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RICE UNIVERSITY

Sea Change
or, impending dune

by

Kristin Akkerman Schuster

A THESIS SUBMITTED
IN PARTIAL FULFILLMENT OF THE
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HOUSTON, TEXAS

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And we have to become humble in front of this overwhelming misery and overwhelming jonnification, overwhelming growth and overwhelming lack of order. Even the ... stars up here in the sky look a mess.

There is no harmony in the universe. We have to get acquainted to this idea that there is no real harmony as we have conceived it. But when I say this, I say this all full of admiration for the jungle. It is not that I hate it. I love it. I love it very much. But I love it against my better judgement.

-Werner Herzog in Burden of Dreams
CONTENTS

iv Identifying the disaster

1 Siting the Disaster
14 Drawing the Line

30 Modeling the Site

56 Blurring the Line

82 end note
86 references
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ABSTRACT

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The slow disaster of shoreline erosion has been met with various human attempts to control the relationship between Galveston Island and the Gulf of Mexico. In territorializing the island as private property, the main economic draw (the beach) is being sacrificed as the sandbar is increasingly expected to behave like a stable landmass. Private Property Rights and Public Beach Access clash as the difference between the land and the sea refuses to manifest itself as a line drawn through space.

There is latent potential within the land itself to work with a beach access infrastructure that operates as a mesh. Such a system can transgress problematic territorial boundaries and mark out multiple processes of reterritorialization as they are occurring on the site. In this way, the forces at work in shaping the island can become culturally relevant in a constructive way, altering the human relationship with the land.
The disaster defies human control. Disaster is a label that is applied to an event in the face of epistemological failure. Contingency becomes catastrophic, disastrous if you will, because the new affronts our order of the world and our illusions of control over our environment. When architecture can let go of that control, it has the capacity to engage the forces within the disaster in a unique way to create something new - to effect change. This is not a utopian desire to solve a problem, but a deconstruction of problem itself.
chance that a major storm event impacted the Texas coast in a given year, in the last 100 years.

$4,500,000,000

average estimated cost of damages caused by one major storm over the last 100 years, in 1995 dollars.

$42,600,000,000

estimated insured loss due to catastrophic damage in the event of a category 5 storm.

Galveston population that evacuated Hurricane Allen in 1980

Galveston population that evacuated Hurricane Alicia in 1983

SITING THE DISASTER
As a heavily developed coastal barrier island, Galveston is plagued by disasters. There is the sudden disaster – the intermittent bombardment of the island by tropical storms and hurricanes, and the slow disaster - the rapid rate at which the island’s beaches are eroding. These disasters are currently identified by the damage they do to private property and the public infrastructures put in place to serve it. They are defined in economic terms.

Shoreline erosion and storm damage are treated as separate disasters even though their effects are linked. The beaches and dunes are the island’s natural defenses against storm effects. Specific measures
permanent population of the City of Galveston

32 miles

current length of Galveston island

10.6 miles

current length of the Galveston seawall

$500 / ft

cost to build and fortify

$100,000

edited cost of damage prevented by the seawall during Hurricane Alicia in 1983
are taken to address the two types of disasters, but current practice holds that the economic burden should fall on government. This situation is not sustainable. Because current practice supports high values for threatened property through subsidy of insurance and protection measures, the monetary implication of each disaster event is rising sharply while available relief resources are actually diminishing. Erosion and storms are met with resistive counter-measures that protect property on the island at the monetary expense of various levels of government and at the physical expense of the coastal environment.

FIMA and CatPool are flood and storm insurance agencies subsidized by the federal and state government, respectively. Homeowners are required to carry these policies due to the inevitability of an event, but risks to the insurance industry prohibit it from offering the policies. Thus government, not the market, bears the financial brunt of disaster.

