

Oceanic Scales overview

Oceanic Scales is a place to learn and collaborate.
 It is a lens focused on phytoplankton, the first link in the oceanic food chain.
 It explores biomimicry as a root of inspiration.
 It breathes and glows with a pulse.
 It is a barometer of local ocean health and stability.
 It explores the tipping point between humanities desires and the oceans needs.
 It illustrates the role of phytoplankton as an essential, interconnected part of our planetary ecosystem.
 It allures with the promise of new understanding and empathy.

Visitors to Oceanic Scales will explore their role in maintaining a stable ocean ecology through a multi-sensory, interactive art & science puzzle inspired by the microorganisms of the sea. The hope is to encourage change toward sustainable living practices and social change by engaging the public to reflect on and perhaps better understand how we impact the environment at local and global scales. Light, scent, sound and touch will inspire new ways of thinking about ocean health.

Oceanic Scales explores new ways to visualize and contextualize ocean sensor data, currently streamed from the MBARI Elkhorn Slough sensor array API. This gives visitors the ability to experience the exhibit either passively or actively. Visitors can absorb its multi-sensory interpretation of ocean data or they can decide to become an active agent of change, trying out various trial and error scenarios in between control and observation by adjusting temperature, PH and nitrogen levels within the automated gaming system. Instability may lead to a system crash, where harmony and grace can be achieved through perceived stability, patience and new understanding.

