

XTremeLA

A CHARRETTE TO ADDRESS SEA LEVEL RISE IN SAN FRANCISCO BAY

BY GAIL GREET HANNAH

Design can lead the way to new ideas about what it means to be human in our time, when we are confronted by an unusually urgent need to adapt beyond the capabilities of our current infrastructure. Coast adaptation can be “culture-led,” not just engineered to do the least harm. If designs combine functional goals with unusually aesthetic experiences, coast designs can inspire us all to act with courage and resourcefulness.

Kristina Hill, PhD, Associate Professor, University of California, Berkeley

With this eloquent plea for the primacy of design in achieving ecologically beneficial and humane solutions to environmental challenges, Kristina Hill set the tone for a charrette to address responses to the challenges posed by sea level rise in San Francisco Bay. On April 3, 2013, thirteen landscape architects selected by their firms as among the best and brightest gathered on the University of California Berkeley campus where they were joined by fifteen students from the UC Berkeley graduate program in landscape architecture for a two-day charrette calculated to engage, challenge and inspire future leaders of the profession. The event, dubbed Extreme Landscape Architecture (XTremeLA), was the latest in a series developed by site furniture manufacturer Landscape Forms and co-sponsored by the Landscape Architecture Foundation. Co-Hosts for the event were

Richard Heriford, President, Landscape Forms, Barbara Deutsch, Executive Director, Landscape Architecture Foundation, and Kristina Hill, PhD, Associate Professor, University of California, Berkeley.

XTremeLA identifies a significant local or regional challenge in landscape planning and design and invites participants to address it through short, intensive on-site immersion in creative problem solving. The challenge for 2013 was the most critical and complex to date. Focusing on the San Francisco Bay, it asked participants to address projected impacts of sea level rise and to develop design strategies and responses for the bay area that might also be applicable in other settings. The unusual urgency and universal relevance of the challenge lent this charrette special energy and seriousness of purpose.



The group of twenty-eight professionals and students was divided into two teams, each led by a distinguished landscape architect. Kevin Conger is the President and CEO of CMG Landscape Architecture, a San Francisco-based practice focused on the urban public realm. He has led many projects including the redevelopment plans for Treasure Island, Hunters Point parks, the redesign of Market Street in San Francisco, SFMOMA Rooftop Sculpture Garden, and has taught at major US colleges and universities and lectured nationally. Brian Jencek is Managing & Design Principal at Hargreaves Associates San Francisco. Educated as a landscape architect and architect, he brings a multi-disciplinary design approach to his leadership of the firm's work at the 85-acre Urban Regional Park in Tustin, CA, the necklace of Bayfront Parks in San Francisco, the Stanford University Science & Engineering Quad, and open space planning for urban renewal projects in emerging nations including Brazil, Belarus and China. He has taught and served as visiting critic at universities and colleges on both coasts.

The Challenge

Charrette participants received a detailed brief prepared by Professor Hill that included climate change projections, data on estuary flora and fauna, descriptive material on sub-tidal, inter-tidal and supra-tidal zones, information on the effects of tidal cycles, wind and currents, and historical background on the storied Berkeley Pier and its physical and cultural importance to the Bay area. ([To read the entire brief click on link here.](#))

Participants were challenged to propose concepts for new wetlands at all tidal levels that would increase the total area of the intertidal habitat and the variety and biodiversity of plants and structures and create a model for a living system in transition; consider new structures and uses for the Berkeley pier that would recognize its historical significance and also serve to reveal the dynamics of the intertidal zone; and increase the number and variety of access points to the bay that would preserve public access after inundation.

On the evening of arrival Kristina and team leaders Brian and Kevin introduced the project and a working process for the next day and a half. Work began in earnest the following morning with a bus and walking tour of the site that provided an overview of waterfront access and transportation, edge conditions, adjacent landfills, the bay-feeding Strawberry Creek, the Berkeley Pier, and other existing structures. Kirk Lombard, a local ecologist, provided useful and entertaining intelligence about the bay and the species – plant, fish and human – that make it a teeming environment of twenty-four hour a day activity. Armed with first-hand impressions of the study area the group returned to campus and organized for the task at hand. From the outset, the process was intensely collaborative. In contrast to prior XTremeLA events, the two teams did not divide and set out to conquer. Rather, individuals formed into multiple small groups across teams to work on key tasks aligned with their interests and skills: making inventories, mapping and sketching typical conditions of the



Bay edge, tidal zones, and shoreline conditions, creating inventory lists of available materials and photos, analyzing programmatic and cultural elements, and preparing diagrams of potential scenarios with descriptions of impacts.

