# *SeaScape*

## Marine Conservation Centre

Oceans are among the earth's most valuable natural resources. They govern the weather, clean the air, help feed the world, and provide a living for millions. They also are home to most of the life on earth, from microscopic algae to the largest animal on the planet. Yet we're bombarding them with pollution. Seascape sets out to tackle this problem within Portsmouth's local waters by creating a marine conservation centre open to the public and the university. Its focus is to teach the community about the effects and preventions of damaging our seas, how to care for the sea in a way that makes visitors want to enjoy the waters that are on their doorstep. This creates a circular economy within the building consisting of knowledge, implementation, and enjoyment. It looks at using sustainable materials that use local resources to make the project as eco friendly as possible. There is a focus on bio-plastics, and how we can use environmentally friendly materials to replace plastics that are harming our planet during production or waste. This is supported by 27 million tonnes of plastic being in landfill in 2018.

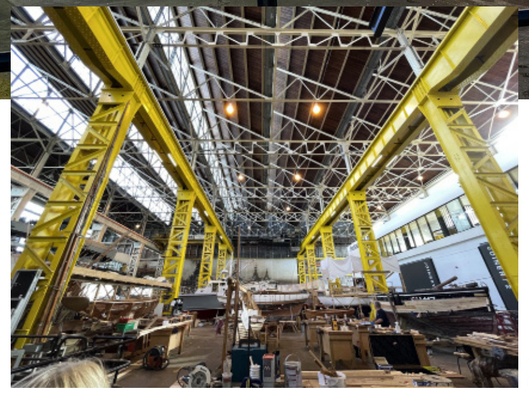
Seascape is located within Boathouse 4, which is situated on the sea in The Naval Historic Dockyard, creating the perfect location to house a marine conservation centre. Within this building there are two areas that water enters, a channel that offers a great area to swim, and two opening where water flows underneath to the Mast Pond situated opposite the building.

# EXPLORING MATERIALS

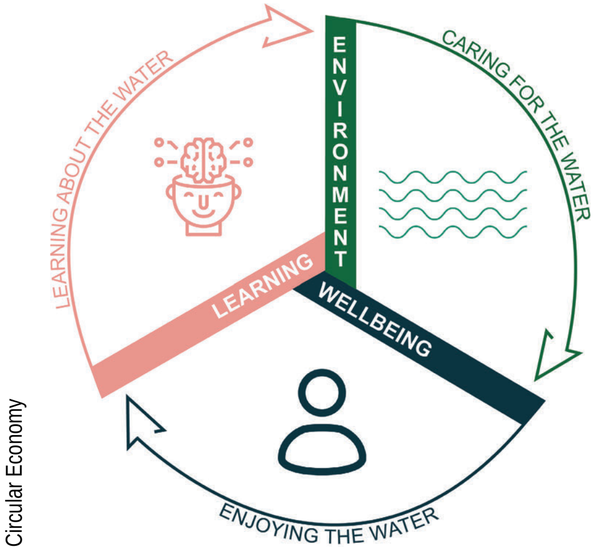
My strategy for my materials is to use sustainable and local materials to create a natural material palette with a raw finish to reflect my brief. Keeping my project local was a big importance for my brief to make sure that my footprint has not made an negative impact to the world. By doing multiple site visits I started to understand the building and how it sits on the site of the dockyards in relation to the sea. I noticed that the building had a lot of wear and tear created by the sea and harsh winds. I have focused on looking at four different variations of materials that I could use and created my own samples to allow me to understand how these materials acted and the ways they can be manipulated in different ways.
The material palette includes local materials such as seaweed and algae, original materials from the building, and a colour palette that reflects the natural colours of the environment.