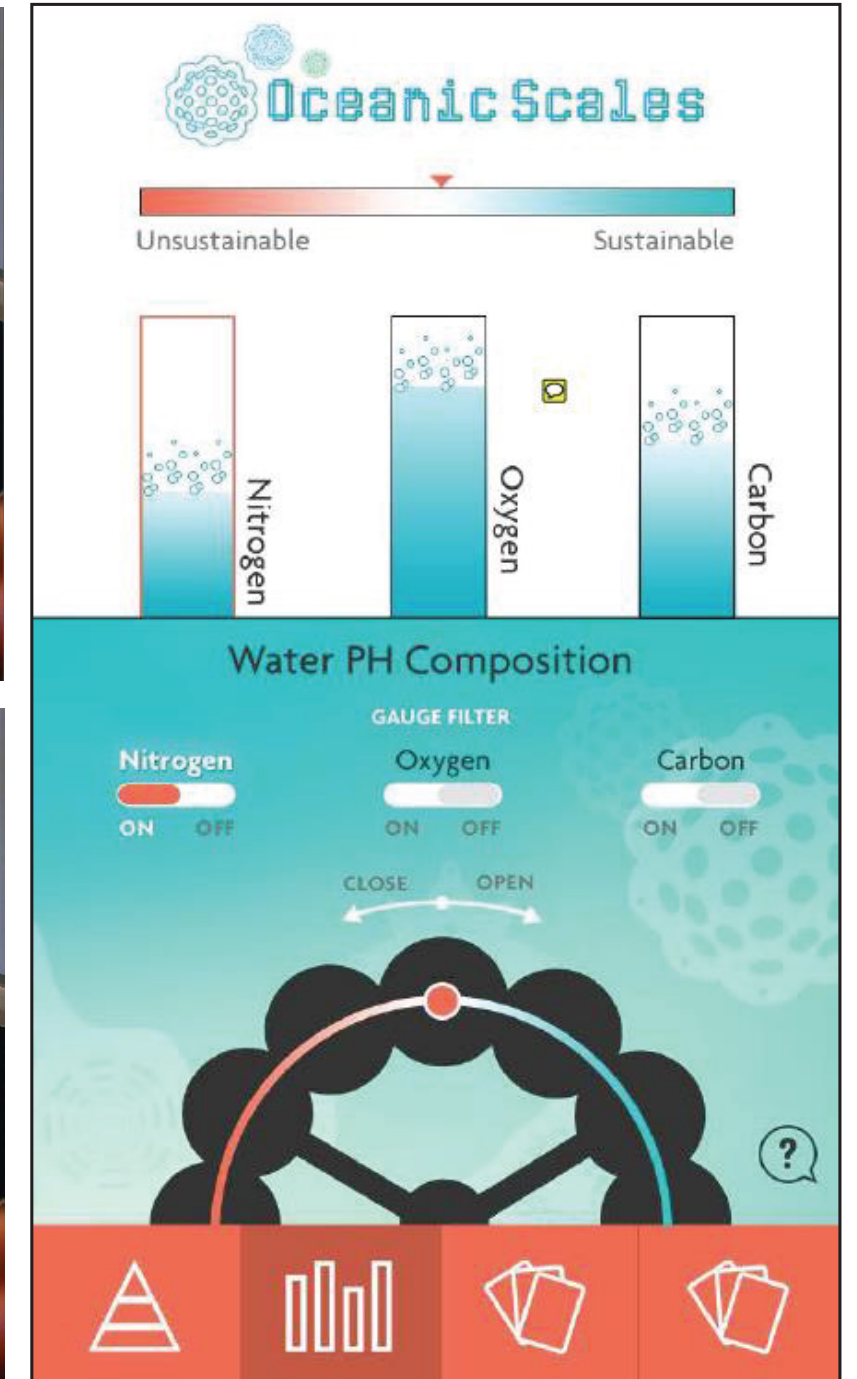
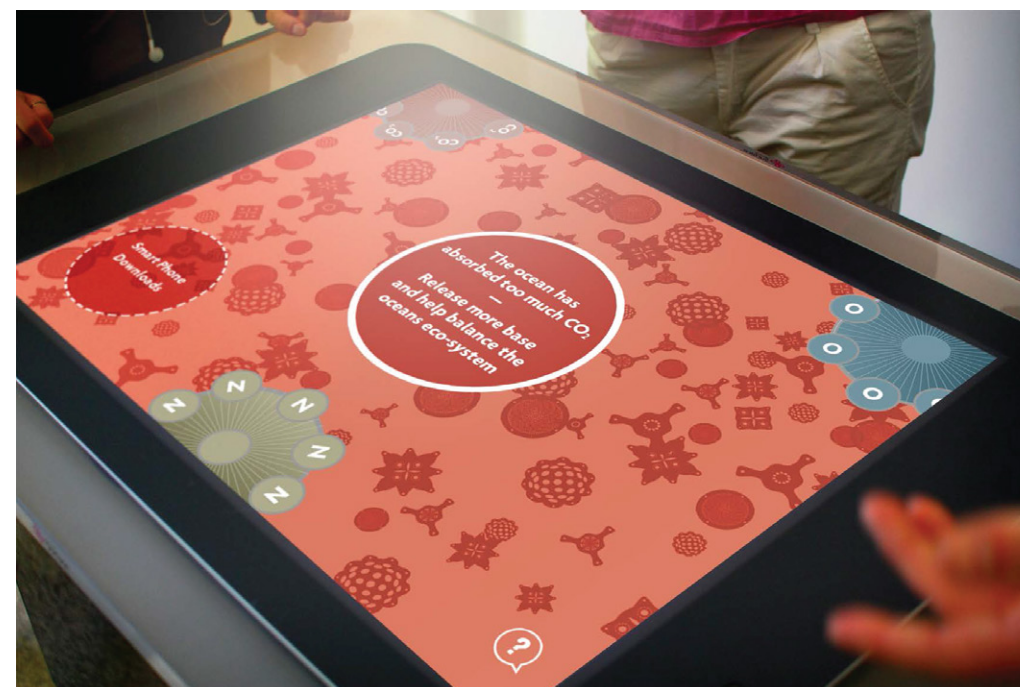
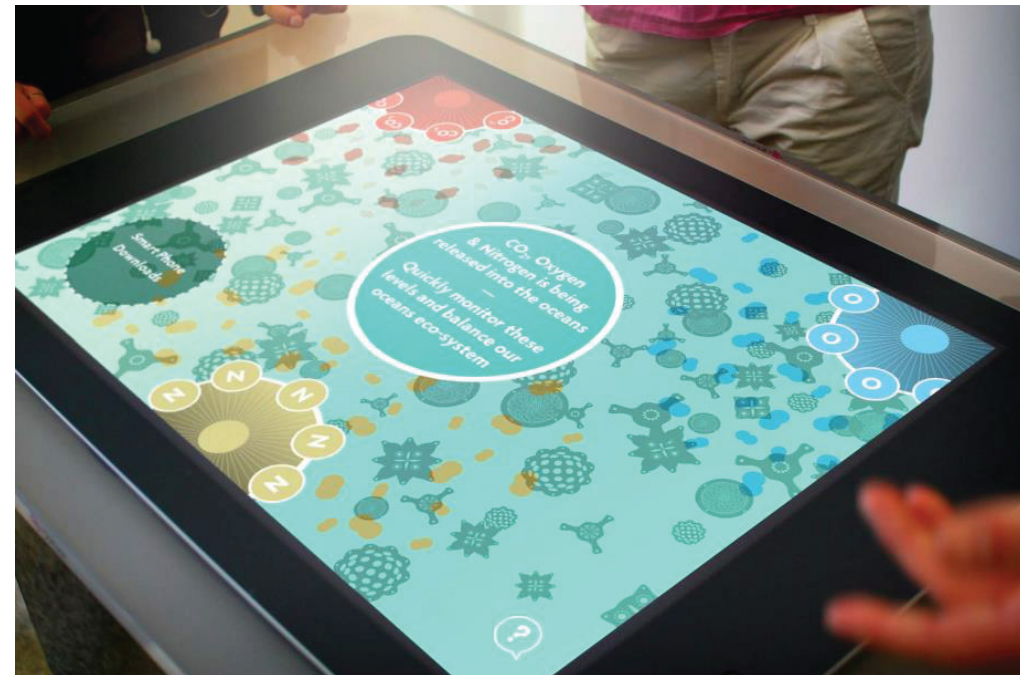
The physical structure is ecologically minded, built with local bamboo plywood and pine resin, corn plastic 3D printed forms, recycled cardboard, natural latex rubber, solar power and a living component of native plant species. An interdisciplinary team of faculty and students from Digital Arts & New Media, Film & Digital Media, Marine Biology, Ecology, Computer Science and Engineering at UCSC came together to make this idea possible. Gene Felice, Jennifer Parker and the Openlab research group and the Coaction Lab have given their creativity, time and effort to see this project through to completion. Students received access to equipment, experience, training and new inspiration as well as greater understanding of the natural systems that we have a responsibility to maintain.