Participants regrouped to report their findings, identify areas requiring more research and information, and develop a framework for response strategies. The lists, sketches, printouts and doodles generated in the working groups was shared and posted. This inventory of materials would grow over the next twenty-four hours to cover the studio walls, serving as a resource throughout the process and visual documentation for the final presentations. The group developed a common Framework of Opportunities that would inform the work of both teams: Environment and Ecology, Economy, Recreation, Infrastructure and Culture. They asked, what if we do nothing?, and agreed that if sea level rise projections are correct, land around the Bay will be exposed, landfills will be submerged and compromised, land masses will break off into islands, edge structures will lose their moorings and float around, access to shoreline sites will be lost, the current ecosystem will be disrupted, and cultural assets will be destroyed. After a productive and collaborative evaluation of potential strategies and design responses, the group divided into two teams to develop two radically different proposals that address sea level rise, ecological survival and cultural adaptation from opposing perspectives.



Team A, led by Brian Jencek, proposed doing the minimal necessary and letting nature take its course. Its stated objective was to treat ecological change as an opportunity and use it to enhance ecological value along the Bay edge, with some potential decrease in the cultural value of the area. The team called this approach “Soft and Safe.” On the opposite side of the spectrum Team B proposed developing the shoreline for intensive human use within the context of changing ecological conditions, accentuating the cultural value of the site and leveraging development to build engagement and generate financial support. Team B called its approach “PierScape.”

Rise Up

The teams chose “Rise Up” as their common theme; “To improve ecological and cultural value by articulating a new vision for the Bay edge,” their goal. Both teams based their work on a set of common assumptions: sea level rise is imminent and by 2050 the Berkeley Bay area, including landfills, will be inundated; intertidal areas are essential for protecting ecology and habitat in the Bay; landfills must be contained/protected; the pier has cultural value; and any scheme must consider investment in money, energy and risk. While estimated sea level rise over the long term is 13 – 14.5 feet, the teams anticipated a rise of 18 feet in their plans.



Soft and Safe

The “Soft and Safe” approach asks, what do you let go and what do you save? and makes barebones use of what’s already there. It would require a much smaller financial investment than a development-based approach and, as team leader Brian Jencek explained, “The soft approach can accelerate or decelerate as we find out whether we were right about sea level rise and timelines.” Team A’s proposals included removing riprap from areas south of the pier and relocating it to build up the protective edge around the landfill, and removing dirt from the shoreline below the pier, allowing future flooding to inundate this area. It would use the excavated dirt fill to build up the shoreline above the pier structure, creating a series of blended edges that would increase natural habit and provide “more dynamic ecological support and protection,” and would amplify the experience of being in that place. The team proposed building a levee around the landfill, using the bowl created by the landfill for programmatic recreational opportunities, and creating stepped access on the west side of the landfill; building a “floating habitat” on the existing pier structure and using this as an opportunity to create watermarks on the pier to express sea level processes.

Pierscape

This approach treats the pier as the central spine of the scheme and posits that hardscape development could be both “a great habitat and culturally significant.” UC Berkeley student, Erik Jensen explained that intention of the strategy is to “Create meaningful urbanization that expresses how we as humans can respond actively to the rising tide.” It reflects a kind of manifesto that says, “This is our land and we will live on it in perpetuity.” The actions proposed by Team B included: preserving the strong line of the pier entering the water and creating a floating pier structure above the existing spine with a new armature that would achieve greater depths than the current 10 feet above the water line; building platforms off the pier to create more diverse structures for fishing and interaction with nature; using pier pilings to create more habitat; protecting and using fill to connect the two existing landfill sites create a new urbanized zone with development that might include housing and retail and could be an “economic force,” building up softscape along the inside of the upper landfill and shoreline, and developing a protective hardscape along the tidal edge of the Bay; building more restaurants on the site related to harvesting local seafood; encasing the expanded landfill site in an armature of concrete and flooding the area now to leech contaminants, cleaning the water using a sand filtration system.



As they developed their focused strategies the teams devised creative tactical solutions with broader applications. This shared “kit of parts” included multiple concepts for horizontal levees; modular floating wetlands; islands that grow and are submerged over time, reflecting sea level rise and educating and engaging people in the process; gabions that expand the existing pier structure and provide surface area for mussels and other species; recreational and fishing platforms; floating campsites; and public art that reflects natural processes. As team members presented their respective strategies they walked around the studio, referring to the sketches, photos, lists, charts and diagrams that lined the walls. Each team presentation moved between strategic proposals and the shared tactical elements that might be employed to achieve strategic goals. The presentation was followed by a lively conversation with invited guests. ([To view the videotape of the presentation click on the link here.](#))

Dialog with Distinguished Guests

Brad McCrea, Regulatory Program Director for the Bay Conservation and Development Commission (BCDC), led off the audience response. “I’m really impressed,” he said. “These ideas take us to a new level of thinking about what can be.” He opined that “This is our Bay and we are going to live on it” sums up where we are now – but countered that a variety of approaches needed to be considered “because there’s not enough money to go around.” Drawing from his

experience in the regulatory arena he outlined some of the issues that will complicate implementation: local home rule control of shorelines and the absence of a regional jurisdiction; the challenge of communicating something that won’t happen for years to get engagement now; the hard fact that “developers are getting permits all the time and not much is different,” and the need “to convince involved parties that they need to hire consultants to work on really new ideas.” He stated his conviction that incremental change will be imperative “so we can try things on a small scale and move on without regret if they don’t work.”