As seawalls have been deemed too costly to build and maintain, new resistive counter measures have been developed. Geotextile tubes are the latest technology employed to battle flooding and the creeping property line. At a cost of $500 per linear foot, almost 7,000 feet of beach are backed by these giant black sandbags, which are intended to replace natural dunes to protect hinterland by not allowing the shoreline to move landward. Unfortunately, these resistive measures redirect the forces further down the island, causing increased erosion and beach loss in front of other unprotected property.

In the face of this, beaches are currently maintained along Galveston's shore through a process called beach nourishment. This is the process of replacing the 700,000 cubic yards of sand that migrate off of Galveston beaches each year, at an annual cost of $7,000,000. Not a permanent solution, beach nour-
$600,000

Galveston County money spent each year to maintain seawall

$2,100,000

Galveston County bonds issued to cover seawall maintenance and repair

$496 / ft

cost of geotextile tubes and vegetation cover

6964 ft

amount of geotextile tubes in place to retain Galveston shoreline

4800 +

number of hotel rooms on Galveston Island

90 - 100%

occupancy rate during peak season
ishment must be repeated periodically as sand continues to be lost at the same rate. This process relies on the availability of compatible sand supplies, which are increasingly rare. The federal government is currently funding an Army Corps of Engineers study to locate future sand supplies for Galveston beaches.

The current structure of disaster relief is economically unsustainable. Among those who recognize this fact are people who call for a strategic retreat from the shoreline— the gradual removal of human presence through changes in policy that remove economic incentives to develop there, such as federally subsidized insurance, and actually discourage it through overt prohibitions such as the Coastal Resources Conservation Act and financial disincentives.

A shift to such policies would literally mean that the City of Galveston, incorporated in 1842, would cease to exist altogether. The economic threat of disaster is actually forcing Galveston to push policy the other way in efforts to ensure its own viability. Once the economic capital of the Texas Gulf Coast, it is now a struggling coastal tourist town. The city’s population increase reversed itself in the 1960’s since when it has held steady, and recently began a slow decline. Some new industry has been brought to the island but for the most part the revenue on the island is generated by visitors through tourist spending on hotels and attractions.

The only sector of the island that has been steadily growing is second home development on the West end of the island. Potential property tax revenue from as-of-yet undeveloped land and increases in value in a growing second home market for Houston’s wealthy are bringing the government to push for development of nearly all of the remaining open land on the island and attract further tourism busi-
$350,000,000

income generated each year by the
Galveston hospitality industry

1:3

ratio of vacation homes to permanent residences on
Galveston Island

0

number of setback requirements from shoreward prop-
erty line for beachfront development on Galveston
Island

107

number of houses standing on the public
ness. While this means increased revenue for the city and county, the entire system is based on government subsidized insurance and disaster mitigation money. The relationship between the civic East end of the island and the resort-like West end is changing. The East end is recognizing that it is dependent on the West end for its economic survival.

This thesis recognizes in principle that people want to be at the shore, and doesn’t call for a drastic retreat from the island. In this project, the disaster is redefined as the economic collision between the forces that have shaped the island and Gulf Coast over thousands of years, and the people who don’t recognize them and thus claim ownership of the land. Development based on this lack of understanding is not sustainable in the environment of the coastal barrier island. The disaster is not that the shoreline moves, it is the fact that we think it won’t. The disaster is not that the storm floods everything, it is that we think we should prevent it from happening. The disaster is our perception of our relationship to the land.

A new concept of the island that is based on an understanding of formative processes is called for. This thesis proposes that such a view need not require the removal of human presence from the shoreline. Rather, an understanding of the island as an environment of forces rather than a fixed solid landmass requires new ways of building on the island and new ways of understanding what it means to do so. It becomes possible to see the disaster as the creative force is actually is. In conjunction with the changing relationship to the east end of the island, this understanding of the land could lead to new economically supportable tourism based modes of human activity and presence which directly confront notions of private property right as currently practiced on the island. The first step is to engage the processes, and rectify our social relationship with them.
ratio of beach loss to rise in sea level for Galveston due to island slope

10.9 ft/yr
Average rate of erosion of Galveston beaches

300,000 cy
Volume of sand lost each year from West Galveston sand beaches
$572,000
Galveston County money spent each year on beach maintenance.

