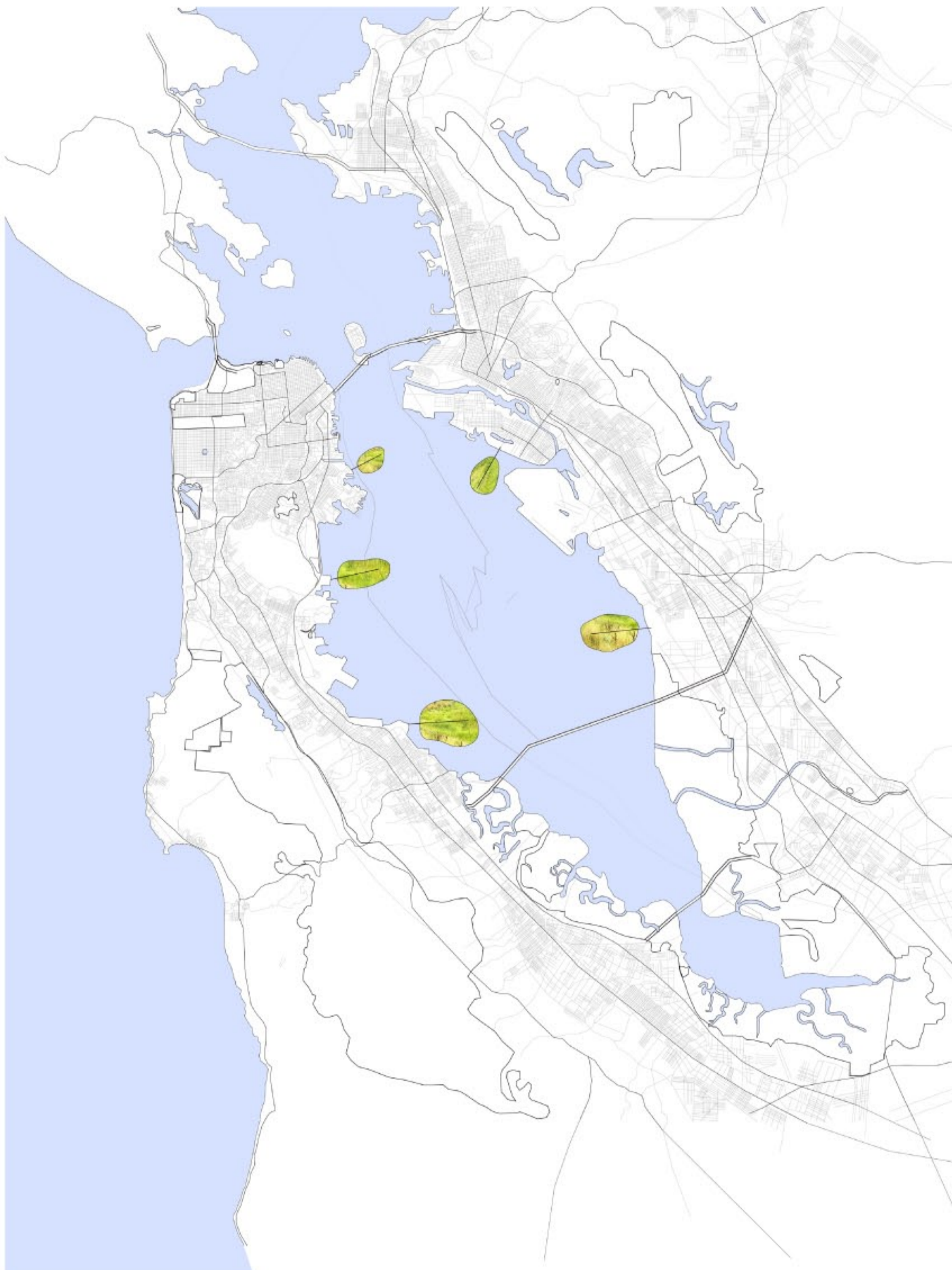
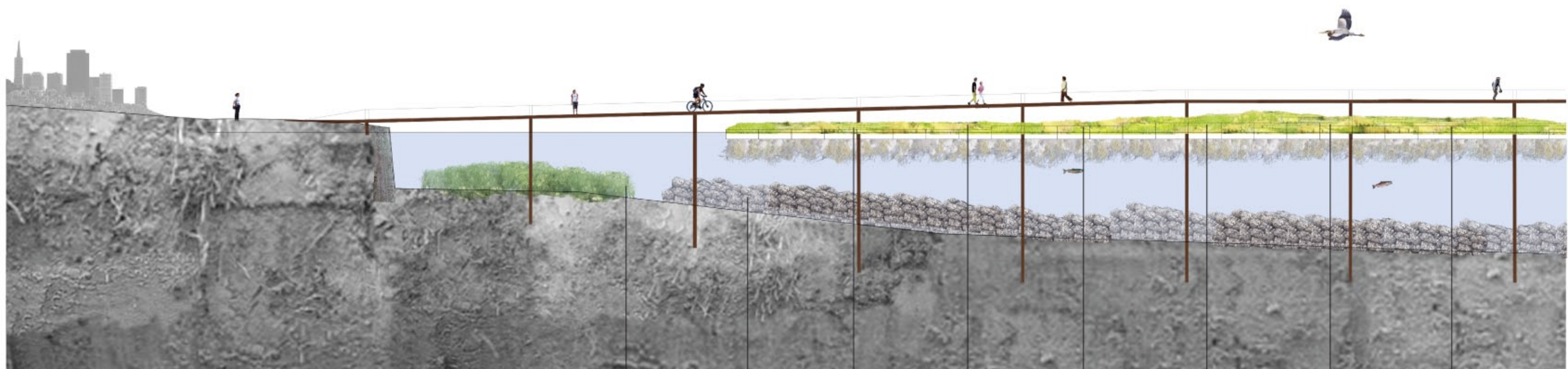


