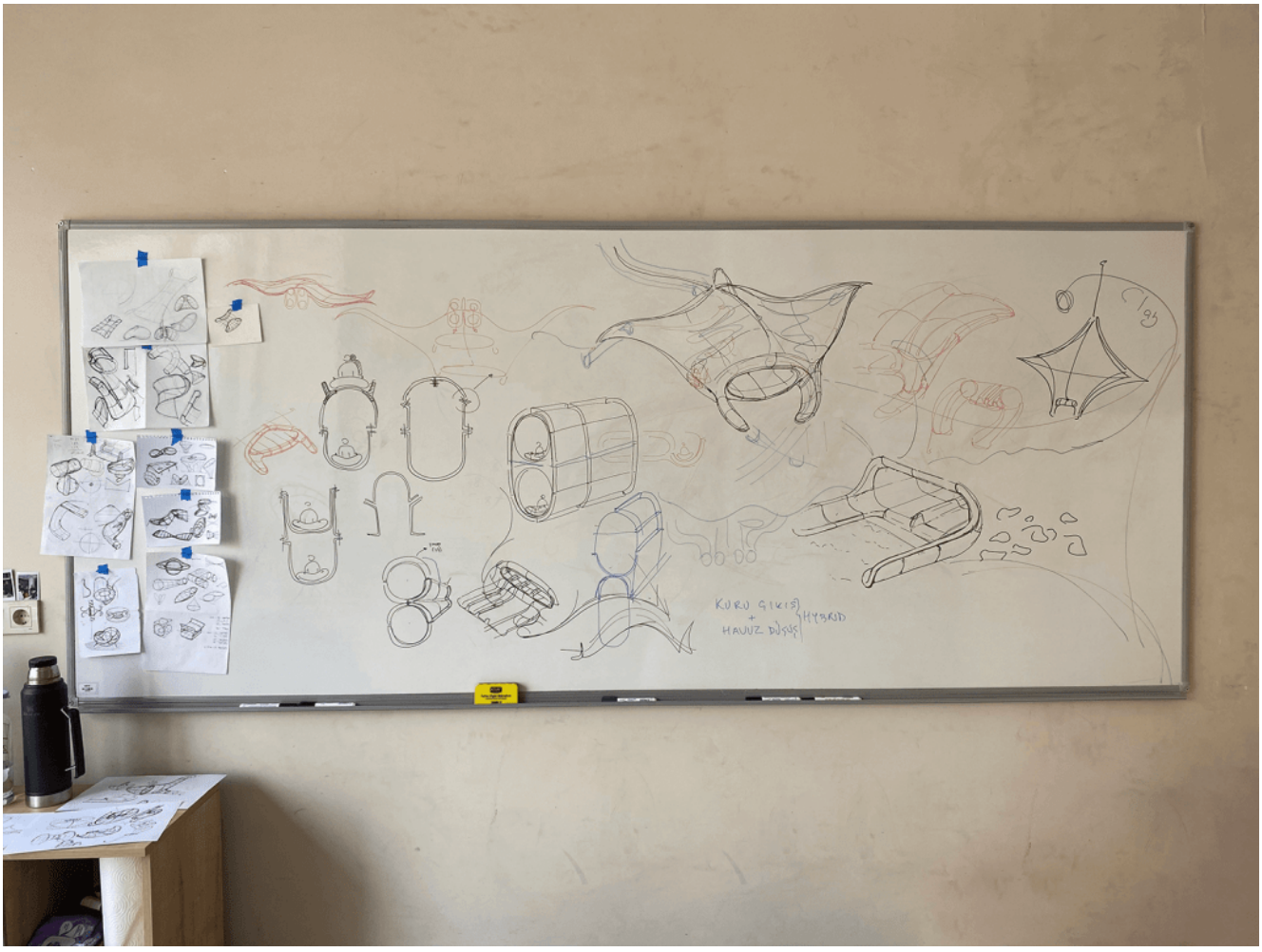
Navatu: Redefining the Waterslide Experience

The waterslide concept Navatu began as an idea drawn from the sea — the curve of a manta ray, the motion of water itself. From the first sketches, it was clear this project would become more than just a ride. It wanted to be a story.

