the AQUALAB at Seas of Imagination, Vancouver

featuring

MISSION: S

Team #15

Theme Park Design Competition 2020

Development Challenge

SPIRIT OF ADVENTURE CREATIVE GROUP

Introduction

AquaLab proposes to take you on a journey through the Pacific Ocean, Salish Sea, and Fraser River to explore the habitats and activities common to the White Sturgeon and other marine life adjacent to the Vancouver area. To experience these features, this project relies on the latest in digital technology to provide personalized, educational, and gamified experiences. These interactive technologies will provide virtual and physical hands-on experiences, enhance your existing knowledge, and after, keep you connected well beyond the walls of the aquarium.

AquaLab Card

The entire experience begins when you register for personal AquaLab ID card (Figure 1). The card not only indicates your place in the virtual queue, but connects you with different activities throughout the building and tracks your progress for future visits. You begin by choosing one of several roles and skill levels, such as a marine biologist at level 2, that gets recorded on the RFID card with a unique assigned ID number. These settings dictate your interaction with different exhibits and can be changed for subsequent visits for a different experience. A photo of yourself, with themed filters available, is also applied, creating a reusable keepsake from your visit. This card is your ticket to Mission: S, for which, you will register for an available time slot that indicates when you need to go to the Laboratory to accept your mission and take part in the ride experience.

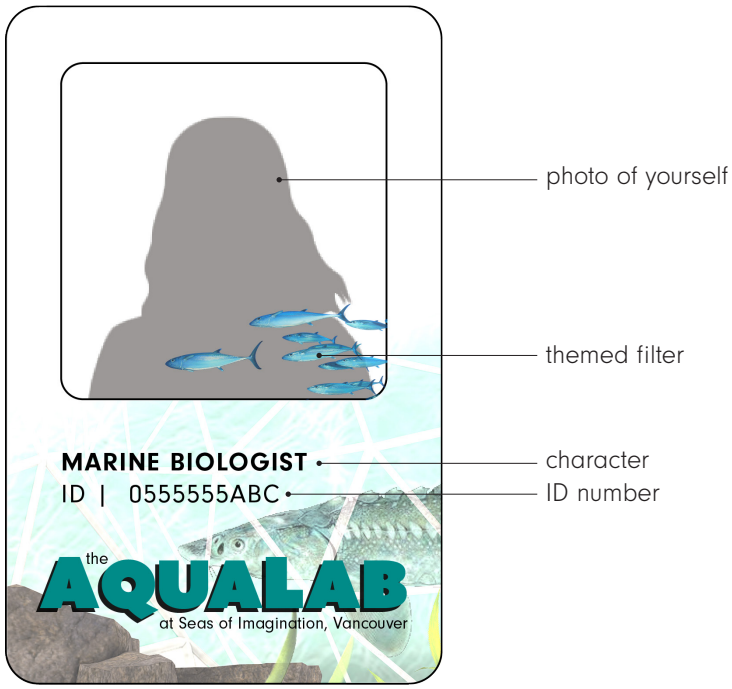


Figure 1. Sample of the AquaLab RFID card that can be personalized and connected to the aquarium's app. It interacts with various displays and exhibits, and grants access to Mission: S. As a reusable keepsake, the card encourages people to keep connected long after you have left the aquarium and keeps you coming back for new experiences

The card is your key as you navigate through the different habitats, working to activate various displays and record your accomplishments such as high scores and answers to games. Explore each of five different habitats that contain several interactive displays, such as, tapping your card to take in a mini light show inside a giant sea urchin shell or swiping it to watch the worms of the Fraser Delta perform a dance. You are also able to use the card to record your progress throughout the habitat; to keep track of which exhibits you have visited, or your high scores in games such as the Salmon Strike (Figure 2). At each card requiring activity in the habitats and at several terminals throughout the aquarium you are able to confirm your ride time so that you do not miss out on your experience. Further, the AquaLab ID can be linked to the aquarium's app to continue the experience at home, such as submitting photos of marine life you have seen that will be displayed on social wall inside one of the habitats.

