SINKING GROUNDS, RISING CHALLENGES
ARCHITECTURE OF RESILIENCE: DESIGNIING FOR CLIMATE MIGRATION IN ISLE DE JEAN CHARLES

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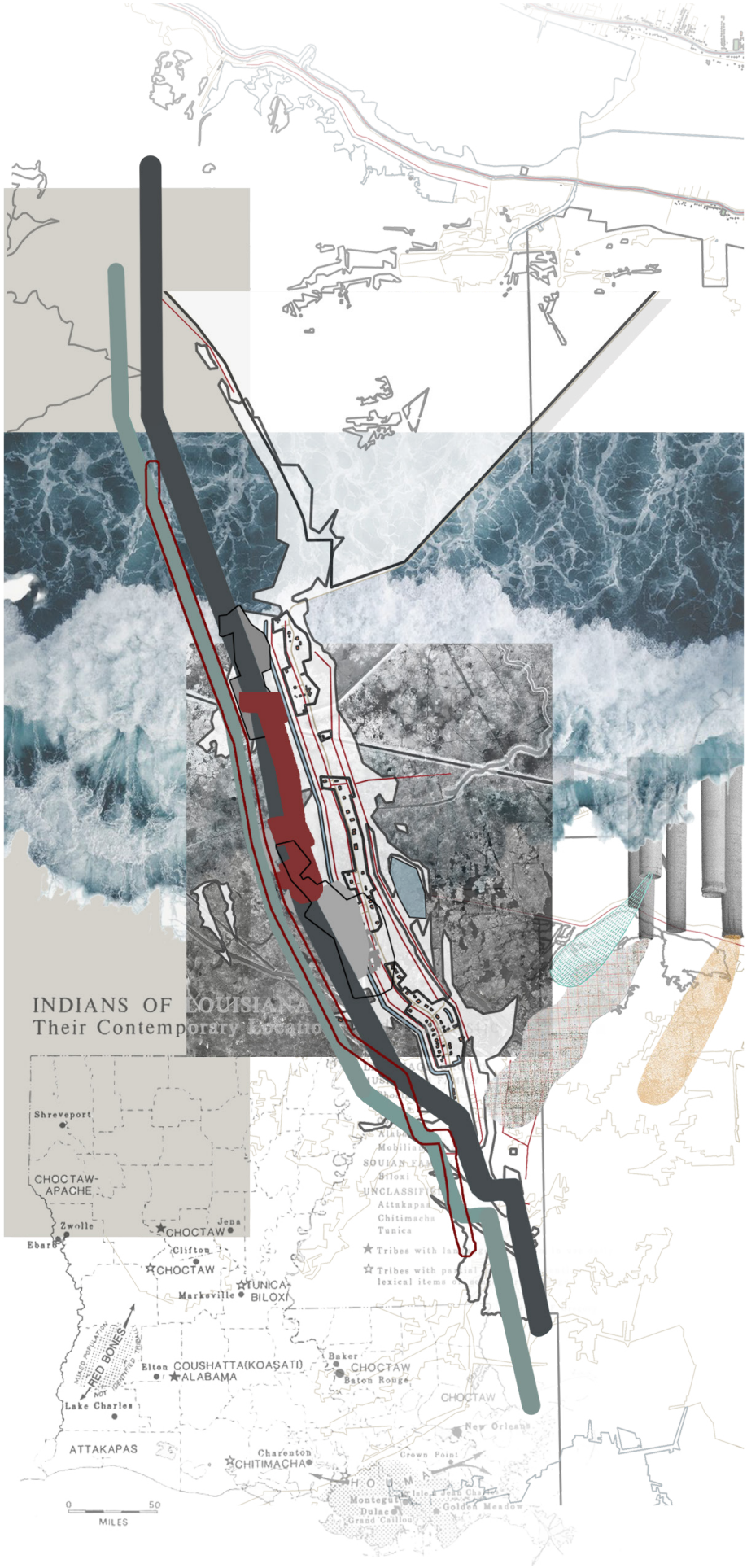
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2026