Oceanic Scales - Modular system options

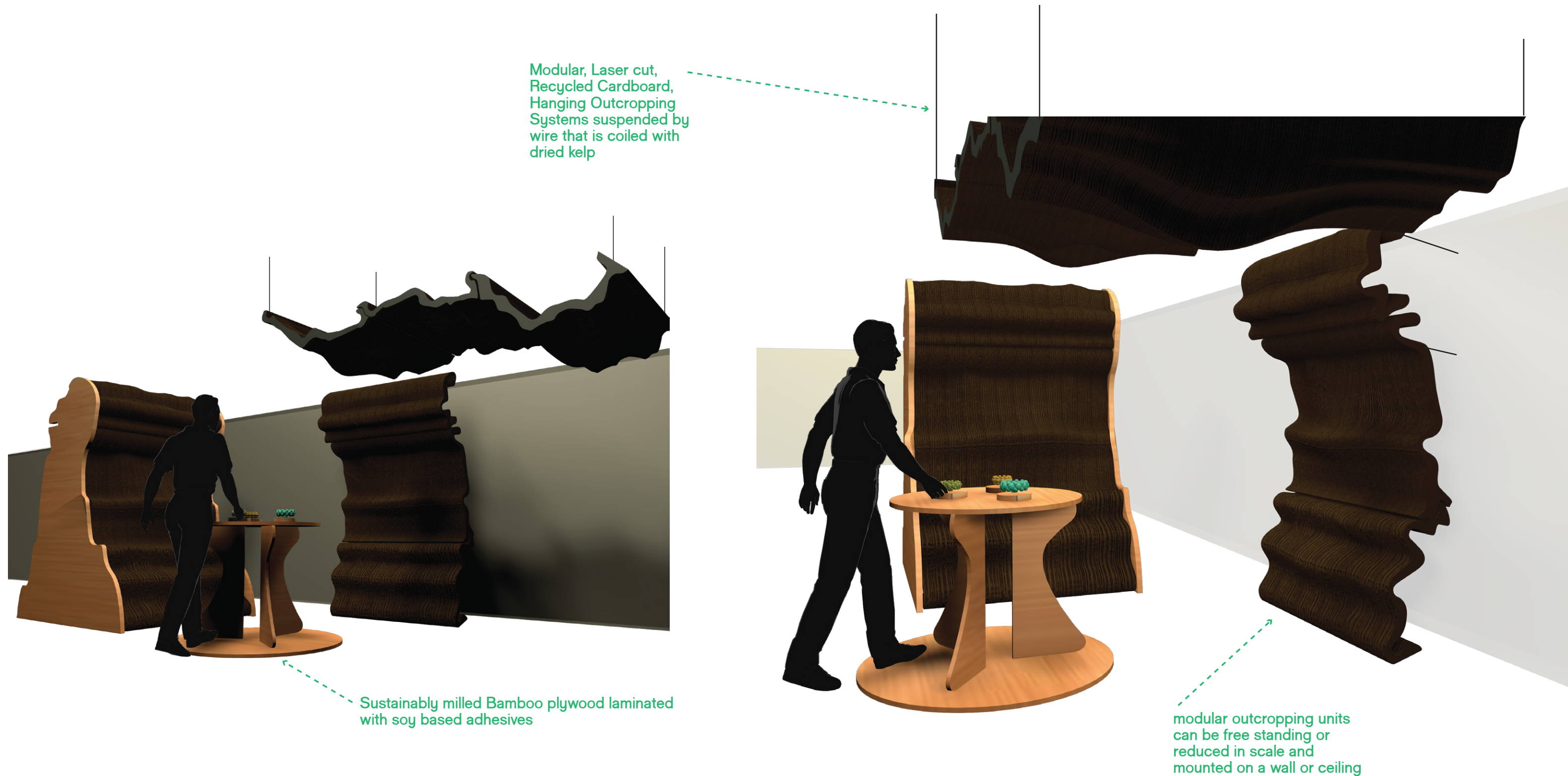
Oceanic Scales was built with modularity in mind. We have created a hybrid project, part science exhibit part art installation. It can be installed in a variety of locations at a variety of physical scales. The following examples demonstrate the four different scales of the project:

1. A Virtual Touch Screen Configuration: Downloadable / customizable / portable option for spaces that don't have room for the partial or full installation but have touchscreen capability.
2. Partial Scale freestanding or wall & ceiling mounted with variable outcropping set up for a variety of installation options, indoor or outdoor (solar power option)
3. Full Scale: Three balanced, freestanding Outcroppings indoor or outdoor (solar power option)
4. Mobile App System: virtual game version supports the main installation as a virtual info tool as well as including: educational game variations of the project, downloadable curriculum plans for elementary school teachers & an augmented reality info system that serves as a key to the interactive, Oceanic Scales puzzle



Modular Configuration #1: Virtual Touch Screen Configuration

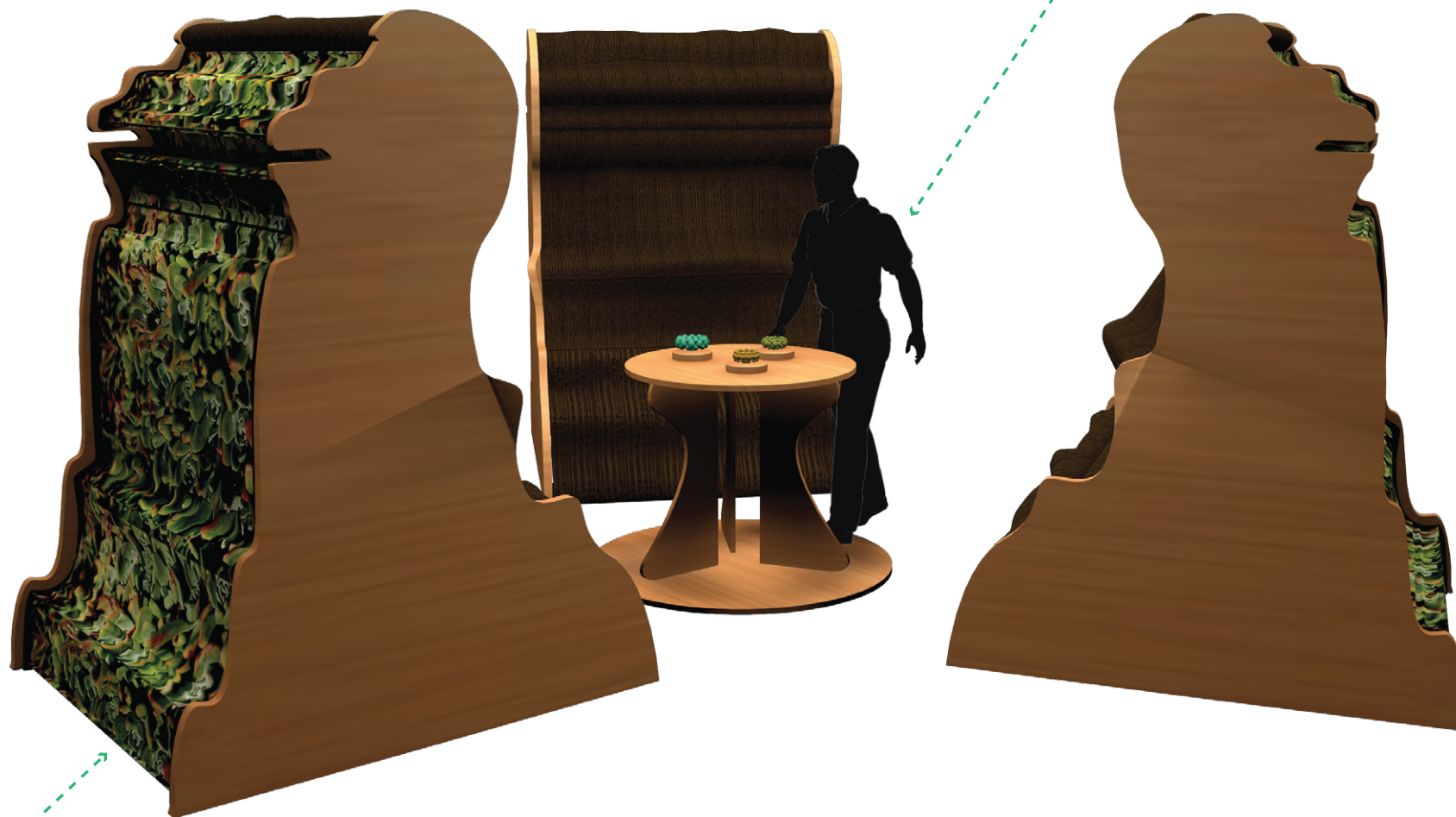
Modular Configuration #2: Freestanding, Wall & Ceiling mounted Outcropping configurations