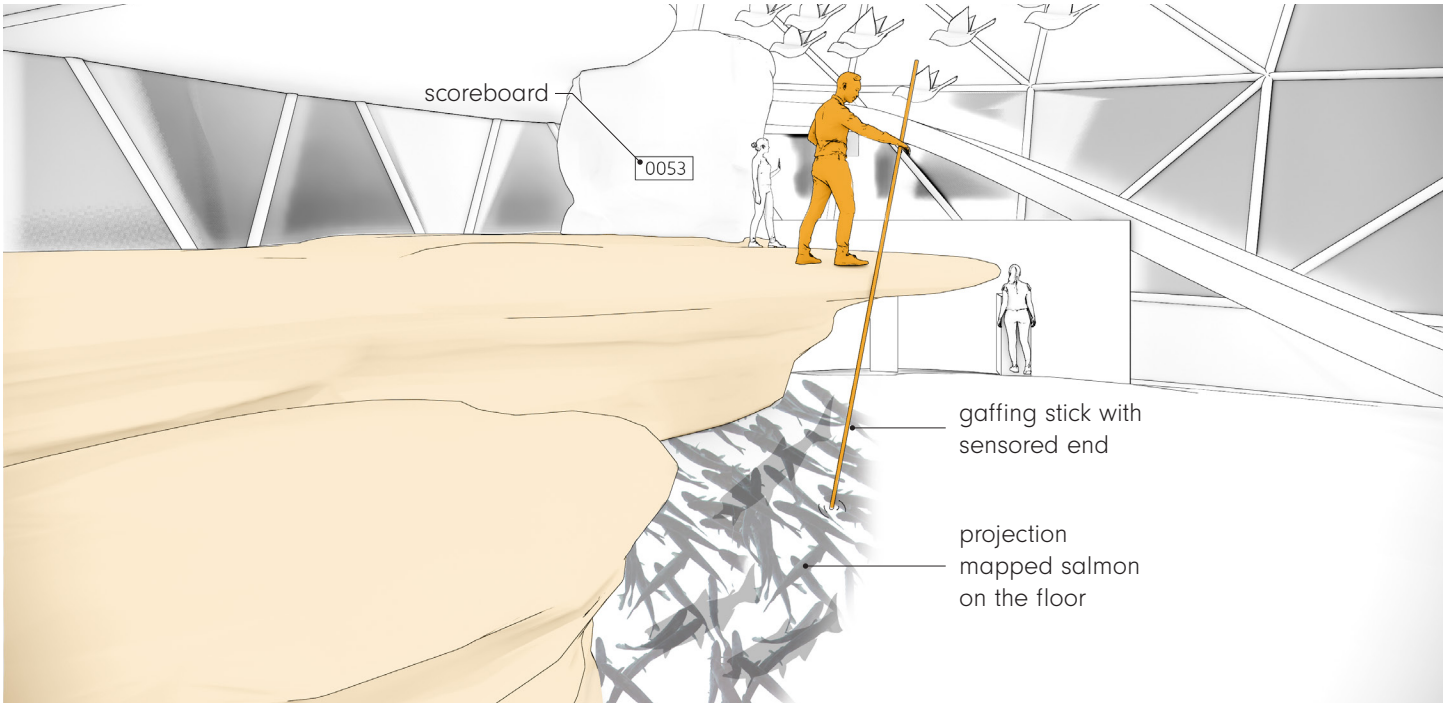


Figure 2. Salmon Strike activity found in the Fraser River habitat. You are able to practice the traditional Indigenous method of fishing called gaffing, through this interactive game. Keep track of your score among other high scores via linking your ID card with the aquarium app.

Habitat Elements

Some components of the habitats do not require the RFID card, but utilize other technologies to enhance the experience. Entering the first habitat, the Western Interior Seaway, this includes going on an Elasmosaurus VR ride to emulate swimming through the ocean in mid-Jurassic times or using motion capture technology to mimic a favourite dinosaur and create a short video. Wandering through the Kelp Forest in the Seamount habitat lights up a path as you come in close proximity to or touch the sensor-activated seaweed. The Seamount environment also provides a live 3D printed coral art display, where you influence what gets printed next though a series of design choices. Proceeding to the Salish Sea you will find an interactive model of giant red sea urchins that teaches you about their response to light and shadow using light-activated sensors (Figure 3). Traveling towards the Fraser Estuary and Delta habitat, you will find a unique experience that nourishes the growth of flora and fauna in the estuary on a live screen in response to your interactions or watch their eventual decay from habitat loss and pollution, as you create ports, residences, and agricultural land. In the last habitat, the Fraser River, keep score in Salmon Strike, an activity that incorporates spatial augmented reality and touch sensors to learn about traditional fishing methods of indigenous groups that live along the Fraser River. Finally, after making your way through the canyons of the Fraser River, tap your AquaLab ID to be granted access to the Laboratory, where you will undergo a series of training activities that will prepare you for your upcoming mission. For example, perform visual tests with the AR embedded screens on the 2nd level glass walls that look out onto the habitats below.

