



# ipm inpark MAGAZINE

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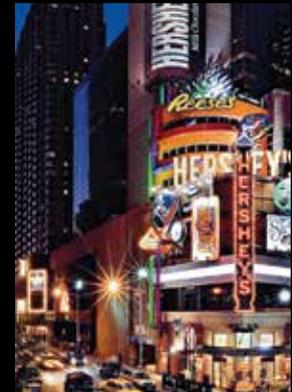
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### staff & contributors

<b>EDITOR</b> Martin Palicki	<b>CONTRIBUTORS</b> Patrick Gallegos Eileen Hill Christine Kerr Stacey Ludlum Monty Lunde Jeremy Railton Brian Sands
<b>CO-EDITOR</b> Judith Rubin	
<b>CONTRIBUTING EDITORS</b> Joe Kleiman Kim Rily Mitch Rily	<b>DESIGN</b> mcp, llc

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**COVER:** LED targets change color as a player whizzes by on her Slideboard.  
Full story on p 39. Cover credit: WhiteWater

**Making the connection**

**Martin Palicki,**  
**IPM editor**



At the recent SATE conference (produced by the Themed Entertainment Association and hosted by Carnegie Mellon University) several speakers talked about the importance of creating meaningful bonds between institutions and guests. Google's Josh Jeffery showed a video of how even Gmail can become an emotional product. Anna Musun-Miller from the Indianapolis Zoological Society reminded us that we need to share the importance of conservation with guests. More importantly, we have to give guests we have inspired a reaction in a way to act, or else hopelessness and despair can multiply.

In other words, it's all about making connections. Connecting people to experiences, to stories and to opportunities to effect change. People want to feel connected to the world and to one another, and experience-based institutions and entertainment have golden opportunities to do just that.

Playing off of our intrinsic competitive nature is one option. Musun-Miller's Indianapolis Zoo offers a "race a cheetah" game for kids to see how fast they can sprint, and the fifty-cent entry fee is donated to a cheetah preservation fund.

Waterparks are turning to products like Slideboarding to connect guests to one another as they compete for the best score on a waterslide. The technology is turning a solitary experience into a shared game.

People aren't the only ones making connections. Our entire industry is recognizing the links between theme parks, waterparks, zoos, aquaria and museums.

This issue of IPM highlights those connections and the variety of ways in which they are being implemented, specifically across waterparks, zoos and aquaria. There is real growth opportunity here for those who understand how these worlds are intersecting and those who have the skills to help make the connections.

*\*\*Look for InPark at EAS, WWA and IAAPA during the busy fall trade show season\*\**

**When you look at nature, it looks back at you**

**Judith Rubin,**  
**IPM co-editor**



Urbanization marches inexorably on, wild places shrink and the longing for nature intensifies. In my own neighborhood in Saint Louis I've been impressed by how many people now share the fervor for native plant gardens. Often we don't know how much something means to us, how much we have taken its continuance for granted, or how integral it is to the world, until we are on the point of losing it. A single creature – the Monarch butterfly, for instance - becomes a symbol of many others.

There are many contradictions and ironies in the ways human concerns for wildlife are expressed – by individuals, groups, media and institutions - and the various things being advocated as solutions. Resolving that is beyond our scope. This discussion is about how to shape experiences that address those sensibilities and help build upon the motivation to do something meaningful.

When human population was much lower and wildlife much more abundant, exhibiting animals away from their habitat didn't cause us the pangs it now does. The best new animal exhibits are invested in providing experiences for the animals that allow humans to sense what the animals' world is like. Today, we want to witness animals being themselves, enjoying themselves, living their lives – and we want to see their joy up close.

It is not a perfect universe, but a better one, when everyone has the opportunity to play in the water, to climb, to sunbathe, to look out at the world and return the gaze of others from a favorite vantage point and to make decisions about where they will go next.



InPark News Editor Joe Kleiman (joe@inparkmagazine.com) corresponds for IPM online and in print, specializing in design and technology for attractions, museums and giant screen cinema. He lives in Sacramento with his dog, Bucky.



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**Garlic themed park mascots Gill and Roy** (short for Royale) welcome young guests and their families to the park. *Photos courtesy of BaAM Productions and Gilroy Gardens*

# Growing green

Gilroy Gardens Family Theme Park rolls out new educational attractions

*by Christine Kerr, BaAM Productions*

Gilroy Gardens Family Theme Park, located near San Jose, California, is at an important point in its evolution as a registered non-profit: building upon the success of its docent-led educational programs to create new ways to integrate formal and informal education into all aspects of the guest experience. The park's success over the past 10 years with about 400,000 annual visits has given the Gilroy Gardens management team the opportunity to revitalize existing attractions and add new products that will keep the experience fresh for their strong member base while attracting new visitors. The approach is imbued with the spirit one would expect in a place "where fun grows on trees."

Successfully expanding the guest experience means developing carefully chosen projects that the park's leadership knows will resonate with their family audience. Gilroy Gardens' stated mission is to "educate and inspire families, especially children, to appreciate horticulture and the importance of trees in our lives by providing fun and memories in a beautiful garden setting." New attractions must strike a balance of providing fun and authentic experiences that also provide opportunities for learning.

## **Introducing Water Oasis & Green Barn**

BaAM Productions began a collaborative process with Gilroy Gardens in fall 2013 to assist with art direction and

signage and graphics for their new Water Oasis water play area. This \$2.5 million investment was the largest capital project for the park since it first opened in 2001 (the original name was Bonfante Gardens, which was changed in 2007). The creative approach for this play area was to reinforce the integration of the new experience with the natural environment, using a color palette and activities that are tied to nature. A layer of interpretive graphics reinforced a message of pollution prevention and water conservation that provided a call to action for kids and families to consider while they were having fun. The graphics were sponsored by the Santa Clara Valley Water District, using the water play opportunity to tell the story of how the water used in Water Oasis is re-circulated and treated and then making connections to the use of water in the guests' own lives.

Before the 2014 season came to a close, it was evident that the success of Water Oasis would pave the way for a follow-up experience that was even more tied to the park's educational mandate. The opportunity came in the form of a renovation of an existing indoor space. The Red Barn was an under-performing gift shop and ad hoc art gallery run by the park's docents. It was rebranded as the Green Barn, which opened in March 2015 completely renovated and readied to welcome young guests and their parents to a place "where art and science ignite

creativity, exploration and discovery" - to explore and be inspired by the world they live in through engaging arts- and science-focused activities. The final result is a completely transformed, open and airy space, that's now home to a number of activity areas, including the Nature Exchange, Reading Nook and Art Studio.

The name "Green Barn" is a simple and colorful way to signal environmental awareness and boost potential for expanding other "Green" experiences at the park; ultimately, the Green Barn, which appealed immediately to the park's regular guests, will become the hub of learning at Gilroy Gardens, hosting formal educational programs for school groups in the longer term.

### Inside the Green Barn

The Nature Exchange within the Green Barn is a natural "swap shop" where pine cones, fossils, shells, rocks, and other naturally found items can be turned in for points, and points can then be traded for other items from the inventory. Participants ("traders") are encouraged to share the story of where they found their object, use the resource library to research more about their discovery and interact with the staff to ultimately collect points or make a trade. Microscopes and other equipment to help with identification are available. Already the park has

**Splash Garden in Water Oasis:** Naturalistic color palette and layers of experience – in addition to the water play – include shadows and reflected colors on the ground, interpretive graphics in the distance.



signed up more than 1,600 traders who have made some 5,000 trades. It is said to be very popular among members who compete with friends and family to see who can find items that will bring them the most points. Ethical collecting is a part of the promotion and education process for the Nature Exchange, promoting the understanding that everyone can think green and be a steward of the environment. The Nature Exchange system and inventory were provided by Science North.

Adjacent to the Nature Exchange inside the Green Barn is the Art Studio, encouraging visitors to exercise their imagination and create works of art inspired by the natural world. Natural materials collected at the park are the raw materials of creativity. Examples in evidence include collages of leaves, pine needles, cones and seeds, and rubbings from leaves. Large pivoting panels become gallery walls where budding artists can showcase their work. This area is popular with adult guests and younger ones alike.

The walls of the Reading Nook in the Green Barn feature inspiration for young minds. One displays a thought bubble full of hundreds of book titles, answering the question: "Read a good book lately?" The other wall introduces the idea of left brain and right brain thinking, providing an evocative backdrop for photos and the starter for thought-provoking conversations. The Reading Nook collection features scientific reference material and story books on the themes of nature and creativity.

### Long-term STEAM

The exciting launch of Green Barn is just the beginning of planning for future activities that weave learning into the fabric of the overall experience at Gilroy Gardens. It aligns with the long term goal of

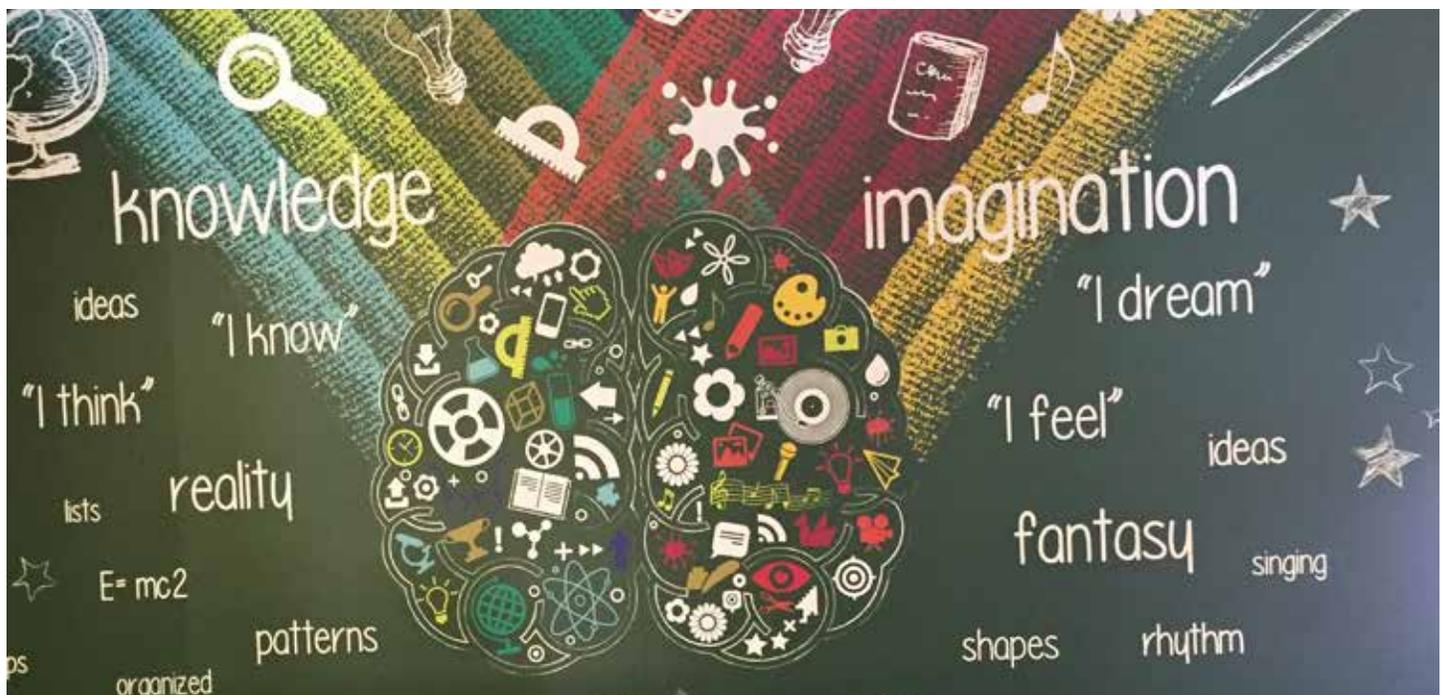
project team members to incorporate art with science to appeal to a broader group and meet cross-curricular standards to promote STEAM learning (Science, Technology, Engineering, Art, and Math). This program will help encourage repeat visits, build loyalty for the park, and offer something different from the other activities at Gilroy Gardens.

