

# Nothing like the Blue Trail exists anywhere in the world



Farallon Island Project  
(Pier 41)

Bioluminescent  
Organisms  
(Pier 35)



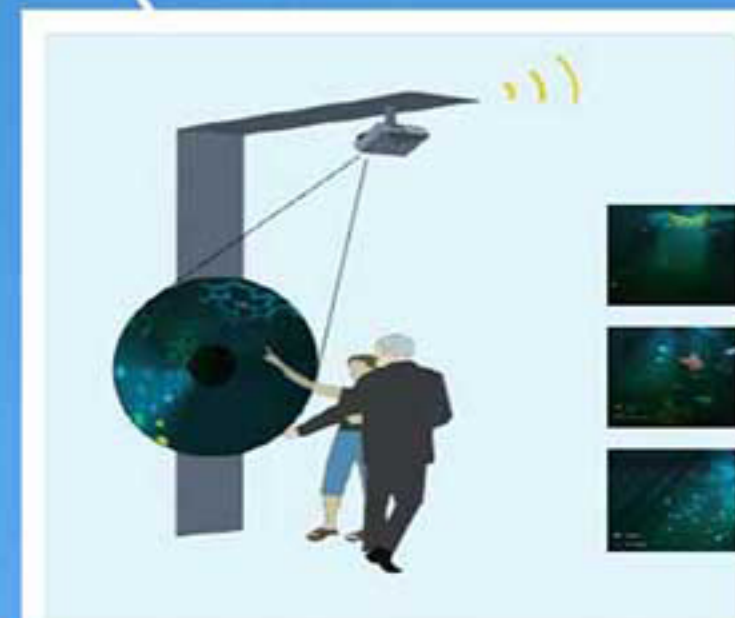
Hyperaccumulator  
(Pier 35)



Theater of  
Lost Species  
(Rincon Park)



Message in a Bottle  
(Harry Bridges  
Plaza)



Eyes on the  
Water  
(Pier 1)



Piers 3-5



Ocean Soundscapes  
(Pier 7)

# EYES\_ON WATER

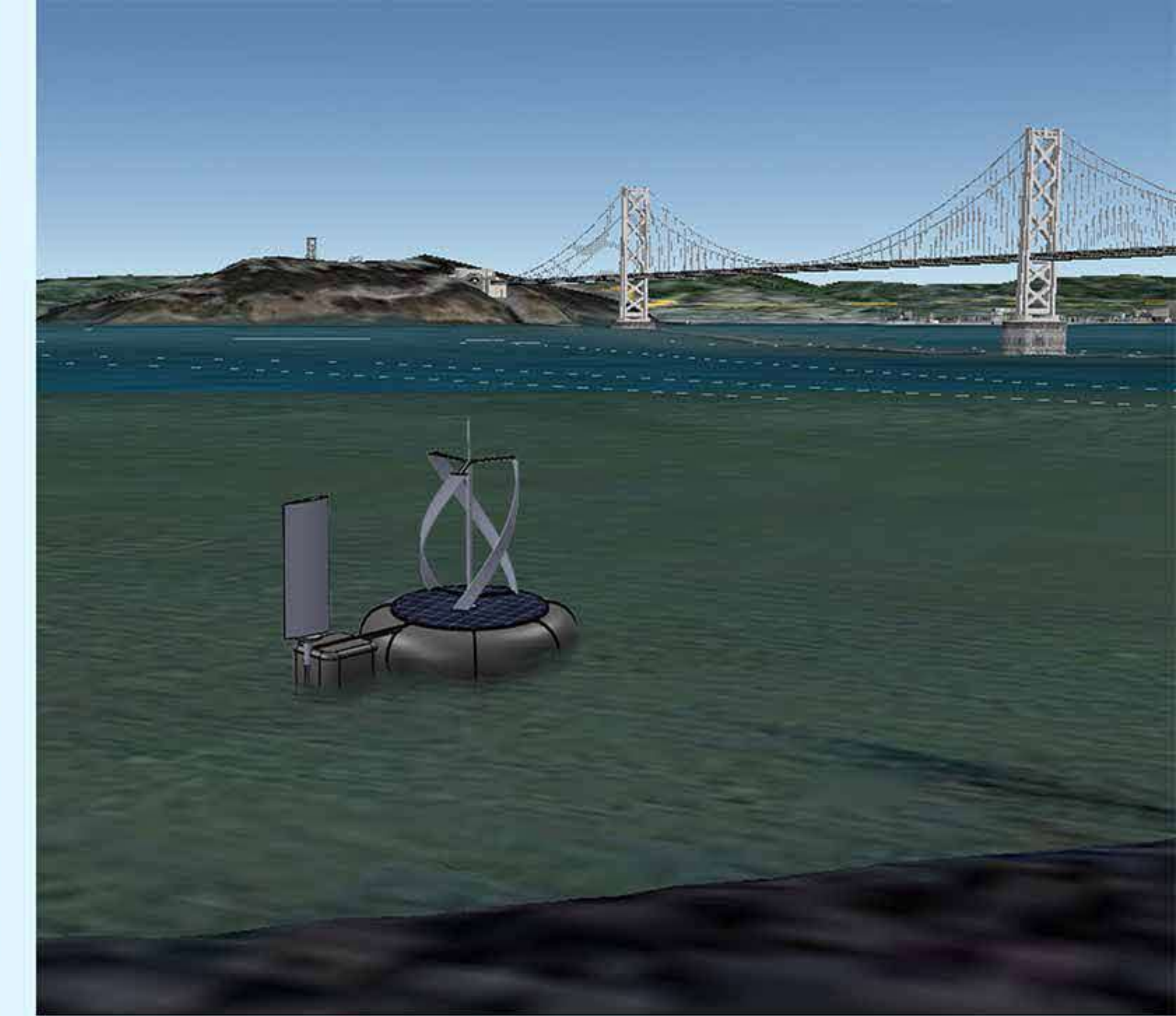
by Flow Field Collective / Open-H2O

## Overview

The Ocean covers 70% of the earth's surface, and is the future of our transportation, security, food, and energy, yet we understand so little of it. Eyes on Water is a combination of an interactive indoor exhibition and a recent development of Open\_Buoy, a self sustainable, energy-harvesting, affordable, floating buoy, measuring data remotely on the open ocean.

It takes visitors on the voyage to discovery and interpretation of what Open\_Buoy sees and sense under the waterline of San Francisco Bay. It becomes a portal providing a close and deep insight into the ocean's complex biodiverse and versatile system. By revealing processes on micro and macro levels it indicates some of the ocean's hidden mysteries and scientists' questions relevant to the San Francisco Bay, i.e. the enigmatic Phytoplankton blooms, the unexplained proliferation of Red Tides, or the migration of foreign species from all over the world. The installation is a gateway for exploration. What is little known and invisible, hidden under the surface, becomes present and visible in the on-shore visual interactive installation.

Eyes on Water is developed by Open-H2O - a growing international community of artists, engineers, marine biologists, naval architects, and academics, developing open-source technologies to explore, study and preserve the ocean. Since 2010, the Open-H2O team has collaborated to evolve Protei drones into sustainable vessels capable of collecting data in various marine environments and effectively cleaning the ocean.



## Indoor\_Installation

Upon entering Pier 1, visitors will encounter a shallow convex orb protruding from the wall. The orb is filled with a round, fish-eye projection displaying a real-time underwater image coming from the camera looking in 360 degrees from the bottom of the Open\_Buoy. In the inner part of the orb there will be a colorful visualizations overlaid atop the camera feed, displaying information like Chlorophyll concentration, oxygen content, temperature and pH of the water. This real time data feed about the water seen from the camera renders the intangible and invisible data information into visible, compelling and meaningful picture. Visitors will be able to interact with the inner surface of the disc, which is responsive to touch. Through that visitors will discover connections between the collected data and the stories about the dynamic biodiversity of the local oceans.

### PHYTOPLANKTON

San Francisco Bay waters host Phytoplankton which rapidly grows around March each year. We can measure the burst of chlorophyll concentration in the water. Why is it happening and how does it influence the local ecosystem?