$300,000
Amount budgeted by 2000 by the City of Galveston for beach erosion response.

1:1
cost split between City of Galveston and suburbs for erosion response.

3:1
Ratio of suburban beaches to urban beaches being nourished.

$97,825,000
cost of unmet long-term erosion response needs for Galveston Island.

$200,000
Annual property tax revenue to City of Galveston and Galveston County combined.

11
rank of public safety in determination of critical erosion areas.

1
rank of private and personal losses.


http://www.cityofgalveston.org/ "A Brief History of Galveston"

http://usatoday.com/ "Texas Hurricane History"


T.A.C. Chapter 15. "Beachfront Construction Standards"

United States Engineering Department Board, Plans for the Protection of Galveston. "Report of the Board of Engineers on the Plans for the Sea Wall and Raising the Grade of the City"


DRAWING THE LINE

BARRIER ISLAND FORMATION
GALVESTON
TEXAS OPEN BEACHES ACT

THE SITE

[BEACHFRONT MANIFESTO]
... Given the emerging instability and unpredictability of environmental conditions, it is no longer possible to simply assume the adaptive fitness of our own social system. ... From the standpoint of adaptation, disasters may be seen as symptomatic not only of specific weaknesses in a social system, but of the overall adaptive fitness of the society's relationship to its environment.

- Anthony Oliver-Smith in “Disasters, Social Change, and Adaptive Systems” in What is a Disaster
A ridge forms where ocean meets land as sediment falls out of the tide and is pushed by waves.

As land subsides and sea level rises, the ridge becomes an island.

As sea level rise and subsidence continues, currents and wave action cause the island to migrate upward and along the shore as sand is pushed over and along the island.
Even traditional models of barrier island formation understand that barrier islands are not stable land masses. Regressive islands are those that move towards the sea, and transgressive islands are those that move inland. Islands transgress when sand supply cannot overcome subsidence, rise in sea level, and sand loss due to erosion or transfer to the back side.

Factors that determine direction and rate of island migration are sediment supply, sea level fluctuations, and the slope of the ocean floor shelf. These factors also determine that width of the island.

Length of barrier islands is determined as storms cut inlets. Tides keep the inlet open, and low energy waves deposit sediment in them. Multiple dunes, or beach ridges, are formed by multiple shoreline positions as islands regress. Transgressive islands rarely have multiple dunes.
Galveston Island, located along the Texas coast 50 miles South of Houston, is considered transgressive. The Houston/Galveston area is subsiding due to the withdrawal of underground water, oil, and natural gas. Channelization of major sediment sources has caused a decrease in the supply of sediment from upstream that reaches the island. As a result, Galveston's beaches are eroding at an average rate of over 10 feet per year.

The current rate of sea level rise is estimated at one foot per 100 years, however the Environmental Protection Agency predicts that sea level will rise worldwide at an average of four feet by the year 2100. Due to the shallow nature of Texas' barrier islands, for every foot of rise in sea level, it is estimated that Galveston will lose 100 feet of beach to the Gulf of Mexico.
The Texas Open Beaches Act determines that "the area extending from the line of mean low tide of the Gulf of Mexico to the line of vegetation bordering on the Gulf of Mexico" is public beach. The main focus of the TOBA is to establish unrestricted access by the public to any publicly owned beach, primarily by disallowing construction that blocks access to the beach. While it seems completely unexceptional that private construction not be allowed on public land, the unstable nature of the shoreline in conjunction with the particular legal definition of the public property boundary set up by the TOBA creates a condition of perpetual conflict and struggle. The property line is always moving. Buildings that cross the boundary and become partially or fully on public land must be removed. From the perspective of the private property owner, the natural formal cycle of the island is a disaster.