*"There is no power greater than a community discovering what it cares about"*

- Margaret Wheatley

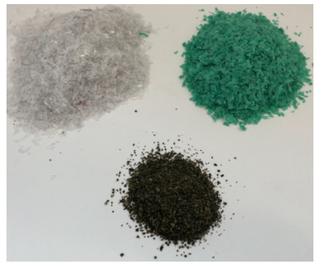
Reference Images



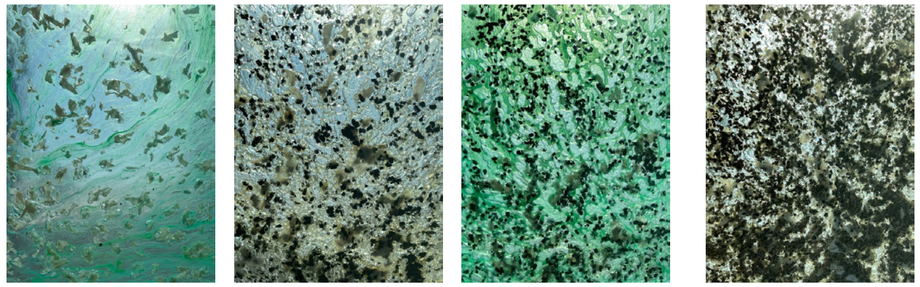

Circular Economy

Material Impressions

## Recycled Plastics

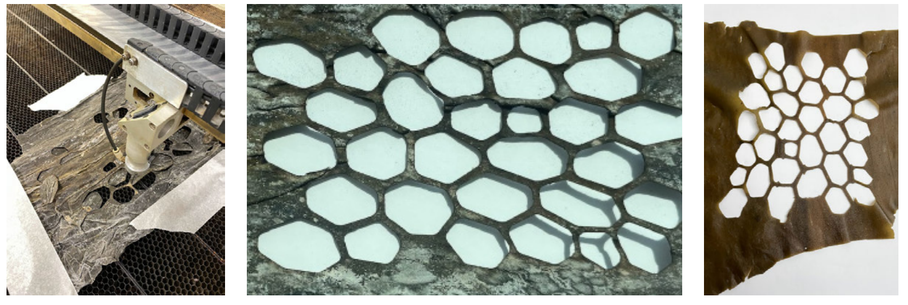


Using shredded thermoplastics from left over plastics in the workshop and shredded milk bottle tops, I created new plastic sheets with different opacity levels which was controlled by the pressure used on the R30 Sheet Press. Kelp granules was added to certain samples to bring in the link to the water.



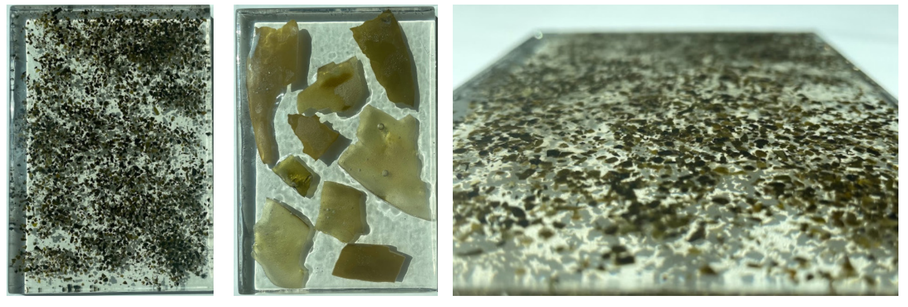
Kelp is a brown algae which I have bought dried to preserve it as long as possible. Creating new settings on the laser cutter, I printed out various shapes to understand its materiality. Once cut, I soaked some samples in water to allow for a more fluid material which ended up feeling and looking like leather. Once dried it became crispy and delicate to move.

## Seaweed



## Eco Resin

Eco resin is an eco-friendly material that has allowed me to create solid structures which encase various materials. Within these samples I have used seaweed and kelp granules to create a slight opacity. Shining direct light onto these samples create an effect of water and depth.



# BIO-PLASTICS

## Material Narrative

A group of marine conservationists were gathered to discuss the urgent need to reduce plastic pollution in our oceans. One of the attendees, a young scientist, presented a solution: bio-plastics.

She explained that bio-plastics are made from renewable sources such as cornstarch, sugarcane, or algae, and are biodegradable, meaning they break down into natural elements when disposed of properly. Unlike traditional plastics, which can persist in the ocean for hundreds of years, bio-plastics have a much shorter lifespan, reducing the amount of harmful plastic waste in our waters.

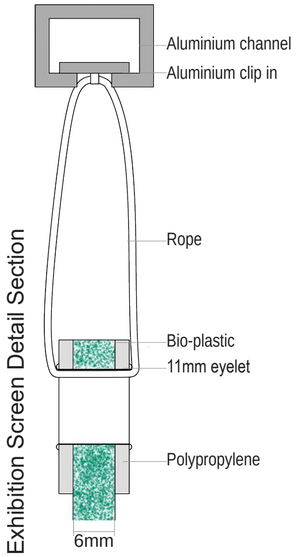
The group was excited about the potential of bio-plastics, and they decided to launch a project to test their effectiveness in the real world.

