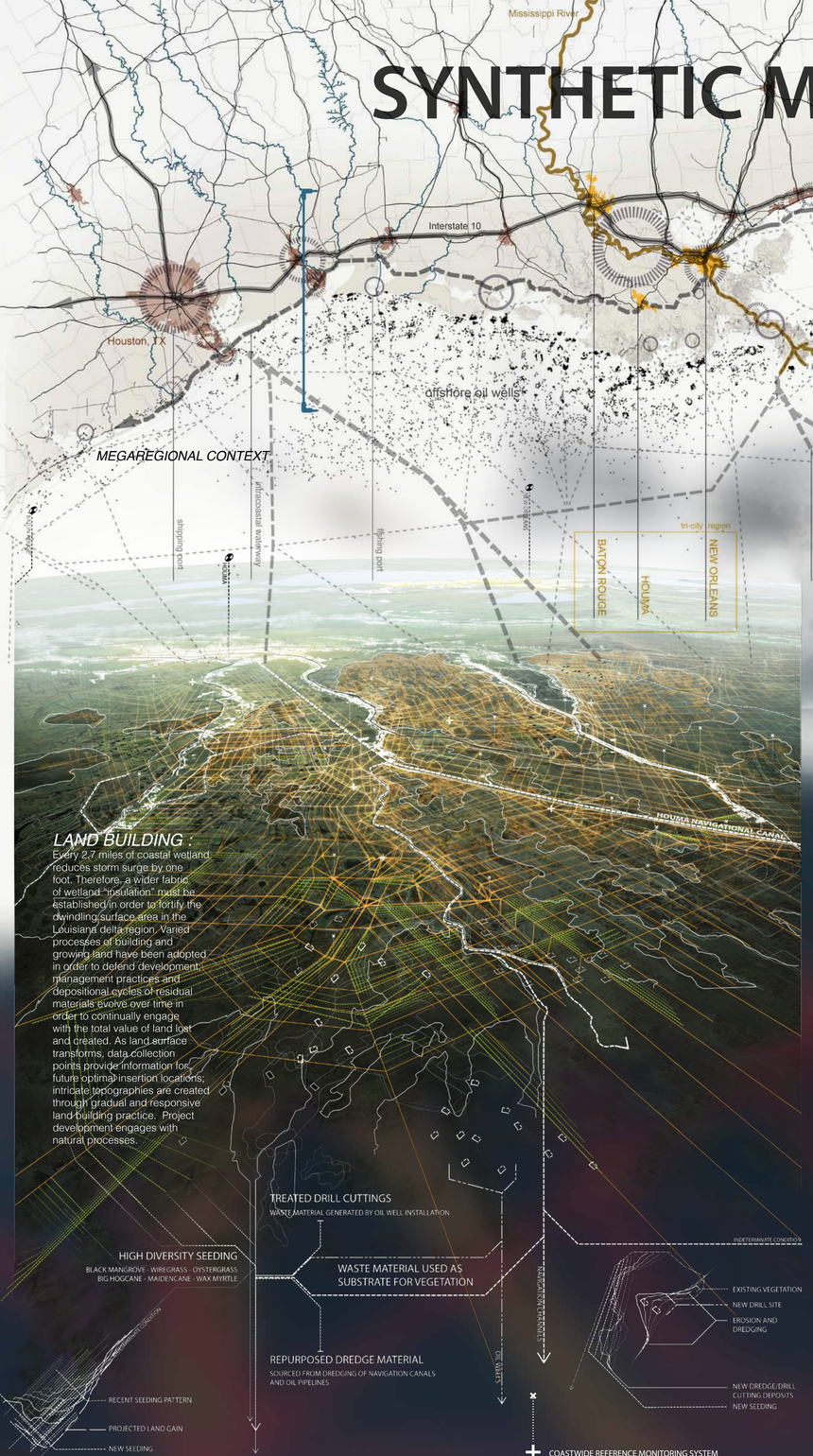
SYNTHETIC MUDSCAPES:

Human Interventions in Deltaic Land Building

In order to defend infrastructure, economy, and settlement in Southeast Louisiana, we must construct new land to mitigate increasing risk. Links between urban environments and economic drivers have constrained the dynamic delta landscape for generations, now threatening to undermine the ecological fitness of the entire region. Static methods of measuring, controlling, and valuing land fail in an environment that is constantly in flux; change and indeterminacy are denied by traditional inhabitation.

Multiple land building practices reintroduce deltaic fluctuation and strategic deposition of fertile material to form the foundations of a multilayered defense strategy. Manufactured marshlands reduce exposure to storm surge further inland. Virtual monitoring and communication networks inform design decisions and land use becomes determined by its ecological health. "Mudscapes" at the threshold of land and water place new value on former "wastelands;" The social, economic, and ecological evolution of the region are defended by an expanding web of growing land.