### HITCHHIKING SPECIES

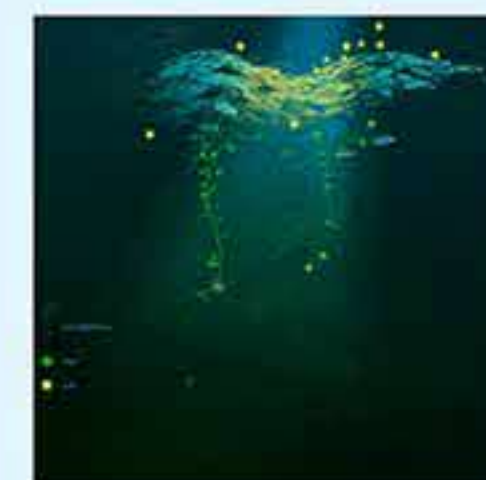
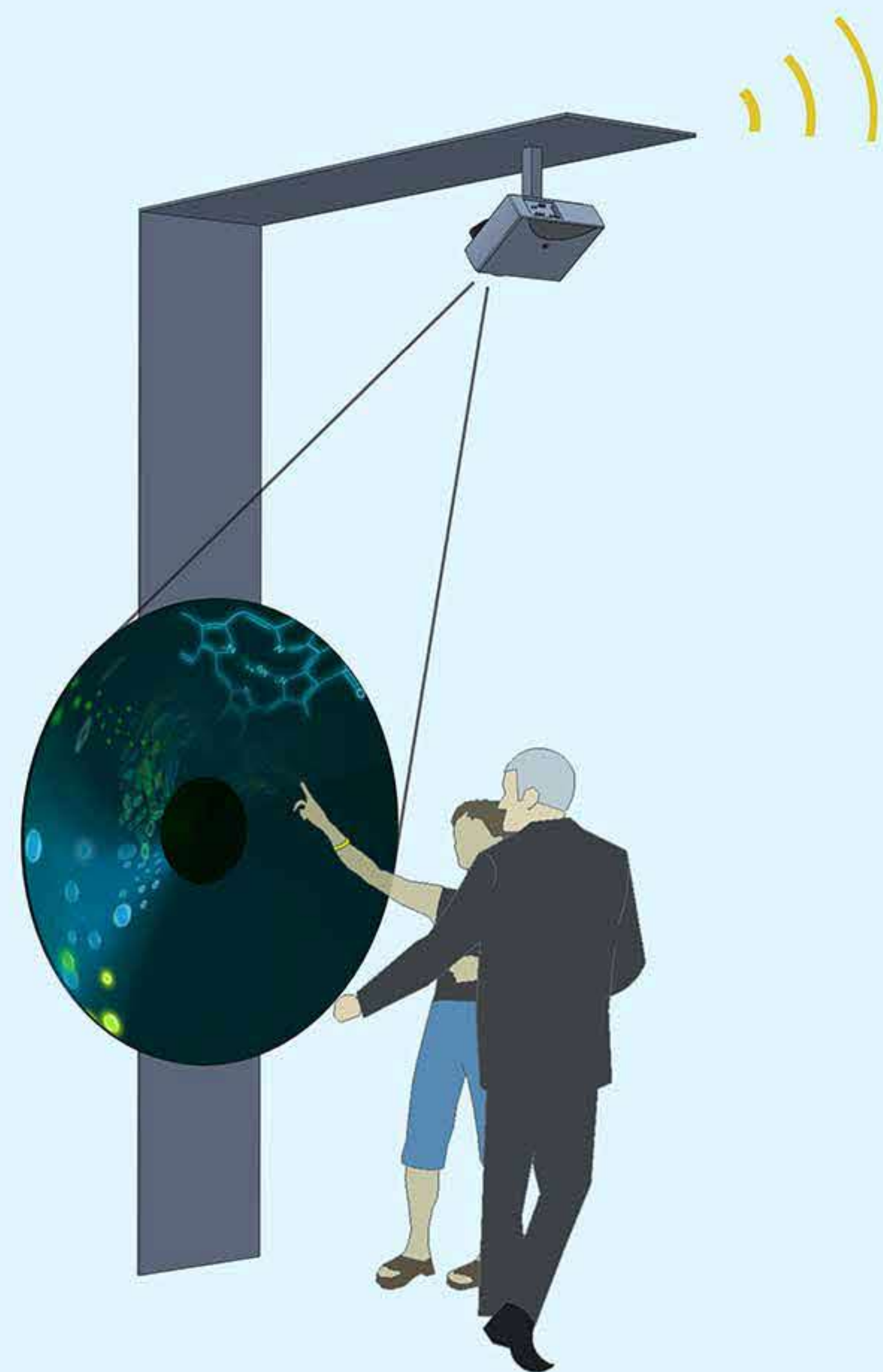
Marine populations are hitchhiking to San Francisco Bay from all corners of the planet. By detecting floating solids in the water we explain how they get there and want to know how the indigenous population deals with the transformation into a more versatile "multicultural" habitat.

### RED ALGAE

This particularly mysterious type of phytoplankton, can make a spectacular show on the surface of the sea, but its beauty in fact is deadly for many other species. Looking at the level of saturated oxygen and temperature in the water helps to predict eventual blooming. What links to this phenomena ?

## Outdoor\_Installation

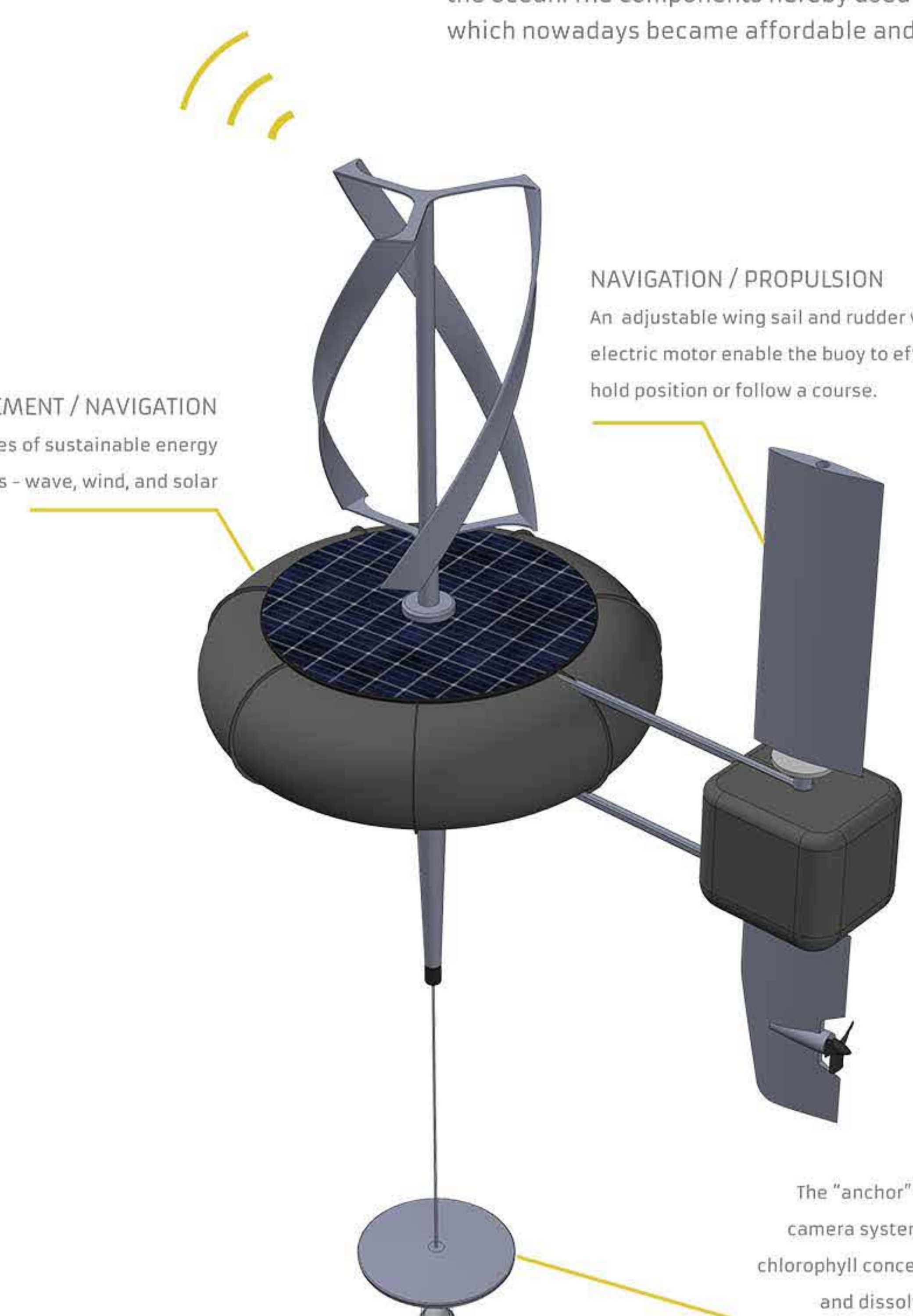
From the indoor media display a large glass wall leads to a great patio on the water, where the visitor will see Open\_Buoy floating in front of Pier 1. The vessel is self sufficient in terms of energy management and constantly transmitting data for the indoor screening. Now being an experimental DIY research platform, it's long-term goal is to enable amateurs and communities to explore and preserve the ocean. The components hereby used are mostly hacked commercial products which nowadays became affordable and accessible to maritime enthusiasts.