ABSTRACT

Climate change is forcing communities worldwide to relocate as rising seas, erosion, and flooding make land uninhabitable. Isle de Jean Charles in southern Louisiana, home to the Biloxi-Chitimacha-Choctaw Tribe, has lost 98 percent of its land, changing from a wide marsh landscape into a narrow strip surrounded by water. The government relocation to New Isle offered physical safety, but it did not fully address cultural continuity, community trust, or emotional connection to ancestral land. This research explores how architecture can respond to climate-induced migration while preserving identity, memory, and belonging. It asks whether communities can continue living with water rather than only retreating from it. Through mapping, field observation, and community-based analysis, the project proposes an amphibious and expandable framework for Isle de Jean Charles. The design combines floating platforms, elevated bridges, oyster reef systems, and culturally grounded programs such as a fishing hub, cultural center, festival ground, workshops, and temporary gathering spaces. The project is organized in phases so it can grow, adapt, or move as the landscape changes. Instead of seeing relocation as separation, this thesis imagines architecture as both shelter and a cultural vessel, protecting lives while keeping memory, tradition, and collective identity alive for future generations.


INDIANS OF LOUISIANA
Their Contemporary Locatio
Shreveport
CHOCTAW-
APACHE
Zwolle
Ebarb
CHOCTAW
Jena
Clifton
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TUNICA-
BILOXI
Marksville
RED BONES
Elton COUSHATTA(KOASATI)
ALABAMA
Baker
CHOCTAW
Baton Rouge
Lake Charles
ATTAKAPAS
Charenton
CHITIMACHA
CHOCTAW
New Orleans
Crown Point
H O U M A
Montegut
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DEDICATION

I dedicate this work to the people of Isle de Jean Charles, who continue to hold onto their land, memories, and identity, and to my family, for being my constant source of strength.

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Sinking Grounds, Rising Challenges

Architecture of Resilience：Designing for Climate Migration in Isle de Jean Charles

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Thesis Statement

The Isle de Jean Charles community in Louisiana has been forced to relocate due to severe flooding, coastal erosion, and extreme weather caused by climate change. Many resettlement programs fail to maintain cultural identity and community ties, disconnecting people from their ancestral land. This research explores architectural solutions that address these challenges by designing flood-resistant infrastructure to help people return to and rebuild their homeland. By integrating adaptive strategies like elevated structures and sustainable land management, this study aims to create a future where communities can live safely while preserving their cultural heritage.

Key Words: Climate-Induced Displacement, Flood Resilient, Amphibious Architecture, Indigenous Community

Abstract

Climate change has become one of the greatest global challenges, forcing people to leave their homes as rising seas, stronger storms, and land erosion make entire regions unlivable. One of the clearest examples in the United States is Isle de Jean Charles in southern Louisiana, where the Biloxi-Chitimacha-Choctaw Tribe has already lost 98% of their land. They were a thriving island rooted in fishing, farming, and deep cultural traditions; Now it has been reduced to a narrow strip of sinking wetlands. Government-funded relocation efforts, such as the creation of “New Isle,” aimed to provide safety but often ignored cultural identity, connection to place, and the tribe’s desire for self-determination. This case shows the global problem: displacement is not just about losing houses but about losing memory, culture, and belonging.

Architects and planners worldwide are now asked to address this issue of climate-induced migration in ways that preserve identity while providing safety. Global practitioners like Shigeru Ban, known for his community-centered disaster housing, Morphosis Architects through their Make It Right homes in post-Katrina New Orleans, and Dutch firms like Waterstudio.NL with their floating neighborhoods, all offer lessons in resilient and adaptive design. Each demonstrates how architecture can act not only as a shelter but also as a tool for cultural continuity and social resilience.

Several case studies show how these principles can be applied. The amphibious homes in Maasbommel, Netherlands, rise with floodwaters while allowing residents to maintain normal neighborhood life. The

Make It Right project in New Orleans lifted homes on piers and integrated renewable systems after Hurricane Katrina, showing how design can respond to disaster while maintaining affordability and dignity. In Bangladesh, the work of Marina Tabassum Architects on modular, portable houses for flood-prone regions provides another perspective. They are small-scale, low-cost solutions which use local materials and traditions. Adaptation works best when technical resilience is combined with community values, since no single model can apply everywhere.

The global design methods that connect these projects involve three key strategies. First, embracing a "living with water" approach rather than fighting it, seen in Dutch and Bangladeshi models. Second, elevating or making structures amphibious, ensuring safety without abandoning ancestral lands. Third, centering the voices and traditions of the community itself, an idea stressed by theorists like Stephen Cairns and Michael Cernea, who argue that forced relocation disrupts more than shelter. It fragments identity and social networks. For Indigenous communities like the Biloxi-Chitimacha-Choctaw, this means that any design must integrate traditional knowledge, collective spaces, and ecological practices tied to the land.