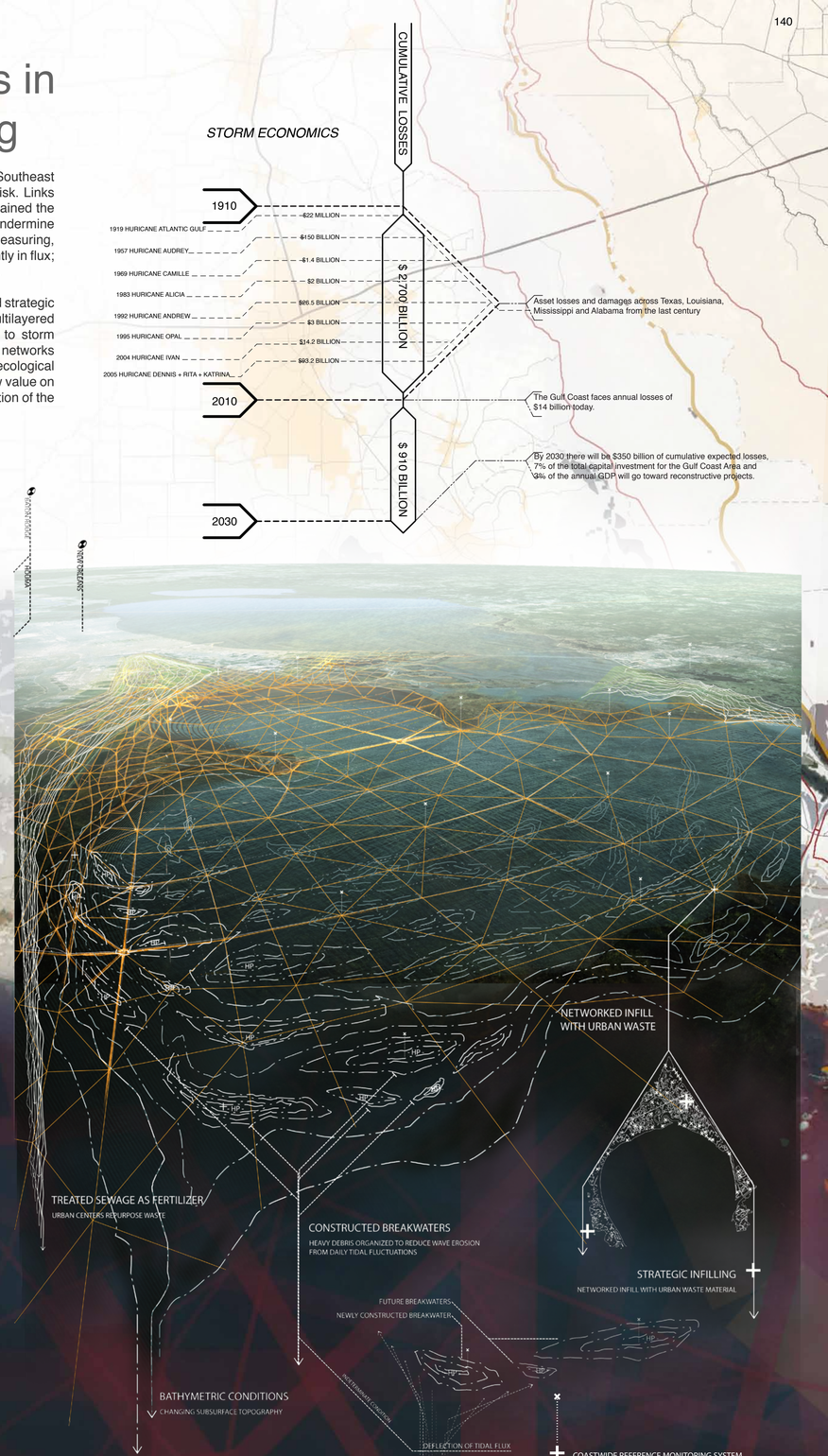


SITE ONE:
ISLE DE JEAN CHARLES CRESCENT

Within the Barataria Terrebone National Estuary, marsh creation and ridge restoration proposals restore the upland habitat and assist with surge attenuation. Dredge material and drill cutting debris are deposited nearby continually deepened transportation lanes and expanding oil fields; high diversity and concentrated seeding is dispersed to sustain land growth in material repositories.

SITE TWO:
MYRTLE GROVE DIVERSION

An outlet in the Mississippi River levee system creates a growing curvature of new land as sediment is released. Landfill material from the river basin is regularly deposited to accelerate the natural land building processes of the diversion. Strategically positioned evaluation and recreation facilities record the changing conditions in order to better place new material while also serving as a cultural resource.



SITE THREE:
LAKE PONCHARTRAIN ENCLOSURE

Repurposed waste from the Greater New Orleans area is deposited weekly to strategically infill deteriorating marshlands. Sewage treatment facilities from the surrounding area provide fertilization material in wetland pockets. Wave attenuation arrays are constructed in nearby open waters to fragment erosional forces and prevent deflection into nearby wetland.

TRI-CITY DELTA URBANISM :

Amidst the metropolitan regions of Baton Rouge, Houma-Thibodeaux, and New Orleans, a delta urbanism has evolved to maintain significant economic and cultural value. The tri-city area has emerged as a core embedded within an expansive web of resources.