The private property line is constantly pushed back, and it seems that at the bequest of the ocean, the State of Texas is stealing land from property owners. In the current conservative political climate, this policy that is intended to protect public rights is actually being interpreted in a manner that serves private property owners in their struggle to maintain the financial value of their land. TOBA is used and massaged to allow for the permitting and funding of 'Beach Protection' strategies, such as geotubes, that actually harm the beach in order to maintain property lines. The result is that the right of the public to access and use the beach is sacrificed, where the beach survives at all.
The disaster here is the economic collision between the forces that have shaped the island and the Gulf Coast over thousands of years, and people who do not recognize the forces and thus territorialize the land as their own.

Public access to the beach is the issue at the center of this conflict. There is potential for a designed infrastructural intervention to address the elements of this conflict.
Traditional models of barrier island formation support modes of human presence based on epistemologies of distinction and division. The most common of these modes, occupation is a problematic way of relating to land based on their human control of the environment. It is militaristic. Occupied territories are defined by boundaries, and must be defended. The chosen site, at the West end of the Galveston seawall, is marked by several sets of boundary lines, and as such, is subject to multiple territorializations. These overlapping modes of territorialization create conflict.

As an epistemology, occupation pushes activity to the fringes, attempts to eliminate public presence, and in this case, requires the exclusion of the sea. The lines that define each of these boundaries are abstract and, in terms of the natural processes of the ecology, false. In Oliver-Smith's terms, the conflict that arises out of these competing processes of re-territorialization signal the lack of fitness between our social system and our environment. We must adapt.
Since the completion of the seawall in 1963, the shore line past the Western end has retreated at an average rate of fifteen feet each year.
The end of the seawall serves as a public gathering spot for fishing and playing, as well as a way to access the adjacent beach.

The dune line has been completely eroded, and the plants in the back-dune region that can survive the salinity of such close proximity to the water cling to life although the sand is being washed out from under them.

Where the end of the seawall meets the edge of the scarp, the lack of dune protection is allowing erosion to circumvent the scarp and flood the back dune area killing plants, and undermining the seawall itself.

View towards the condominiums from the end of the seawall.
[BEACHFRONT MANIFESTO]

There is only difference, not distinction.

YOU MUST:
- understand that you don't own the land any more than you own the sea. (The sea doesn't own the land either. There is only difference, not distinction.)
- understand what the land is by looking at what it wants to do.
- understand why you want to be there, in these terms.
MODELING THE SITE

SLURRY LOGIC
SLURRY MODEL

[CONCEPTUAL FALLACY OF THE TOPO MAP]

SITE MODEL
The writing of the disaster: the erasure of whatever it is that by this writing is written, the effacement of lines that cannot have been drawn if not by the stroke that now deletes them...

-Ann Smock

in Blanchot's The Writing of the Disaster
Relative to the physical realities of human occupation and our built environment, traditional models of barrier island formation consider only the macro scale. The trouble with these timeless abstractions is that they allow us to consider the island in a way that causes our structures to be physically incompatible with the landscape. This incompatibility becomes most obvious at moments of disastrous structural failure, but can also be seen in the struggle for beach maintenance by property rights groups.

The short film I made on site led me to further examination, and to formulation of my own model for how the island behaves physically.

I was seeking a model of the island that worked across scales, from a literal representation of the micro to an abstraction of the macro, and was based on the principle of the constant motion of the site. In other words, one that understood time. The resulting model can account for both the beautiful dance of the tidal pool and the rapid migration of the coastline because it recognizes that they are the same phenomenon, only viewed at a different magnification (think Powers of Ten).
The island is not a drifting mass of sand. It is a slurry, a semiliquid mixture of sand and water in different ratios. There is no crisp distinction between the island and the body of water surrounding it. In each of the phases I have defined, the slurry has different degrees of certain characteristics which generate different behaviors and relationships to introduced matter on a macro scale.