This research proposes architectural responses that combine these global tactics with local adaptation strategies in Louisiana, such as those outlined in the LA SAFE Regional Plan and Terrebonne Parish's adaptation framework. The goal is not simply to design structures but to create a model where communities can stay rooted in their homeland, adapt to changing waters, and preserve their cultural memory. By linking global precedents with the lived experiences of Isle de Jean Charles, the study argues for a new architectural role in the age of climate migration: one that protects both bodies and identities.



Isle de Jean Charles, Louisiana, in May 2022. Image: Olga Loginova/Columbia Journalism Investigations

Introduction

Climate change is forcing people to leave their homes, especially in coastal areas where rising sea levels, land erosion, and stronger storms are becoming more common. One of the most well-known examples in the United States is Isle de Jean Charles in Louisiana. This island has been home to the Biloxi-Chitimacha-Choctaw Tribe for generations, but due to disappearing land and frequent flooding, many residents have been forced to relocate. Government resettlement programs were created to help, but they often overlook important aspects like cultural identity, connection to the land, and community structure.

This thesis asks: Can architecture offer an alternative to relocation by helping

communities stay connected to their land, even in the face of environmental challenges? My research speculates that instead of just moving people away from high-risk areas, architecture can help them adapt to these conditions through designs that work *with* water rather than against it. Drawing from Indigenous experiences, adaptation frameworks like LA SAFE, and theories of forced migration and resilience, this study explores flood-resilient strategies such as amphibious housing, elevated structures, and sustainable land use.

This research builds on theories from Cairns' *Architecture and Migrancy* and Büyükşahin's study of resettlement in rural Turkey. Both emphasize that forced migration is not just about moving from one place to another, it fundamentally disrupts how people live, interact, and define themselves.[i] Displacement often results from state-led decisions shaped by power and policy, rather than by the will of affected communities. As Elizabeth Colson notes, uprooting people often leads to loss of trust in institutions and long-term harm to social structures.[ii]

By focusing on Isle de Jean Charles, this thesis proposes design solutions that protect communities from environmental threats while supporting their cultural survival. The goal is not only to provide physical safety but also to help people remain rooted in the places that define who they are.

Methodology

This research uses an interdisciplinary approach to explore how architecture can support communities facing climate-induced displacement, with a focus on the Isle de Jean Charles in Louisiana. The study includes historical, political, cultural, and architectural investigations to understand both the causes of forced migration and the possibilities for return.

First, a literature review was conducted to understand the concept of forced migration. Key sources include *Architecture and Migrancy* by Stephen Cairns and *Migration in Rural Settlements* by Büyükşahin, which examine how migration disrupts people's ways of living, identity, and sense of place. Elizabeth Colson's anthropological work further explains how forced displacement often causes a loss of trust, broken social structures, and long-term cultural harm.[iii] This study also draws from *Effects of Land Dispossession on Indigenous Peoples* by Farrell et al., which provides data on how Indigenous tribes in the U.S. have been pushed from fertile lands to less livable areas.[iv]

In addition to reviewing scholarly literature, this study includes an analysis of government policies and adaptation plans. The *LA SAFE Regional Adaptation Strategy* and the *Terrebonne Parish Adaptation Strategy* are examined to understand how the state of Louisiana is planning for future flooding and how these policies affect communities like Isle de Jean Charles.[v] The Tribe's press release is used to see how the community's real experience compares to what the state planned, and it shows that the Tribe was not fully included or respected in the resettlement process.[vi]

To better understand the larger historical context, the study investigates the history of Indigenous displacement in North America. This includes research into federal relocation policies, such as the Indian Removal Act, and

how tribes like the Biloxi-Chitimacha-Choctaw were forced to move from their original territories. It also explores where they resettled, what conditions they faced, and how their culture and livelihoods were affected over time.[vii]

An important part of this research is direct engagement with the community. This paper uses interviews with residents from both Isle de Jean Charles and New Isle (the resettlement site). These interviews will ask questions about their needs, experiences during and after relocation, and whether they hope to return to their ancestral land if safer architectural options were available. The goal is to understand how design can respond directly to community desires, not just government goals.

Finally, the study reviews case studies of flood-adaptive housing, such as floating homes in Netherlands and storm-resistant houses in New Orleans. These examples are analyzed to understand how architectural strategies like amphibious foundations, elevated structures, and green infrastructure can help people live safely in vulnerable environments. The insights from policy analysis, historical study, community interviews, and architectural precedents will be combined to propose design solutions that support both resilience and cultural belonging.