Informal learning experiences that surprise guests and flexible spaces that will allow for formal programming for schools can have a strong impact when delivered in the natural beauty of the park's garden setting. The simplicity of the word "Green" provides endless possibilities for future branding of these projects. Already, "Learning Sheds" spread around the park have been re-named "Green Spots" – just one example of how the word green will continue to serve as a connector as additional learning experiences are developed throughout the park.

As park Vice President and General Manager Barb Granter observed, "The positive response from our members to both of these new attractions has let us know clearly that the quality and nature of these experiences is in line with their expectations for this park. They have a strong sense of ownership of this special place, and they expect that we will continue to keep the bar this high - or higher - for future projects!"

The overwhelmingly positive response to both of these new attractions has laid the groundwork for additional new and exciting adventures for Gilroy Gardens' guests in the coming years. •••

*Christine Kerr is Vice President of BaAM Productions (www.baamproductions.com), and a Past President of the Themed Entertainment Association.*



**The Green Barn Brain Wall** features this bright and colorful mural that is thought-provoking and is a popular photo backdrop



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**Coral tank at Colorado Aquarium, Denver, CO.** Photos courtesy of Gallegos Lighting

# Bringing animals to light

Lighting for aquaria and zoos



**Patrick Gallegos**  
Gallegos Lighting

In the last five years, there has been a new boom in the design and creation of experiential projects that focus on wet, winged, and terrestrial critters. Just in our firm in that period, we have developed lighting designs for five different zoos and aquaria. Other prominent projects that have opened or been announced in that period are Chimelong Ocean Kingdom, Disney's expansion of Animal Kingdom with the Avatar land, as well as continued development of the various SeaWorld properties.

This development results from three primary factors.

First is the growing concern about threats to the animal world that affect its very survival.

Second is the continued fascination of people with the creatures of the world and their desire to see and interact with them in naturalistic environments, perhaps a reflection of a longing for the contact people once had with the animal world which has been mostly lost in an increasing urbanization worldwide, or just the desire to see the amazing diversity of life in places most people will never go.

Third is the desire for developers to use the above interests and fascinations to make animal experiences a cornerstone of their developments, bringing the best of experiential design to the presentation of incredible diversity of animal life on the planet.

The forms created to present these environments requires that they address the function of the space. This is a complex intermingling of often competing goals: civic pride, monumental architecture, education of the visitor, research,

fundraising, energy conservation, and – primarily – animal welfare.

As with all experiential environments, lighting is a critical component in the presentation of the habitats, exhibits, and environs of the animal world, but it often is directly critical to the health and well-being of the residents of these projects. The lighting design must tip-toe through the various needs of the environment and find a means of creating not merely an engineering solution but work to create an experience.

In the best of circumstances, the lighting designer joins a team that includes an architect, an exhibit designer (often multiple), an owner – usually wearing two hats: one of curator and one of promoter - and a myriad of other specialists, from life support systems engineers to highly specialized curators, each with their opinion of what constitutes the “best” lighting.

The form of the buildings is the first thing that the visitor sees – from his/her drive to work, from the school bus, from the hotel across the water. It works in the day sculpted by the sun, but at night it needs to be sculpted by the designer to impress, and

more importantly to draw in. What works in one environment may be totally different than another. In a cityscape, buildings compete with the busy-ness of the urban landscape. In another setting such as the Monterey Bay Aquarium, the building needs to blend with a very low-key, historical and naturalistic sensibility. But in either case, there must be that draw that entices and gives a glimpse of the mysteries to unfold within. For zoos, the draw is usually the entry followed by long transitions to indoor and outdoor habitats.

Lighting creates a transition and gives direction: Where do I go? Come see this sparkling preview tank! Exhibit path starts here! Nighttime fundraising and special events are frequent and popular. Have you allowed for casual hors d'oeuvres? Black-tie sit-down dinner? Educational slideshow? Professional mixer? All of these events can easily be part of the program for the same week.

Aquaria typically are not about only fish. They seek to explain the complex interrelationship of plants and animals. Have you dealt with the UV needs of your reptiles? The blast of light needed to keep the coral alive? The diurnal cycle needs of the diving birds?



# TECHNIFEX

**Special Effects**

**Flame**

**Water**

**Mechanical**

**Design**

**Engineering**

**Fabrication**

How lighting affects the mating habits of the higher animals (yes, seriously!)?

In zoos, historically, when the sun goes down the visitors disappear and all lights are out. But with interest for expansion of zoos in notoriously hot areas like the Middle East, owners and animal experts are looking at means of 'time shifting' animal schedules to maximize the time they are active in the evening and early night hours to allow for evening and nighttime safaris or even nighttime safari drives that correspond to when locals actually venture out. This opens up more opportunities for sensitive and impactful lighting in the creation of moonlight scenarios that are respectful of animal needs as well as creating magical vistas.

Maintenance - Ignore this one and risk the ire of the facility managers. It won't come a surprise that the people running these facilities are extremely aware and sensitive to the global concerns about energy and ecology and sustainability. Building-wide lighting management is a must for so many reasons it shouldn't be questioned.

In aquariums, water is notorious for sucking up wavelengths and lumen energy. Simulating sunlight requires strong lights with careful attention to color temperature. Color temperature is critical, not so much for animal needs as it is for the appearance of natural light. Real daylighting measured has a much higher Kelvin temperature, but 5500° to 6000° looks like daylight through water; higher Kelvin begins to read as overly blue to the eye.

Magic - Go beyond the engineering tables; they are lighting 101. You are way beyond that. Make lobbies shimmer. Allow the denizens of the deep to appear out of the black depths. Change your daytime tank into a magical moonlit landscape. The critters of aquaria can be stranger than anything created for the bars on a planet far-far away. Don't be afraid of shadows – they add to both the romance and the mystery. Create a lighting place for them to live and watch the wonder in the eyes of a nine-year-old... or a thirty-nine-year-old... or an eighty-nine-year-old.

Did you remember to have fun? If not, you wasted at least three years of your life. Create an experience for the users of your aquarium, and create one for yourself along the path in getting there. •••

*Patrick Gallegos is Principal of Gallegos Lighting Design (gallegoslightingdesign.com/) with offices in Los Angeles and San Francisco. His firm works in multiple venues, but finds deep satisfaction working in the animal realms. Aquarium and zoo related projects include: Long Beach Aquarium of the Pacific, the National Aquarium of Taiwan, the Colorado Aquarium, The Florida Aquarium, Texas State Aquarium - Phases 1 and 2, California Science Center: World of Ecology, Gifu Aquarium (Japan), Monterey Bay Aquarium Lobby, Philadelphia Zoo Tiger Exhibit, Toledo Aquarium, Nashville Zoo Entry, New Doha Zoo - Qatar, Nanchang Aquarium, Polar Ocean World Shanghai. He is a Past President of the Themed Entertainment Association.*

**Wet and dry bird and fish exhibit** at Colorado Aquarium, Denver CO Photos courtesy of Gallegos Lighting



# TRIOTECH

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To help illustrate what I believe the future may hold for waterparks, I'll continue my analogy to Native American casinos in the US. Roughly 25 years ago, there were few Native casinos and they consisted of bingo parlors and simple structures filled with hundreds of slot machines. As more and more states legalized Native gaming, the quantity of the casinos increased dramatically, to the point where they began to compete with one another for customers. Long story short, you can now find Native gaming facilities across the US that rival anything you would find in Las Vegas in terms of quality service, amenities and overall guest experience. To differentiate from their regional competition, casino operators have developed higher quality facilities, bigger WOW's and adopted many storytelling techniques and technologies commonly found in themed entertainment.

As happened with Native gaming facilities, I believe the growth and expansion of waterparks will continue due to their popularity. Likewise, as in the Native casino market, we will see them compete more intensely for guests' attention, with the most intense competition in destination locations such as Orlando and Wisconsin Dells. The need to differentiate is strong and competition will continue to spur innovation in the waterpark industry.

More specifically, as waterparks continue to proliferate, the familiar catalog of slides, bowls, wave pools and lazy rivers will not be enough to satisfy a demanding audience that desires new and innovative experiences. We are already seeing this begin to happen. So what's next?

There is no question that the major waterslide and facilities suppliers are constantly innovating and creating new types of slides and attractions. Several are adding show systems, such as lighting and sound into their slides and water features. Most of these innovations are technical rather than truly show-oriented.

Several waterparks have also incorporated theming and scenic elements that provide interesting environments for their slides. Examples include Disney's Blizzard Beach, Wild Wadi in Dubai, Sal Kerzner's Atlantis, Yas Waterworld and SeaWorld's Aquatica, to name a few. All interesting and enhancing to the guest experience, but they only scratch the surface of what is possible, and yet to come.

The real revolution will come when the themed entertainment and waterpark industries fully embrace and overlap storytelling and technologies. This means going beyond how fast, far or freaky your fall is going to be and creating environments that are compelling and visceral. Imagine sitting in a raft, in a 4D theater, and the film culminates with you dropping into a slide as you "fall" over a waterfall. Or, sitting in a raft that rises 90 feet, into an Alien space craft, only to be "analyzed" by aliens before being ejected down one of several waterslides.



Full disclosure: You don't have to imagine it. Both of the above concepts were developed by my company, Technifex (because that's where we see the future of waterparks, and we want to be part of it) and are currently marketed by Splashtacular to illustrate what is possible when blending themed entertainment know-how and storytelling with waterslide technologies.

Universal's new remake of the original Wet 'n Wild, Volcano Bay (the former will close in 2016 and the latter open in 2017), will most likely set the waterpark bar higher. Though I do not know any particulars, Universal understands theme park storytelling and technologies and waterpark dynamics as well as any organization, so I'm willing to bet they will be creating immersive experiences (pun intended) that combine storytelling, unique waterslides AND themed entertainment technologies.

Chimelong also has plans to develop the next generation of waterparks and has been enlisting specialists in both themed entertainment and waterpark industries to help get them there. Differentiation is vital to both of these developers and they have the resources and drive to make the leap to create truly revolutionary waterpark attractions.

The integration of story and continued merging of themed entertainment methods, techniques and technologies, with waterpark technologies, will facilitate the transformation of waterparks into wet, experiential environments that can rival guest experiences found in theme parks. Is this necessary? It depends on the attendance growth that park operators are looking for and how much they are willing to invest to get that growth. Reinvestment drives repeat attendance, and today's customers aren't impressed by yesterday's technology. The new wave of waterparks is already taking shape and I look forward to seeing it. •••

*Monty Lunde is Principal/President/CEO of Technifex ([www.technifex.com](http://www.technifex.com)). He is founder and past president of the Themed Entertainment Association (TEA), and has also served on the International Association of Amusement Parks and Attractions (IAAPA) International Board of Directors.*

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# The rising tide of waterpark attendance

Trends show continued global growth; new information on “hotel keys” relative to attendance



**Brian Sands, AICP**  
AECOM

*Brian Sands will speak at the 2015 World Waterpark Association show in Palm Springs, with co-presenter David Sangree, President of Hotel and Leisure Advisors. The presentation will include detail on Chimelong Waterpark, and an exploration of the “Hotel Keys” information included below.*

## Rapid growth/smart investment

While attendance at the top water parks worldwide remains significantly lower than at the top theme parks worldwide, attendance at these water parks continues to grow much more rapidly. This combined with their generally much lower development costs and higher operating margins, makes them a smart choice in many cases for developers, investors, and operators worldwide. Like their larger brethren theme parks, water parks will also continue to benefit from improvements in technology that create ever more exciting experiences, while at the same time water parks also offer the opportunity for visitors to enjoy activities that may also be just as entertaining and even more relaxing, such as sea life interaction, live entertainment shows, and spa treatments. These characteristics will enable water parks to continue to grow their attendance rapidly in the coming years, and to support a wide variety of associated lodging products.

The pattern of growth in the global water park industry reveals particularly strong increases at parks in Asia and Latin America,

as described in the TEA/AECOM 2014 Theme and Museum Index – Global Attractions Attendance Report. The report, published annually by the Themed Entertainment Association (TEA) and the Economics practice at AECOM, is the definitive annual attendance study for the themed entertainment and museum industries, and distributed online free of charge by both organizations. (The 2015 edition will be published in spring 2016.)