**ENERGY MANAGEMENT / NAVIGATION**  
Open\_Buoy uses 3 types of sustainable energy sources - wave, wind, and solar

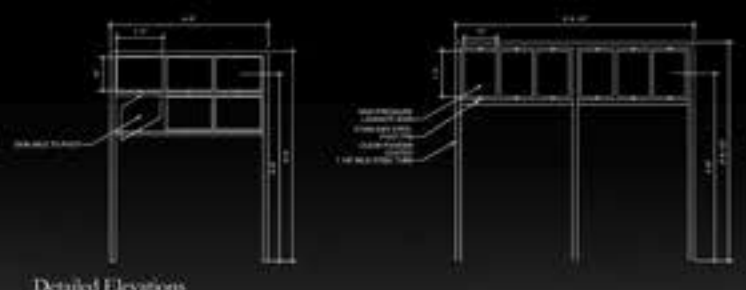
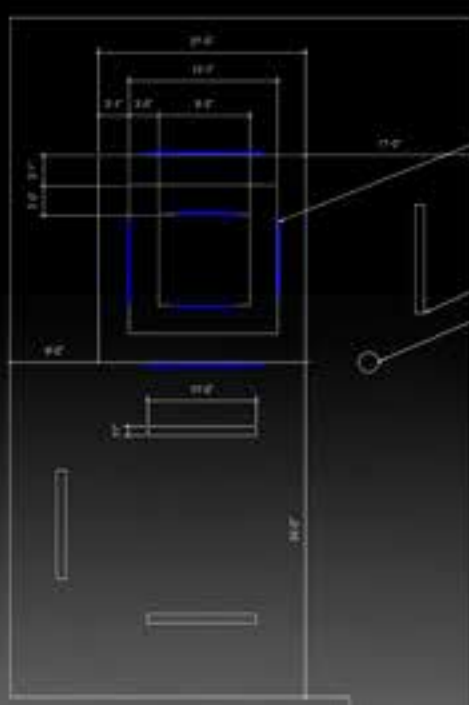
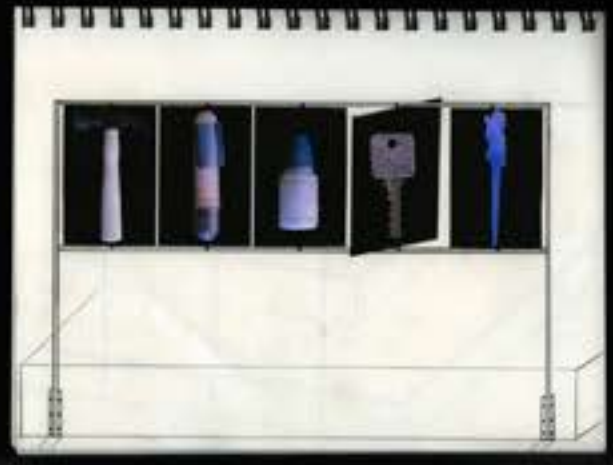
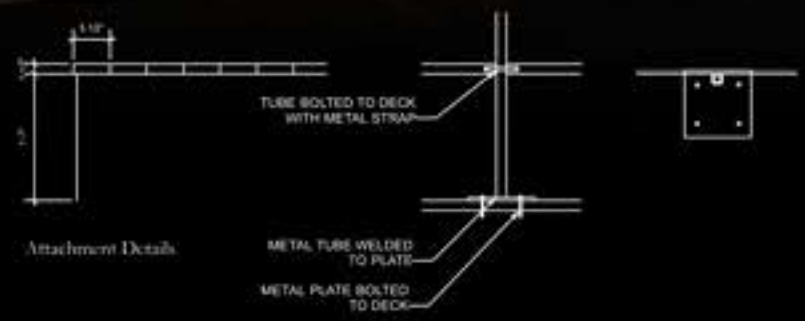
### NAVIGATION / PROPULSION

An adjustable wing sail and rudder with an electric motor enable the buoy to effectively hold position or follow a course.



### SENSING

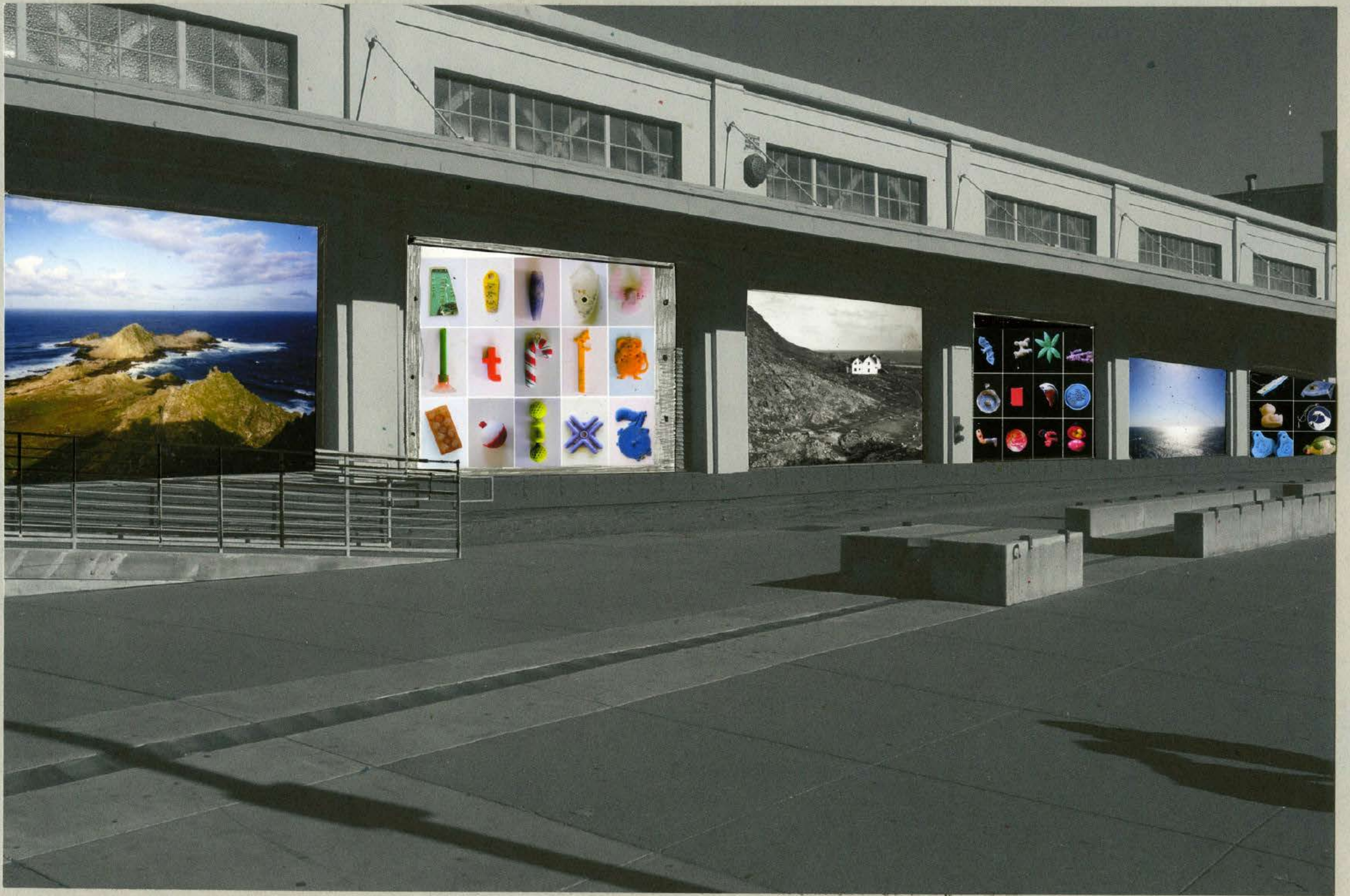
The "anchor" is equipped with a panoramic camera system and a CTD sensor to measure chlorophyll concentration, temperature, salinity, and dissolved oxygen levels of the water.





