAVEMACHINES

American Wave Machines, Inc. (AWM)

Company Backgrounder

Overview

American Wave Machines, Inc. (AWM) develops artificial wave technology that replicates the experience of real ocean surfing. Its patented SurfStream™, the world's first standing wave machine, is a technology breakthrough that delivers real surfing and wave riding capabilities. The company also offers PerfectSwell™ and WindSwell™ traveling wave generators. AWM surf technology is available for waterparks, surfparks, hotel resorts, and sponsored wave-riding exhibitions. Systems can be mobile, stand alone, or integrated into water systems.

Company History

Bruce McFarland's love of surfing and skill in engineering lead him to design, develop and manufacture a new way to create artificial waves so that people of all skill levels could learn how to surf. McFarland grew up surfing in Manhattan Beach, CA and has a long family history of surfers, starting with his great uncle, Charles Wright, who is recognized as one of San Diego's first surfers, taught by the great Duke Kahanamoku.

Building on the success of his consulting firm, Biomotive Engineering, McFarland founded American Wave Machines, Inc. (AWM) in 2000 to focus on the development of artificial wave technology. The core focus of the company since then has been on engineering consulting, research and development. The company introduced the first standing wave machine, SurfStream, in 2006.

AWM's approach to achieve real innovation requires flexibility, a seasoned, multi-disciplined team, and frequent use of prototyping. The AWM team is comprised of engineers and hydraulics modelers who merge practical experience with experimental and scientific methodology. The team takes an incremental approach to prototyping that mitigates uncertainty before full scale production.

The SurfStream Difference

SurfStream is the first true standing wave surf pool. Riders use real surf boards with fins to surf on a deep cushion of water. This gives them the most sought after surfing experience – “the long ride.” SurfStream accomplishes this in a compact area, without the need for a large surge tank or surf-pool type installation.

SurfStream creates an open river of water where standing waves form up and away from subtle bottom contours, but don't travel toward a shore or boundary. Therefore, less space is needed to create great waves. Unlike older sheet flow technology, SurfStream uses less power while increasing the capacity for more riders to surf simultaneously (up to five on a 12-foot wide wave). It is also scaleable to match each waterpark's own layout requirements.

AWM Product & Services

Standing Wave Machines

AWM's patented **SurfStream** is a technology breakthrough that delivers real surfing and wave riding capabilities for hotels, resorts, waterparks, and sports exhibitions.

Wave Generators

PerfectSwell is the first pneumatic wave generating system that creates waves with circular particle motion that behave like wind generated swells in the ocean. Unlike most modern surf pools that create surge waves that behave like a tidal bore, PerfectSwell reduces rip currents and energy buildup within the pool, while creating breaking waves with same profile advance as ocean surf. Wave heights and swell angle are continuously adjustable, making the system ideal for phased or sequenced wave applications.

WindSwell wave generator is an entirely new approach to generating traveling waves. It is the first pneumatic system that does not require valves for generating waves and has no moving parts in the water. This reduces equipment costs and increases reliability.

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Engineering Services

AWM provides engineering, design and analysis services for surf pools and wave generation technology. Using state-of-the-art tools, AWM develops 3D models for volumetric studies, structural and loading analysis using finite element techniques.

The Management Team

- Bruce McFarland, founder, president and CEO

Prior to AWM, Bruce was a partner in Biomotive Engineering, providing mechanical design and engineering services to the aerospace, amusement and biotechnology industries. His background also includes engineering positions at TRW and as a consultant at Structural Dynamics Research Corporation (SDRC). While there, Bruce simulated the structural dynamics of spacecraft in a highly analytical environment. Bruce received a Master of Science degree in engineering with an emphasis on fluid dynamics and experimental methods from the University of California, Santa Barbara in 1982.

- Marie O'Reilly McFarland, Principal

Marie's professional background includes partner at Biomotive Engineering and positions at Scripps Institute of Oceanography, Hewlett Packard (HP) and Hughes Aircraft Company. At HP, she won the System Engineer of the Year award providing strategic sales support. Marie received a Bachelor of Science degree in mechanical engineering from the University of California, Santa Barbara in 1980.

- Louie Hayward, Marketing

As a lifelong surfer, Louie Hayward has been involved in the surf industry for more than 20 years. As founder of INT Softboards, Louie revolutionized the surfboard industry by making softboards a viable alternative to fiberglass for hardcore surfers and beginners alike. His blackball beater led the revolt and put surfers back in the blackball zone. Louie is a consummate networker and an astute marketing specialist.

SurfStream Evangelists

- Carl Ekstrom is an accomplished designer and craftsman who pioneered the surfboard shaping industry, building his own surfboard manufacturing company in La Jolla, Calif. Ekstrom built the first curling sheet wave model and was a key developer for all subsequent sheet wave designs.
- Elijah Mack is a legendary river surfer and world traveler in search of the ultimate standing waves. He founded the World River Surfing Association (WRSA) in 2004. AWM sponsored Mack's trip to Zambizee, Africa, to ride river waves.

Technology Partners

- INT Softboards – www.intsoftboards.com
- Sea Box, Inc.- www.seabox.com
- Ken Hill
- Flometrics is an engineering firm specializing in solving problems in fluid dynamics and thermodynamics. The company designs, builds, tests and improves products for customers in industries from consumer products to medical devices to spacecraft hardware. Operated by Steve Harrington, Flometrics contributes unparalleled theoretical fluid dynamics know how. For more information, visit www.flometrics.com.

For more information about American Wave Machines, Inc., see www.surfstream.com.