John Northmore Roberts, a practicing landscape architect and lecturer in Berkeley’s landscape architecture department, challenged a major assumption of the exercise: “I’m not convinced of the value of the pier as a cultural artifact,” he said. As part of a group that once tried to add infrastructure and extend the city to the shoreline he discovered “The people of Berkeley didn’t want it. They wanted recreation, not housing.” He asked, “Why the intensity of development? If left to its own devices the bay edge would find its way and you could get very intensive usage in the more passive scheme.” Citing the survival of a barrier-fortified seaside city during the tsunami in Japan, he expressed support for constructing barriers along the outer edges of the Bay to protect upland areas. “In combination with marshes,” he said, “barriers are the first line of defense.”



Team B leader Kevin Conger defended the pier as a cultural asset, asserting that it is currently under appreciated and that bringing more people down to it would increase its importance and highlight the identity of the Bay area. The pier, he said, can create incentives. “You need more development and programming to provide revenue if you want to preserve and expand cultural assets. Housing is just an asterisk for the development you will need to pay for the investment in shoreline ecological preservation. If you could make enough money through recreational programming, I’d leave it at that.”

Ecologist Julie Beagle from the San Francisco Estuary Institute reminded the group that before the pier was built the ecology of the bay included sandstone outcroppings and island wetlands coming down to it and the creek emptying into it. She advised, “The new work should replicate some of the ecological processes that characterized the area – the underlying geomorphic process and sedimentary layers of the Bay.” Katharyn Boyer, PhD, a biologist at San Francisco State University, liked the idea of the “living shoreline” (oyster beds, eel grass, etc.) but questioned if natural structures can be used to protect the shore because of the difficulty moving forward given public/private ownership of parcels throughout the Bay. “I love the idea of floating eel grass beds. You could have them raised off the bay floor for sure. I’m willing to go there. It would be a great fish and invertebrate habitat.”



Jacinta McCann, VP at AECOM and incoming LAF Board President advised, “We need to think on both macro and micro levels. You can’t look at a specific site without a macro concept. You need to create a regional economic framework because this will require parcel by parcel exchange of land.” Finally a representative from the Bay community raised the issue of access to the shoreline, whatever its final form. “I am comfortable with public and private ownership but we should all have access,” she said. “In our plans we should be sure not to cut off public access to anything that has access now.”

In conclusion Brian Jencek put the competing strategies into perspective, defending the strength of approaches that considered the extremes and in so doing revealed a broad spectrum of opportunities: “The two schemes are like heat under the sauce,” he said. “How much we turn it up is the fundamental challenge.” With thanks for participation in the two-day challenge Landscape Forms President, Richard Heriford, said simply “This body of work is unbelievable. The number of ideas generated and the depth of thought are very rich.” He asked participants, “How was it for you?” and Andrew Elmer of Populus answered for the group: “Extreme!”



Participants

Professionals

Valerie Ahyong	SmithGroupJJR
Ellen Calhoun	StudioOutside
Anna Cawrse	Design Workshop
Andrew Elmer	Populous
Lauren Hackney	PWP
David Malda	Guthrie Gustafson Nichol
Sean McKay	Altamanu, Inc.
Whitney Proffitt	Coleman & Associates
Christian Runge	Mithun
Wesley Salazar	Kudela & Winheimer
Lexi Tucker	Miles Associates
Haley Waterson	CMG Landscape Architecture
Aaron Williams	SAA Design Group, Inc.

Students

Joe Burg	Johanna Hoffman	Alana MacWhorter
Mael Castellan	Rae Ishee	Erica Nagy
Daniel Collazos	Erik Jensen	Daniel Prostack
Eden Ferry	Nate Kauffman	Mariel Steiner
Marta Gual-Ricart	Kevin Lenhart	Rebecca Sunter

Invited Guests

Julie Beagle, San Francisco Estuary Institute
Katharyn Boyer, PhD; San Francisco State University
Chris Diamond, Principal, Peter Walker and Associates
Liz Excell, Program Manager, The Bay Institute
Linda Jewell, Prof. Landscape Architecture, UC Berkeley
Jacinta McCann, VP, AECOM
Brad McCrea, Regulatory Program Director, Bay Conservation and Development Commission (BCDC)
Kirk Lombard, SF Bay Aquatic Specialist and Shoreline Guide
John Northmore Roberts, Registered Landscape Architect and Distinguished Lecturer in Landscape Architecture, Berkeley
Jennifer Wolch, Dean, College of Environmental Design, Berkeley

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