## Growth in all regions, with Asia in the lead

According to the 2014 Theme Index, attendance at the top 20 water parks worldwide increased by nearly 3 percent in 2014, rising to 27.6 million. At a regional level, the leader was Asia with nine of the top 20 water parks worldwide and attendance of nearly 12 million, accounting for 43 percent of attendance worldwide. For the second year, Chimelong Waterpark in Guangzhou, China had the highest attendance worldwide with almost 2.3 million visitors. By heating its pools for the first time in 2014, Chimelong Waterpark extended its operating season by a month at each end, and grew its attendance by 4 percent.

Also in Asia, Shenyang Royal Ocean Park Water World in Fushun, China, grew by over 6 percent and reached 13th on the list worldwide. Elsewhere in Asia, attendance at many parks declined – in South Korea (which has four of the top 20 water parks worldwide) this was due to the tragic MV Sewol ferry disaster, and elsewhere in the region was largely driven by poor weather.

North America had five of the top 20 water parks worldwide, with attendance of over 8 million in 2014, accounting for 29 percent of attendance worldwide. Disney’s Blizzard



*Photos courtesy of Chimelong. Charts courtesy of TEA / AECOM.*



## TOP 20 WATER PARKS WORLDWIDE

TEA | AECOM

Rank	Park and Location	% change	2014	2013
1	CHIMELONG WATERPARK, Guangzhou, China	4.0%	2,259,000	2,172,000
2	TYPHOON LAGOON AT DISNEY WORLD, Orlando, FL	2.0%	2,185,000	2,142,000
3	BLIZZARD BEACH AT DISNEY WORLD, Orlando, FL	2.0%	2,007,000	1,998,000
4	THERMAS DOS LARANJAIS, Olinda, Brazil	17.5%	1,939,000	1,650,000
5	OCEAN WORLD, Gangwon-Do, South Korea	-5.7%	1,804,000	1,700,200
6	AQUATICA, Orlando, FL	1.0%	1,569,000	1,553,000
7	CARIBBEAN BAY, Gyeonggi-Do, South Korea	-8.0%	1,463,000	1,623,000
8	AQUAVENTURE WATERPARK, Dubai, U.A.E.	16.7%	1,400,000	1,200,000
9	HOT PARK RIO QUENTE, Caldas Novas, Brazil	0.3%	1,288,000	1,284,000
10	WET 'N WILD, Orlando, FL	2.0%	1,284,000	1,258,000

Rank	Park and Location	% change	2014	2013
11	RESOM SPA CASTLE, Deoksan, South Korea	2.4%	1,218,000	1,189,200
12	WET 'N' WILD GOLD COAST, Gold Coast, Australia	-4.0%	1,200,000	1,250,000
13	SHENYANG ROYAL OCEAN PARK — WATER WORLD, Fushun, China	6.5%	1,172,000	1,100,000
14	SUNWAY LAGOON, Kuala Lumpur, Malaysia	0.0%	1,100,000	1,100,000
15	SCHLITTERBAHN, New Braunfels, TX	1.0%	1,037,000	1,027,000
16	PISCILAGO, Girardo (Bagotá), Colombia	-1.6%	1,018,000	1,035,000
17	THERME ERDING, Erding, Germany	0.0%	1,000,000	1,000,000
18	ATLANTIS WATER ADVENTURE, Jakarta, Indonesia	-2.0%	960,000	980,000
19	BEACH PARK, Aquiraz, Brazil	-1.6%	949,000	964,000
20	WOONGJIN PLAYDOO WATERDOO, Gyeonggi-Do, South Korea	-5.2%	945,000	997,000

<b>TOTAL</b>	<b>2.8%</b>	<b>27,627,000</b>	<b>26,887,000</b>
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Figure 26

**2.8%**

Top 20 water parks worldwide attendance growth 2013-14

**27.6m**

Top 20 water parks worldwide attendance 2014

**26.8m**

Top 20 water parks worldwide attendance 2013



VISITORS (MILLIONS)



**2.8%**

Top 20 water parks worldwide attendance growth 2013-14

**27.6m**

Top 20 water parks worldwide attendance 2014

**26.8m**

Top 20 water parks worldwide attendance 2013

Beach Water Park at Walt Disney World Resort in Orlando rose to over 2 million attendees, placing it in third position globally just behind its sister park Disney's Typhoon Lagoon, which rose to nearly 2.2 million. Both parks benefited from the continued increase in overnight tourists to the Orlando area, a product of the continued positive trends in the national economy and international tourism.

Exhibiting remarkable growth, Latin America had four of the top 20 water parks worldwide, with attendance of over 5 million in 2014, accounting for 19 percent of attendance worldwide. Thermas dos Laranjais exhibited the strongest growth of any water park worldwide, rising to fourth place globally with over 1.9 million attendees. Two other Latin American parks, Hot Park Rio Quente in Brazil and Piscilago in Colombia, had attendance over 1 million.

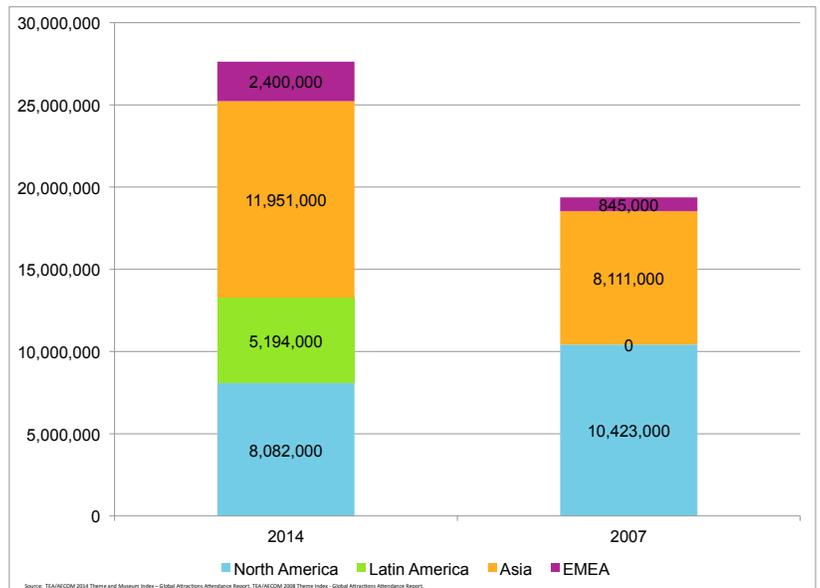
Finally, in Europe, the Middle East, and Africa (EMEA), two water parks made the top 20 worldwide, with 2.4 million in attendance in 2014, accounting for 9 percent of the global total. Aquaventure Waterpark in Dubai moved up to 8th place worldwide, with 1.4 million attendees, due to the second strongest increase in attendance worldwide.

**2014 versus 2007 – gauging trends and 5.2% growth**

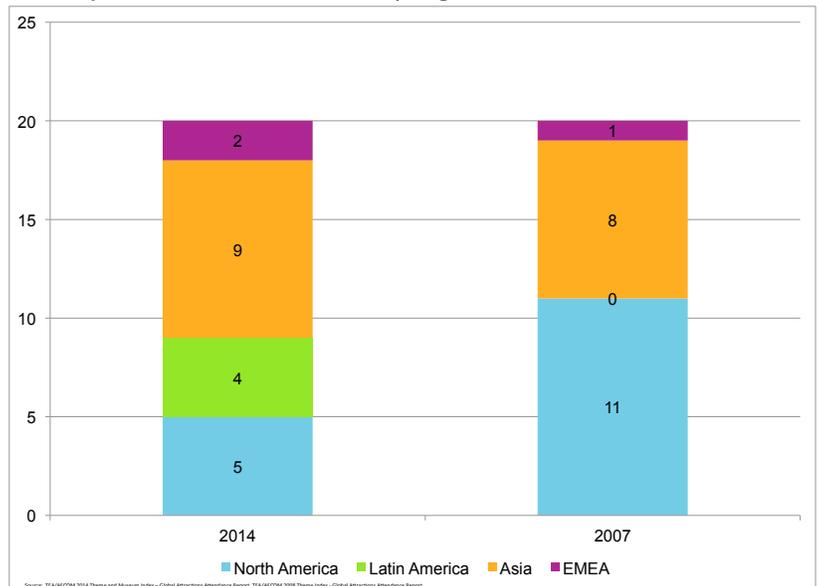
Although the study in one form or another has been in existence for much longer, TEA and the Economics practice at AECOM first jointly published the Theme Index in 2008, which included attendance figures at parks worldwide for 2007, including the first list of top 20 water parks worldwide. Attendance was 19.4 million at the top 20 water parks in 2007, which means that attendance at the top 20 parks has increased by over 8 million in the seven years to 2014, a 43 percent increase. This equates to a compound annual growth rate of 5.2 percent, which is significantly higher than the Gross World Product (GWP) of around 3 percent annually during this period, underscoring the resilience of the leisure industry, even during a time as challenging as the Great Recession.

Also note that by comparison, attendance at the top 20 theme parks worldwide grew from 167.8 million in 2007 to 200.6 million 2014, an increase of 32.9 million. As large as that figure is in nominal terms, it equates to only 16 percent, which is about one-third the increase in attendance that occurred over this period at the top 20 water parks globally.

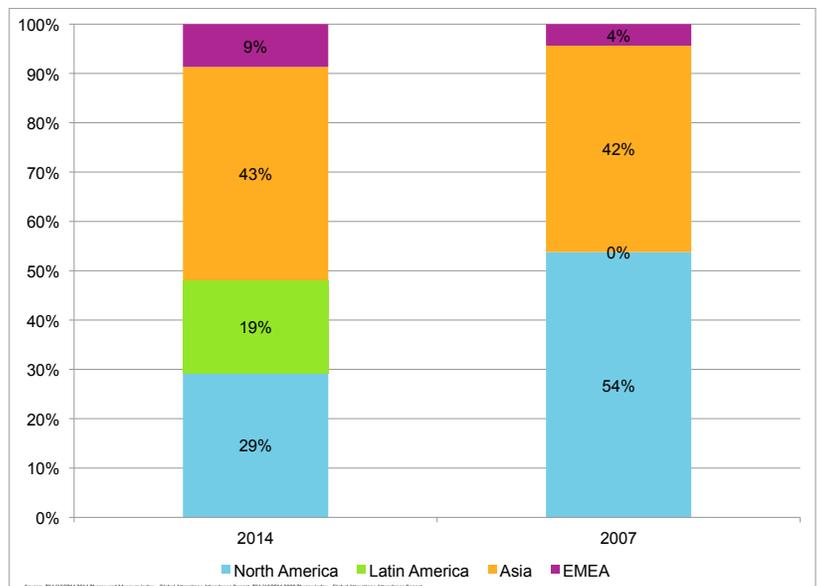
**Top 20 Water Parks Worldwide by Region - Attendance - 2014 and 2007**



**Top 20 Water Parks Worldwide by Region - Number - 2014 and 2007**



**Top 20 Water Parks Worldwide by Region - Percent Attendance - 2014 and 2007**



Some other telling figures that paint a picture of where the growth is:

In 2007...

- 11 of the top 20 water parks were in North America (compared to five in 2014)
- none were in Latin America (which had four in 2014)
- already eight were in Asia (compared to nine in 2014)
- one was in EMEA (which had two in 2014)

Regional attendance in 2007 reflected the number of parks, with North America accounting for 54 percent (versus 29 percent in 2014). Asia's percentage is nearly constant at 42-43 percent, while Latin America had none (versus 19 percent in 2014), and EMEA had 4 percent (versus 9 percent in 2014).

Of the top 20 parks in 2007...