This understanding of the island site gives credibility to the forces identified in island formation by recognizing that they are unified and perpetually active. They are not separate from or located outside the island, but conditions of difference within it.
This model prioritizes neither motion nor form. The diagonal structure above represents the boundary in the flowing tide between laminar flow and turbulent flow. Where flow is laminar, the water moves fast enough to carry particulate matter with it. The tip of the drawn structure corresponds to a physical disturbance in the flow. In the case of the tidal pool video, this represents the edge of the scarp, where the floor drops down. This disturbance causes turbulence, slowing the flow down and causing particulate matter to drop out.

As the material flow intersects the boundary, it will continue on with its cargo of sand unless it passes through the zone of turbulence, in which case the particulate matter will drop out of the flow and to the floor, changing the ratio between sand and water in the slurry.

The constant ebb and flow of the tide creates striated ridges as particulate matter of different sizes drops out at different velocities, gradually collecting and shifting together. These ridges cause new disturbances in the flow, in turn creating new deposition patterns. Velocity and form are linked in the cyclical causality known as a feedback loop.
slurry flow into velocity change

particulate matter dropping out of flow

particulate matter re-entering the flow

deposited sediment
Over a period of seven wave cycles, this drawing model takes a homogenous slurry and passes it over a hypothetical obstacle. The result is clear flow with some cloudiness at the disturbance, and striated depositions of particulate matter much as is visible in the actual physical conditions of inter-tidal zones.
The attempt here is not to describe the behavior observed in the film, but to build an island. Sand is added each pass so the slurry is never sediment free. The net effect is deposition, although some sloughing or erosion, as in the film, is occurring. This model forefronts ways of working and approaches to the site that consider the site as both material and force.
To design from a topography map is to work with a snapshot, designing for some future. At its most interesting, this is a process of using the present condition to set up a future condition that could not be directly implemented.

A solid changes.

[example] building houses on land so that they will survive long enough to be over the sea.

The site here is a topography, a description of a shape with a set of relationships that change.

To design for a slurry is to design for the present only, a perpetual present. The intervention behaves so as to remain in harmony with the shifting nature of the slurry, both within and across phases.

A slurry is change.

[example] a ball floating on waves— it is always headed down-hill but never actually reaches the bottom because the hill is constantly shifting, slipping around under the ball.

The site here is a field where the relationships are constant.
Designing from topography maps is not among the working methodologies appropriate within this model. As a conceptualization, the topo map stems directly from the kind of thinking present in traditional models of barrier island formation. Topography maps give no indication of the motion that is the most significant characteristic of the land, where each grain of sand is radically un-fixed. The topography map implies that the current formal configuration of the landscape is fixed, that it will hold over time. This is absolutely and dramatically false in the case of a barrier island.
- flow
- form
- offshore current
- rip current
- wind above sand
- wind on water
- wave propagation
- sandy water (ridge zone form)
- dry sand (dune zone form)
- wet sand (scarp zone form)
Whereas a topo map renders the site solid - passive and receptive, a vector drawing models a slurry that is 'alive' with actively wilful behaviors. By drawing the site as flow and form rather than configuration, vector drawing allows the design to be based on the relationships present within the site which remain constant even as the configuration changes. In dealing with an unfixed site, designing for the relationships rather than the configuration ensures the relevance of the intervention beyond the dissolution of the current configuration. Contingency is no longer a source of anxiety, but the focus of the design.

The drawings on the following pages are four renderings of the site at the West end of the Galveston Seawall. This vector model takes advantage of the manual act of drawing a line as a physical thing on paper to model the site as a slurry. Each drawing corresponds to one of the four seasons, and the set covers a period of one year. The drawing system follows a set of specific rules, beginning with the representation of the seasonal wind direction and relative velocity and offshore currents. The interaction of these two parameters, through the physicality of the drawn line, propagates waves toward the dune formations. The wave interacts with the dunes to create a scarp form and a rip current, which reacts with other waves to create underwater ridges of deposited material. Flow and form interact to create new form, which is transferred to the next drawing as a foundation for the next iteration of the same process.

