

SUSTAINABLE



DESIGN

STRATEGIES



FOR



COASTAL

RESILIENCY



The Aquarium of the Pacific Studio
at Art Center College of Design



Designing appropriate strategies to respond to the challenge of sea level rise was the focus of *Project Coastal Crisis*, a transdisciplinary project embedded in the curriculum of “Design for Sustainability,” a studio of Art Center’s Product Design Department. Students in *Project Coastal Crisis* were challenged to translate urgent scientific data on sea level rise and coastal resiliency into readily-accessible public awareness communications and educational tools.



**SUSTAINABLE DESIGN STRATEGIES
FOR COASTAL RESILIENCY**
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SPECIAL THANKS

Jerry and Margaret Schubel at the Aquarium of the Pacific and the National Oceanic and Atmospheric Administration (NOAA) Coastal Service Centers.

In partnership with the Aquarium of the Pacific, Designmatters, Art Center's social impact department, facilitated a transdisciplinary studio project led by the Product Design Department that conceived a system of strategies and public education tools to respond to the challenge of sea level rise throughout Southern California's coastal communities.

The leading work of the Aquarium in making ocean issues come alive for the public—and recognizing design as an essential contributor in that effort—became the point of entry for this educational collaboration that developed over the course of the spring 2011 academic term and was supported in part by the National Oceanic and Atmospheric Administration (NOAA).

Working in teams, students researched the topic of sea level rise and its relationship to climate change and other socio-economic factors, from a global, national and local perspective, basing their design explorations on rigorous scientific data.

The results are four distinct proposals that run the gamut from products to exhibitions to advocacy campaign strategies. All aspire to communicate in an accessible and memorable way the urgent need to mitigate and adapt to our rising seas.



“Creating a sustainable future is a design problem, the most important and challenging design problem ever faced by humans. Science provides the knowledge that defines the conditions of sustainability. Technology provides tools to achieve these qualities. Art has the power to evoke emotions and move people. **Design can capture and integrate the best of science, technology and art to provide a clear, compelling roadmap to a more sustainable future.** It is for these reasons that the Aquarium of the Pacific, an informal science institution, has formed a partnership with Art Center College of Design.”

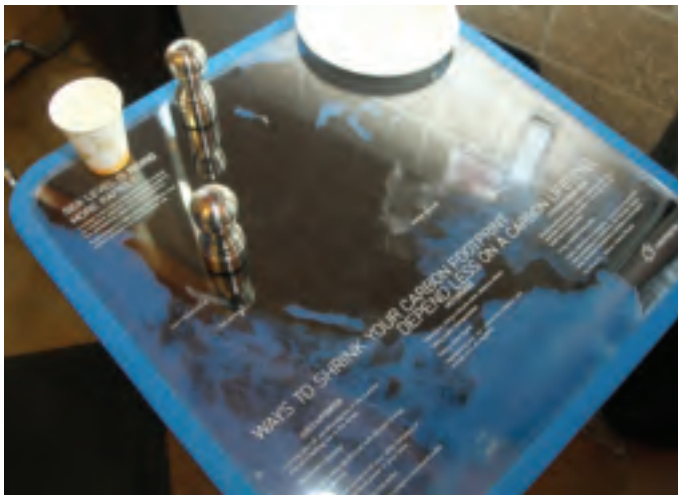
Jerry R. Schubel, Ph.D.
President and CEO,
Aquarium of the Pacific



OurRisingSeas

is an interactive exhibit that encourages dialogue within families about climate change and sea level rise.

Children are most likely to be impacted by sea level rise, and they are also most likely to create life-long habits that are eco-friendly. This interactive exhibit was created to be a lighthearted and fun experience for children, and to push forward the primary message that small actions can—and do—make a difference. For example, sliding “wave-like” panels and an interactive “greenhouse gas” wall reveal facts and information, while a game of hopscotch teaches about sea level rise. Telescopes show what at-risk cities—Long Beach, San Francisco, New York and Atlanta—might look like in the future, and participants can take a shower test to learn how to prevent wasting water. A game of limbo with a pole shaped like a wave between two cities illustrates how much work must go into making sea level lower, while a character created for the exhibit, Seymour, teaches children adaptation strategies for communities living near the shore. The exhibit includes a takeaway booklet and stamps called *I Commit to Make a Difference*, featuring fun-to-achieve action steps children can take every day.

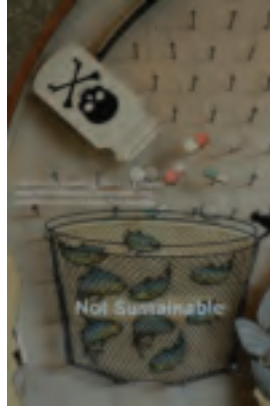


CARBON DETOX

is an awareness campaign and pop-up exhibit featuring innovative information displays, interactive lunchroom tables, and café napkins inscribed with eco-friendly tips and reminders. The goal is to encourage discussion about sea level rise among Aquarium visitors in dining areas.