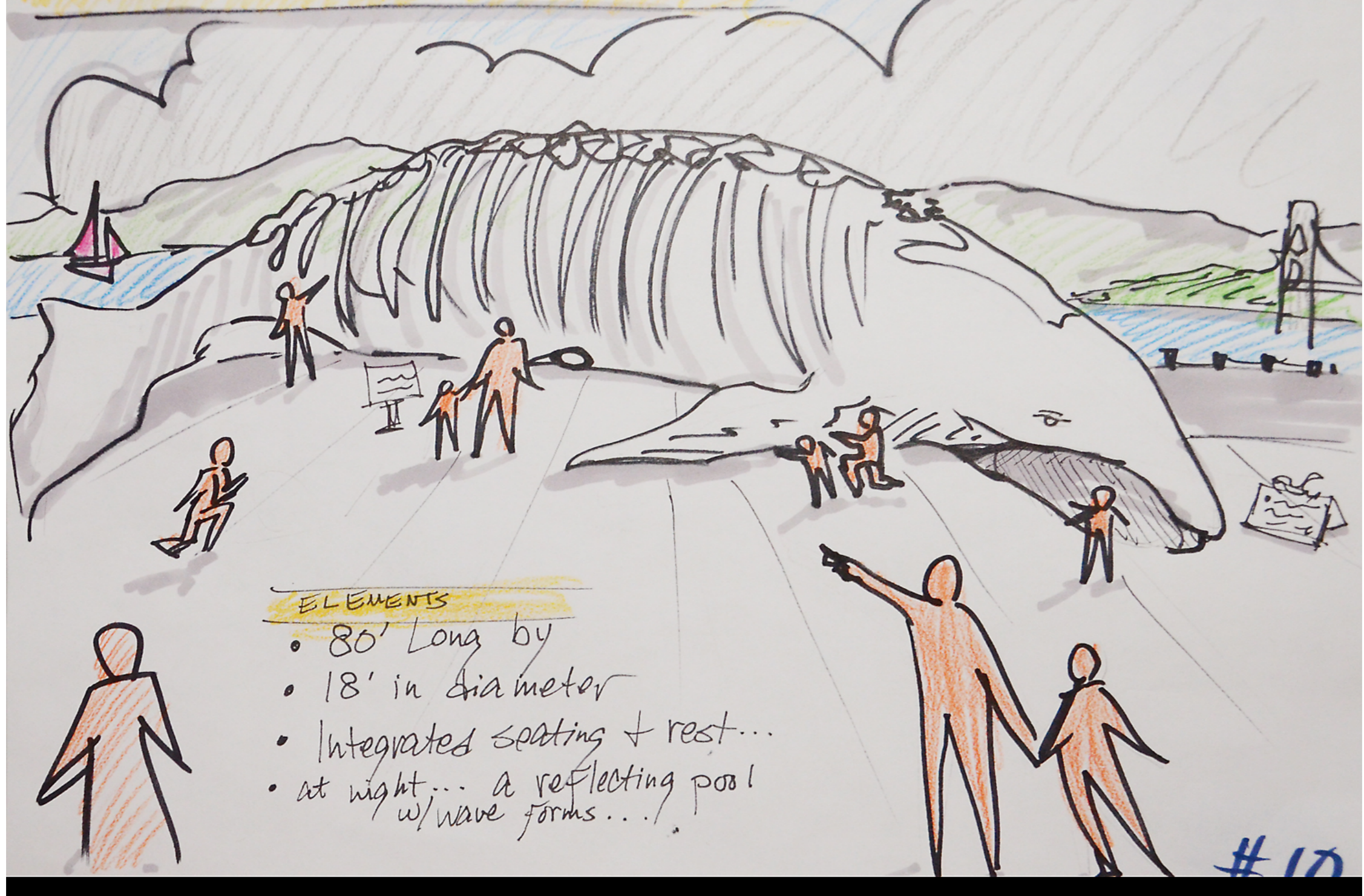
# Mussel Choir

Using the visual language for an Amphibious Architecture



Pilavis Foundation (or other Pier Building) with light boxes

# YOUR MAJESTY



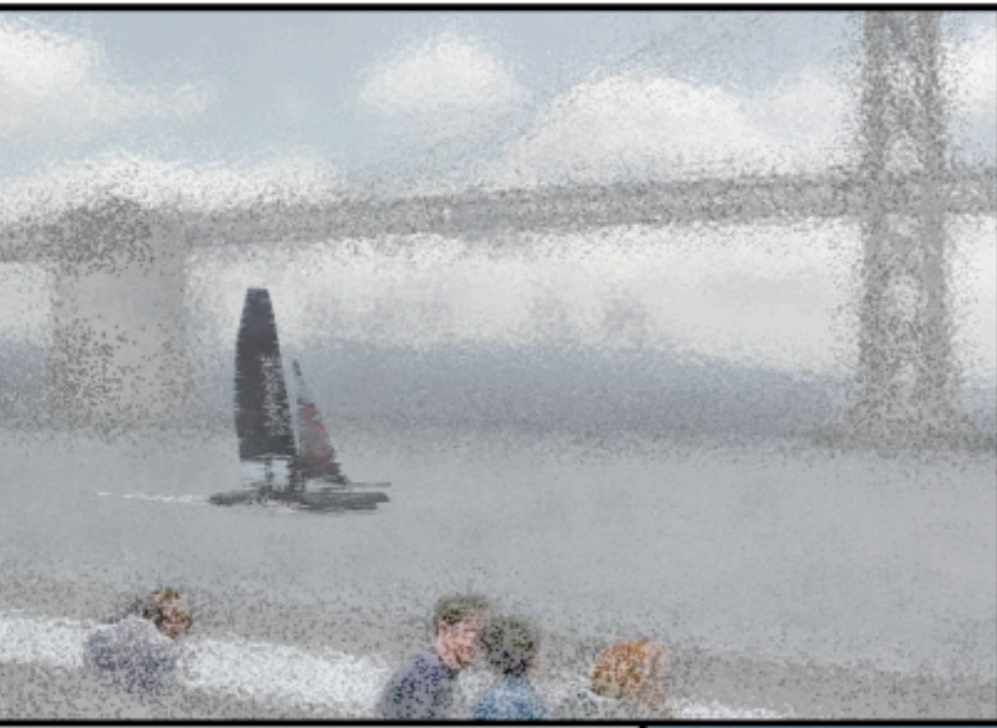
## YOUR MAJESTY

A WHALE TALE OF BAGS, BALLOONS, AND BOTTLE CAPS

# WHALE WANDER



1. Live ocean life projections over the water that allow people to interact with the animals through augmented reality.
2. Sounds from under the pier create a multi sensoral environment (via headphones).
3. infographics tell the story of human impact on our oceans.



# VISTA DEBRIS

Life in the Pacific Garbage Patch

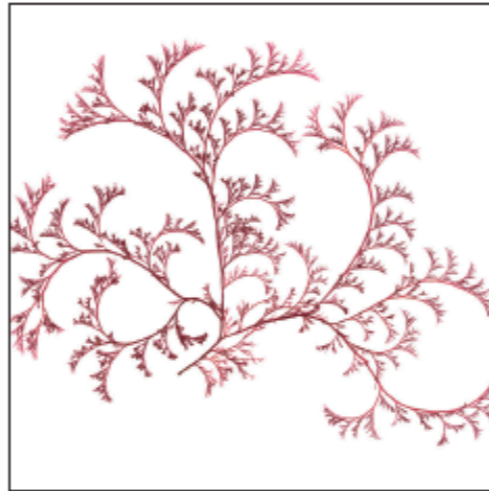
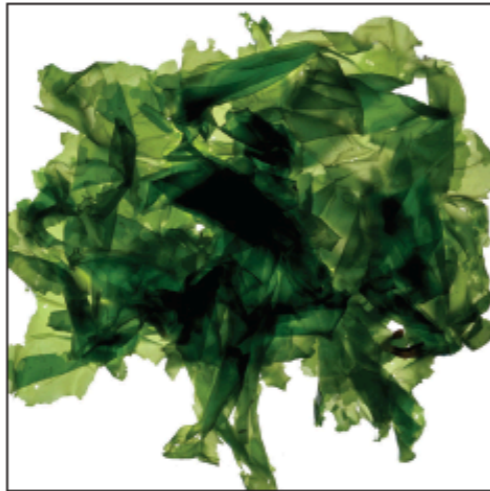
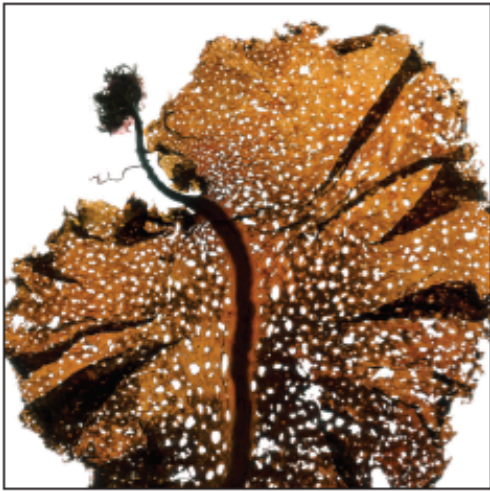
What would the world be like surrounded by microscopic garbage?

