

# MaterialNature: An Opportunistic Paradigm of Architecture & Landscape Ecology Based upon Influences of Shipping Industry Waste, Small Scale Coastal Erosion and Natural Growth

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An opportunistic paradigm of architecture & landscape ecology based upon influences of shipping industry waste & coastal erosion

In “Material Nature: An opportunistic paradigm of architecture & landscape ecology”, the influences of shipping industry waste, small scale coastal erosion and natural growth become the vehicle for architectural speculation. It leverages the material waste gathered from industry and creates a new material trajectory based upon need and the aesthetic of ecology. Material Nature is a series of architectural pavilions made from a mixture of residual, off-cast materials designed specifically to be weatherized. Its design is intended to provide a useful architectural community amenity in an area of high recreational activity, while simultaneously realizing a potential for architecture to be born from waste, and to return to nature without providing further waste.

In coastal Atlantic communities, soft rock formations along the shore are transformed by wind, water, and subsequently taken over by plants. The rock here is a porous mixture made of shells and sand & accepting of spontaneous, opportunistic landscapes. Plants themselves are able to germinate in the rock surfaces and grow year round, creating a surface of landscape on the outlining layer. This is a mutual relationship that is fostered between the landscape and the local stone which is leveraged by MaterialNature to create a localized architectural prototype.

The life span of this architecture is multi-variate. It begins as a series of pavilions and recreational beach shelters, and as time progresses and the natural processes of beach ecology take their course, the pavilions develop into a landscape, completely natural to the environment. The architecture is a singular transgression between the meta-morphosizing effects of wind currents (smooth, circular forms), landscape (germination, pollination, growth), and waste (bringing back discarded sand from the shipping and packing industry that is removed from beaches and left on factory floors, along with wax that is discarded)

## PROBLEM:

1. Coastal erosion & non-vernacular beach shelters
2. Coastal areas are plagued with a surplus of waste due to manufacturing adjacencies spurned by the proximity of ocean-based shipping facilities.
3. Additional waste surplus is created in the form of by-product wax use as a sealer in the shipping industry.

## WHERE:

Placement of MaterialNature pavilions are based on areas of coastal erosion along shorelines caused by beach dredging, manufacturing & recreation. These areas indicate a need for the introduction of architecture as a civic amenity, but also present an opportunity for public knowledge and enlightenment

## ARCHITECTURE/LANDSCAPE ECOLOGY:

The architecture of MaterialNature is time-sensitive and privileged by natural selection, wind, and sun. The initial formation of pavilions are originally created from round re-claimed cast stone “host” structures common to the area. Some of these are filled with a core of re-used sand and soil. The exterior is multi-layered in landscape seeds which are local to the area and support local economies, and coated in re-used wax from local factories.

Over time, the architecture becomes landscape. The landscape becomes garden. The garden becomes beach.

MaterialNature is presented as an architectural scenario, but it is a result of an attitude of creative problem solving based on multi-variate need and embodies a forward thinking agenda respondent to the overlooked forces of neglect and waste forged upon coastal communities as a result of years of manufacturing and the transient industry of ocean going shipping.

# Material Nature:

An opportunistic paradigm of architecture & landscape ecology based upon influences of shipping industry waste, coastal erosion & natural growth.



Beaches have always been an ongoing setting for erosion and the effects of natural processes on materials and landscapes. In this setting, natural selection takes its toll and ecologies are shaped because of what they are, where they are, and what they are made of. In the twentieth century, this setting has unfortunately become prime territory for pollution, waste and erosion due to manufacturing and coastal shipping practices that privilege transient, international growth at the expense of local sustainability.

In "Material Nature: An opportunistic paradigm of architecture & landscape ecology", the influences of shipping industry waste, small scale coastal erosion and natural growth become the vehicle for architectural speculation. It leverages the material waste gathered from industry and creates a new material trajectory based upon need and the aesthetic of local ecology. Material Nature is a series of architectural pavilions made from a mixture of residual, off-cast materials designed specifically to be weathered. Its design is intended to provide a useful architectural community amenity in an area of high recreational activity, while simultaneously realizing a potential for architecture to be born from waste, and to return to nature without providing further waste.