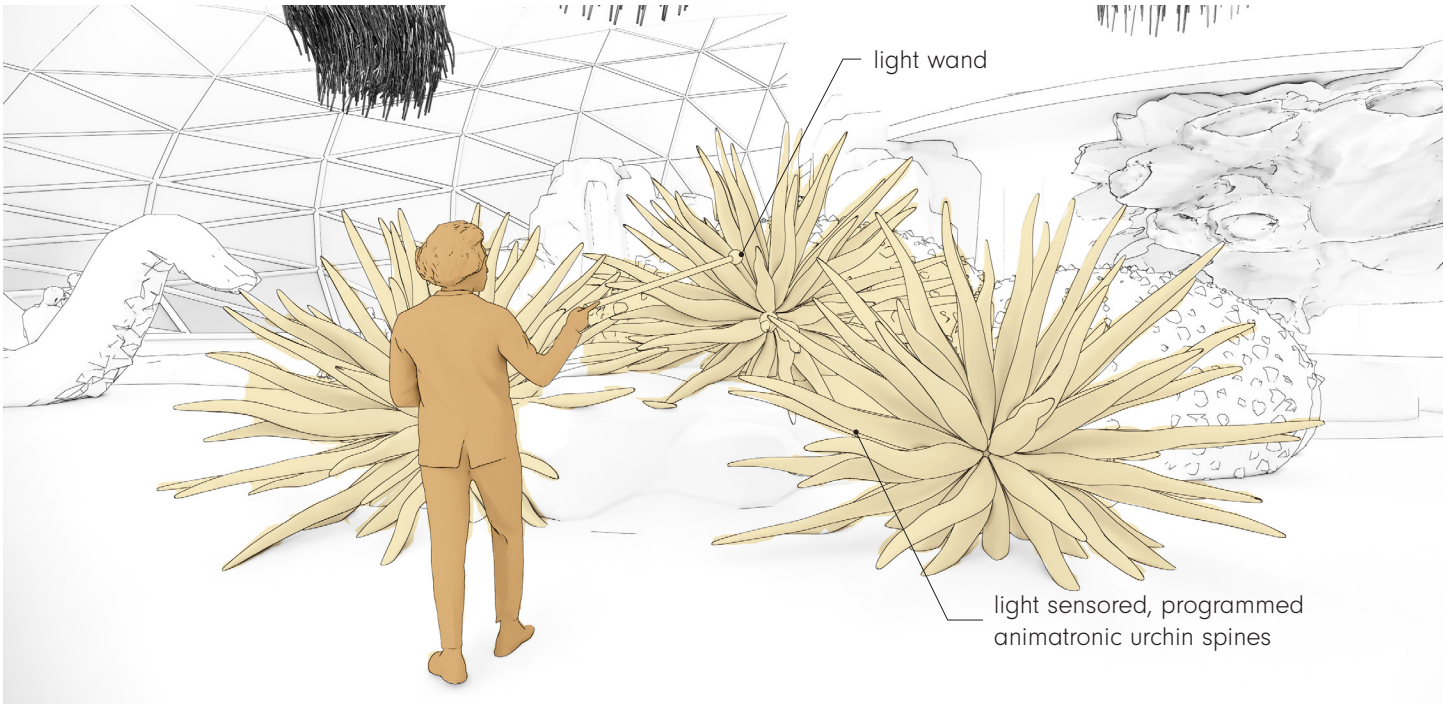


Figure 3. Urchins have no eyes, but their spines react to light and shadows to keep them safe from predators or guide them to dark spaces in the corals and rocks. This interactive urchin exhibit has animatronic spines outfitted with sensors to react and move depending on where you aim the light wand.