Literature Review

Forced migration, especially due to environmental problems, is a growing issue that disrupts communities and separates people from their ancestral lands. Helton and Jacobs (1999) define forced migration as when people have no choice but to leave their homes because of persecution, economic problems, environmental damage, or bad government policies.[viii] This definition is important for understanding climate-related displacement because it shows that migration is not a choice but something people must do to survive. *The State of Environmental Migration* (2011) explains the different causes of environmental displacement, showing that both sudden disasters (like hurricanes and floods) and slow changes (like coastal erosion and droughts) force people to move.[ix]

The challenge of resettlement is not just about moving people but also about keeping their culture and connection to the land. Büyükşahin (2020) studies forced migration in rural areas such as the Bozkır Barrage resettlement in Turkey and finds that government-led relocation programs often fail to protect the architectural style and social traditions of displaced communities.[x] This is similar to what is happening to the residents of Isle de Jean Charles, where new housing developments are replacing traditional homes and weakening cultural connections. Stephen Cairns' *Architecture and Migrancy* (2004) explores how migration influences architectural identity, emphasizing that displacement forces people to create new, often unorthodox ways of dwelling.[xi] These sources help explain why conventional relocation programs do not work well and why architecture should focus on preserving cultural traditions, creating flexible living spaces, and helping communities rebuild in ways that suit them. Additionally, the study on *Forced Displacement and Migration* argues that migration policies should help people adjust to their new environments

without losing their cultural identity.[xii] This research will use these insights to advocate for architectural strategies that support social sustainability and community resilience.

Forced migration has particularly damaging effects on Indigenous communities. When they are displaced, they lose more than homes; They lose a deep connection to their land, culture, and way of life. Farrell et al. (2021) show that many tribes were relocated to lands that are hotter, drier, more exposed to environmental hazards, and less suitable for farming, compared to their original territories. This change not only impacts their ability to grow food or hunt but also weakens traditional practices tied to the land.[xiii] Colson (2003) explains that forced displacement also causes social breakdown and a loss of trust in institutions, especially when relocation is handled by outside authorities. O'Rourke (2024) emphasizes that for communities like the Biloxi-Chitimacha-Choctaw Tribe of Isle de Jean Charles, the land is central to identity and culture. Losing their island means risking the loss of language, traditions, and community life.[xiv] These studies stress that relocation efforts must respect Indigenous knowledge and support communities in ways that allow them to stay connected to their roots, culturally and physically.

This study will analyze case studies of storm-resistant housing in New Orleans and floating houses in Netherlands to explore climate-adaptive housing solutions. After Hurricane Katrina, New Orleans faced a severe housing challenge, and many low-income residents were displaced. To address this, projects like Musicians' Village were developed, offering affordable, storm-resistant homes for displaced musicians. These homes were raised to higher levels to prevent flood damage, with residents contributing sweat equity in the construction. Netherland's approach to addressing rising sea levels involves the development of floating neighborhoods. The Waterbuurt district, for instance, comprises 32 floating homes with concrete hulls foundations which allow them to adapt to water level fluctuations.[xv] This innovative design showcases a practical solution to living in flood-prone areas. This research will explore these models to develop amphibious structures that integrate local materials and cultural design elements while ensuring resilience to flooding. These architectural solutions not only protect communities from displacement but also maintain their social and cultural ties.

Case Study

"Amphibious Homes in Maasbommel, the Netherlands"

The Maasbommel project in the Netherlands is one of the world's first built examples of amphibious housing. Designed in response to increasing flood risks, the project includes 14 permanently floating homes and 32 amphibious homes that rest on the ground under normal conditions but float when water levels rise. This innovative housing model was developed by Factor Architecten and Boiten engineers as part of the Dutch government's "Room for the River" program, which focuses on adapting to water instead of fighting it.

The amphibious homes are built on concrete hulls that work like boat bases. These homes sit in specially dug docks and rise with the

water during floods, then safely return to the ground as the water recedes. Strong mooring poles guide this movement and keep the houses stable even in extreme conditions. Flexible connections for electricity, water, and sewage allow the homes to function safely when floating. This design ensures residents can stay in their homes during floods without being displaced, providing both safety and a sense of stability.