OFFSHORE WETLAND COLONIES



OVERVIEW
 This proposal suggests that the best strategy for responding and adapting to both climate change and sea level rise is ecologically inspired. The loss of up to 90% of the San Francisco Bay's wetlands has left the entire Bay area vulnerable to flooding and other environmental hazards. One acre of wetlands can absorb up to 1.5 million gallons of floodwater, according to the EPA. In addition to the restoration of damaged historical wetlands, the creation of entirely new wetland colonies in the San Francisco Bay will respond to changes in water levels and help the city to adapt to a changing climate. Existing technologies including bioengineering, floating wetlands, soilless agriculture and reef construction are combined to construct five offshore wetland areas. The offshore wetland colonies filter water, absorb rising water levels, and become habitat, seed banks, and carbon sinks.

Above: Offshore wetland colonies float in the bay and are connected to shoreline edges that were once wetlands and are now composed of fill.
 Below: Wetland colonies are attached to a bridge structure that brings the community into the wetlands and the bay.



COLONIES:
 Five floating wetland colonies are constructed in the Bay. The large islands consist of modular wetland cells. The wetland cells interlock so they can be attached or removed when necessary. This allows the shape and form of the wetland to change over time and enables the entire structure to move and shift in response to local conditions in the bay and on the bay's floor. Each suspended colony is secured to a walking bridge structure, which also allows the Bay community to observe the growth and change of the wetland colonies. Since the floating wetlands do not require shallow water, they can be applied anywhere in the bay, still allowing industry to flourish. Floating wetlands could also be used in freshwater situations to respond to runoff within Bay area cities.

CELLS:
 The modular, interlocking wetland cells are constructed out of layers of wetland plants, coir fiber, biodegradable mesh fabric and recycled plastic. The layers are thicker or thinner depending on the individual cell's plant needs. These variations in cell thickness allows for plants to receive needed water levels and tide cycles. After a cell is removed from the colony, the plastic layers can be separated from the plant and mesh fabric layers. The plastic layers can be used again and the plant layers are planted in tidal marsh restoration projects along the shoreline.

REEF:
 The Bay has also lost a majority of its native oyster reefs, which serve to filter water and maintain water clarity. Bags of oyster shells are stacked under each floating wetland colony to encourage oyster settlement. The oyster reef will serve to balance any excess of organic material or detritus from the constructed wetland, as well providing food for wetland birds. The oysters feed on phytoplankton from the wetlands and will encourage the re-growth of native eelgrass on the Bay floor.

- 
Zostera marina
Eelgrass
- 
Ostrea conchaphila
Oyster shells
- 
Spartina foliosa
Pacific cordgrass
- 
Limonium californicum
Marsh rosemary
- 
Cuscuta salina
Salt marsh dodder
- 
Jaumea carnosa
Marsh jaumea
- 
Distichlis spicata
Saltgrass
- 
Baccharis pilularis
Coyote bush

MODULAR WETLAND CELL STRUCTURE



NATIVE HALOPHYTES PLANTED IN WETLAND COLONIES



Above: When wetland plant cells mature after time spent in the wetland colony, they can be planted in shoreline restoration projects.