Modular Configuration #3: Three Freestanding Outcroppings

(NOTE: this visualization shows three identical outcroppings, but in fact, each one is uniquely sized / shaped)

1 to 3 participants can interact with the system simultaneously through a feed-back system of RGB LED rings on the pedestal that correspond to the waves of color on the outcropping walls

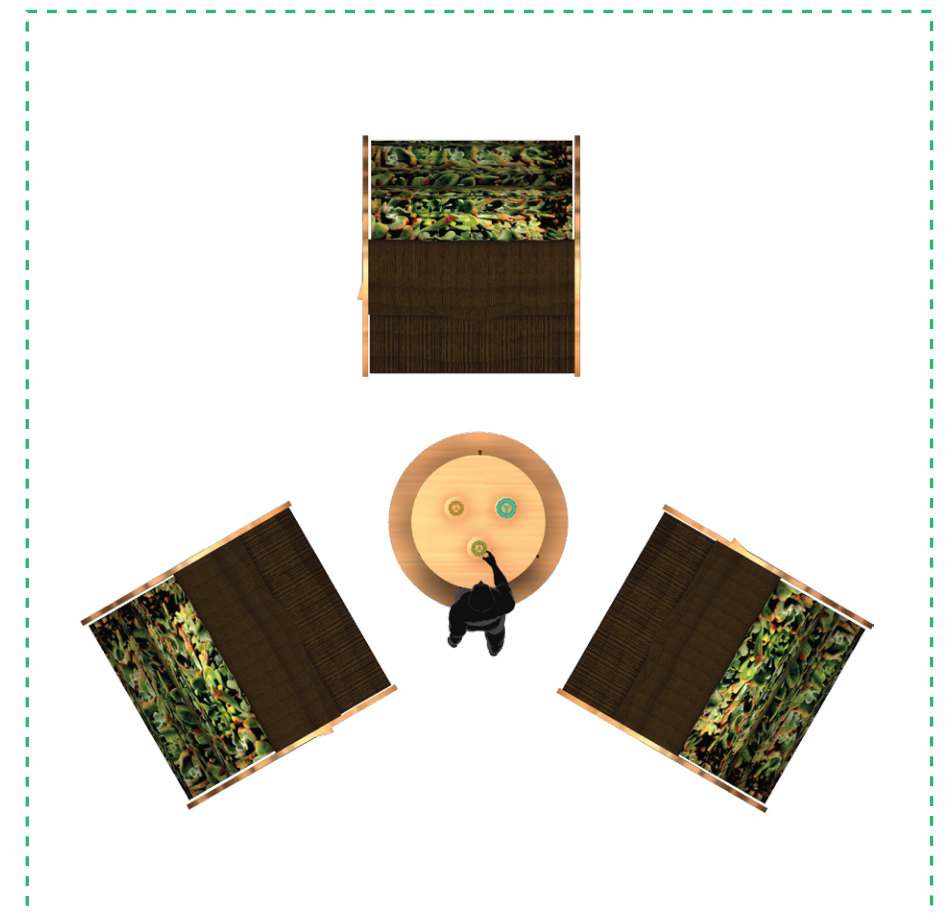


Option 1: Native Succulent & Kelp wall needs abundant sunlight

Option 2: Woven / Laser Cut, Dried Kelp wall for spaces without natural lighting options.

Option 3: Native Succulent & Kelp wall with indoor artificial grow light option that gives the succulent the light they need to thrive, timed to go on when the exhibition space is closed / in the evening.

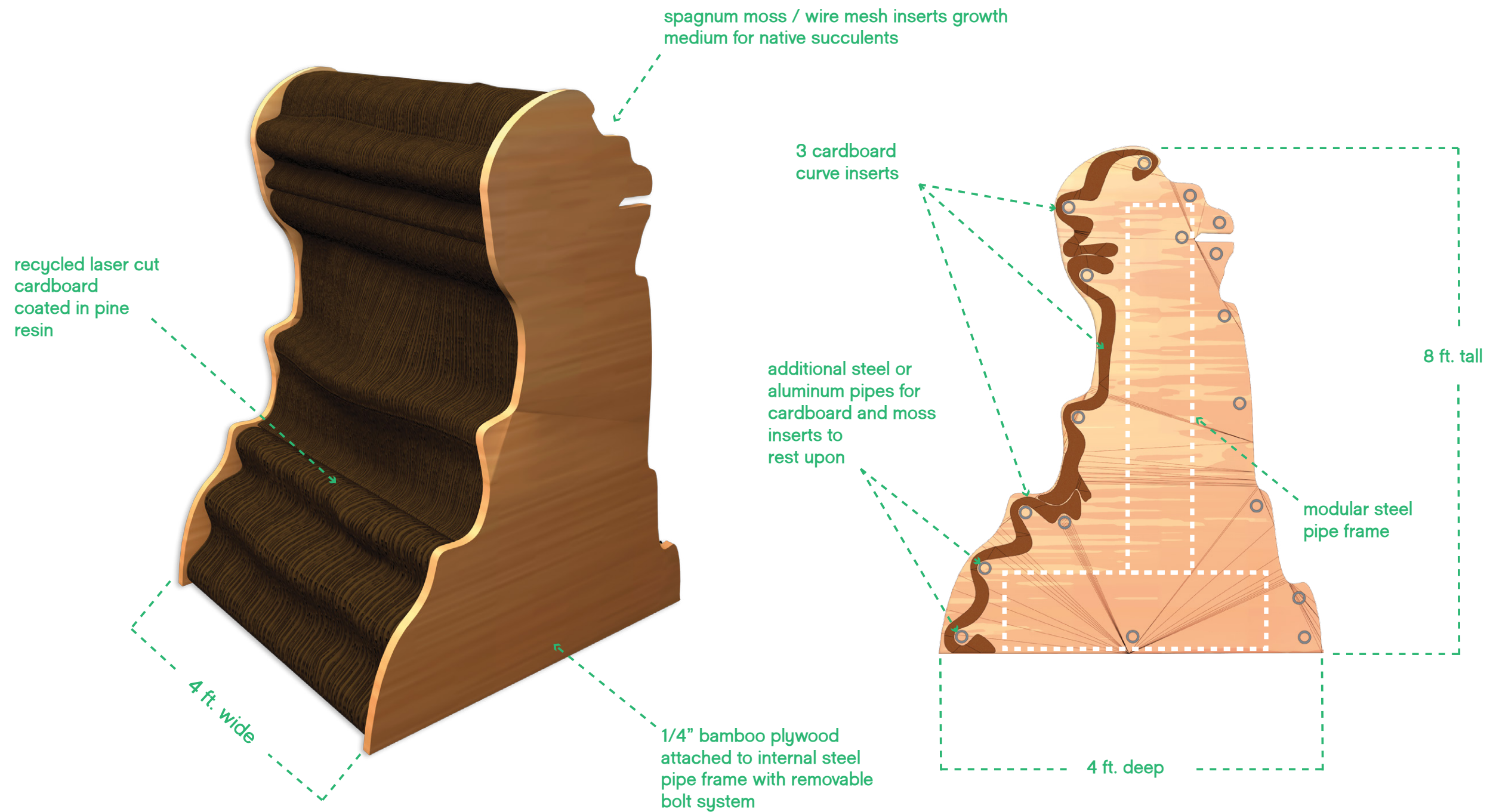
This full-size configuration requires a 25 ft. x 25ft perimeter