Text informational Text informational Text informational Text informational Text informational  
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Download our app



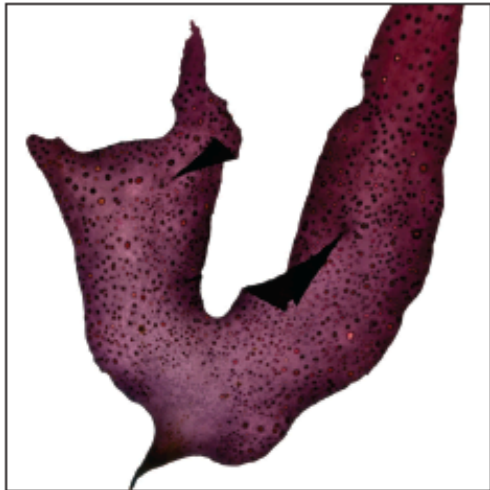




Agarum,

Ulva,

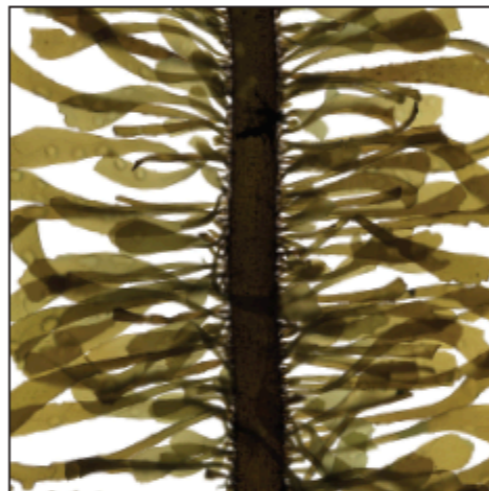
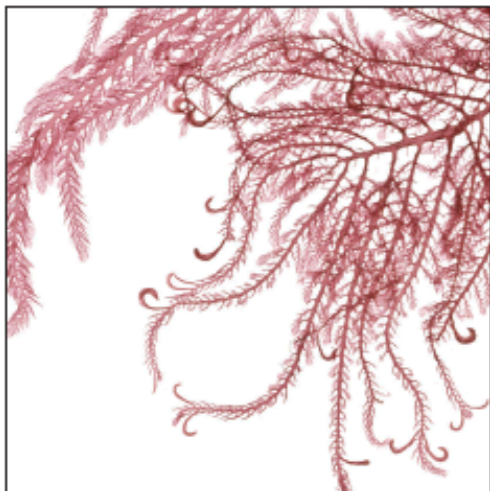
Microcladia



Mastocarpus,

Nereocystis,

Laminaria



Bonnemaissonia,

Delessaria,

Egrecia

## Seeing Seaweed

Few of us who love the ocean know much about seaweed, and yet it is all around us, a key habitat engineer of the San Francisco Bay and surrounding coastal waterways. This installation will involve an array of brilliant, transparent, photographic panels of local seaweed. These image panels might hang up to the sky, twisting independently with the wind or be designed as street level turnstiles for kids and adults alike to walk between and turn. This installation's job is to elicit a WOW reaction to something usually maligned; bringing the vibrant forms of marine algae to the sidewalk visitor, and encouraging them to make a trip to the beach. A smartphone app will accompany this installation so that algae identification and the connection to the local beaches and habitats can be accessible immediately.

The design of the armature and plexi panels will depend on the specifics of the site chosen.



## An Ocean Garden

Blue Trail project proposal by Josie Iselin, team leader. [www.josieiselin.com](http://www.josieiselin.com)

all images © Josie Iselin

# Message in a Bottle

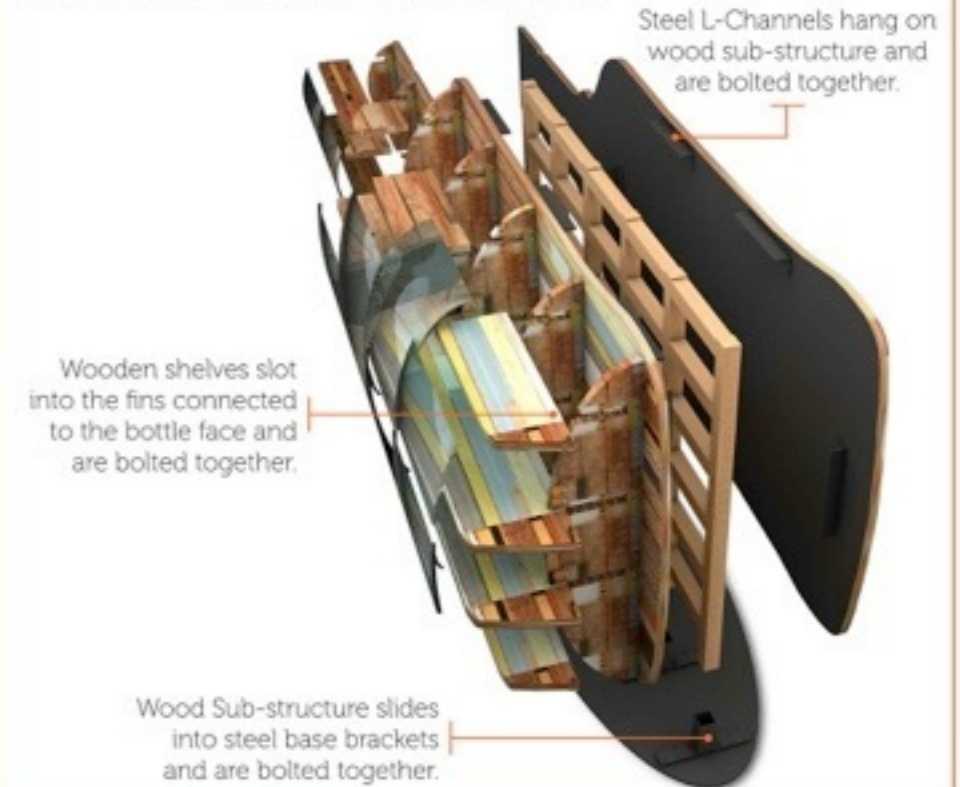


Your hopes and dreams  
for our ocean's future.

SITE: HARRY BRIDGES PLAZA SOUTH

## CURIOSITY SIDE

Cabinets display fantastical ocean specimens; visceral displays with amazing ocean facts; human-plastic-ocean infographics; and one simple action that people can take with their cell phones—right then and there.

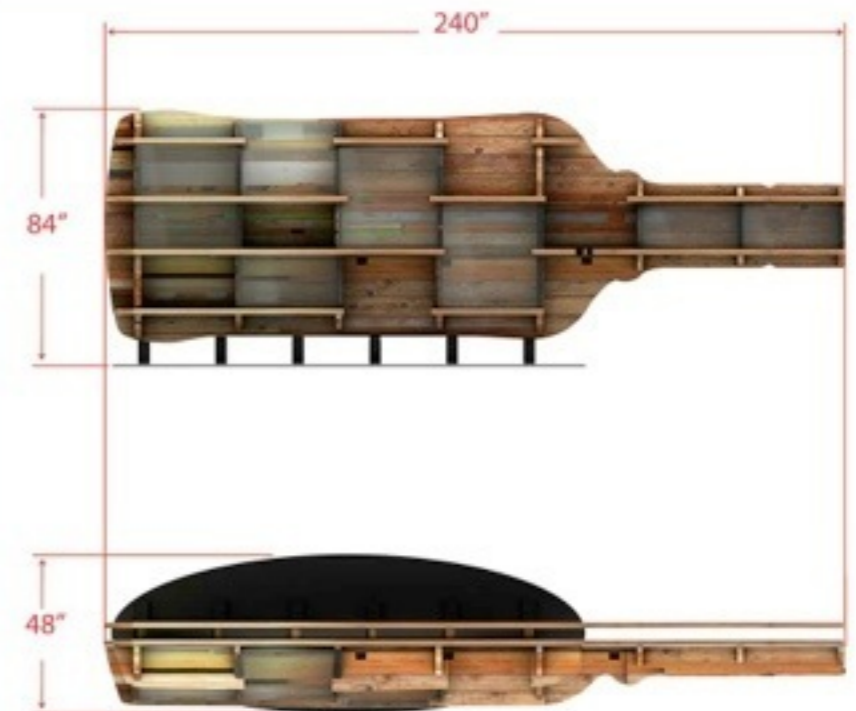


**Message in a Bottle** will rest on its side, 7' tall, 20' long and 4' wide. The *Bottle's* silhouette will look like an iconic plastic bottle that has washed ashore and been cut in half. Made of a stable wooden frame, wooden "skin", and metal base, the *Bottle* will have a playful shape and an intentionally weathered appearance—as if it had been beautifully weather by the patina of time.