BATON ROUGE
POPULATION : 803,484

NEW ORLEANS
POPULATION : 1,452,502

HOUMA-THIBODEAUX
POPULATION : 49,200

100 YEAR STORM PROJECTED LEVELS:

Generalized estimates of flood depths by 2062 as wetland conditions deteriorate and no additional flood protection systems are added. Flood risk includes assessment of sea level rise and subsidence conditions.

- 0.5 - 5 ft
- 5 - 10 ft
- 10 - 15 ft
- 15 - 20 ft
- 20 - 25 ft

INVESTMENT STRATEGY - MANAGING DYNAMISM

As the surface area of land changes, varied methods of financing and occupation are implemented to fund transforming infrastructures. Initial investments of federal, state, and local government are followed by evolving possibilities of shared occupation and rights to the land as a resource; multiple users contribute relative to function for maintenance and growth.

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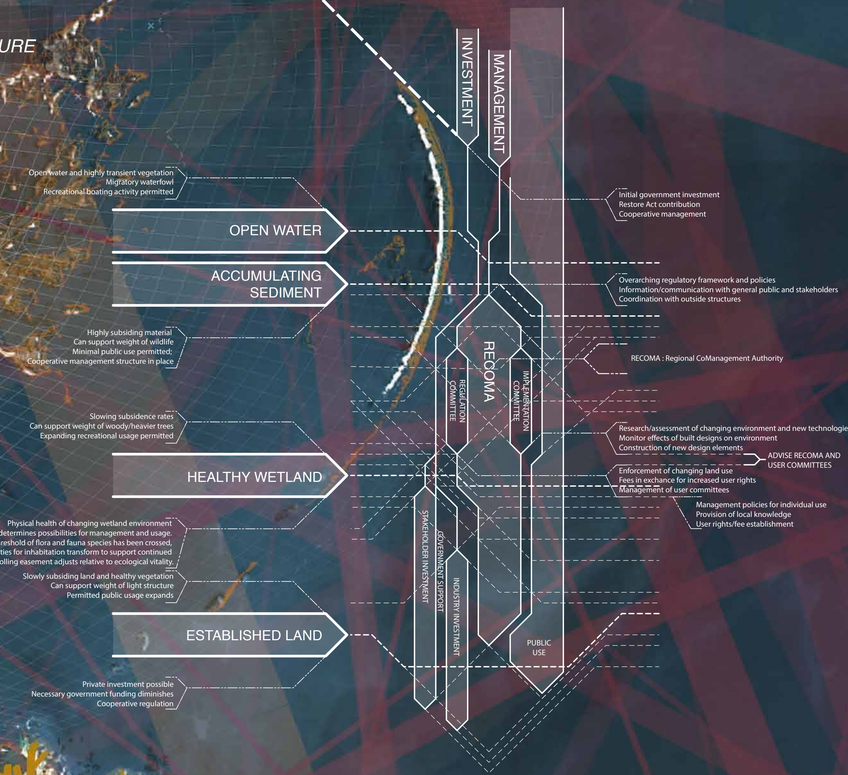
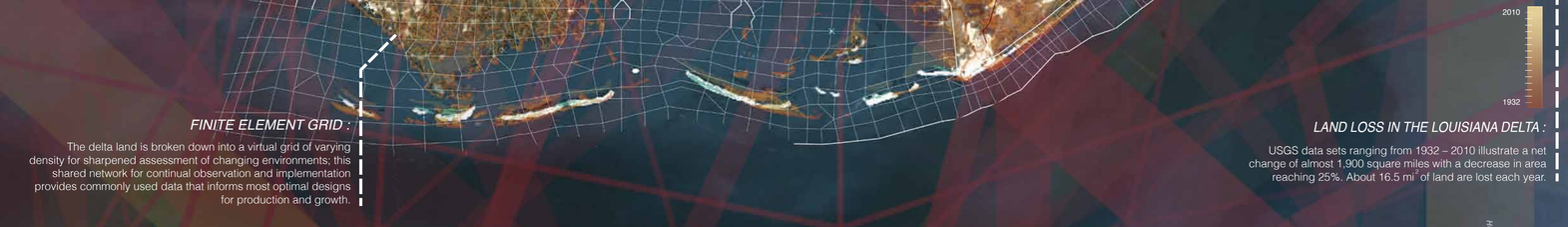


FINITE ELEMENT GRID :

The delta land is broken down into a virtual grid of varying density for sharpened assessment of changing environments; this shared network for continual observation and implementation provides commonly used data that informs most optimal designs for production and growth.



LAND LOSS IN THE LOUISIANA DELTA :

USGS data sets ranging from 1932 – 2010 illustrate a net change of almost 1,900 square miles with a decrease in area reaching 25%. About 16.5 mi^2 of land are lost each year.

HURRICANES OF HISTORY

NOAA hurricane paths recorded from 1851 to 2006 demonstrate historical threat of storms to the gulf coast. Southeast Louisiana is particularly vulnerable due to its low lying landscape. Line width refers to storm intensity.