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MANTA Takes Flight

SeaWorld Combines Florida's First Flying Coaster with Aquarium Excellence

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Hitch a Ride on a Giant Stingray

with SeaWorld's Manta,
Florida's First Flying
Roller Coaster

BY DEBORAH BRAUSER
PHOTOS BY MATT ROSEBOOM

Manta is two attractions in one. All guests can enjoy a lengthy walk through a serene aquarium setting whether they opt to ride the roller coaster or not. Those who choose to ride are in for a thrill aboard the "flying ray."

The first word that comes to mind for most guests when spotting SeaWorld's brand new Manta coaster is "cool." From the cool blue colors of the track, to the manta-shaped front car, to the ride experience itself including twists, lagoon-skimming, a waterfall close call, and a crazy G-pulling pretzel loop – it'll take your breath away. And riders experience almost the entire thing face down!

But that's not all. The newest roller coaster to open in the Orlando area features an equally impressive aquarium that boasts stunning views of playful sea creatures within both the riders' queue and a non-rider walk-through area.

Together, the coaster and aquarium form an interesting paradox: a peaceful, yet exhilarating thrill ride. The calming music, lighting effects, and schools of stingrays and other animals combine to lull guests into a restful state. But don't worry. The ride will wake you right up! "What makes Manta a mega attraction is that it's two attractions in one," said Brian Morrow, director of design and engineering at SeaWorld. "Having these two things together doesn't happen in the roller coaster industry."

One of the most impressive feats is that the attraction fits in seamlessly with its surroundings, appearing as if it's always been a part of SeaWorld Orlando. Not surprisingly, that's something that everyone worked for while bringing Manta to life.

An Idea is Born

According to Morrow, the initial design process was very fluid. "SeaWorld doesn't do anything without talking about the ocean. And after



all is said and done, we looked to deliver a really unique experience that people can't get anywhere else. We weren't tasked with creating a coaster. We knew we wanted to build something big but we left the door open for almost anything." He reported that five or six experiences were developed, along with the technologies needed to support them. Manta was one of those experiences, but didn't have a name and wasn't specifically a flying coaster. "But that was on the list we had of things that hadn't been done before in Orlando."

The manta theme came about early on. "The zoological and animal groups are always involved in our creative meetings because they know what they can do and what hasn't been done yet," said Morrow. "They knew that a large marine habitat with one species done well and in the extreme would be impactful and told us how the rays will school and move around in a uniform mo-

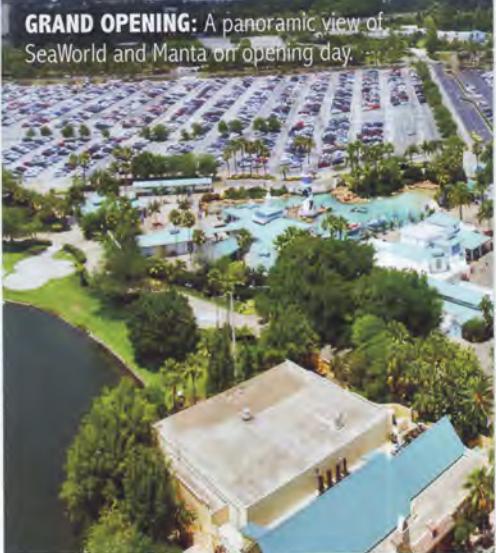
tion ... just things you don't usually get to see rays do."

Gary Violetta, SeaWorld's Curator of Fishes (yes, that's his real title) added, "When the themeing group was looking at flying roller coaster ideas, we discussed how to take that into the sea world. Once someone came up with the idea of flying through the water, sort of like a stingray would do, we then looked at how we could bring that theme into an aquarium and how to get animals there that would match."

Added Morrow, "There were other ideas and other animal species considered. But integrating the idea of the rays with the coaster ideas was a no-brainer. It's usually the simple ideas that are the best."

After laying out their ideas in-house, they turned to Bolliger and Mabillard (B&M), the international company that designed SeaWorld's other coaster, Kraken. Based in Switzerland, B&M has 73 coasters currently in operation in 11 coun-

GRAND OPENING: A panoramic view of SeaWorld and Manta on opening day.

