

## ***Experience Narrative***

As you arrive into the Santa Monica, and wonder your way through the meandering pathways of Tongva Park, you're suddenly hint the presence of what appears to be a grandiose sculpture emerging from the Santa Monica bay. As you gain altitude and arrive to one of the metal domed outlooks of the park, it's there where you begin to appreciate what seems to be an encapsulated sculpture form. However, you are now left with more questions as to what this sculpture is. As you walk closer, and pass the corners of Ocean Ave. & Colorado Ave., you start hearing other people sharing the same questions as to what that object is? As you make it to the end of Santa Monica pier, you begin to appreciate this magnificent sculpture made up of an organic tessellated pattern with a characteristic that closely relates to some coral species. As you lean against the protective railing, your eye is caught by a rich marine activity under the existing pier, and upon this discovery you assume that this coral-like sculpture could've done something with this marine life revitalization.

You now want to be even closer to the sculpture, and decide to make the journey. As you arrive to the terraced plaza you are amazed by the rich activity, and the beauty in which everything seems to flow. There are those who are enjoying the beautiful California sunset on the terraced amphitheater, students and parents taking educational tours, few individuals getting their scuba diving gear prepared for deployment, other already taking vogue on their sea kayaks, and the one individual who is just taking a stroll. Such revelations rise questions as to what might the catalyst been, and what's so special about it. It was upon the conclusion of that thought when a tour group stops besides you, and you begin to understand that the foundation of the plaza and the "Corallation" sculpture serves as a catalyst for marine life establish an ecosystem of their own, just as how coral is a key component of a rich and diverse marine ecosystem. This intent is achieved by replacing the old breakwater with a new system that serves a dual purpose, creating habitat nodes while still being structurally stable and provide wave mitigation for the beach of Santa Monica.

Making your way under the sculpture and looking, you are revealed with hundreds of transparent film bubble differing in size which are protecting a semi transparent color film. You are astonished by the magnitude of this sculpture and the magnificent color spectacle, which comes as a byproduct of hundreds of thin film dye-sensitized photovoltaics that are generating clean and sustainable energy. A conclusive realization is generated and you are intrigued by the symbiotic flow in this generated system. The sculpture is a beautiful example of biomimicry, with the ability to not only generate clean energy, but become a foundation for habitat revitalization and healing Santa Monica's bay. Corallation dives into the idea of investing time and awareness into the ecological systems underneath the pier which we currently have little to no interaction with. A rich ecosystem under our pier will only be a marine spectacle every time we come out to the site, but will become a system with the ability to clean our ocean. The ultimate intent is to create a symbiotic system in which visitors, marine life, art, and clean and renewable energy work together to deliver a sustainable system we can be proud of, and ultimately becoming a correlating system.

## ***Design Development & Environmental Impacts***

Santa Monica has always been part of the Southern California lifestyle. A lifestyle that is filled with glamour and sunsets. Rich history is embedded into the pier, as it's an extension of our built environment into the ocean, and presented in a celebrative attractive experience. As designer it was important to take what Santa Monica already is, and morph it with the principles of renewable energy, art, and ecology in order to achieve a piece which not only performs, but celebrates such rich history.

The existing conditions of poor water quality and marine biology allow Santa Monica to become a showcasing platform for sustainable energy technologies, responsible concepts and practices that revitalized the environment, and a hub for bringing awareness of the importance of such principles. A design solution is created from the correlation that exists between bringing awareness to the depleted marine life natives within the bay and our ability to generate clean energy. Our tessellated pattern is inspired by coral and its ability to be the foundation for a marine based environment. The overall goal for our project is to symbiotically connect marine life and human interaction, ultimately becoming a correlating system.

Corallation is a system composed of three major components: Clean energy generation through thin film dye-sensitized photovoltaics, Marine life revitalization through the creation of a new breakwater that serves as a reef for marine life, and water quality and marine life awareness through educational tours and activities.

Corallation is a portmanteau word made up of Coral and Correlation, and we decided this word represented the three major components. Coral serves as the founding and providing system for a vast number of marine species, and correlation because it represents a mutual relationship between the three.

Coral reefs play an important role in the ocean and marine life, they create a very diverse ecosystem that houses thousands of small and commuter animals. Reefs are composed of different coral types, and together create an ecosystem.

"at least 45 species of stony coral, 37 species of octocoral, five species of sea turtles, 500 species of fish, about 1,700 species of mollusks and hundreds of species of sponges. "Not only does coral reefs impact the marine life, but impacts the economy of surrounding cities, they provide protection for the shoreline, " The value of coral reefs has been estimated at 30 billion U.S dollars and perhaps as much as 172 billion U.S dollars each year". Thus is the impact our design of our new re-design breakwater will have. The breakwater will cater to a few of the animals that currently exist of the pier that will accommodate each one of them for their habitat preferences. The animals that we selected to tailor our design are, California mussels, Knobby Sea Star, Giant Kelp, Spiny Lobster, Surfperch. Each one of the species will have a specific unit design for its preservation in the breakwater. Sunlight, surface, and protection we're some of the habitat preferences that were incorporated into the design of each unit typology.

Clean energy is generated through the implementation of 29'679 square meters of thin film dye-sensitized photovoltaics (DSSC), which are encapsulated in Ethylene Tetrafluoroethylene (ETFE) panels in order to protect the DSSC panels and augmenting the aesthetic value of the sculpture. DSSC panels were the perfect choice because of their very low cost, flexibility, durability, semi-transparency, and ability to generate energy in low light levels, and indirect light. The DSSC area of 29'679 square meters allow for an annual output of 2'600 Mwh per year, enough energy to power an estimated 260 homes.

Awareness is a vital competent in the mission to revitalize the marine biology and improving water quality, we need to inform the general public about the threat many of our native species are facing do to our irresponsible action, such actions which occur inland, but inevitably get flushed into our bay. Its this disconnection between actions and results that need to be address in order to be held accountable for the actions that are having a negative impact in our water and marine life quality.

We bring awareness to the issues with the installation of Corallation, serving as a platform to showcase sustainable systems in an aesthetic pleasing manner as well as bringing the visitors closer to the marine life's natural habitat. Through this connection Corallation will become an iconic hub in the vast urban fabric of Los Angeles