- nine remained on the list in 2014, including Chimelong Waterpark, Typhoon Lagoon, and Blizzard Beach, which were all in the top three in both years (though their positions changed somewhat)
- attendance at the nine parks on both lists grew from just under 12 million in 2007 to over 14 million in 2014, an increase of nearly 19 percent

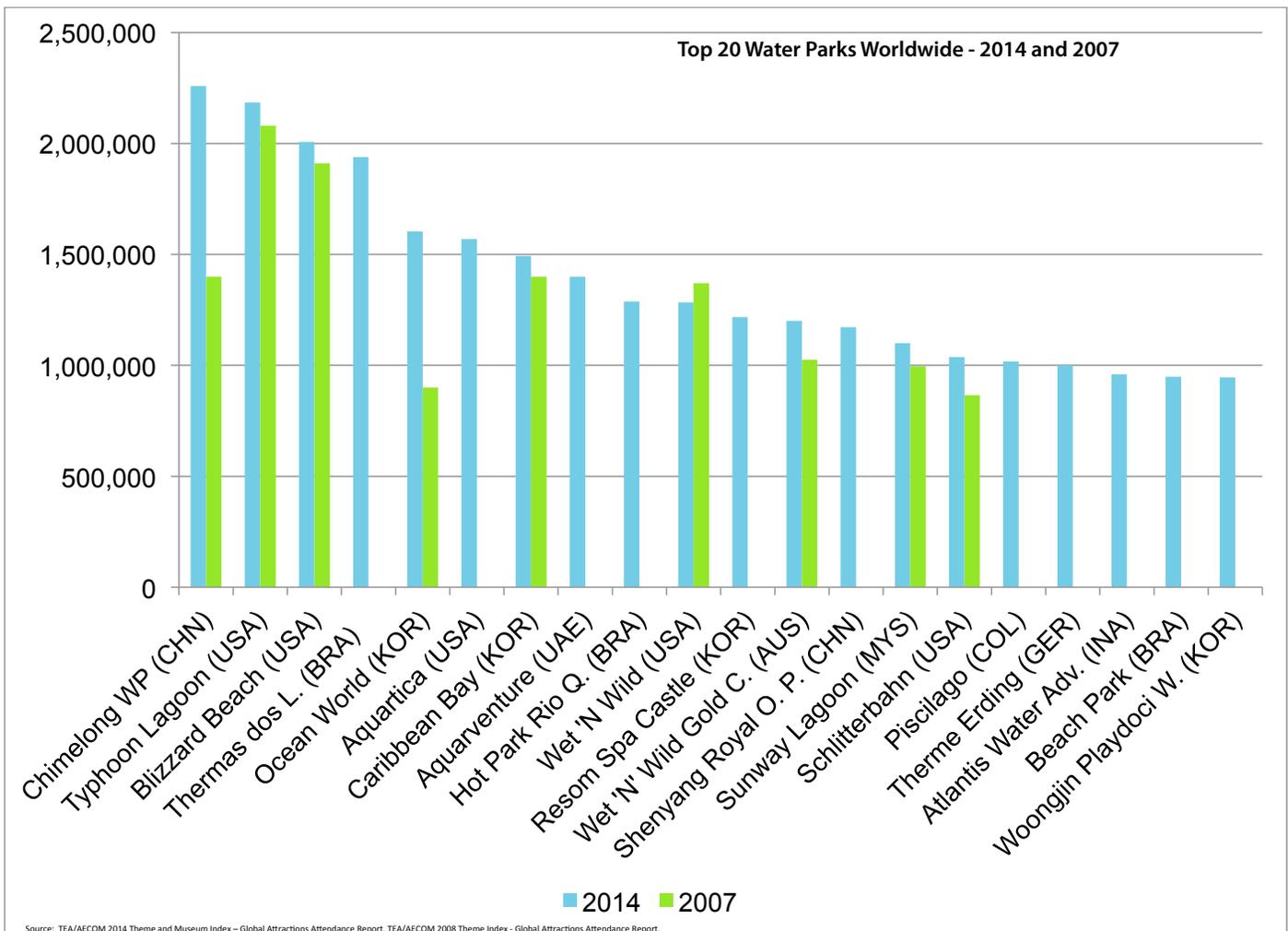
**Hotel Keys and Attendance:**

**New information supplementary to the 2014 Theme Index**

It is useful to analyze the relationship between attendance at a park (or a collection of associated parks) and hotels which are likely to have a significant portion of their demand driven by the park (or parks). The Economics practice at AECOM frequently analyzes not only attendance potential at new, expanding, or repositioning theme parks and water parks, but also what such attendance is likely to create in terms of additional demand for hotels, retail-dining-entertainment (RDE), and other uses.

Recently, AECOM evaluated the relationship between hotel keys per 10,000 attendees at all of the theme parks and water parks contained in the Theme Index. The analysis is relatively complex, with a number of key methodological steps necessary:

- Total attendance must be considered, which includes 2014 attendance at the individual parks included in the Theme Index lists, as well as any associated parks that also make a Theme Index list. For example, for the Magic Kingdom, also included would be attendance at other Walt Disney World Resort attractions, specifically EPCOT, Disney's Animal Kingdom, Disney's Hollywood Studios, Typhoon Lagoon, and Blizzard Beach.



Source: TEA/AECOM 2014 Theme and Museum Index - Global Attractions Attendance Report, TEA/AECOM 2008 Theme Index - Global Attractions Attendance Report.

- Total Hotel Keys includes Onsite Hotels (located at the selected attraction), Adjacent Hotels (located next to the selected attraction), and Nearby Hotels (located within 1.0 mile of the selected attraction).
- For global destination parks/resorts (e.g., Walt Disney World Resort, Universal Resort), Nearby Hotels also includes those hotels that are located on the operator's resort grounds, even if not within 1.0 mile of the selected attraction.

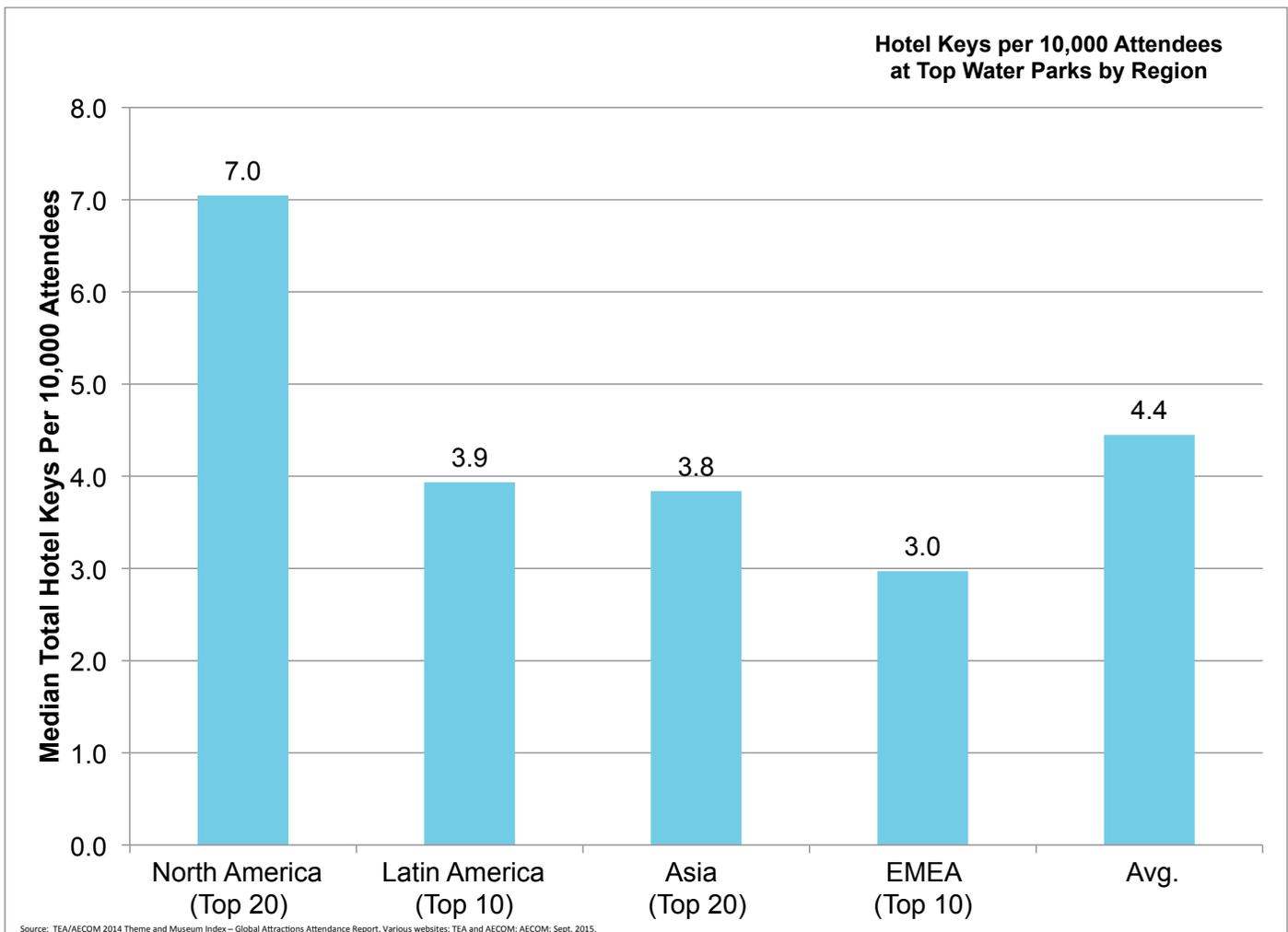
remarkable, with figures ranging from zero at many water parks (suggesting a missed opportunity), and rising up to 108.6 keys per 10,000 water park attendees which likely indicates additional factors besides the water park or other attractions driving demand (e.g., a nearby beach and/or urban area).

*Brian Sands (brian.sands@aecom.com) is Vice President, Economics, Americas with the Economics Practice at AECOM.*

Whatever manner in which the figures are examined, the variations in the relationship are wide, whether between park types (theme or water), between or within regions, or on an individual park, median, or average basis.

Some key findings:

- At the regional level, the figures were notably higher at water parks, where on a regional basis, the median value for the number of total hotel keys per 10,000 attendees varied from a low of 3.0 in EMEA to a high of 7.0 in North America. Average figures were even higher, pulled up by values at parks with much higher numbers of hotels in the area.
- The range in values at the individual water parks level is



# Good design habitats

Designing to celebrate and protect animals  
*by Jeremy Railton*

I grew up in the mid-1950s, on my family's farm in Central Africa, 40 miles from the Victoria Falls. As early as I can remember, I would entertain myself for hours on end by drawing everything around me - lions, wart hogs, baboons, Kudu, duiker, stem buck, Impala, rabbits and tortoises. My father, while he appreciated my early rendering skills, would have preferred if I had learned how to chop firewood.

On Saturdays, cattle from miles around were herded in and pushed through a plunge dip to rid them of ticks. It was quite a spectacle for a seven-year-old. I remember an occasion when a large Kudu bull got himself caught up in the melee of horned cattle. Just before he reached the plunge, he leapt (as only a Kudu can leap) and finding himself trapped in the farm yard, jumped over fences, zoomed past the trading store and ran through the vegetable garden, trampling my mother's roses, until he was finally confronted by the trading store tailor holding a little spear, which he valiantly threw at the animal. It bounced off the tough hide and bent in two!

Later that day, I was having afternoon tea with my 80-year-old grandmother. Seeing me flushed and jabbering with excitement from the Kudu bull adventure, she said something that has stayed with me my whole life: "I have to apologize to you for my generation. We have ruined the Earth. We have killed the great herds of Africa, wiped out the buffalo and made the Quagga and the passenger pigeon extinct." Her confession stunned me and changed my point of view in an instant. My familiar world consisted of our family farm and the tribal kids that I played with. Elephants, lions and leopards were a natural part

of the environment. The idea that they could vanish had never dawned on my bush kid mentality. Her words planted a seed that grew into a lifelong interest in wildlife and environmental conservation. This was my basis for telling animal stories, which I'm still doing to this day.

My fascination with animals extended to an intense interest in birds. I registered with the Ornithological Society and started turning in egg records and bird check lists (which I still have). I foresaw two career choices in life: game warden or artist. Artist seemed likeliest, but I also knew the importance of earning a living. Life on the farm was paradise, but our economic survival was always tied to the vagaries of nature. A thousand-bird flock of Quelea birds, a herd of wild pigs or a few nights of porcupines in the corn field could ruin a crop, all the while that our eyes were turned to the sky for signs of rain.