After testing, the results were in: the bio-plastics had made a significant difference in reducing plastic pollution. The group celebrated their success, and the young scientist felt proud to have contributed to the solution.

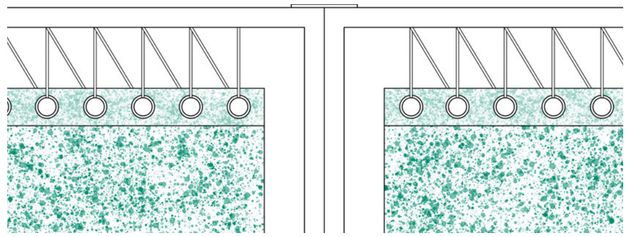
As the meeting came to a close, she looked out at the sparkling blue water and felt a renewed sense of purpose. She knew that there was still much work to be done to protect our oceans, but she was hopeful that with innovative solutions like bio-plastics, we could create a better future for marine life and our planet.

To understand how bio-plastics act, the young scientist made sure that she created her own samples with different properties to identify her prefered material. Within these photos she has shown the main materials needed and the final samples created.

The young scientist then used these samples to understand her detail further which can be seen in her sample modelling. She recognised that any sample that included solid materials, when dried, curled up and its shape was distorted as the solid material could not dry up with the bio-plastic.