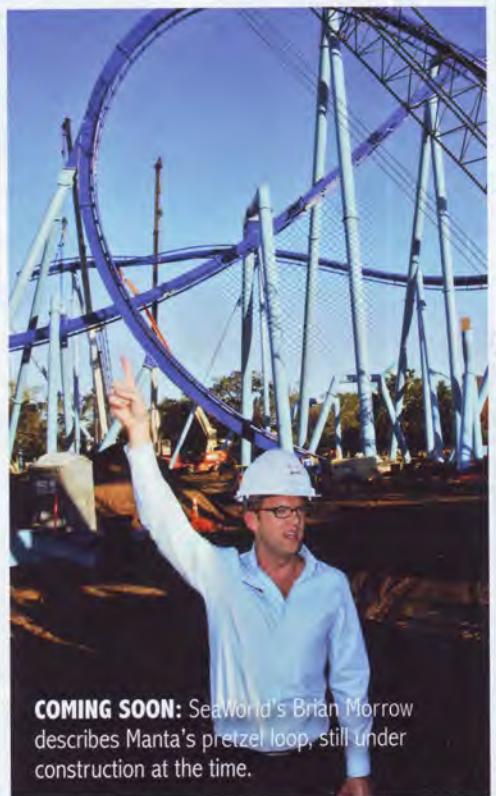


tries, and designed several of the most popular coasters in Central Florida including Universal's Hulk and Dueling Dragons, and Sheikra and Montu at Busch Gardens Tampa Bay. They've also designed seven flying coasters for parks throughout the world.

"We were enthusiastic when SeaWorld brought the idea of themeing the ride around rays, as we enjoy challenges," said B&M's president Walter Bolliger. "Manta was cus-



GETTING THERE: Construction for Manta began with clearing the land needed for the track and aquarium and proceeded rapidly from there.



COMING SOON: SeaWorld's Brian Morrow describes Manta's pretzel loop, still under construction at the time.



tom designed to meet the park's specificity. The sequence of elements was specially studied to fit the available ground area and to interact with the aquariums. It is totally different from the experience encountered on any other flying coaster and is the first B&M coaster integrating live animals into its base or walking area."

Going for a Ride

When guests first step up to the coaster, they

start out sitting upright. But then, as the overhead restraints come down and ankles are strapped in, the seats tilt forward horizontally.

Scott Boden, SeaWorld's operations manager, said that considerable thought went into keeping riders comfortable while in this face-down position. "A lot of people haven't ridden a flying coaster prior to this. I think the team did a phenomenal job of providing a transition where

The ascent up Manta's lift hill allows riders to adjust to its unique seats and also offers a fantastic view of friends and family waiting below.

you don't feel like you're hanging in a harness. You're very comfortable and don't feel like you're being pulled down. Plus, the harness is a very soft material and there's padding where your feet are held." In addition, he reported that the harnesses are inspected every day,

as is each car.

As the ride starts its slow ascent up the first hill, it's an interesting feeling to be looking directly down at the guests standing (and often waving) below. As it crests the top, the cars are off and running at up to 56 miles per hour. Almost imme-



BECOME ONE WITH THE RAY: Riders load onto Manta in a standard upright position (right) but are soon after lifted backward into the flying position (above) for the duration of the ride.

diately, the ride's most intense section comes up – a B&M signature element called the pretzel loop.

"The challenge in developing a flying coaster was to create elements which enhance the flying experience," explained Bolliger. "Using standard looping was not appropriate, so that's when we developed the so-called Pretzel Loop."

The coaster also has three other inversions, including two in-line spins and a flat spin, and a close call within 2.5 feet of a waterfall. Near the end of the ride, the cars appear to skim the surface of the lagoon in a wing dip, with a water effect spraying 14-feet high and 60-feet long.

Overall, it's a fairly long ride that is very smooth, without jerking its riders around. "We wanted an amazingly smooth coaster," said



CLOSE CALL: Despite how close to the water it appears, Manta's "wing dip" maneuver will only barely get you wet.

Boden. "Part of what B&M does is provide wheels which are a steel one-piece with a nylon coating on the outside. This material is a sort of plastic that adheres right to the railing. In

addition, we wanted it to be quiet. You know, we put this coaster right in the middle of our park among all our animal exhibits and our guests throughout the park. So we definitely didn't want

a loud clanking noise."

SeaWorld describes the experience as feeling like you're "riding on the belly of a massive 12-foot manta ray as it glides and twists and soars above the ocean." Many guests like to ride with their arms straight out like Superman, which seems to really enhance the flying effect. "The coaster has far exceeded expectations," said Morrow. "And it's one of the best without being the tallest or the fastest."

Where's the best place to ride? Morrow says that he likes row four, seat two. "You can ride in the back and have G-forces deluxe and walk off a little dizzy. You can ride in the front, which is quieter



MAXIMUM INTENSITY: The first half of the pretzel loop is the most intense portion of the entire ride. Pictured here (from left) are the writer of this article, Deborah Brauser, Orlando Attractions Magazine publishers Matt Roseboom and Ricky Brigante, and a member of the American Coaster Enthusiasts on his sixteenth Manta ride of the day.



SIGHT SEEING: The front row of Manta allows for the best views with the least intensity. Despite what the guests pictured here might think, hanging on tightly only increases tension. Relax and let Manta guide you.

because the screamers are behind you. But row four provides everything. I get a little bit of G's, it's a little bit faster, but also when you rotate and dip down, that's the row where you see the wing dip happen. And I love seeing that."