This team began by framing the problem for the general public: Where are we now? Where do we need to be? And where are we headed? Beyond public education, the campaign aims to push the reality that our future will be impacted by sea level rise—it's not if, but when. All concepts were conceived to be economically sound, versatile and low-tech. An accordion pop-up exhibit is designed to feature climate change mitigation strategies, while an interactive table, placed in the high-traffic café area—is intended to spark education and dialogue while visitors eat and relax. The table features a futuristic United States map, customized with missing key pieces of the coast as a result of sea level rise. Magnetic sand underneath the tabletop is reactive to magnetic salt and pepper shakers, allowing users to physically add land back to the map, thereby metaphorically taking action to mitigate sea level rise.





SUSTAINABLE AQUACULTURE

is an interactive display consisting of a handcrafted pinball game meant to illustrate the sustainability and benefits of integrated multi-trophic aquaculture.

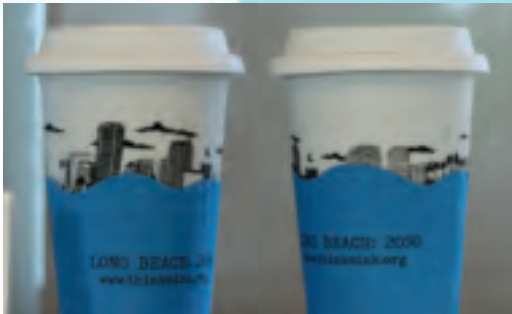
Benefits of this system include reduced emission of methane by replacing meat-based diets with fish-based proteins, while developing healthy marine ecosystems and a sustainable form of food production to replace agricultural areas lost to sea level rise.

The pinball game was designed to reaffirm these messages: by releasing a ball, which represents “nutrients.” Players aim it toward the “sustainable” side of the game board—a difficult feat. The nutrient balls then tumble through multiple “eco-systems,” which cycle the “nutrients” for downstream systems. The rewards of multi-trophic aquaculture are represented as the “nutrients” travel through the sustainable side of the board with bells and lights that signify the benefits of a balanced, non-toxic, biological cycle of food production. Conversely, unsustainable fish farming is represented by the one-way flow of “nutrients” and chemicals through one, fish-specific “eco-system,” with increasing build up of “toxins.” Nutrient balls traveling through the unsustainable system are greeted with buzzers and error lights as the balls collect and build up on the seafloor. Exhibit takeaways include postcards and petitions supporting integrated multi-trophic aquaculture to send to local legislators.





Think Sink students: Celeste Byers, Sujin Hwang, Wooyong Lee



THINK SINK

raises awareness with a provocative array of clothing and everyday products that encourage people to visit www.thinksink.org, a proposed educational website.

The goal of the Think Sink campaign is to raise awareness through humor, to encourage audiences to decrease carbon emissions, and to garner public support to implement policy change around the issues. Think Sink takes a deliberately fun and light-hearted approach, encouraging interest while disseminating key information around critical issues.

Ready-to-market products include: reusable coffee cups and “float pens” that cleverly visualize rising sea levels in cities like Los Angeles; Sea Level Socks, Boxers and Panties with “rising wave” designs of various levels meant to be visible on the body; the Sea Level Rise Bikini, which can be inflated and used in a sea level rise emergency; and others.

The clothing and product lines developed around Think Sink, although whimsical, share a common goal of driving traffic to the campaign website—envisioned as a space to catalyze a grassroots movement around mitigation and adaptation.

ABOUT THE AQUARIUM OF THE PACIFIC

The Aquarium of the Pacific, in Long Beach, California, is the fourth most visited aquarium in the nation. Beyond its world-class animal exhibits, the Aquarium provides opportunities to delve deeper into ocean issues. It has redefined the modern aquarium. It is a community gathering place where diverse cultures and the arts are celebrated and a place where important topics concerning the relationships of humans with our planet are explored by scientists, policy-makers, and stakeholders in the search for sustainable solutions.

www.aquariumofpacific.org



ABOUT ART CENTER

A leader in art and design education for 80 years, Art Center College of Design in Pasadena, California, offers a rigorous and transdisciplinary curriculum, a faculty of practicing artists and designers who are experts in their fields, strong ties to industry, and a commitment to socially responsible design.

Product Design students at Art Center learn that good design is about combining functionality, relevance and visual appeal—and that social responsibility is part of commercial viability. As corporations and organizations increasingly recognize the importance of smart design in achieving success, society as a whole is beginning to understand the vital role design can play in improving lives. The marketplace is demanding products that minimize environmental impact, from production to disposal, and faculty prepare students to meet these needs on both local and global scales, while giving them the tools to visualize the future.

Art Center's social change agenda is embodied by the Designmatters Department, which facilitates collaborative projects across the College's curricula that weave aesthetic value and business acumen with a broad social innovation and humanitarian agenda for positive change.

www.artcenter.edu/designmatters



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