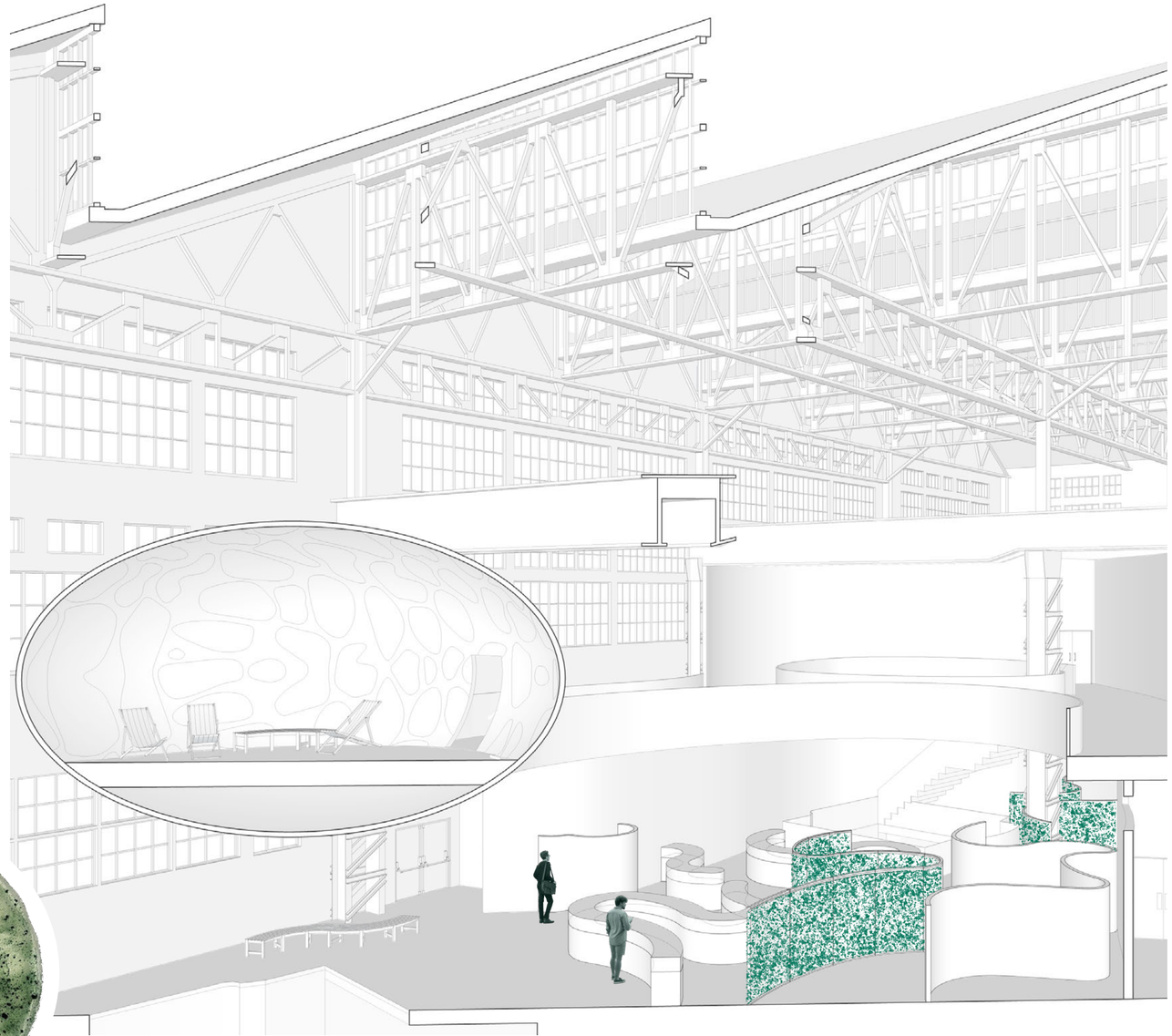


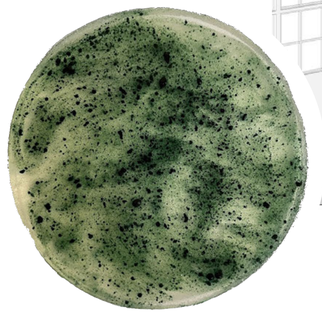

Exhibition Screen Detail Section



Exhibition Screen Detail Elevation

This detail focuses on the bio-plastic screens situated within the exhibition about marine conservation and the local seas. It is comprised of an aluminium channel, rope, clear polypropylene, eyelets and Agar Agar bio-plastic with spirulina powder sprinkled in.