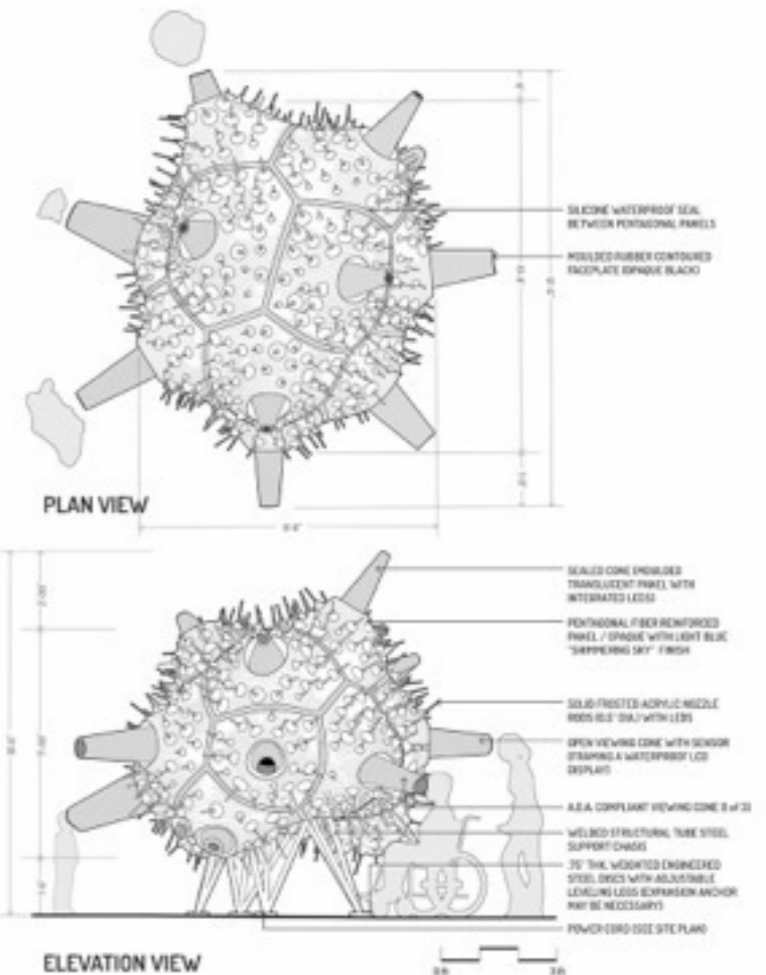
The chalkboard prompts the public with a fill-in-the-blank wish: "My ocean is..." Baskets with colorful chalk will be bolted to the chalkboard for people to add their personal wish for our ocean. Over the course of the 6-week installation, the chalkboard will become a repository for thousands of people's wishes.

## CHALKBOARD SIDE





PERSPECTIVE VIEW - LOOKING TOWARDS THE BAY BRIDGE



# THEATER OF LOST SPECIES

"What of the children of the future? When the polar bears and penguins are gone, the gorillas and elephants and coral-reef clown fish like Nemo — what diverse and lovable army will be their close companions?"

"Will Barbies and robots be enough for those future children? The hybrid monsters of fantasy video games, the fossil-based reconstructions? Maybe a few stray wild animals that were once our partners in this grandiose place will live on as collective memories, the bygone stars of screen and storybook, but they, too, must fade from the stores and eventually the pixels as time marches on."

- Excerpt from Lydia Millet's opinion essay, "THE CHILD'S MENAGERIE" published in the New York Times, 8 Dec 2012.

**CONCEPT:** THE THEATER OF LOST SPECIES IS A TEMPORARY INTERACTIVE PUBLIC ART INSTALLATION TO BE LOCATED ON THE EMBARCADERO IN SAN FRANCISCO AS A PART OF THE "BLUE TRAIL". PART VIRTUAL MENAGERIE, PART MEMORY CHAMBER, PART URBAN SPECTACLE - THE THEATER WILL PROVIDE A CONTEMPLATIVE AND ENGAGING EXPERIENCE. VISITORS WILL BE INVITED TO INTERACT WITH DIGITAL CONTENT THROUGH LARGE GLOWING VIEWING CONES. SCREENS MOUNTED AT THE END OF THE CONES WILL DISPLAY A CURATED VIRTUAL ECOLOGY OF LOST MARINE SPECIES. SENSORS WILL CREATE THE ILLUSION THAT THESE DIGITAL CREATURES ARE REACTING TO VISITORS, WHILE SLOWLY PULSATING LIGHT NOZZLES CREATE A DYNAMIC AND PLAYFUL ATMOSPHERE.

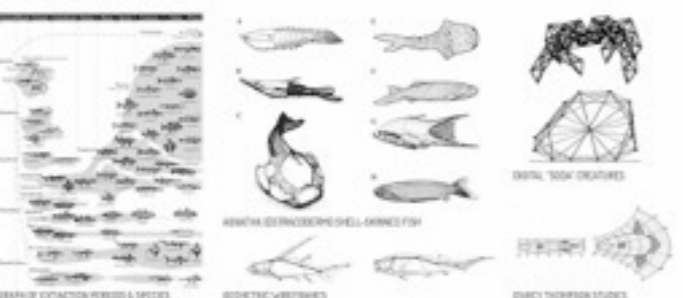
**MATERIALS:** PANELS: FIBER REINFORCED PANELS (PAINTED SKY BLUE); CONES: POLYPROPYLENE; NOZZLES: SOLID FROSTED ACRYLIC; SUPPORT STRUCTURE - WELDED STEEL (PAINTED MATTE BLACK).

**DESIGN & FABRICATION:** FUTURE CITIES LAB (SAN FRANCISCO)  
**CORE TEAM:** JASON KELLY JOHNSON, NATALY GATTEGNO, RIFON DELEON  
**FABRICATION PARTNER:** KREYSLER & ASSOCIATES (NAPA)  
**SCIENTIFIC COLLABORATORS:** MATTHEW CLAPHAM (UCSC); JONATHAN PAYNE (STANFORD UNIVERSITY)

FINAL PROPOSAL FOR THE THEATER OF LOST SPECIES  
 FUTURE CITIES LAB, SAN FRANCISCO  
 JASON KELLY JOHNSON AND NATALY GATTEGNO (LEAD DESIGNERS)



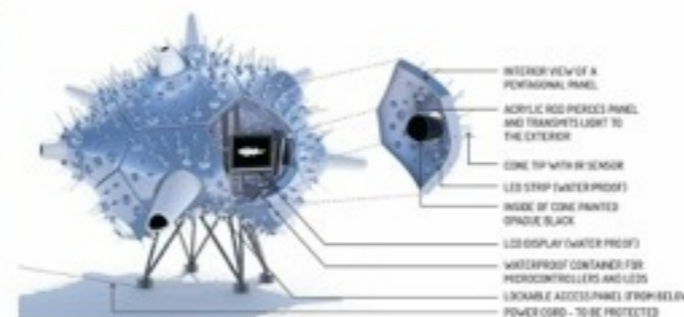
PAST AND PRESENT INSPIRATIONS



LOST SPECIES FORM & MOTION STUDIES



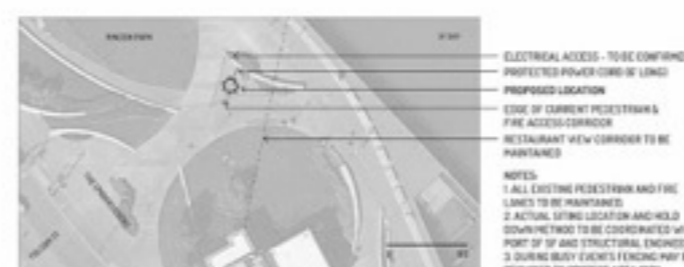
VIEWING CONE CONCEPT



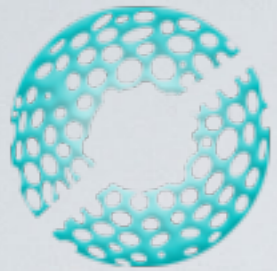
EXPLODED PANEL VIEW



MOBILE INTERFACE CONCEPT



PROPOSED LOCATION (EMBARCADERO @ FOLSOM STREET)