The resulting drawings reveal the complex relationship between the weather and the landscape as they are traditionally conceptualized. More importantly, these drawings provide formal and operational implications for the proposed system of beach access, as well as the foundation for a three-dimensional cad drawing process to test and represent the final design proposal.
flow
form
offshore current
rip current
wind above sand
wind on water
wave propagation
sandy water (ridge zone form)
dry sand (dune zone form)
wet sand (scarp zone form)
flow
form

offshore current
rip current
wind above sand
wind on water
wave propagation

sandy water (ridge zone form)
dry sand (dune zone form)
wet sand (scarp zone form)
- flow
- form

- offshore current
- rip current
- wind above sand
- wind on water
- wave propagation

- sandy water (ridge zone form)
- dry sand (dune zone form)
- wet sand (scarp zone form)
- flow
- form

- offshore current
- rip current
- wind above sand
- wind on water
- wave propagation

- sandy water (ridge zone form)
- dry sand (dune zone form)
- wet sand (scarp zone form)
BLURRING THE LINE

MESH LOGIC
PANEL DESIGN
DEFORMATION
INSTALLATION

TO THE BEACH
thin, rigid sheet

fabric and rapid-setting pourable resin experiments
Intervention in a slurry site requires a recognition that the intervention will be active. It must remain viable in the kinetic environment, and it must be flexible enough to ride with the slurry. In other words, it will function (read: do something) - and it must function at the level of the relationships within the slurry. To recognize that the landscape is active gives new imperative to the act of intervening. To intervene in such a site is to harness the activity of the site, redirecting the energy of the slurry to effect the desired change indirectly. The landscape will do the work.

Meshes are the ideal structures in such an environment, having both structure and flexibility. A mesh can strategically mediate the behavior of both the slurry and humans.

An open, fibrous and flexible mesh will interact with a slurry or other viscous fluid that undergoes phase change in the following ways:

1 - the mesh will propagate the fluid through its own form and take on characteristics of the fluid
2 - the mesh will trap the fluid and create a new structure with some properties of both, or
3 - the mesh will divert the fluid from its original path, changing its velocity and creating form.
5 - spring model

6 - pleated fabric models with scaled projection of site information

7

8 - full scale section model
Depending on its orientation and openness, a mesh can speed up the slurry, slow it down, or change its state. Channeling compresses the flow and increases speed, creating a higher particulate content. Obstructing the flow decreases the velocity and removes particulate matter. Porous fibers decrease liquid content of the slurry through evaporation. All of these processes generate form. Mediating the mesh with plastic or by sewing (gathering - 4) controls its openness and orientation, mediating the slurry and human occupation. Sewing and plastic give a non-rigid mesh structure.

Mesh behavior, the ability to mediate a slurry of flow, can be seen in many different types of structures, such as springs - 5, threads, and all kinds of filters. For the sake of human activity, a mesh with structural properties inherent in it is best, such as a pleated fabric. However, its flexibility is limited by the size of the pleats and their orientation in relationship to overall size of the piece of material - 6. Thus for the scale of application relative to the scale of the pleats necessary to give the given material structure, a panel size can be determined - 7. The use of a panel system allows for added flexibility in the deformations, and strategically controlling connections between panels and layering of different material types can add greater sensitivity to specific conditions of the slurry - 8.

Out of these conclusions, I developed a design for a beach access infrastructure that continually alters the topography of the site.
The proposed beach access infrastructure takes the form of a system of geotextile panels in order to take advantage of the natural abilities of a mesh structure to strategically mediate the behavior of both people and a slurry.