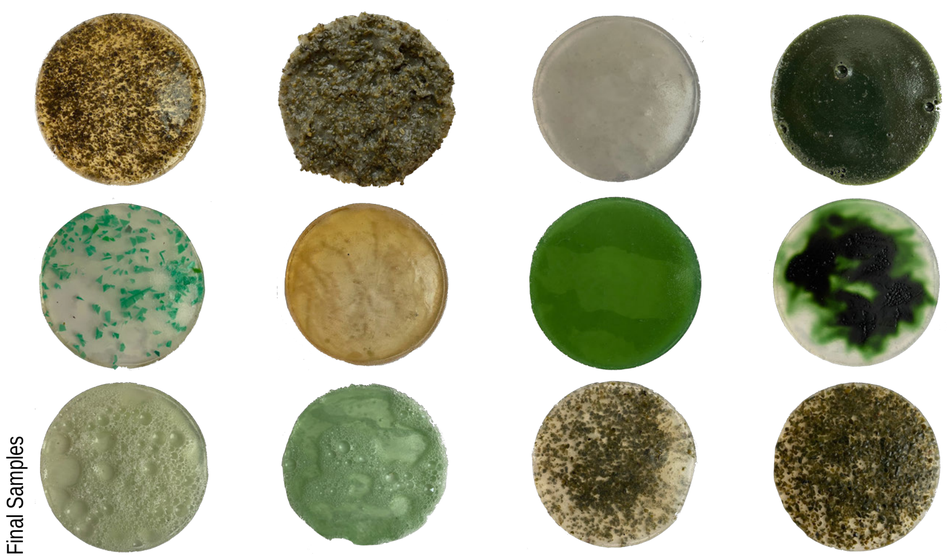




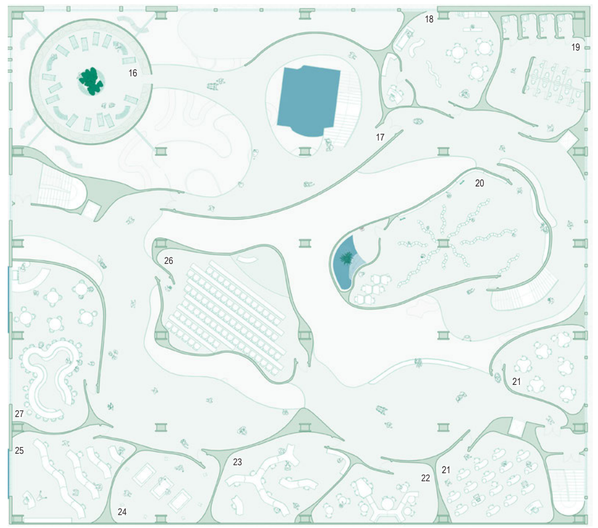
## Sample Modelling

Glycerine Agar Water

## Final Samples




Ground Floor

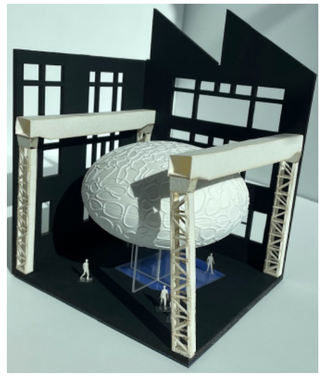


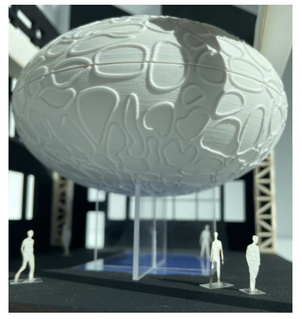

First Floor

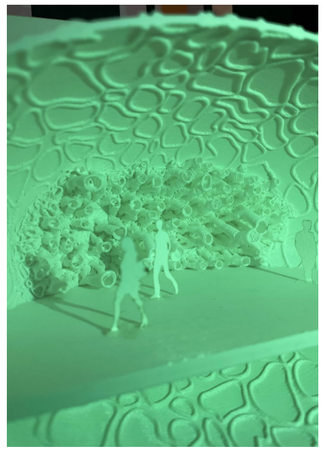
1. Main reception
2. Swimming reception
3. All inclusive changing rooms
4. Plant room
5. Swimming area
6. Aquatic storage
7. Kitchen
8. Multi-purpose community space
9. Dry storage
10. Aquarium
11. Toilets
12. Main storage and staff entrance
13. Exhibition
14. Outside seating
15. Pontoon
16. Immerive space (Projections)
17. Exhibition
18. Staff room
19. Toilets
20. Library
21. Classroom (University use)
22. Common room (University use)
23. Laboratory (University use)
24. Immersive learning (Public use)
25. Classroom (Public use)
26. Lecture theatre
27. Cafe

My design derives from biomimicry which studies nature's models and imitates them or uses them as inspiration for designs or processes with the goal of solving human problems. Using this theory, I have designed my floor plans off of brain coral and the shapes they create with their polyps. There is a strong emphasis of my three main areas which create my circular economy of learning, caring, and enjoying. My main area of swimming (caring) is located in the channel of the building which flows in from the sea. It is a space of relaxation and caring of the water whilst allowing people to scuba dive and snorkel to explore the local seas.