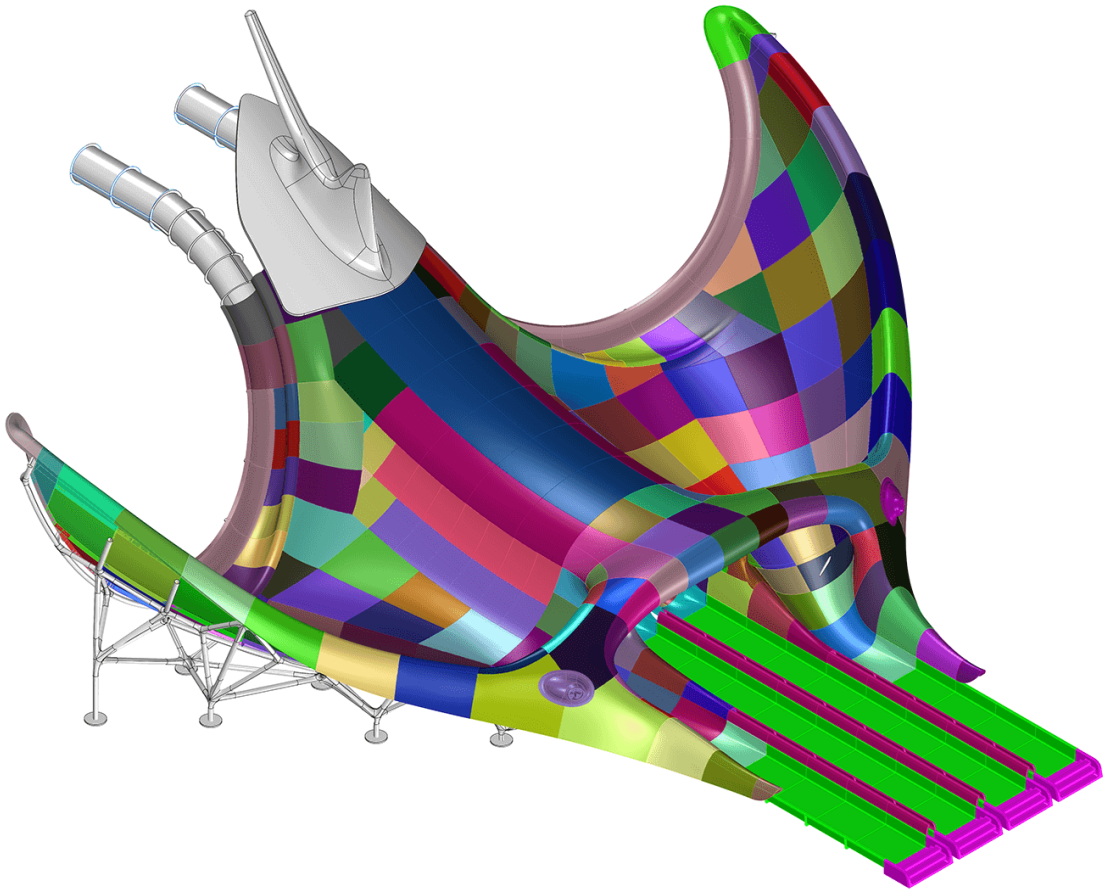
Developed through an iterative process of sketching, clay modeling, and advanced 3D modeling, Navatu evolved into a one-of-a-kind waterslide concept that merges engineering logic with organic geometry. Designed entirely in Rhino, the project balances intuition and precision, thrill and safety, until the final form emerged: a waterslide that feels as fluid as the water it carries.