What makes this project special is how it combines safety with a normal lifestyle. Residents have gardens, parking spots, and access roads just like in a regular neighborhood. In everyday life, the houses feel like any other home but during a flood, they transform. The homes successfully floated during a real flood in January 2011 and returned safely to their positions afterward.[xvi]



Houses in flooded condition. Source: Factor Architecten b.v.

"Make It Right House, New Orleans, Louisiana"

Louisiana faces one of the highest flood risks in the United States due to sea level rise, land subsidence, and storm surge. New Orleans, especially low-lying areas like the Lower Ninth Ward, has been severely affected, most notably during Hurricane Katrina in 2005, which led to widespread destruction after levee failures. While state strategies like LA SAFE promote community-based adaptation and risk-reduction planning, flood-resilient architecture has also become a key tool in helping residents remain safely in place.

One example is the Make It Right House designed by Morphosis Architects, built as part of a post-Katrina rebuilding initiative in the Lower Ninth Ward. The design features an elevated structure supported by concrete piers, lifting the home 8 feet above ground to exceed FEMA flood height requirements. This simple but critical move reduces damage during future floods. The house includes a metal mesh façade system that provides solar shading, solar panels on the roof for off-grid energy, and rainwater harvesting integrated into the roof's slope. The building also uses energy-efficient materials like FSC-certified wood, low-VOC paints, and a green roof to reduce heat island effect.[xvii]

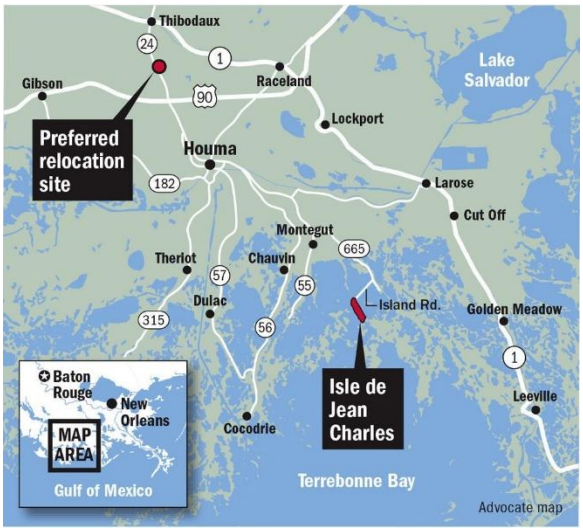


The FLOAT House - Make it Right / Morphosis Architects © Iwan Baan

Defining Forced Migration and the History of Climate-Induced Migration in the U.S.

Forced migration occurs when individuals or communities are forced to leave their homes

due to factors beyond their control, such as conflict, persecution, or environmental disasters. Forced migration is not always about crossing borders; it also includes internal displacement caused by environmental degradation, economic crises, or government policies.[xviii] Climate



change has intensified this phenomenon, with rising sea levels, hurricanes, and coastal erosion leading to the displacement of entire communities. Climate-induced displacement is often categorized as both sudden such as hurricanes and slow happening events such as coastal erosion and land subsidence).[xix] In the U.S., climate-induced migration has a long history, particularly in coastal regions vulnerable to extreme weather. One of the cases is the displacement caused by Hurricane Katrina (2005), which forced hundreds of thousands of residents, mainly from New Orleans, to relocate permanently. However, Isle de Jean Charles in Louisiana represents a different case of displacement, as it is caused by long-term environmental degradation rather than a single catastrophic event. The Biloxi-Chitimacha-Choctaw tribe, the island's Indigenous inhabitants, has been losing their land for decades due to coastal erosion, land subsidence, and rising sea levels. Their forced migration is the first federally funded climate relocation project in the U.S..[xx]

Also, Indigenous communities across North America have often been pushed from their original lands to less desirable places. A study by Farrell et al. found that, over time, Native tribes have been displaced from lands with richer soil, more rainfall, and better access to natural resources. Today, many live on land with less agricultural potential, more extreme heat, and fewer economic opportunities. These changes weren't accidental; They were shaped by historical and political systems that took land for development, industry, or control, leaving tribes with little say in the process.[xxi]