Section A-A

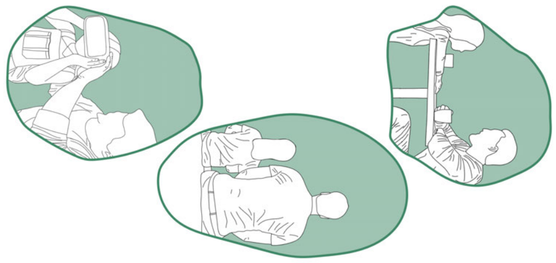






# SPATIAL DESIGN

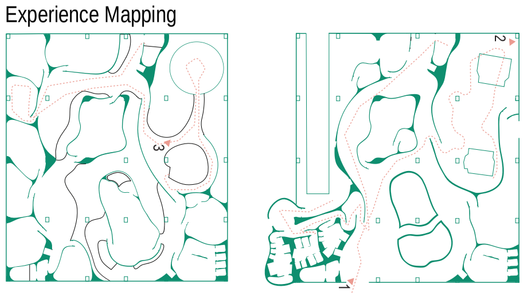
Persona



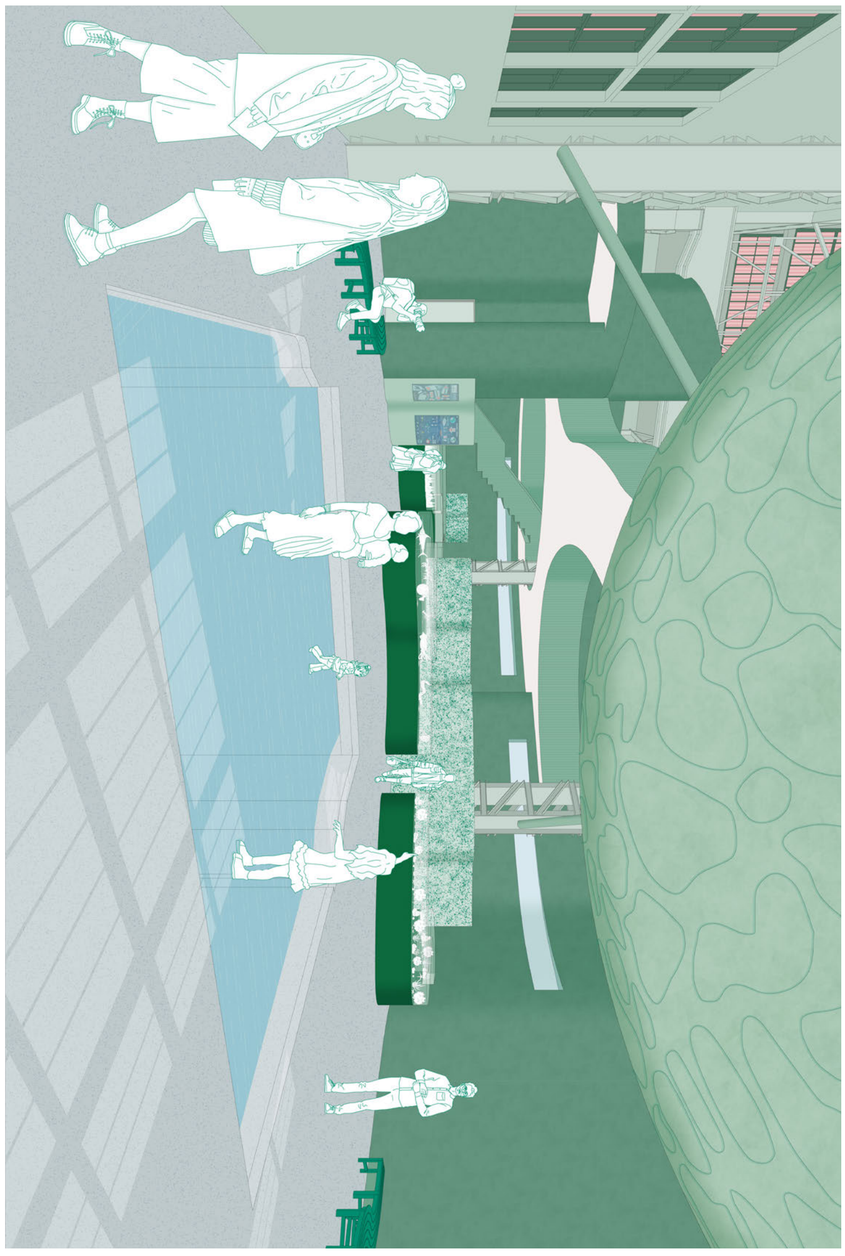
*"The next 30 years are going to be the most important in the next thousand"*

