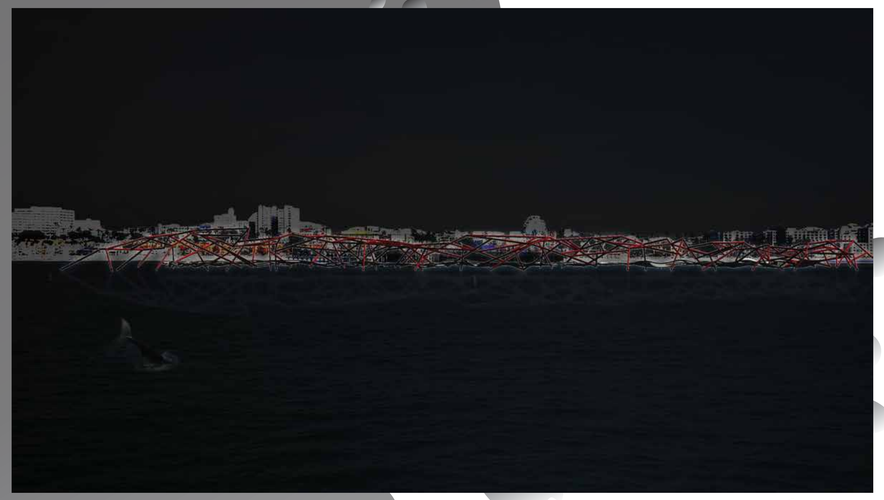
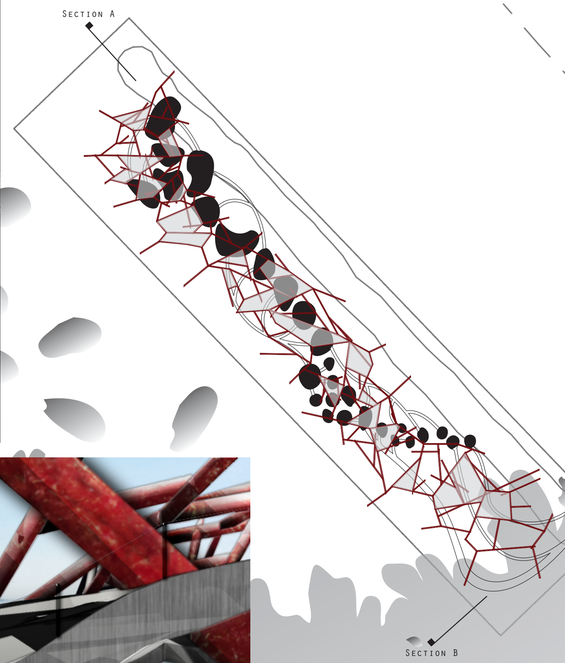
R.E.D. REGENERATIVE ENERGY DESIGN

SANTASJJ





HIGH TIDE

LOW TIDE

Looking towards R.E.D. from the coast line reveals organic forms of movement throughout the site. Vertical play along its path creates social and emotional experiences allowing for a closer interaction with the ocean surface. Specified locations throughout the site comprise of environmentally friendly functions suitable for producing energy, habitat life, and human interaction. Placement and material use on these sites perform as abstract structural art pieces that contrast with the site itself. Human circulation stays consistent in the sense that it is constantly changing. Changes in elevation and perspective views allow for a visual connection with the environment and energy producing structures. The energy producing elements on the site informs the public in regards to how R.E.D. methods successfully adapt to the marine life environment. The network of pathways enhance the experience of the users by providing a layout that provides panoramic views and yet, restricts their access to certain areas.

This buffer zone serves as a reminder to people that while nature is beautiful, our intervention can take that beauty away and thus it is best to admire it from afar. The canopy of pipes that extends high across the surface is compromised of the osmosis as well as the reverse osmosis systems, which partially feed into each other to provide energy as well as purify water to be suitable for drinking. The hum and constant rhythm of the movement occurring within the pipes creates an echo that resounds across the structure and gives the seemingly static structure movement and soul. Between the pipes of the canopy structure, solar panels are oriented towards the sun to produce energy as well as provide an aesthetic appeal to the landscape. A forest of kelp growing under the surface, aside from providing a habitat for the critters of the Santa Monica Bay, can be harvested for biofuel. Kelps amazing ability to grow up to 3 feet a day and suck up huge quantities of CO_2, enables to act as a natural filter while supplying a constant amount of energy with little environmental impact.

Pollutants such as smog, urban runoff and trash that enter Santa Monica Bay affect everything starting from the bottom of the sea bed, up the trophic levels, all the way up to the surface. Such pollutants include: Carbon dioxide, Nitrogen, and Phosphorous, pose a threat to the ecology of the Santa Monica Bay and more specifically the kelp in the ocean floor. For years, Sea Otters have been of non-existence in Southern California for many reasons and from their disappearance, the kelp that use to exist in Santa Monica Bay has drastically decreased. This has caused sea urchins to take over the sea bed and disrupt the balance of the existing species. By increasing kelp in the region, a vast majority of opportunities arise. Kelp is an extraordinary organism that grows 3 feet daily and performs as a natural filter for the ocean. The harmful pollutants that find their way into the ocean are filtered up by the kelp, which are able to absorb huge quantities of CO_2 and turn it into O_2. Aside from its filtering properties, kelp can also be harvested and turned into biofuel, with relatively low ecological negative impact. This will bring back the Sea Otters to the region and balance the invasive species that have been increasing for years.

Knowing that clean water is becoming more of an issue and clean energy is the focus for human existence, osmosis and reverse osmosis is implied in R.E.D. to benefit the city of Santa Monica while at the same time serve as an aesthetic piece on the coastal waters. The course of reverse osmosis will help develop clean water by the movement of water from a low solute solution to a high solute solution as it passes through a membrane that separates the two solutions which will then generate energy. The large scale regenerative energy pipes also serve as the foundation for solar sheets that are strategically placed throughout the site to add to the total energy being produced. This large scale visible energy producing system will acknowledge visitors of the technology that exists and how these technologies can be executed in large scales to better our world. By drawing in the attention of the people to explore R.E.D. their experiences will become personal with their environment with the production of clean energy above them and the emergent habitat below them. The success of R.E.D. decreases pollution under the ocean surface, produces clean water and energy, provides knowledge to the public, and inspires young minds that are the future of tomorrow.