My first job after high school was painting dioramas for the Natural History Museum of Zimbabwe, in Bulawayo. Under the direction of head artist Terry Donnelly and taxidermist Terence Coffin-Gray, I learned how to convey the visual narrative of a scene. They taught me that closely observed details - animal tracks, dung and accompanying insects, plants and geography - explain more about the life of the animals than just the animals themselves. This helped me later in my professional design career especially in theatre, theme parks and of course animal shows and experiences. Storytelling is key to all of them.

## From Zimbabwe to Hollywood

In the early 1970s, my parents, Jack and Dorothy, sold our farm and bought 5,000 acres adjoining the Khami Ruins National Monument - former site of a 14th Century civilization in Zimbabwe and now a UNESCO world heritage site - to create Khamera Nature Park & Wildlife Sanctuary. It had good tourist access, exquisite scenery, Bushmen rock art paintings and a magnificent Baobab tree. I did my first master plan, designing a tea room, restaurant, craft village, site museum and overnight chalets. Because of our farming background, my family thought naturally along the lines of "organic" and "sustainable," today's buzzwords. The park was a success, and my parents ran it until



**Jeremy Railton**  
Entertainment  
Design  
Corporation



their deaths in 1981. It offered garden teas, camping, walking tours, nature study and more.

By the early '90s, I had designed for theatre, dance, film, and TV, theme park attractions, live concerts and shows. I started to think about how I might integrate the earlier part of my life - my love of and connection to animals, especially birds - while living in the middle of Los Angeles.

### **From Hollywood to zoos**

A friend introduced me to Steve Martin, one of the best-known animal trainers and bird behaviorists in the world. Steve has pioneered the art of training through positive reinforcement and his use of non-traditional, free flight birds combined with an inspiring conservation message sets his shows apart from many other animal shows. Steve invited me to work with him on designing a bird show theatre for the National Aviary in Pittsburgh. Shortly after, he hired me to come to Singapore and work with him and Angie Milwood of Precision Behavior to consult on concepts for new, outdoor shows at the Singapore Zoological Gardens, one of the first 'open encounter' zoos in the world.

**Jeremy's first eco-design plans** from the early 1970s.  
*All images courtesy of Jeremy Railton.*



**Jeremy Railton, Angie Milwood and Steve Martin.**



My favorite show concept for the Singapore property was for "Village of Lost Pets," to be enacted by animals with hidden trainers who would come onstage for the finale. Lost pets - dogs, cats, rabbits - come to a village where there are no humans. They go about their daily chores when a group of hooligans show up. The animals hide, but when the hooligans drop lighted cigarettes and litter, the pets sneak in and clean it up. The message was an emotional one of conservation, empathy for animals and the heavy footprint of humanity.

Although "Village" was never produced in its entirety due to budget issues, working with Steve and Angie helped me realize that my "Hollywood" design experience could fold into my love of animals and my desire to make a difference. I didn't have to just stand by wringing my hands.

### **SOAR at the San Diego Zoo**

I also collaborated with Steve and Natural Encounters on "SOAR - A Symphony in Flight" - a nighttime show that ran at the San Diego Zoo, opening in June 2009. The idea was for visitors to have a beautiful, emotional experience of watching birds free flying to music and to tell a story without the usual constant banter of the trainers on headsets that can often upstage the

**Village of Lost Pets** stage design.  
*All images courtesy of Jeremy Railton.*



**SOAR (A Symphony in Flight)** in actual implementation and in design (inset). All images courtesy of Jeremy Railton.



birds. (Give the audience time to sit back and enjoy the beauty without the distraction of one-liners!)

SOAR began with a darkened stage. The sound of flapping wings broke the silence, and in silhouette, a giant bird flew above the heads of the audience in a memorable opening encounter. One of my favorite moments came a beat later when a cell phone started ringing in the pocket of an audience member (in fact, an actor plant). As the guy started to have a loud conversation, a crow flew out, took his phone and dropped it into the pond on stage. The show started with the audience laughing, cheering and clapping!

As a production designer, my role is to serve the intentions of the director and writer, just as when I work on a movie or big stage show, and for the finale of SOAR, I was able to redesign a magical illusion that I had used for a Diana Ross tour. The effect was to make a Marabou Stork come to life from an image projected onscreen. It depended on the stork walking through an invisible panel composed of vertical strips of elastic, overlapped and projected on so that they appeared to be a solid piece of scenery. Steve's genius was to teach the stork to walk through the strips on a precise cue that made it seem that the onscreen image had suddenly come to life. The stork then flew off to cheers from the audience.

### **Crane Dance for RWS**

In 2007, Lim Kok Tay, Chairman of Resorts World Sentosa, asked me to create a dynamic work of public art to embody the spirit of his new resort - something big and impressive. The first idea was to do a show using giant construction cranes, with their movement synchronized to music and lighting. How would I create an emotional connection between the audience and a piece of construction equipment?

One night, staring at my drafting lamp, it occurred to me that it had the basic joint articulation of the Crane, a well-known symbol of health and longevity in Asian culture. Musing on the double meaning of the word "crane," and as a bird lover familiar with the birds' mating dance, I started to pose the lamp in various positions. I attached a second lamp, began to envision two giant cranes dancing, and sketched out a 10-minute love story. "Crane Dance" opened in 2010. It continues to be widely celebrated, and received a Thea Award for Outstanding Achievement from the Themed Entertainment Association. The original concept included several digital displays of information about the International Crane Foundation and their efforts to protect the beloved species - a feature that unfortunately did not make it into the final version of the show.



### Restoring habitat and stewardship

The bird population of China has suffered many setbacks and loss of habitat. Working with a Beijing landscape designer, I designed an attraction that would provide a safe haven for wild birds by planting indigenous trees, grasses and shrubs to attract them.

I have designed many attractions in China and Asia; unfortunately this one remains unbuilt. The Happy Birds Garden, as we called it, offered a multi-level nature experience that would educate and entertain guests of all ages and levels of health and physical ability. A gentle wooden walking path on stilts rose and curved through a variety of nature experiences as it wound over streams and ponds. The walking path connected to a series of special function decks that provided digital displays of endangered birds in the region as well as audio recordings of their unique songs.

And that brings me back to my grandmother in Zimbabwe in the 1950s. Recently, some friends visited me from Africa. Fifty years ago, they had conducted a survey that counted 2,500 Rhino in the Mana Pools, a wildlife conservation area in northern Zimbabwe. Today there are only 120. Reflecting on the shocking

destruction of animal habitat and the loss of species in my lifetime reminded me of my Grandmother's apology to me, that had propelled me into a different way of thinking.

And here I find myself back in the same position as she, wanting to apologize for my generation, to take action, and inspire others to act. We must all go beyond simply apologizing. I want to continue to do my part as an artist, designer and animal lover. I continue to embrace and seek opportunities to inspire the care and conservation of animals and their habitat. I hope to be in a position to continue to design authentic animal experiences that build an emotional arc, bringing humanity closer to understanding its responsibility for stewardship of the animal realm. . . .

*Jeremy Railton is Chairman/Principal designer of Entertainment Design Corporation, <http://entdesign.com/>.*

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*Photo by Stuart Seeger via Wikimedia Commons*

# Hot in Cleveland (and other zoo exhibits)

Letting animals swim,  
soak and splash

*by Judith Rubin*

As zoos enlarge and improve their animal accommodations to support a wider range of natural behaviors with more options, water features are often part of the mix. Some pioneering work is being done in this area, changing both the animal experience and the visitor experience for the better, and serving zoos' mission of conservation and education. We look at several examples in the US.

## **It's not a pool, it's life support**

"Water is a wonderful thing, adding a sense of coolness and freshness to a venue, but it's also behavior enrichment," said Jumana Brodersen of JCO, a designer with many animal attractions to her credit at SeaWorld parks and recently the Saint Louis Zoo. "People like to look at water and play in it. So do animals, and it makes them and us happy when they do." Collaborating with executive staff at the Saint Louis Zoo, JCO provided planning, design and execution for the River's Edge expansion, which opened in June 2014. In a naturalistic setting, a range of animals share bends of the river, customized for their behaviors – mud for the rhinos, streams and ponds for the Painted Dogs and Andean Bears, a floating pool for the hippos and waterfalls for Sun Bears and elephants - while oriented for maximum viewing. [See InPark Magazine issue #54.]

Creating a pool and hardscape are more or less straightforward. "A lot of design details go into creating these environments that engage the animals and entertain the guests," said Brodersen. What goes into

the pool is complex and raises the costs far beyond those of a human swimming pool, with salt water pools costing the most. "There are issues of sustainability and environment," said Brodersen. "Animals' skin and hair are different from ours, as is their behavior. They defecate in the water, so it has to be renewed at a pace that keeps it clean. Not only does the water itself have to be just right - the physical forms within the pools have to be, too. The surfaces need to be smooth so the animals don't get hurt rubbing against them, and they need heavy duty coatings that can withstand regular cleaning and scrubbing. The pools must provide ample space for comfortable turning radiuses for the largest size the animals will reach, and a variety of depths to ensure they can sit half submerged, or swim, or simply float and sun bathe. They may also require crevices with food chutes that animal trainers can use to give them food or toys for enrichments."

Usually (but not always, as described below) a life support systems (LSS) engineering specialist is brought onto the team at an early stage to specify what's needed to give the animals a body of water they can use as if they were in their natural habitat. The LSS engineer is usually contracted to the designer or architect, collaborating with them and with the facility to specify the materials and conditions needed for the pool to function and be maintained successfully. There is a community of specialized equipment vendors that LSS engineers call upon in turn, for chemicals, pumps, filters and other gear.

"From a technical point of view, we look at each individual species, and tailor the LSS to them," said Robert Satchell of Satchell Engineering and Associates, who provided services on River's Edge. "It's a habitat where we want to see a clean healthy environment, so we have to maintain water quality with filter processes and disinfection processes. Ozonation is one approach. Sometimes there is chlorination, sometimes UV light disinfection. How you remove particulate is important, too, and that system depends on the type of animal. It might be screening, mechanical filtration, sometimes sand filtration, sometimes permabead filtration. Of course the guests want it to look natural, so we work with the architect to hide the sumps, skimmers and inlets. The design needs to allocate space and location for the pumps, sand filters, and disinfection requirements, and meet OSHA requirements for mechanical devices."

Robert Satchell was the project engineer and worked on LSS engineering of the hippo habitat at Busch Gardens Tampa, an acclaimed attraction that opened in 2000 as part of the Edge of Africa® land and 15 years later is still regarded as a benchmark underwater display of a large land mammal. PGAV Destinations provided architectural design.

### **Swimming elephants in Wichita**

If you attended the 2014 conference of the Association of Zoos and Aquariums (AZA) you may have seen a video preview of

**Elephants of the Zambezi River Valley** prepares to welcome its first occupants in 2016. *Photo courtesy Sedgwick County Zoo*



## **Elephants of the Zambezi River Valley**

### **Sedgwick County Zoo, Wichita Kansas**

#### **Opening in 2016**

- Design, Construction Documents, Bidding and Construction Administration: Craig A. Rhodes, VP Zoological Planning & Design, & Lori Guthridge VP Landscape, GLMV Architecture
- Mechanical Engineering: Greg R. Quigley, P.E., LEED AP, Basis Consulting Engineers
- Overall Project Manager for the Zoo: Larry Pecenka, on loan from Spirit Aerosystems
- Site and Utility work: Max Beins VP, Pearson Construction
- General Construction: Mike Anderson, Project Manager, Martin K. Eby Construction Co.
- Elephant Containment: PowerLane LLC (Todd Ricketts)
- Artificial Rock and Waterfall Work: Jeff Reichart, Project Manager, Cemrock
- Landscape, Cheryl Rice: Curator Horticulture, Sedgwick County Zoo
- Irrigation: Andy Veatech, Lawn Sprinkler Services, Wichita, KS
- Outside Yards, Barriers, Railings, Pathways, Final Theming & Graphics: Dan Wright Operations Coordinator & Jeanette Summers, Curator Graphics and Exhibits, Sedgwick County Zoo

Elephants of the Zambezi River Valley. This innovative, \$11.6 M animal experience is scheduled to open Memorial Day weekend 2016 at the Sedgwick County Zoo in Wichita, Kansas. "We built pretty much everything that was shown in that video," said Mark C. Reed, the Zoo's executive director. Reed conceived the idea for the exhibit. "I happened to be fishing the Zambezi and saw elephants walking around. Later I saw the Zambezi exhibit at the Hanover Zoo. It had a channel that shared water between hippos and boats."