First sketches

A MULTI-EXPERIENCE RIDE

Navatu is the first waterslide of its kind to merge multiple experiences in a single attraction: body sliding, mat racing, single and double tubing, and family rafting. Riders launch from a towering structure where a cascading waterfall greets them at the entrance, creating a sense of anticipation before the climb. Once inside, two side-by-side slide paths race in parallel, plunging riders through a custom-designed aquarium filled with vibrant marine life.

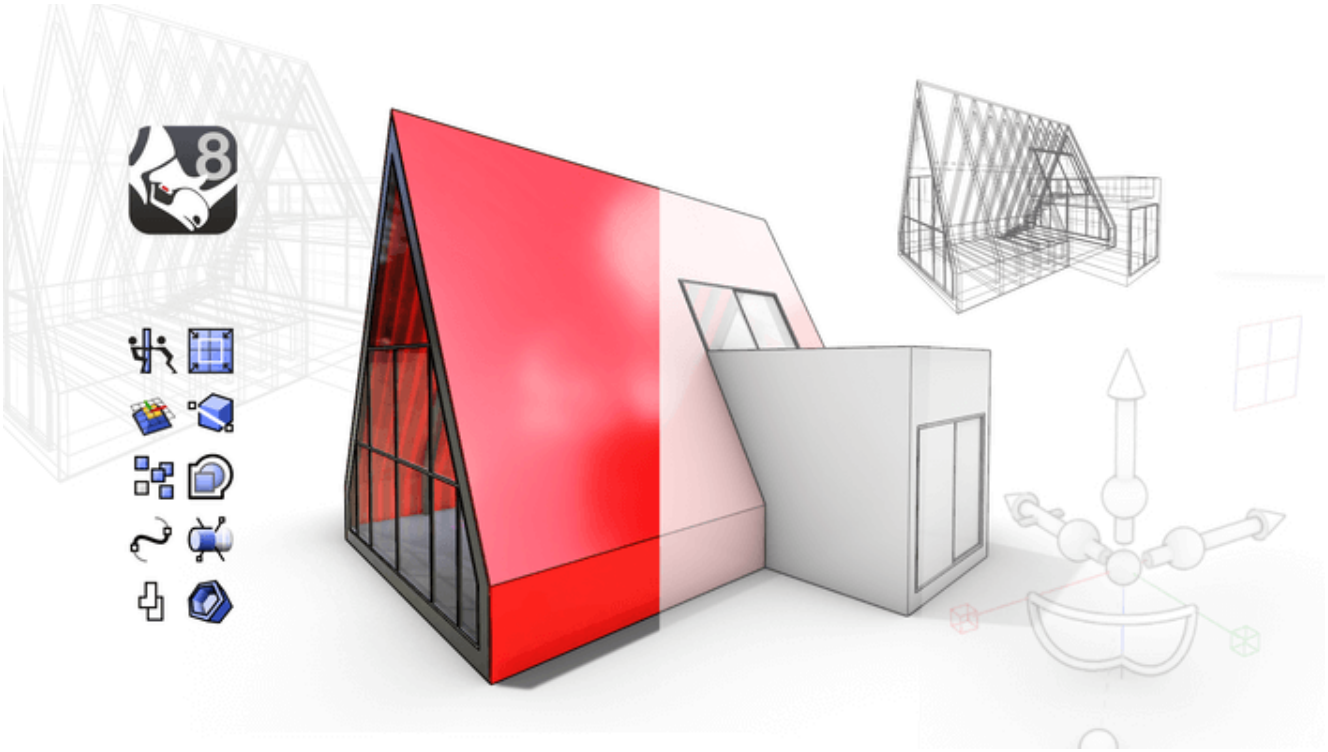


3D model

The attraction delivers a layered experience of speed, light, and immersion. Guests encounter zero-gravity drops, sharp turns, and open or enclosed slide sections, enhanced by dramatic lighting and mist effects. The manta-inspired form itself becomes a visual landmark, an attraction as striking for spectators as it is exhilarating for riders.