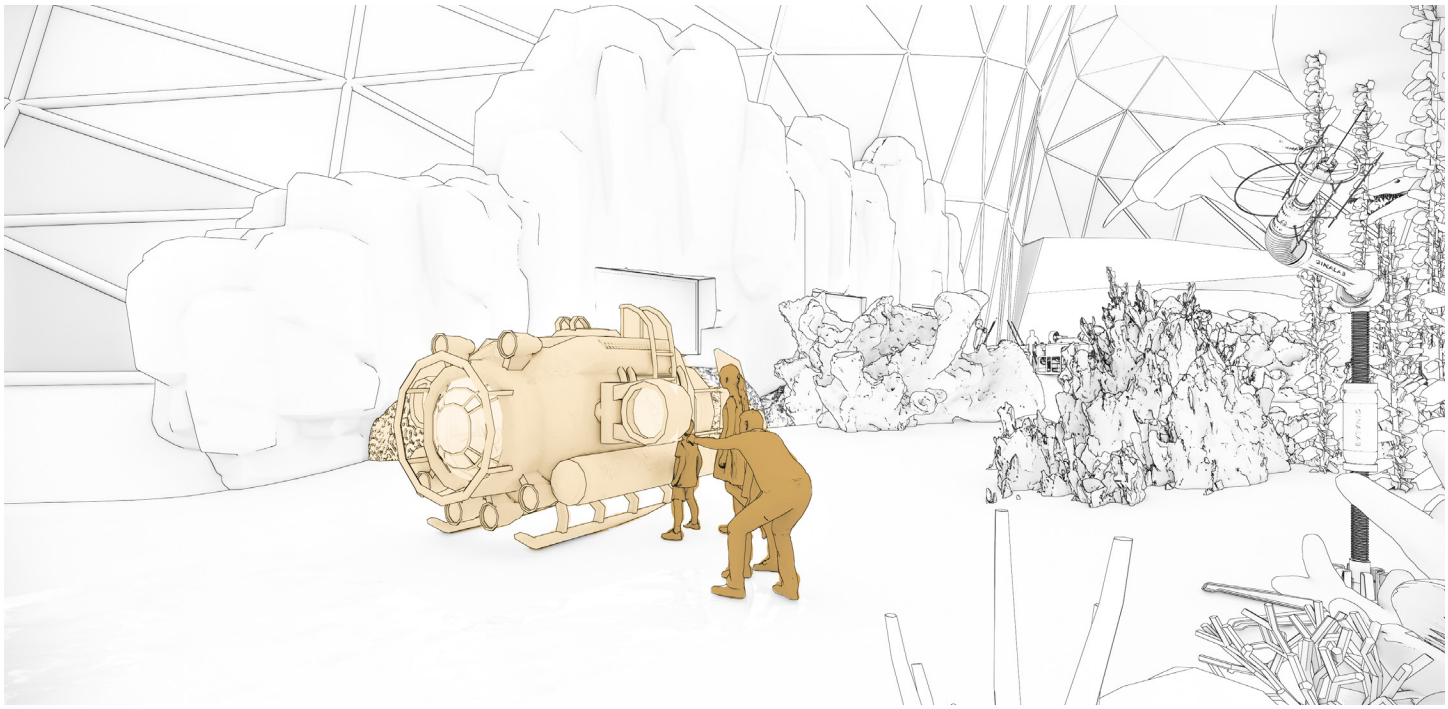
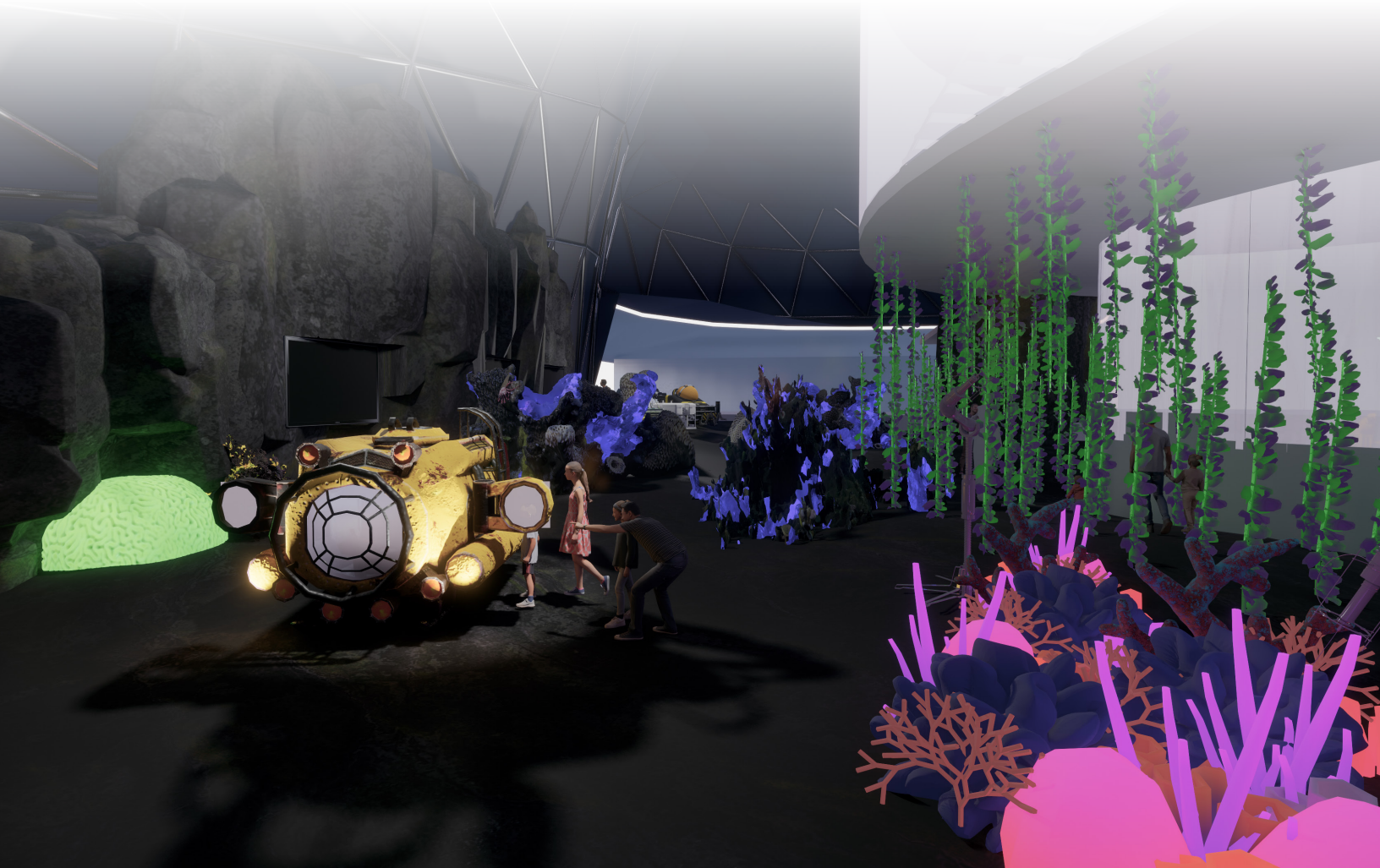