# Oceanic Scales

balance through biomimicry



## Oceanic Scales

An interactive platform exploring ocean ecology  
Blue Trail Project Proposal submitted by UCSC OpenLab  
Gene A. Felice II & Prof. Jennifer Parker



East Wharf Plaza - Site Mock-Up



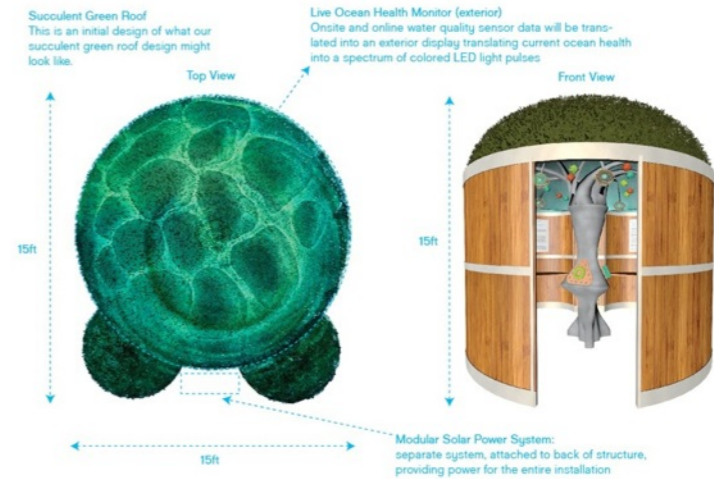
[www.genefelice.com](http://www.genefelice.com) • [www.openlabresearch.com](http://www.openlabresearch.com)

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Footprint / Area Envelope

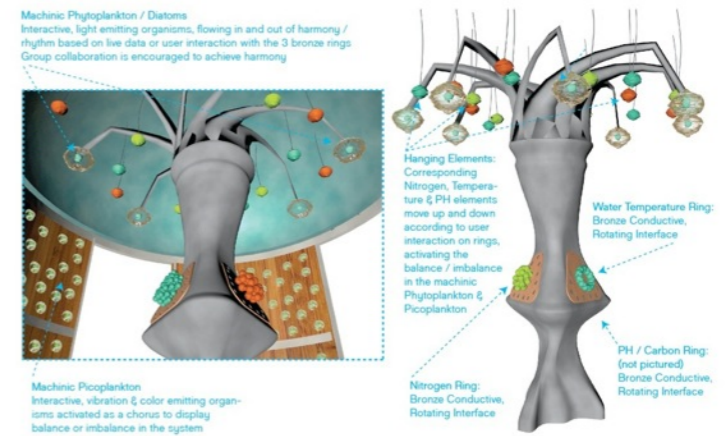


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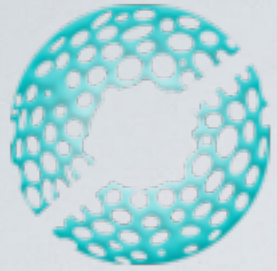
Sub-Systems and Column Design



[www.genefelice.com](http://www.genefelice.com) • [www.openlabresearch.com](http://www.openlabresearch.com)

PROTOTYPE DESIGN - BLUE TRAIL - OUTDOOR - PUBLIC ART  
SITE SPECIFIC FOR ON THE SAN FRANCISCO EMBARCADERO / PORT LOCATION

[OCEANICSCALES.COM](http://OCEANICSCALES.COM)



Oceanic Scales  
balance through biomimicry

openlab  
UCSC COLLABORATIVE RESEARCH



S T E A M

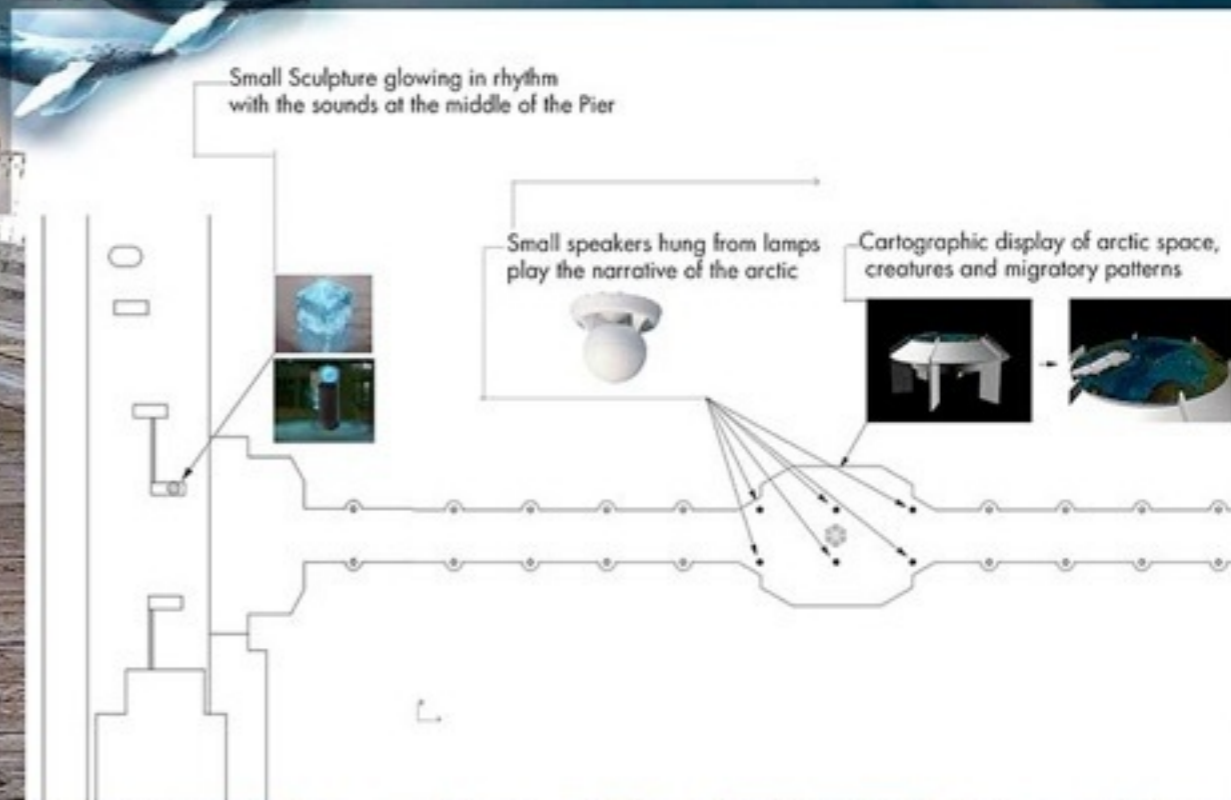


OPENLAB: ART, COMPUTER SCIENCE, GAMING, ENGINEERING, MARINE BIOLOGY, ECOLOGY

“LEARNING TO HEAR EACH OTHER” - SHARED VOCABULARIES & SKILL SETS / HYBRID PRACTICE

HOW CAN COLLABORATION BETWEEN THE ARTS & SCIENCES GROW DEEPER ROOTS & STRONGER BRANCHES?