Elephants of the Zambezi River Valley is integrated into a canal system on which visitors ride pontoon boats into the Zoo's North American Prairie zone and come very close to the elephants as

well as other animals sharing the same water. An underwater barrier and bumper bar separate the elephants from other animals and from the boats. Nearby are the Zoo's lemur and flamingo/pelican islands; boat rides will go around the back side of the lemur island, then glide by the elephants pool parallel to the barrier, and then head back between the African flamingo/pelican island and the lemur island. At 550,000 gallons with a surface of nearly 13,000 square feet, Reed believes it will be the largest elephant pool in the world. A deck extends out over the water for those who do not take the boat ride. The exhibit is designed to be a home for up to nine elephants. At this writing the Zoo has just one, a female, to be joined by another four to six herd mates after the construction is finished in fall 2015.

The elephant barrier design went through many iterations. "Craig Rhodes, the architect and I probably spent more time on this barrier design than any other single aspect of the exhibit," said Reed. "The water edge on the elephant side is 285-feet long. The depth at the deepest point is 12 feet. A small pipe on one side is the boat bumper barrier. The water will be 4 to 6 inches over the top so the pipe will not show. Should the boat lose power and drift over, it will still be out of trunk reach. There is also a cable system on the elephant side."

This is an unusual case where a LSS engineer was not used because of the Zoo's existing natural water resources and how the exhibit ties into them. Reed explained the system. "It's a unique system that allow us many advantages few zoos have. Water is a total flow through system throughout the Zoo, which sits on an underground river. We have 3 wells on the property to lift the water up out of the river and it is used for all animal exhibits and irrigation. All water eventually ends up at our 14 acre South Lake, which is at or just above water table level where it percolates back into the underground system. We are permitted to pump out 1.5 million gallons of water a day; over the last 5 years, we have averaged 650,000 gallons a day. We have a series of streams that empty into ponds and then into more ponds into a large canal system. The canal overflow is nearby which sends water to the South Lake, allowing us to maintain a constant level of water in the canal for the boat ride. The additional waterfall/stream feature found in the elephant exhibit gets its water from the South America exhibit which then flows into the African Painted Dog Moat into the Lion Moat and into the Red River Hog stream before reaching the elephant exhibit. It then flows through the exhibit to the elephant pool/canal. There are several points along the way (South America, Painted Dog and the Lion exhibit) at which additional well water is added and several locations where the water is also partially recycled. We test our well water monthly and have five small test wells in our northwest quadrant from which the water flows to monitor the ground water approaching the Zoo."

## Soaking tigers in Cleveland

Bengal tigers like to swim, but Amur tigers, native to Siberia, just like to soak and dip to cool off. The new exhibit opening in summer 2016 at Cleveland Metroparks Zoo will help the zoo's two resident Amur tigers, Dasha and Klechka, do just that in addition to climbing, hanging out at high elevations and even sharpening their claws. The new tiger habitat is within the Zoo's Northern Trek zone, home to a variety of cold climate animals including bears, reindeer, Persian Onagers, Bactrian camels, harbor seals and sea lions.

At this writing, construction was about to commence on the tigers' new range. Two water features are among its four distinct habitats: a pool about belly deep that rolls down into a shallow riverbed throughout the exhibit, and a smaller pool designed so that the level can be increased or decreased. "If we're fortunate enough to have cubs, we'll want a shallow depth that is gradually increased," said the Zoo's Director of Animal Care and Veterinary Programs, Andi Kornak.

The new tiger habitats are interconnected either through doors or overhead tunnels and allow the cats a great deal of autonomy to choose where they go, when they go there and what they do. In addition to the pools the tigers will enjoy a Russian forest area, climbing structures and overhead tunnels that let them pass over the public walkway where they can see and be seen.

Kornak is enthusiastic about the new design direction and the benefits for the tigers. "They get to choose the environment they're most comfortable in. It's also a more immersive experience for visitors - a literal passageway through the Amur tiger's habitat and peek into the life of a tiger, with large

windows and opportunities to view the animals from close up and far away." The design promotes the chances of the tigers making themselves visible, and being happy and healthy. "They love Cleveland winters," said Kornak, "and can be outdoors any time of the year, any time of the day." When they've had enough winter cooling off, there are heated rock surfaces to lay upon.

Visitors can expect to see fitter tigers in Cleveland soon. "One of the great goals of this increase in activities and natural behaviors is that the animals become very strong and fit," said Kornak. "They'll be healthier, longer lived and have a greater ability to reproduce. With more activity in their space, they're physically and mentally stimulated. We should see a difference in a matter of months. The public will be able to see some very impressive, fit cats and develop a greater appreciation for that species. Our existing African Elephant crossing habitat here has some of the same key features and stands as a great example of the positive impact on behavior and health. We have a very sophisticated research and science staff that measures that."

WDM is the zoo exhibit specialist architect firm. Van Auken Akins is the local Cleveland area coordinating architect's firm. Also involved in the design is Cleveland Metroparks Planning & Design Division. Panzica Construction is the construction contractor. Life Safety Systems engineering is provided by Satchell Engineering and Associates.

Reiterating the connection to mission, Kornak said, "When we create compelling experiences to connect guests with wildlife and see them in a naturalistic habitat, displaying naturalistic behaviors, then we can start connecting people with wildlife and conservation and help save these species. It's not impossible."...



**Tiger Exhibit Rehabilitation** at the Cleveland Metroparks Zoo gears up for the construction phase *Photo courtesy Cleveland Metroparks Zoo*

# The road to blue world

SeaWorld San Antonio evolves and expands

by Joe Kleiman

SeaWorld San Antonio is in the midst of its largest expansion to date, with a new waterpark and new attractions that increase the size of animal exhibits and change the way park guests experience animals – and how those animals interact with park guests.

## Lost Lagoon becomes Aquatica

A significant update in 2012 transformed Lost Lagoon waterpark, which had been included with admission to SeaWorld San Antonio, into a standalone facility with a new look, theme, and name – Aquatica San Antonio. The reimagined waterpark took elements from SeaWorld parks in Orlando and California, Busch Gardens parks and Discovery Cove in Orlando. Whereas the animal exhibits at Lost Lagoon had been secondary, animal interaction was now an integral part of the waterpark experience.

In a 2014 interview, then Aquatica General Manager Tim Morrow (now Executive Director of the San Antonio Zoo) told InPark, “The differences you will find at the Aquatica parks are different species focus. Aquatica Orlando has beautiful Commerson’s dolphins. Aquatica San Diego has amazing flamingo and fresh

water turtle exhibits. Our signature animal in San Antonio is the stingray.”

At Stingray Falls, a family raft adventure down a winding slide ends as a trip through a cave on a lazy river, with a large curved window allowing the riders a unique view of a school of stingrays. Park guests also have a unique opportunity for a stingray encounter in the water with the rays.

In 2014, Aquatica opened Roa’s Aviary, an experience that park visitors can enter on foot, by swimming, or via intertube on the park’s main lazy river. Chris Bellows, SeaWorld San Antonio Vice President of Zoological Operations, notes, “It’s been a year since we opened Roa’s Aviary. The landscaping and trees have grown significantly and we have over 100 birds in the aviary.” According to Bellows, Roa’s Aviary has proven popular with local school and birding groups as well as waterpark guests.

## Learning through play at Pacific Point

The waterpark is not the only part of the property to undergo a significant reworking. This year, in addition to adding a new sea lion show, SeaWorld San Antonio revamped its existing sea lion



exhibit within the Pacific Point Preserve area into something more exciting for both guests and animals.

Using the original concrete basin, new, more naturalistic rock formations were constructed, including ledges for the animals to jump off, and large viewing panels bringing guests further into the action. According to Bellows, "In its original design, you had to look over the edge to see into the pool. With the new look, we've added a grotto with big glass panels. We've had six sea lion pups born in the new exhibit and it's great to see them go up to the window for a nap or to look at kids and watch the kids look back at them."

Throughout the exhibit are graphic displays that show the importance of play. "It's important for us to encourage kids to play by expressing how animals can learn through it," says Bellows, "But we have to be careful. They also need to understand that sea lions, just like kids, need to learn to play together."

When designing exhibits such as Pacific Point Preserve, animal keepers, trainers, and veterinary staff from both the San Antonio and other parks are consulted. Often, this results in creative solutions for animal care issues, many of which are not seen by the public. For example, to the untrained eye, the new sea lion habitat may appear to lack shade, but, according to Bellows, "there are shaded areas in the water and underneath the overhangs. There's also a waterfall in the grotto, and we created a space hidden behind it, which the sea lions also take advantage of to get out of the sun."

### **Animal encounters at Discovery Point**

Currently under construction for a 2016 opening is the park's new dolphin habitat, Discovery Point. This new exhibit is composed of two zones: an exhibit area themed to the Texas coast, which will introduce a new, underwater dolphin viewing area; and a swim program area, similar to the one at Discovery Cove where guests swim with dolphins.

There will be additional new enrichment opportunities. Prior to an encounter experience, guests spend time in a classroom where they learn about the natural history and physiology of the dolphins and undergo an orientation.

Once complete, the Discovery Point facility will also be where guests for the park's other encounter programs check in and undergo orientation for encounter programs in other areas of the park such as Beluga Bay and Sea Lion Shallows. Each encounter program takes a small group each day for an additional fee and lets them interact in the water with the animal of their choice. Bellows says such programs

## **SeaWorld San Antonio – then and now**

In 1984, then mayor of San Antonio Henry Cisneros wanted to expand the city's economy while securing San Antonio's place as the top tourism destination in Texas. In December of that year, Cisneros and a delegation of local officials visited the Orlando headquarters of book publisher Harcourt Brace Jovanovich, which had purchased the park chain from its founders in 1976. The meeting was over within 30 minutes. Company CEO William Jovanovich was so sold on the prospect of a San Antonio park that he later bragged about how he never commissioned a feasibility study for what, at over 250 acres, would be the largest marine life park in the world at the time.

The original layout of the \$140 million park was designed by Jovanovich himself. Using native Texas hill country landscaping, it provided a combination of shows and animal exhibits along with tributes to Texas history and the area's Hispanic culture. Although many of the park's animal attractions were mostly bare tanks or downsized versions of those at the company's San Diego and Orlando parks, San Antonio featured a number of firsts, including the world's largest killer whale tank, housed in a unique stadium in the round setting.

Since Harcourt Brace Jovanovich opened the park, ownership of SeaWorld has shifted to three other firms, with the chain eventually becoming its own publicly traded company. After purchasing SeaWorld in 1989 from Harcourt, Busch Entertainment Corporation added rides to the San Antonio park – water-based rides relocated from a closed park, new roller coasters, and the waterpark described above (a waterpark had been included in the original Harcourt plans for San Antonio, but dropped before opening). Animal exhibits remained largely unchanged over the park's first quarter century of operation.

When Busch Entertainment's parent Anheuser Busch was purchased by Belgian-Brazilian brewing conglomerate InBev in 2008, the new owners continued to operate the parks before selling the division a year later to investment bank Blackstone Group, which renamed it SeaWorld Entertainment. In 2013, Blackstone converted SeaWorld into a publicly traded company, selling off 37% of its ownership in the IPO. Currently, Blackstone controls 21% of the company.

Upon its opening, William Jovanovich declared SeaWorld San Antonio to be the "last great park in America." The changes now being made to its animal exhibits will result in a park physically unrecognizable to its founder, yet one that maintains his vision.

are important because, "In the United States, it's illegal to just jump in the water and swim with them. We're able to provide a safe and enjoyable experience."