Orlando resident David Fake is the assistant regional representative for the American Coaster Enthusiasts (ACE) and has ridden just under 500 different coasters. During Manta's media day, he rode Manta 31 times. (Brandon Baker of Naples, Fla. and Paul Brooks of Estero, Fla. got in 81 rides over the two-day press event.) "Manta is a great addition to the SeaWorld park,"

said Fake. "The back is my favorite place to ride, but I don't recommend it for everybody as you pull a lot of G's back there during the pretzel loop. If you're not a true enthusiast, you may want to start up front or in the middle. The view from the very front seat is nice and one that everyone should experience. Obviously it's a unique design and layout with great transitions from element to element. The turns and the downward helix and the wing dip with the splash effect are all great. The theming and the aquarium element really set it apart from any other flying coasters that exist."

The Lowdown

The Track

Track length: 3,350 feet
Maximum height: 140 feet
Maximum drop: 113 feet
Top speed: 56 miles per hour
Weight of steel used: 2,772,600 pounds
Number of bolts used: 12,186

- Manta's rails are filled with sand to make a quieter, smoother ride.
- All of Manta's track was forged and created in Ohio and trucked to SeaWorld on 18-wheelers.

The Trains

Vehicle wing span: 12 feet
Length of train: 72 feet, 2 inches
Weight per train: 33,100 pounds when empty
Wiring per train: 2,524 feet

- Manta's trains are so efficient that if Manta's track were flat, a single train would probably coast for nearly two miles after its initial 113-foot drop.

The Age of Aquarium

With nearly 250,000 gallons of water, the aquarium currently features 230 stingrays (with the plan of adding more) and about 1,500 fish within its 10 floor-to-ceiling exhibits. Most of the animals in the exhibit are new to the park, with many coming from other parts of the world. "As much as possible, we tried to get animals already bred and raised in captivity," said Violetta, SeaWorld's curator. "Most of these animals on exhibit are fairly unique in that you'll only see them in a few other places; but you won't usually see them all together."



Riders can pass the time in line by viewing the stunning animal exhibits as the queue snakes under the loading area. Non-riders can skip the line and head to a walk-through area which shows the other side of some of the same exhibits.

In the live coral reef habitat, almost all of the

coral was grown in Orlando or at SeaWorld Texas. Smaller jeweled aquariums spotlight seahorses, and leafy and weedy sea dragons. A brand new octopus, who came from the Northwest United States, can move between habitats through a unique underwater tube. Within another exhibit, a pop-up

aquarium lets small visitors stick their head up into a glassed enclosure for a 360-degree underwater view of 300 clownfish and sea anemones.

The most spectacular display is the stingray exhibit. The large 220-square-foot underwater viewing window shows the rays from underneath – with no obstructions. “It’s my understanding that it’s the largest horizontal piece of acrylic glass in any aquarium in

the world, really showing the rays from a whole different angle,” said Violetta. “To me, it’s almost like you’re lying on your back under the ocean just looking straight up at all of these animals swimming in and out of view overhead.”

There are currently six different types of stingrays on exhibit. These include cownose rays, roughtail, spotted eagle, southern, shark rays and a giant guitar fish.

The aquarium’s fictitious back-story is that a team of artists and scientists came to the area to get inspired by nature. Plaques hang along the walls with small messages about the ocean, and each ending with a line on conservation. “If people can leave with at least one conservation message, then we’ve gone



Within Manta's aquarium portion of the attraction, guests can get a wide variety of up-close views of different sealife.



UNDERSTANDING THE RAYS: Gary Violetta, SeaWorld's curator of fishes, explains the different types of rays found within the attraction's large tank.

past where we wanted to go," explained Violetta. "We've not only presented a good aquarium, but we've also left you with an idea that you can take out of here and use to help the real world."

"Dive Deep, Fly High"

On May 2, more than 20 days before scheduled, Manta opened for guests. "For operations alone, we have 80 new team members for this particular attraction," reported Boden. "On our first day, this new team was able to run 30 dispatches in a single hour. Admittedly that wasn't

the fastest load-in, but we were proud of it. The ultimate goal is to do it safely and do it right."

"The seamless tie-in to the animal component has never been done before," said Morrow. "You know, it's hard to be original. So to be able to produce an attraction like this is an achievement."

"The movement, the swoops, and the turns are designed so well and it really gives a true flying

feeling. It's just great and something different from anything else the local area has," said coaster enthusiast Fake.

Fellow ACE member Marlon Scott said he's ridden about half of the flying coasters worldwide, and this is the best so far. "The others I rode were boring after the standard pretzel loop. Manta adds to the flying experiences with drastic altitude changes along with the dramatic

splashdown and waterfall near miss. Those last two features hooked me and I happily plunked down my money for an annual pass!"

From the moment you walk through SeaWorld's front gates, you'll be struck by how exhilarating, scary, yet magnetic the Manta attraction seems as it pulls you in for a ride, a walk-through, or even just a closer look. It's very cool, indeed.

ONLINE EXTRAS

Video: Yes

Photo Gallery: Yes

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See all of Manta's twists and turns and explore its aquariums through video and additional photos on our Web site.

NOW OPEN: A crowd gathered for Manta's official grand opening.