There are three panels types, each of which corresponds to different conditions within the slurry. Each panel corresponds to a zone of the site, and is able to mediate the slurry and human circulation in the specific ways noted due to construction of the layered section and combination of the materials used.
Each panel is anchored in the slurry at only two points, the center of the short edges. As a result, the panel is able to radically deform to accommodate the current configuration of the landscape and the total panel construction in order to remain viable as a system of beach access that is traversable by humans. The combination of unidirectional pleats, spring straps, and a dimensionally stable edge ribbon create specific deformational behaviors that both impact the smoothness of the resulting configuration and add significant sectional characteristics which mediate and channel circulation at another scale.
Installation Procedures

1. End to end connections are lapped, using bolts. All edge to edge and edge to end connections are made using hinge joints.
2. Panels run and connect parallel to each other.
3. The center of each end is anchored on the surface of the slurry with an anchor spike.
4. Each installation must create a surface three panels wide.
5. When path curvature causes a separation between panel, path must branch and a panel added in between so that the configuration remains 3 panels wide.
6. When human circulation is not accommodated due to topographic shift, new panels must be added to ensure a continuous path from parking to the beach.
As an infrastructure, the paths must be maintained by the county, which is responsible for beach maintenance. As paths are no longer traversable new panels must be connected to the system. The result is a constantly configuring system of pathways that operate according to the physical principles of the ecology rather than the territorial logic of human occupation.
To "watch" architecture, then, is not so much simply to slow down the passage of the bullet with the high speed camera, with an ever more attentive historical lens, but to explode the whole notion of time and space; it requires comprehending with multiple ideas and intellects, with the whole body, with the heart and the hand, with political beliefs as well as with the eye.

-Borden, Rendell, Kerr, and Pivaro in The Unknown City
By entering into the processes that are forming the site, this system of beach access is not denying that they exist. It is not attempting to stop them. While it is apparent that in some orientations the system will slow the rate of sand loss where it is installed, that is not the intention. The first step in rectifying the problems with our methods of construction and presence in the coastal environment is to change the way we understand the landscape. The intention behind this project is to do this. The system makes the workings of the forces within the landscape visible and serves as a marker for the work they can do. Erosion is transformed into a productive process as island change becomes real in the popular concept of the place.

Politically, the system inverts the current set of priorities which value private property rights over public access to the beach. The pathways literally blur and stretch the political boundaries of the site. The existence of beach is now guaranteed, even though the shoreline is eroding too rapidly for it to naturally maintain itself at this site. The system allows the forces present to be productive of dry beach and dunes as sand is scooped up and channeled inland. As the shoreline continues to move, parts of the private land are becoming public beach while others are eroding more slowly. Without the system installed, the beach will not exist, having been sacrificed in futile attempts to halt the erasure of the private property inland of it. There is a political trade-off, a loss for a gain. As Dana Cuff pointed out during the final jury, private property owners may reverse their opinion on beach access, and clamor to have more of these paths placed on their property in hopes of slowing the retreat of the shoreline. Public access would be desirable. It may even become the foundation for a new mode of tourism.
based on appreciation of the site.

By upending the popular conception of the coastal landscape, this project demands entirely new, or re-examination of old, building technologies and policies more appropriate to the consideration of the site. The project makes strong implications for how one would have to consider these when building in the coastal environment in the future. In fact, these implications apply to all environments when seen as material and force.

Contingency, the unknowable and unforeseeable future is the determiner of whether or not a design is still relevant in a future present. Currently, this is a source of anxiety for design. But the designer can never know, can never control everything. Contingency is the reality. A new attitude is needed in the face of this reality. The working methodologies developed in this project are my approach. By recognizing that form is actually fluid yet based on stable relationships - relationships of physical operativity - it becomes possible to design to the second power, indirectly, based on the principles and concerns of those relationships. Design is about shepherding and directing - a setting in play of something in the world - rather than an act of control and anxiety.

So as I said before, the disaster defies human control. Disaster is a label that is applied to an event in the face of epistemological failure. Contingency becomes catastrophic, disastrous if you will, because the new affronts our order of the world and our illusions of control over our environment. When architecture can let go of that control, it has the capacity to engage the forces within the disaster in a unique way to create something new, to effect change. This is not a utopian desire to solve a problem, but a deconstruction of problem itself.
references


Texas Natural Resources Code, Ch. 61. "Texas Open Beaches Act"