- Sylvia Earl

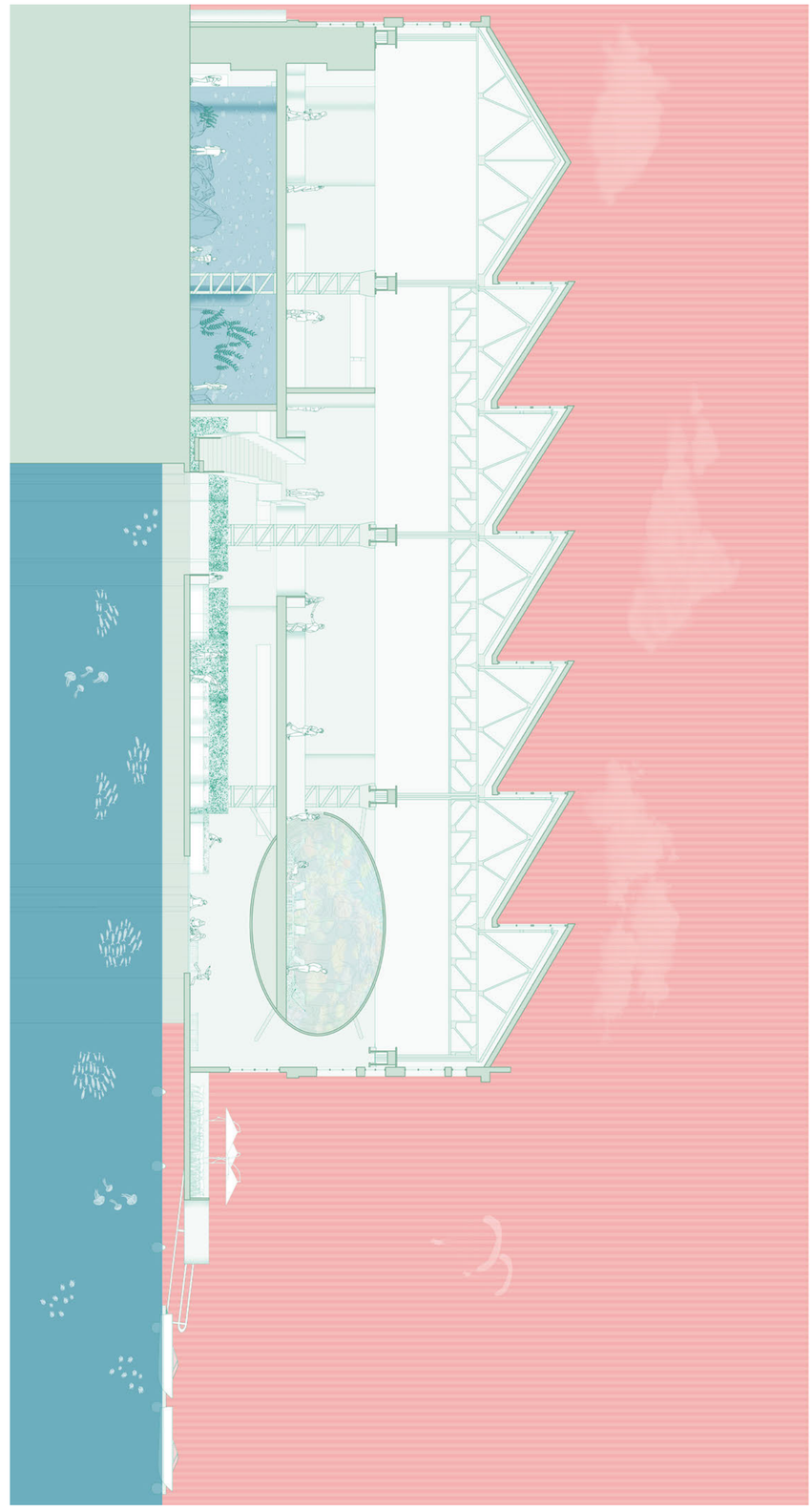

Experience Mapping



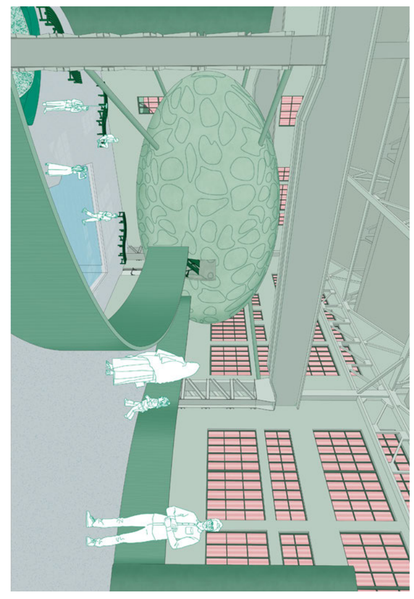

Visual 3



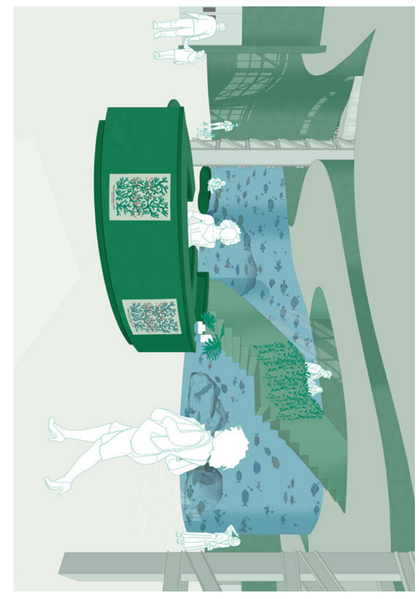
Section B-B



Visual 2



Visual 1



# EXPERIENCE