FROM SKETCH TO SCALE

The design journey began with quick hand sketches before moving into Rhino to explore digital form-finding. To test presence and proportion, the team crafted physical clay models, then returned to Rhino to finalize every detail, from complex surfacing to segmentation logic. A scaled presentation model was also produced using Rhino and 3D printing, and later finished by expert model makers.



See Also

INTRODUCTION TO RHINO 8

For fabrication, the design proposed fiberglass-reinforced polyester (FRP) with UV-stable gelcoat, supported by galvanized steel or stainless steel structures. Tooling would be produced from 5-axis CNC-milled plugs, with advanced composite lay-up methods such as RTM/VARTM, ensuring structural quality and a high-gloss finish.

Clay model

DESIGN CHALLENGES

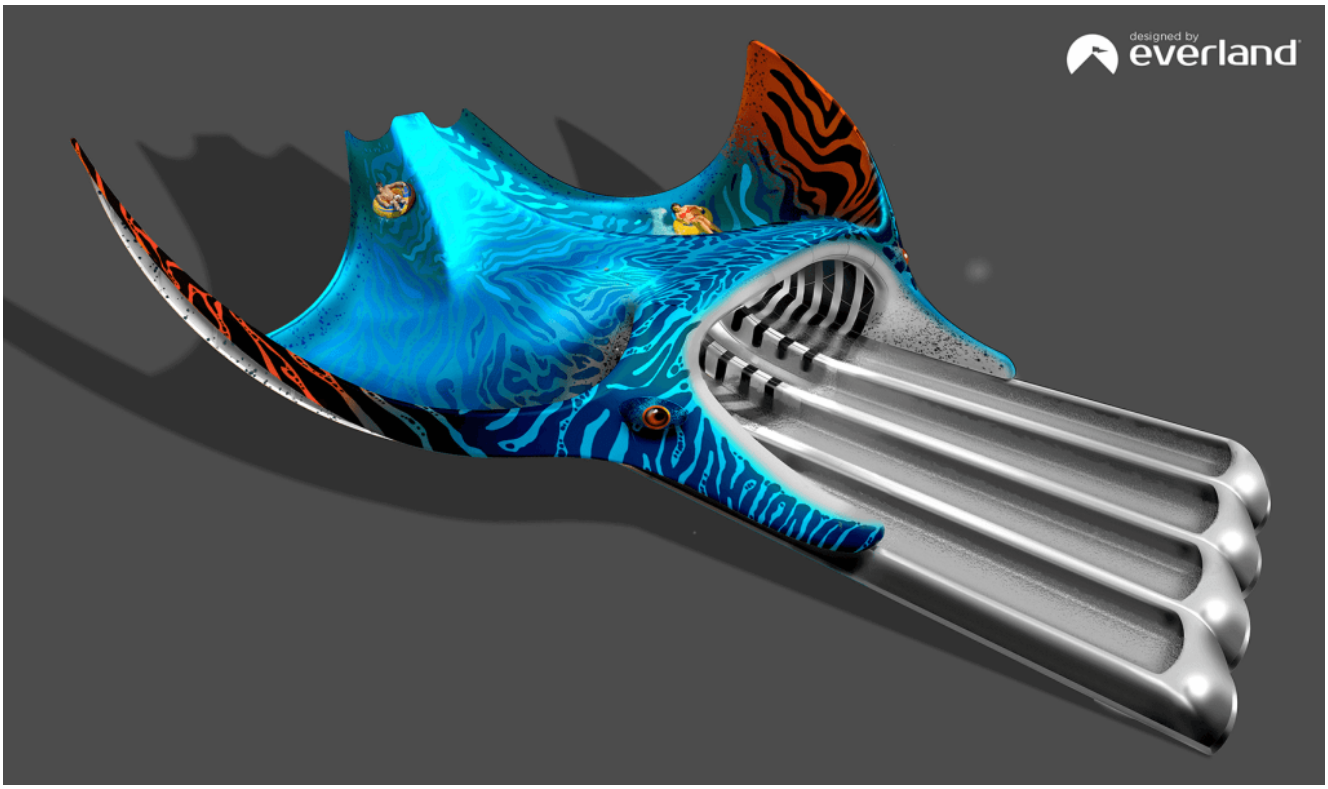
One of the biggest challenges was balance: the ride needed to deliver adrenaline while staying within strict safety limits. This required countless iterations, with hours spent adjusting curves and running Solidworks Motion Analysis to fine-tune rider dynamics.