The entire system can be solar powered or plugged into the grid, however the solar option requires at least one large windows for the solar panel. Other options include setting up indoor grow lights that work on a timed cycle to operate when the exhibition space is closed, as well as a dried kelp option instead of the succulents.

3D Mock up of Largest Outcropping

bamboo / steel / cardboard / pine resin



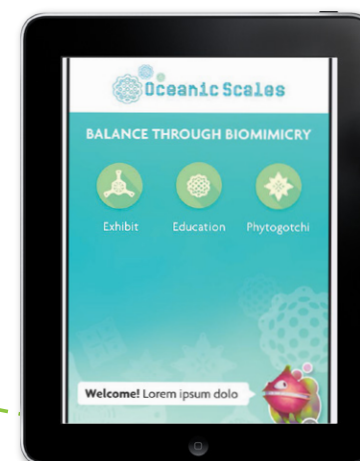
Mobile App System:
Virtual Game Version, Educational Curriculum & Augmented Reality Info System



Augmented Reality Info system for Oceanic Scales Art & Science Puzzle

Clues will be left
at Info points
marked by
various laser cut
phytoplankton
forms such as
the one seen
above

Using the onboard camera,
users can make the invisible
visible seeing through their
mobile device and revealing a
layered world of knowledge
related to phytoplankton and
various clues explaining Oceanic
scales

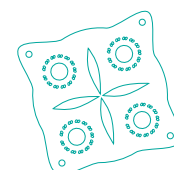


“Phytogotchi” / “Phyto & Phylis” Game



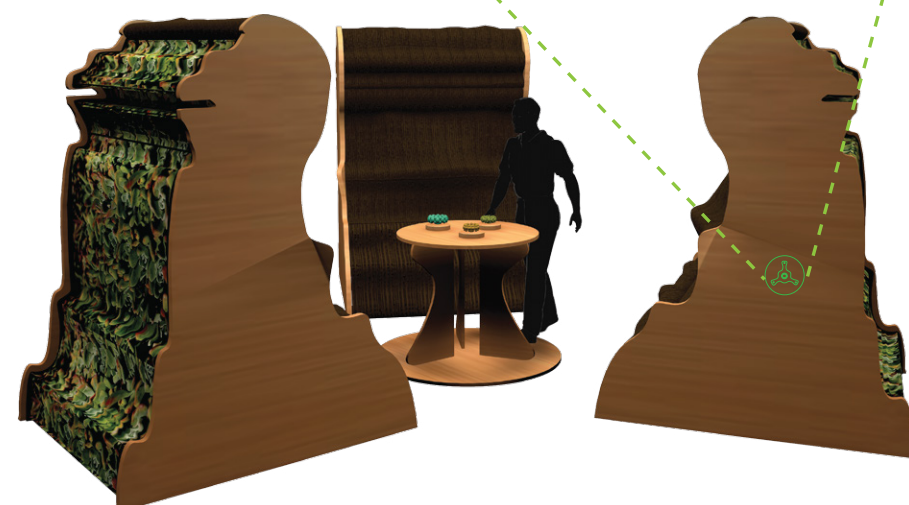
Choose a phytoplankton and
keep them healthy & growing
by maintaining a stable
balance of nutrients, tem-
perature PH / CO2 levels and
pollution. Stability can be
controlled by touch
mechanisms found within 4
game levels. In between each
level the player returns to the
home page to review the
health status of their chosen
phytoplankton, growing it
from a single cell to a bloom.

Educational Curriculum & Lessons for Elementary & Middle School Students & Teachers



S T E A M

Using Core Curriculum / Next Generation
Science Standards we've developed a series
of lesson plans & “Planktoids” for elementary
& middle school students about their role in
maintaining a balanced ocean ecosystem.
Downloadable as PDF's



Past Exhibitions: Digital Arts Research Center & Santa Cruz Wharf



Past Exhibitions: California Academy of Sciences & Alterspace in San Francisco