In coastal communities, soft rock formations along the shore are transformed by wind, water, and subsequently taken over by plants. The rock here is a porous matrix made of shells and sand & accepting of spontaneous, opportunistic landscapes. Plants themselves are able to germinate in the rock surfaces and grow year round, creating a surface of landscape on the outlying layer. This is a mutual relationship that is fostered between the landscape and the local stone which is leveraged by Material Nature to create a localized architectural prototype.

The life span of this architecture is multi-variate. It begins as a series of pavilions and recreational beach shelters, and as time progresses and the natural processes of beach ecology take their course, the pavilions develop into a landscape, completely natural to the environment. The architecture is a singular transgression between the meta-morphosing effects of wind currents (smoothly circular forms), landscape (germination, pollution, growth), and waste (bringing back discarded sand from the shipping and packing industry that is removed from beaches and left on factory floors, along with wax that is discarded and destined for landfills).



Render: one year



Render: two years



Render: five years

## Problems:

One) Coastal erosion & non-terraced beach shelters undermine the natural history of place and dilute the art of making a localized and performative architecture & landscape along the coast.  
Two) Coastal areas are plagued with a variety of waste that manufacturing agencies spurned by the pervasiveness of ocean-based shipping practices. Many times, shipping companies use sand as a packaging or filler which is taken from local areas. The sand that is used is gone forever but the sand that remains on factory floors is blown into landfills rather than given back to the beach, especially in areas such as salt vats and the led by elements.  
Three) Additional waste is created in the form of byproduct wax and other materials in the shipping industry. Due to the prevalence of central automated cutting machines, much of the waste is in the form of off-cuts from the workers & as a result, large amounts of residual wax are produced, stockpiled and taken to landfills.

## Where:

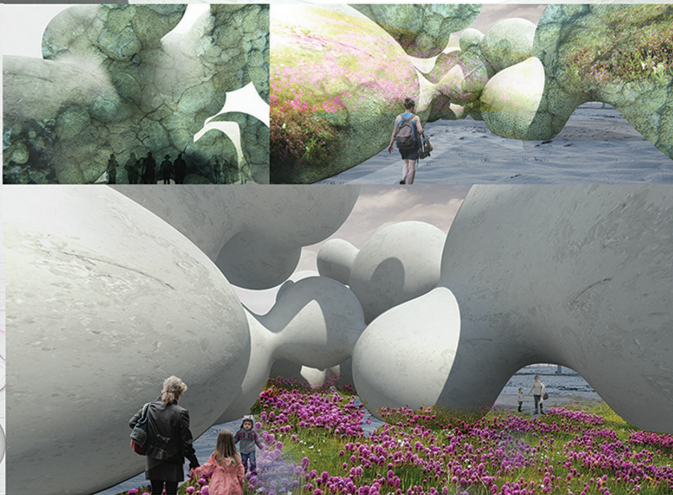
Placement of Material Nature pavilions are based on areas of coastal erosion along shorelines caused by beach dredging, manufacturing & recreation. These areas indicate a need for the introduction of architecture as a civic amenity, but also present an opportunity for public knowledge and enjoyment by utilizing architecture as a vehicle for issues surrounding local erosion based on recreation, poor land management practices, waste from the ocean going shipping industry, lack of civic design, and the impaction of mass produced, seasonal pavilion structures that are non-local and out of touch with a true sense of place.

## Architecture/Landscape Ecology:

The architecture of Material Nature is time-sensitive and privileged by natural selection, wind, and sun. The initial formation of pavilions are originally created from rounded, polished, cast stone that is resistant to the sea. Some of these are filled with a core of re-used sand and wax. The structure is multi-layered in landscape form which are local to the sea and support local economies, and create a re-used wax from local factories.

The composition erodes away, by layer over an extended period of time. The time-based erosion of surface grows through natural growth synergistically with local climate, plants, & domestic, and preservation. An on-site opportunity to maintain is used to filter the architecture to gain and become one with its climate.

Material Nature is presented as an architectural utopia, but it is a result of an attitude of creative problem solving based on an on-site need. The culture is a forward-thinking agenda supported by local, cross-fertilized forces of neglect and waste forged upon coastal communities as a result of years of manufacturing and the transient industry of ocean going shipping.



*"Over time, the architecture becomes landscape. The landscape becomes garden. The garden becomes beach."*