### The Stranding Network: Emphasis on rescues

SeaWorld is well known for its rescue efforts. Less well known is its support of the Texas Marine Mammal Stranding Network, the official, federally-mandated marine mammal rescue group for the state of Texas. Since 1988 SeaWorld San Antonio has made its animal care staff and facilities readily available for the Stranding Network while also donating funds and other resources, including a new animal rescue boat. A key part of the Discovery Point display will tell the story of the Stranding Network and the important role it plays, along with teaching guests what to do should they encounter a stranding.

Dolphins aren't the only marine mammals that have made their way to the park. The park is also caring for Mitik, a walrus adopted by the New York Aquarium after being found orphaned in Alaska. When the aquarium suffered severe damage following Hurricane Sandy, SeaWorld San Antonio, based on its strong history with walruses, was asked to care for Mitik while repairs take place in preparation for his return.

Currently, Mitik participates in shows and outreach acting as an ambassador for his species to San Antonio visitors.

### It all culminates in a Blue World

The new developments will culminate in Blue World Project, featuring the world's biggest killer whale tanks, to be built at each of the three SeaWorld parks. Although general plans have been announced, the specifics of what might be included in San Antonio's Blue World tank remains to be determined as the park will evaluate what works and what doesn't at the San Diego tank, scheduled to open in 2018. It's a similar process to how exhibits at other SeaWorld parks have influenced Aquatica, Pacific Point, and Discovery Point.

When all is complete a decade from now, SeaWorld San Antonio will be a dynamically re-envisioned park with larger animal habitats designed to improve animal welfare along with new and more innovative ways for guests to perceive and interact with them. •••

*Joe Kleiman (joe@inparkmagazine.com) is News Editor of InPark Magazine. He is a former zookeeper and volunteered with the Texas Marine Mammal Stranding Network in the early 90s.*

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# Attraction hybridization

What Jurassic World teaches us about zoos

by Stacey Ludlum and Eileen Hill

With the opening of Jurassic World this summer, we saw a glimpse of the future: An advanced hybrid zoo-theme park facing an insatiable market demand for instant gratification of bigger, better, and never-before-seen. Sound familiar?

The film presents Jurassic World: a massive revamp of the original Jurassic Park situated on Isla Nublar. This newer, bigger, better park boasts state-of-the-art features like holographic dinosaurs, a massive aquatic show arena where the seats move for views above and below water, and a glass orb gyrosphere ride through the dinosaur savanna. Not to mention the genetically modified hybrid, Indominus Rex.

Despite all of its theme park flair (and apparently unlimited budget), Jurassic World is, at its core, a zoo – a dinosaur zoo. And that combination - that hybridization - of parks, is where we see the future.

## The Hybrid Zoo

Over the last century, zoos have undergone a tremendous evolution. Their origins are rooted in royal collections, menageries, and circuses where animals were displayed in



**Heart of Africa** at the Columbus Zoo. All images courtesy of PGAV.



**Stacey Ludlum**  
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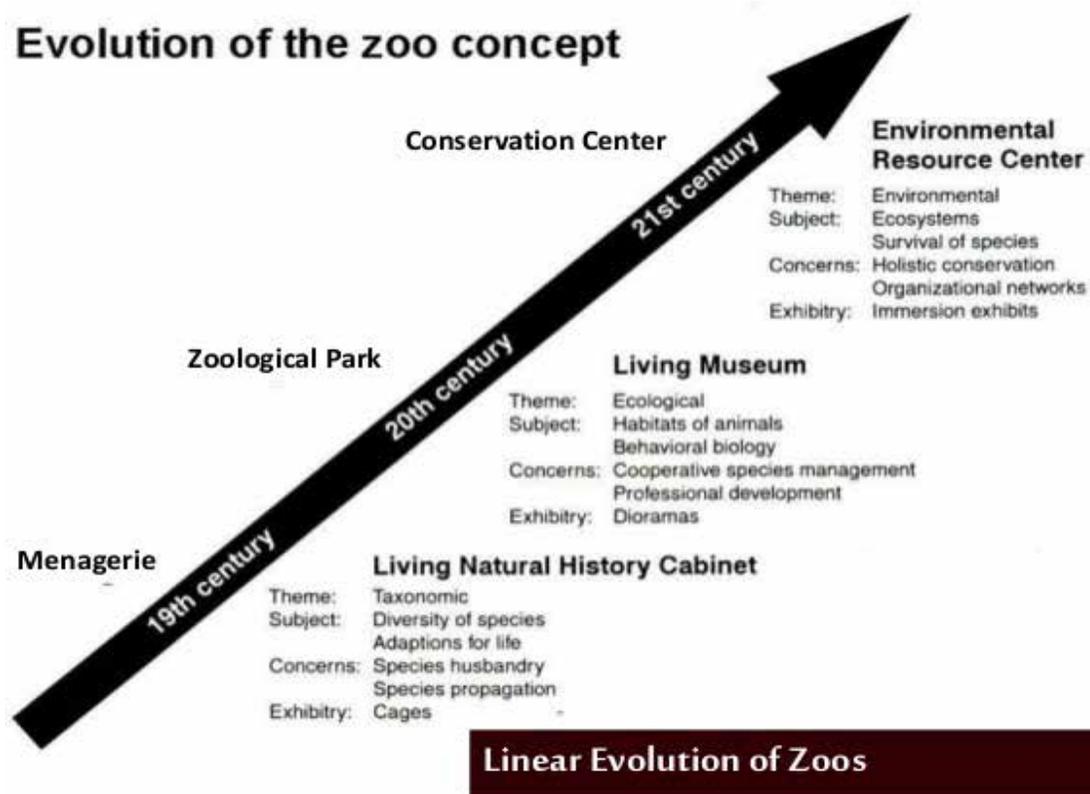
**Eileen Hill**  
PGAV Destinations

large cages, with little to no thought regarding animal welfare. Recreation, status, and economics (of the owners and spectators) were the primary goals of these prototype zoos. But today, nearly every one of the 229 AZA-accredited zoos and aquariums dedicates resources for conservation, ecosystems, biodiversity, and in situ research. What's more, today's zoos' primary focus is the welfare of the animals in their care, and the improvement of their lives and natural environments. But that evolution is far from complete.

In 1992, former head of the Brookfield Zoo, George Rabb, presented a diagram that demonstrated the history and future of zoo development. Looking at his 21st Century prediction, he saw immersive exhibits that would focus on ecosystems and the survival of species, at institutions that would create strong networks to achieve holistic conservation.

While Rabb's diagram is an easy-to-follow chart, it implies a linear evolution of zoos where all began at a singular starting point and will follow the same evolutionary path. However, we know that evolution simply isn't that clean. We know it branches off in many directions, creating new and fantastic forms, often surprisingly,

# Evolution of the zoo concept



through wild mutations or gradual improvement. In the end, evolution isn't a straight line; it's a twisting, crisscrossing, branching tree. And this is how we view the future of zoos: a blending of traditional organizations.

Let's explain. Today, you most likely think of a zoo as an urban park - typically one per city - that's flat, horizontal, mostly outdoors, in which you walk around to see different animal collections on display to learn about animals. The same is actually true for most city destinations: If you want to learn about history, you go to the history museum. If you want to see art, you go to the art museum. If you want to cool off, you drive 30 minutes outside of the city to the waterpark. What is already happening, and what we predict will only continue to happen, is that these elements will find more and more symbiosis between one another, and traditional zoos will begin to occupy a space somewhere in the middle of purely naturalistic and human-centered experiences.

The Columbus Zoo and Aquarium is an excellent example of this evolution. From its humble beginnings in 1905, the Columbus Zoo has become one of the largest and most successful zoos in the world. Today, in addition to its incredible animal collection and programs, it is home to the Safari Golf Club, Zoombezi Bay Waterpark, and The Wilds - the largest wildlife conservation center for endangered species in North America. In addition to shows, ropes courses, zip lines, and special events on site, the Zoo devotes \$4 million annually to conservation efforts around the world to 70 projects in 30 countries.

Disney's Animal Kingdom at Walt Disney World Resort in Orlando not only boasts an impressive and healthy animal collection,

but is also home to science-museum-quality dinosaur exhibits, 4D theaters, thrill rides, conservation education center, arcade games, live shows, and an open-air safari through a recreated African savanna with numerous live animals.

Six Flags Great Adventure in Jackson, New Jersey has long incorporated animal exhibits and shows alongside thrill rides and roller coasters. Their recent renovation of the once separately ticketed African Safari incorporates over 350 acres of drive-through savanna into a fully produced ride.

Even smaller institutions such as Central Florida Zoo, Greensboro Science Center, South Florida Museum, and Durham Museum of Life and Science illustrate how the lines between museums, zoos, aquariums and theme parks are blurring.

However, SeaWorld might be the prime example in blending zoos and aquariums with other types of destinations. The organization maintains one of the largest animal collections in North America throughout its system of parks, caring for approximately 67,000 animals--including 7,000 marine and terrestrial animals and 60,000 fish. The SeaWorld & Busch Gardens Conservation Fund has awarded over \$11 million in conservation grants to over 800 organizations around the world, and has rescued more than 26,000 sick or injured animals. At the three SeaWorld parks, guests can visit numerous animal exhibits, expansive aquariums, and ride some of the world's most famous roller coasters. At SeaWorld's three Aquatica waterparks, visitors enjoy fun and themed slides and lazy rivers that might also pass through aviaries and Commerson's dolphin pools. And at Discovery Cove, 2,000 guests per day experience an exclusive

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resort setting that enables them to snorkel a coral reef, swim with dolphins, or simply relax on the beach. The lines are all but clear, and many of these destinations defy conventional labels. And that's the mark of evolution.

From an educational standpoint, Hybrid Zoo Theory reflects society's views of the world today. We no longer examine the world by isolating individual elements, as we did in the past. We're no longer classifying and delineating. We are aware of the individual's role in the whole, as part of the great web of life. And it's that connection that we examine, scrutinize, and teach about in today's zoos, aquariums, and museums. It makes sense that we'd like to see the whole together in one place; and because each institution often teaches the same principles, the assumption is we'll continue to see merging. The same can be said for theme parks and science education. Theme parks are becoming more sensitive to the issues and responsibilities of today. Meanwhile, science institutions want to better communicate to over-stimulated guests leveraging the effective storytelling elements found in many theme parks. Competition among these institutions is driving them to develop similarly, and this trend will grow to be the next recognized innovation in the future of zoos. We're nowhere near hybridizing dinosaurs, but destinations are already finding a way. . . .

*Stacey Ludlum is Zoological Designer & Site Planner and Eileen Hill is Architectural / Landscape Designer at PGAV Destinations ([www.pgavdestinations.com](http://www.pgavdestinations.com)).*

**The Harborfront** at SeaWorld Orlando. All images courtesy of PGAV.





# Changing the waterpark game

Slideboarding brings gaming technology to waterslides

*by Martin Palicki*

The concept for Slideboarding came to Denise Weston, Director of Imagination at WhiteWater, courtesy of her son Aydon and his friends, who one day at the waterpark, intuitively turned a traditional waterslide into a game. "Aydon and his buddies were slapping the waterslide joints as they rode down the slides and comparing who was able to hit the most when they got to the bottom," explains Weston. "I felt this was a great way to combine a unique play experience into a traditional thrill attraction. Because it was so natural for them, I felt intuitively that it was going to work."

Slideboarding takes that gaming concept – the basic, competitive activity of slapping the waterslide joints – introduces technology, and riders become players. The concept is simple: guests sit on a board equipped with red, green, blue and yellow buttons on the side handles. As they move down the waterslide,

they pass under LED lights in four colors. Points are scored if they press the correct color button as they pass beneath the lighted target. Players receive feedback via small vibrations if they hit a target exactly.

The system combines existing technology such as RFID sensors and readers and analytical tracking that translates over to iOS platforms and Android platforms as well to create the Slideboarding experience.

Slideboarding attractions can be built new, or as retrofits of existing slides. Either option enables a park operator to introduce something new and customized. A variety of components provides a range of customization opportunities such as theming, color scheme, soundtrack, style of registration stations, score boards, targets, and dashboards.