Render

Scale also presented difficulties. Navatu's final dimensions—37 meters wide, 44 meters long, and 17 meters tall—meant each fiberglass section had to be both flawless and manufacturable. Reverse angles and oversized parts were avoided to ensure molds could be fabricated

efficiently without compromising design continuity.

Aesthetic consistency across dozens of structural pieces was another key challenge. Each segment had to serve both as a functional element and a contribution to the overall visual harmony.

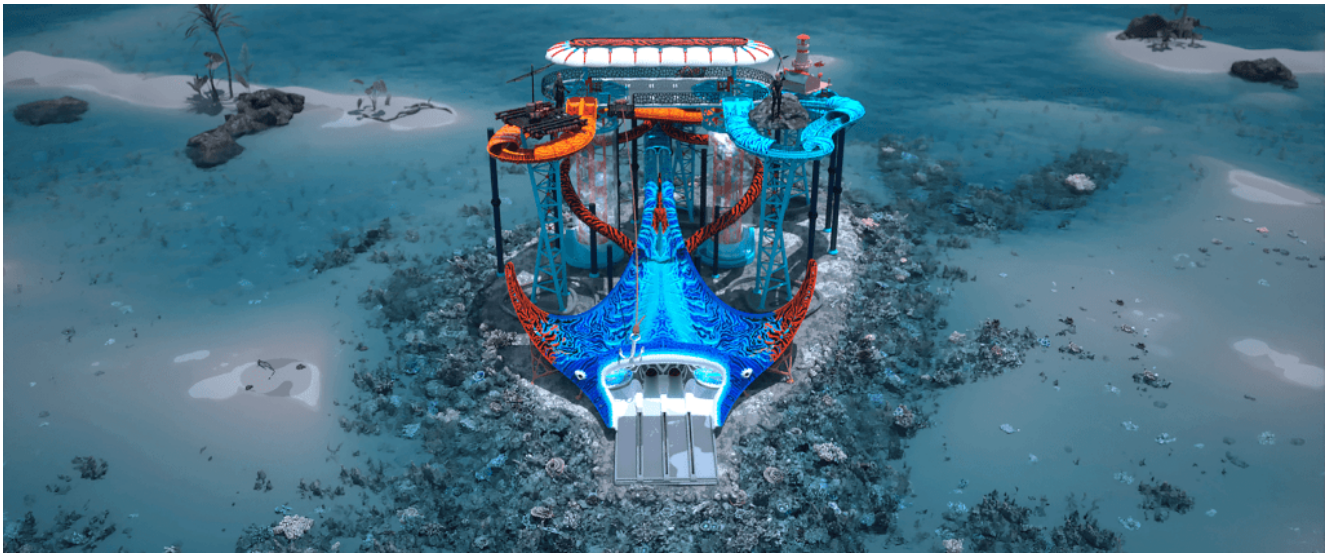


Final sketch

RECOGNITION & IMPACT

Navatu is both design-patented and patent-pending, and has already earned global recognition. At the IAAPA Expo 2024 in Orlando, it was awarded the Brass Ring Award for Best New Product Concept. More than an attraction, Navatu represents a new benchmark in how industrial design and entertainment can merge, turning water itself into a shape to be remembered.

For Rhino users, Navatu demonstrates the software's versatility in shaping large-scale themed environments, bridging imagination and feasibility at every stage of design.



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