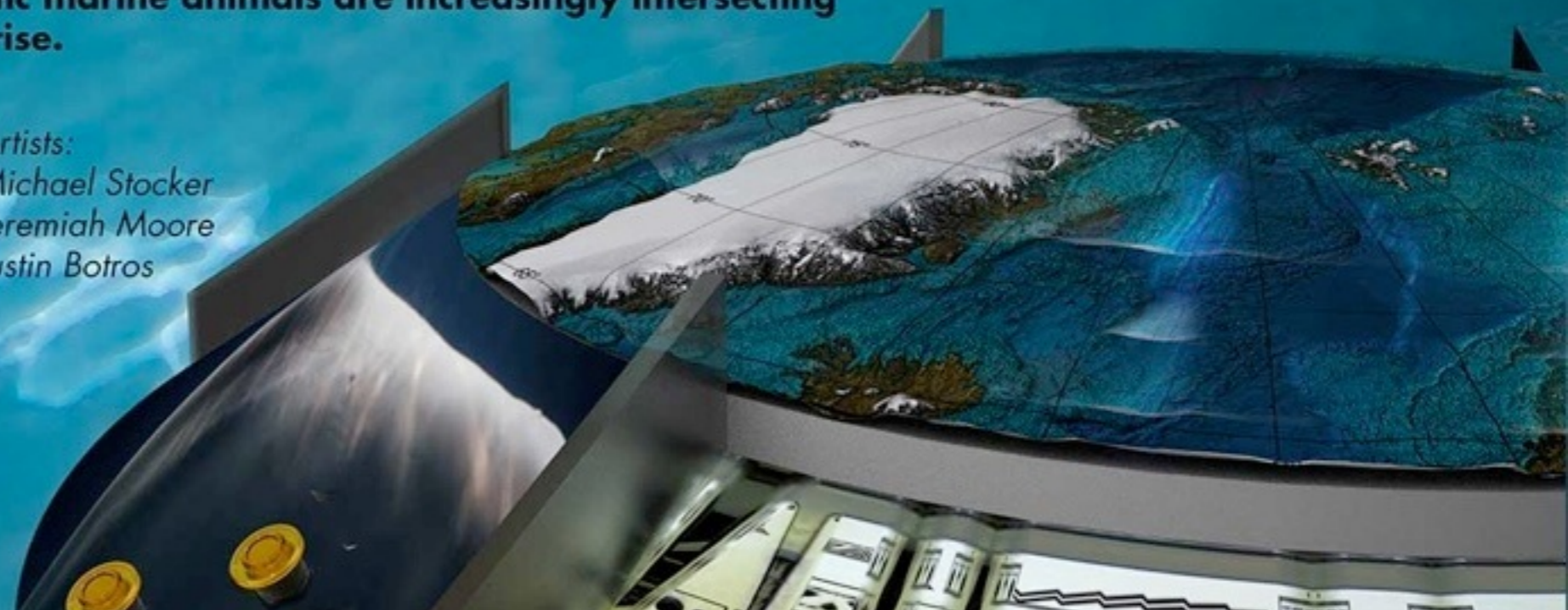
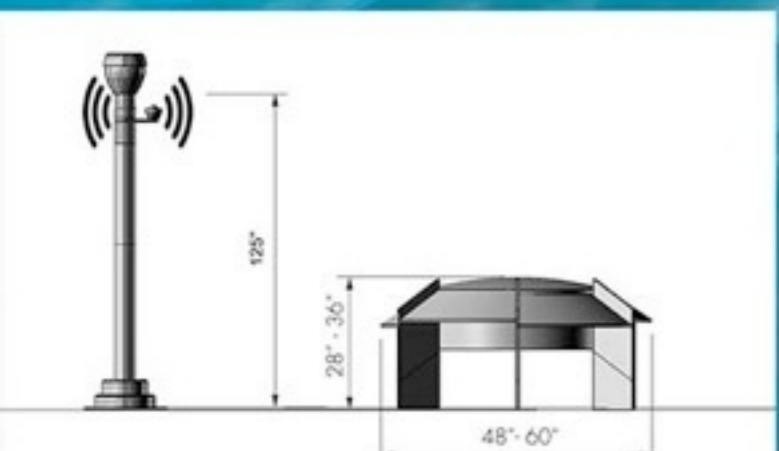
[OCEANICSCALES.COM](http://OCEANICSCALES.COM)



# Ocean Soundscapes

Sounds, Illustrations, Images and a live ship control panel that tells the vivid story of a complex bio-acoustic habitat where Arctic marine animals are increasingly intersecting with the sounds of human Arctic enterprise.

Artists:  
 Michael Stocker  
 Jeremiah Moore  
 Justin Botros



# HYPERACCUMULATOR Remediation Barge & Event Space

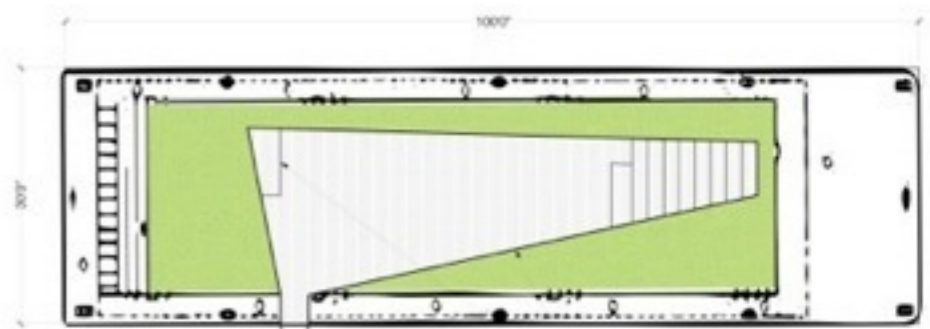
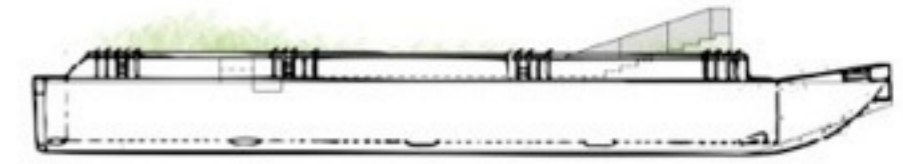


**Hyperaccumulator (H)**  
 An environmentally sound remediation barge, a functional model that cleans dredge from the San Francisco Bay while also providing a space for human enjoyment of the waterfront. Interactive, it enables programming and events provide multiple ways to interpret and appreciate the bay ecosystem.

To remediate PCB and Mercury contaminated dredge material from our project we engage a dredging company who is actively working in the bay. By adopting existing equipment and remediation design material that would otherwise be dumped in the ocean we maximize the material sustainability of our project while minimizing waste. Our additions to the barge will include the construction of a public space including a multi-purpose wooden deck, organic materials such as wetland plants that, along with the remediated dredge material will be used for habitat restoration after the exhibit.

Mercury, a persistent legacy contaminant from mining, has significant human and aquatic impacts. PCBs, industrial solvents used in electrical manufacturing, are both extremely toxic and carcinogenic. Normally, bioremediation is very slow, but research shows that layering dredge material with microbial and carbon-rich compost in addition to a food source such as molasses, dramatically accelerates microbial decomposition rates (a diagram on our boards illustrates this concept). Capped with carbon and plants, the dredge material on the barge is harmless to humans. This demonstration could provide a sustainable model for treating the 50-100,000 tons (70-10%) of dredge material that is contaminated and either repeatedly disposed of or dumped in the ocean and elsewhere in the bay.

Hyperaccumulator gets people out on the bay to have fun, the first step in understanding the health and environmental issues at stake, changing the environmental paradigm from guilt-driven to leisure and recreation driven environmentalism.



SCALE: 1/8" = 1'-0"



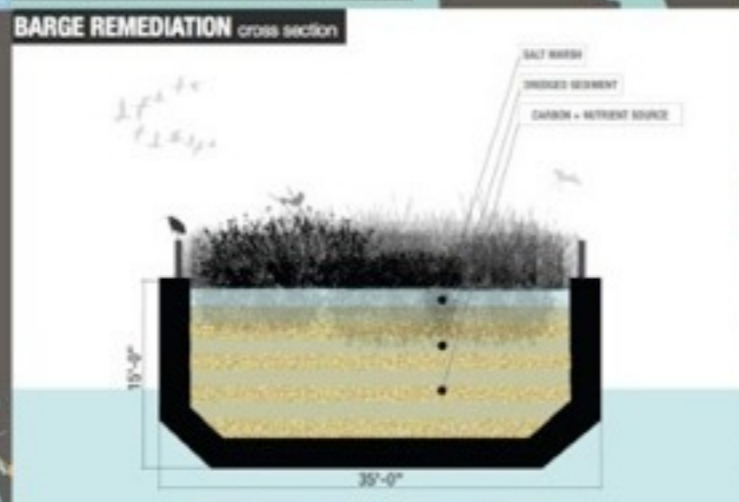
DREDGING DISPOSAL CONVENTIONS



DEPOSITORIES OF DREDGE DISPOSAL



COLLABORATION



BARGE REMEDIATION cross section