The core demographic for Slideboarding is 6-15 year olds, although the competitive nature of the attraction appeals to all ages and skill levels. "Some of the most positive interactions we have heard about are parents being able to ride and compete with their kids," says Weston.

Each slide has the capability to challenge players at multiple levels. As they gain points and experience on repeat rides, they progress through the levels. The first level starts with just one color. The guest only has to focus on hitting the red button at the right time. As the levels progress, more colors come into the mix until the player is using all four colors. There are also a certain number of targets in each slide. The first level may have only 25% of the targets turned on. As the levels progress, more targets are activated.

Slideboarding allows guests to continue the fun they had during the day at the waterpark at home, using the Slideboarding app on their smartphones or tablets to simulate the ride experience.

Weston is known for integrating technology in new ways that change the way people view "traditional" attractions. A pioneering accomplishment of her company, Creative Kingdoms, was the MagiQuest technology, honored by the Themed Entertainment Association in 2006 with a Thea Award for Breakthrough Technology. MagiQuest, now owned by Great Wolf Resorts, combines RFID-technology with computer and theatrical effects to simulate the effect of a magic wand in a built environment and help realize a storyline with an interactive guest experience. Denise developed an application of the technology for WhiteWater called SplashQuest. It follows the same concept as MagiQuest while integrating water. It currently is enhancing the guest experience at Yas Waterworld in Abu Dhabi.

"I've learned that technology is most effective when it elevates a traditional play experience instead of replicating or replacing it," says Weston. "The live environment where kids can touch the water, run around, feel the wind in their hair provides the most fun experience."



Denise Weston (front) with the Slideboarding Development and Testing Team. All photos courtesy WhiteWater





Weston explains that she likes to start with an idea and then sees how the technology can augment it. In the case of Slideboarding, the simple concept of introducing a game into a waterslide evolved as the team addressed challenges during development.

Perhaps surprisingly, combining water and electricity wasn't the biggest challenge the team faced. Ensuring that Slideboarding was completely user-friendly for both the operators and guests was critical before deployment. That simplicity factor was key to making the attraction appealing for parks and for guests.

"Slideboarding gives park operators the ability to tap into the massive market of gamers and tech savvy kids while still appealing to parents and grandparents because the game is simple to play," says Weston. "Slideboarding was created by watching how kids intuitively play, so naturally it's something kids love"...

## IPM talks to Geoff Chutter, CEO & President, WhiteWater

**Turning waterslides into a game doesn't seem immediately obvious to most people, but it seems to work. Why do you think that is?**

Anyone with a child or grandchild has seen the growth of gaming. In fact we don't have to monitor our kids watching T.V. or playing outside, we need to monitor their amount of game playing. What WhiteWater has done is take this clear desire of kids and overlay that experience onto our rides. This has never been done before in the waterpark or the amusement park industries. With respect to our portfolio of products the overlay of gaming takes them all to a new level.

**How can technology best be combined with waterpark attractions?**

Denise has been a major proponent for the integration of mobile technology into attractions at WhiteWater.

So far Slideboarding has been the first attraction to integrate this kind of technology. We have products that have huge potential to integrate gaming and mobile technology, but many of the concepts are still in development. The idea of actively using a cell phone in a waterpark feels so alien that it's something the industry is only starting to consider.

For 35 years waterparks have been created around wave pools, lazy rivers, play structures and slides so in some ways Slideboarding

doesn't fit. But we believe that it has the potential of being a game changer in the industry, both wet and dry. WhiteWater is the only company in the waterpark industry to win an IAAPA Best New Technology award, and we have won two.

That said, this technology is slated to dwarf the technologies found in the AquaLoop, the AdenaLIM (our linear induction motor based water coaster) and our various Hopkins Rides. It is the overlay, the public competition and the fact that this ride, in the form of a game, can be taken home with you.

**What has been the response to the experience?**

Perhaps optimistically we agreed only to sell five systems for the 2015 operating season. We sold out at the first trade show. And the response was from some of the most sophisticated operators in the industry: Village Road Show's Wet n Wild park in Las Vegas; Great Wolf Lodge in the Poconos and Williamsburg; Hyland Hill's Water World (the largest municipally owned waterpark in the nation), and West Edmonton Mall. You can expect to see over 20 Slideboarding installations by the end of 2016... and we don't expect it to stop there.



## **IPM talks to Denise Weston about how Slideboarding is changing the waterpark market**

### **What does a Director of Imagination do?**

At your local swimming pool, there are various levels of diving decks. The top deck is for the really brave, for those who crave bigger and better. My job is to get to the higher deck, to look at ideas, business and experiences and imagine what is possible. I look from 50,000 feet above and bring others up to the high deck with me, and then make them all jump into the pool together! But I'm also always looking up to the next deck to what's next. Not only am I always going up and searching for the next level but also willing to dive in and get wet. It's more than invention, it's also about creation.

### **Where did the name Slideboarding come from?**

The name Slideboarding started with the reimagined ride vehicle that is used to ride the slide, the Slideboard. The overall concept for the Slideboard was inspired by skateboards, snowboards, and surfboards. The new vehicle we designed was more "board"-like, so long story short, Slideboarding started with the board. And what do you do with a Slideboard? You go Slideboarding!

### **Can the technology be integrated into multiple person slides?**

It absolutely can, but right now we can't tell you exact details of what it could look like.

### **How would you address potential operator concerns like reliability and upkeep?**

We show operators how the technology works and that, at a core level, it is rather simple. Operating Slideboarding is not as complicated as one may think because we have taken specific steps in ensuring the back of house system is simple, intuitive and reliable.

We have a team dedicated to our "Partner Parks" to respond to any issues that arise. We're completely equipped to support our clients with any maintenance services or alterations they require.

### **Can the game play be adjusted after installation?**

Yes, and the game changes as you keep playing and progressing to different levels. It is possible for parks to offer different levels at different times, add levels, take away



levels or even adjust what the levels look like without tearing the whole thing up. It's designed to be flexible to provide the client with control over the guest experience.

### **What sort of data collection is happening on the back end?**

We are learning a lot every day. The data we receive is shaping our next steps. We collect guest behavior such as how many times a single rider rides, how many riders per day or per hour, the move from the live game to the app and back. We're working to understand guest behavior, which helps us and the operator as we design the next generation of attractions.

### **What is Slideboarding 2.0 going to look like?**

Slideboarding 2.0 will look much the same but it will feel different. As traditional games on computers or game systems do, Slideboarding will continue to grow and new features will be added over time. There are many layers of this game that allow the manufacturer (WhiteWater) and the client to grow the experience endlessly.

Although we're currently on Slideboarding 1.0, we already know what 2.0, 3.0 and 4.0 look like. We're planning for the future of waterparks.

### **How else can the gamification concept be applied in waterparks?**

There's a lot of potential for this concept, but to know specific details you need a VIP pass into WhiteWater's secret laboratory.



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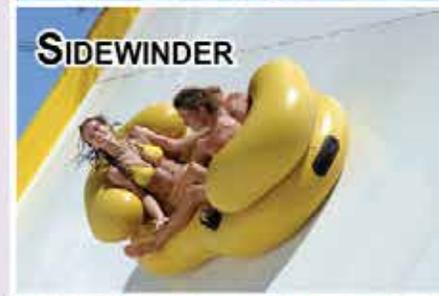
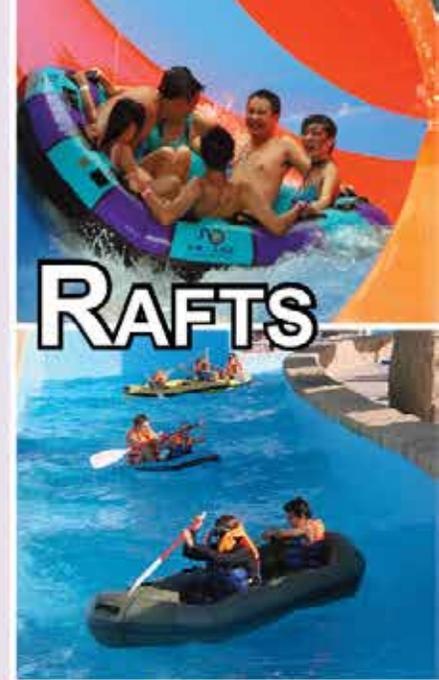


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# Ocean Park Hong Kong

Bringing animal conservation messages to the theme park

*by Martin Palicki*

## Animal Encounters

For additional fees, guests have the opportunity to get close to the animals in their habitats and learn more about what affects them.

During a recent visit, I had the opportunity to experience the Seal Encounter. The private tour began with a guide talking about the different types of seals and their habitats around the world. She focused on the specific breed of seal I was about to meet.

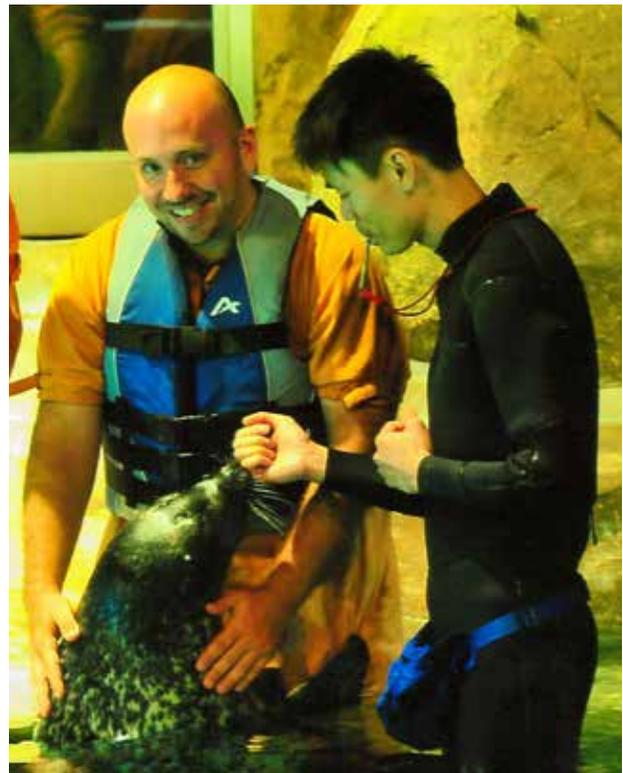
The guide talked about what problems humans have created for seals, and more importantly, what things I could do everyday to

Since 1977, Ocean Park Hong Kong has been entertaining guests with its unique blend of animal habitats and thrill rides. Built into and around a mountain the park is divided into two distinct and separate areas. Guests must take either the Ocean Express, a tram ride through the mountain, or a cable car to transit between the two areas. With the South China Sea nearly surrounding the park, views are stunning and panoramic vistas are abundant.

The natural beauty is matched by the splendid assortment of animals kept at the park, in evocative habitats that reinforce educational messages of conservation. Although the park does tend to focus on aquatic life, it doesn't do so exclusively. Pandas, birds, and rainforest creatures are part of the offerings as well.

The built environments make the most of opportunities to bring people and animals into proximity and sometimes in unexpected ways, such as dining options that allow guests to view animals while they eat. The popular Tuxedos restaurant features a penguin viewing area and a penguin-shaped pizza while Neptune's offers aquarium-side seating.

The park also has a variety of rides and shows designed to appeal to a wide age range, with kiddie rides balanced by thrilling roller coasters. In our opinion, a dark ride would help to round out the attraction roster.



help minimize those impacts. As one may expect, the problems largely come from global warming and water temperature shifts. The guide was helpful without being overbearing.

Next, I suited up in chest-height waders and met the trainer who would take me in to meet the seal. Once in the water the trainer called a seal over and shared more facts about seals while I got to feel the animal's fur and flippers. I posed for a photo with the seal and then was given an opportunity to feed the seals some fish.

Perhaps the most magical moment came at the end. When waving goodbye, the entire group of seals waved their flippers back – a trick they had been taught individually, and now performed en masse.

The encounter program was a highlight of the visit and one of the more unique elements of Ocean Park. It was a real connection moment, teaching me about an animal I valued, but didn't know much about. It brought the whole experience together, leaving me with a smile on my face and ready to share my new knowledge and insights on seals and their environment. ...

*For more information, visit <http://www.oceanpark.com.hk/>*



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