Figure 4. Deep see explorer submarine simulation ride in the Seamount Habitat

Merchandising

When you leave the Mission: S ride, tap your ID card to have projection mapped sturgeon or another fish you previously chose, guide you through the river's canyons out to the gift shop. Gifts, souvenirs, and learning instruments for all ages will be available. Signature plush SAL-E, STU-E, and friends are perfect companions for young kids, while take-home science, robotic, and model construction kits are more popular for youths and older. If you did not get a chance to 3D print coral, you can have some at home with grow your own coral kits. You can study the fish movement by building your own robotic and remote-controlled fish. Construction kits of paper, nano-block, or laser cut wood habitats could provide you with your own replicas at home. Among the typical themed t-shirts, hats, and sweaters, also available for purchase would be branded onesies and costumes to dress up as your favourite marine character. Other merchandising opportunities can include ocean safe sunscreen and other environmentally friendly skin, hair, and body products. The café on the second floor of the Seamount habitat provides the opportunity for themed food offerings such as, sturgeon shaped cookies, petit fours, candies, or flavoured ice creams.

Conclusion

The project does not exist only as a space for technology to be utilized, but instead is utilized in conjunction with the project's concept to enhance the experiences, education, and adventure that AquaLab provides. Through the interactive ID card, five habitats, Mission: S ride, and merchandising, AquaLab presents itself as a cohesive project that narrates the interactions between marine biology, marine life, and the white sturgeon that is valued among the residents of Vancouver and surround areas.