Isle de Jean Charles: History and Environmental Challenges

Location of Isle de jean Charles and the New Isle. Source: Pinterest

Isle de Jean Charles is a small island in southern Louisiana that has been home to the Biloxi-Chitimacha-Choctaw Tribe since the 1830s. After escaping forced removal during the Indian Removal Act, the tribe settled on this narrow strip of land surrounded by bayous and marshes. They built a life rooted in fishing, shrimping, hunting, and deep cultural traditions. For many generations, they lived in close-knit families, speaking a blend of French, Choctaw, and English, and maintaining a strong connection to the land. However, over the last several decades, the island has been disappearing. Due to rising sea levels, hurricanes, land subsidence, and the destruction caused by oil and gas canals, Isle

de Jean Charles has lost 98% of its land. In the 1950s, it was 11 miles long and 5 miles wide; today, it is barely 2 miles long and less than a quarter-mile wide.[xxii]

In 2016, the U.S. government awarded $48.3 million to Louisiana for the first federally funded climate relocation project. The plan was to resettle the island's remaining residents which are about 26 families to a new inland community called "New Isle," located 40 miles north near the town of Schriever. The new site was designed to offer safer housing, modern infrastructure, parks, and community facilities. However, the process was slow, and it became deeply controversial. Many residents were worried that by moving, they would lose their identity, culture, and access to the island they considered sacred. Some feared that once they left, the government might take the land for other uses, repeating the painful history of land theft their ancestors experienced.[xxiii]

Although the new houses are elevated and designed for safety, several residents say they do not feel at home. Life in New Isle is different: the land is drier, the neighborhood layout is more suburban, and the environment is unfamiliar. One resident said, "This doesn't feel like home. It's like moving into a development, not a community." Others complain about higher costs of living, taxes, and insurance at New Isle compared to the island. Many former islanders miss the freedom and privacy of their old homes, where they had space, gardens, and deep ties to neighbors. Some residents also report feeling isolated in their new homes and worry that their traditions and knowledge tied to the land will not survive the move.[xxiv]

Not everyone chose to relocate. A few families refused to leave and continued to live on Isle de Jean Charles, despite the growing flood risks. For them, staying is a way to protect their heritage and remain close to their ancestors. As one elder said, "We've already lost so much. If we lose this land, we lose who we are." Others who moved say they would consider returning if conditions improved. Their decision is not just about physical safety, it's about belonging, memory, and cultural survival.[xxv]

The story of Isle de Jean Charles reveals the complexity of climate relocation. It shows that moving people away from danger is not enough. Resettlement must also protect the emotional, cultural, and historical ties that make a place home. For many Indigenous communities, land is not just where they live; It is who they are. Architecture and planning must begin to recognize and support this deeper connection, especially as climate change forces more communities to make these hard choices.

Effects of Forced Migration on Indigenous People

Forced migration has severe impacts on Indigenous communities, especially when they are separated from their ancestral land. For Indigenous tribes like the Biloxi-Chitimacha-Choctaw from Isle de Jean Charles, relocation does not just mean moving to a safer place, it means losing a deep cultural identity that is tied to their land, traditions, and way of life.

Moreover, relocation often leads to the breakdown of social structures within Indigenous communities. Elizabeth Colson explains that displacement causes the loss of

trust in governments and weakens community ties. People feel powerless, isolated, and disconnected from their past and future. For tribes from Isle de Jean Charles, many residents feel that once the island is gone, the "core" of their tribe will be lost because their cultural practices, food systems, and memories are deeply connected to the island landscape.[xxvi] Forced migration also exposes Indigenous people to economic struggles, social fragmentation, and emotional stress. They face challenges adapting to new environments where their traditions may not be recognized or supported. This highlights why future relocation programs must not only provide safety but also respect and preserve the cultural identity, knowledge, and rights of Indigenous communities.

Challenges of Relocation and Adaptation

The relocation of Isle de Jean Charles residents raises crucial questions: Where do displaced people go? How do they adapt? Do they want to return? Many former residents have moved to the New Isle, a newly constructed settlement inland. However, studies show that relocation programs often fail to replicate the social and cultural fabric of the original communities. In many cases, displaced individuals experience social fragmentation, economic struggles, and emotional problems due to their forced separation from their ancestral land.[xxvii]

James C. Scott's Seeing Like a State offers important ideas that help explain the problems with forced climate migration, especially in cases like Isle de Jean Charles. One of Scott's main ideas is "legibility." He explains that modern states want to make communities easy to manage, so they simplify complex realities. For example, they turn forests into timber counts, land into maps, and people into population data. This helps the state control resources, but it erases cultural practices, local knowledge, and community identity. In the case of Isle de Jean Charles, the government didn't see the island as a cultural homeland; It saw a "high-risk flood zone." So it moved people to a "safer" place, without understanding what was being lost.

Scott also criticizes "high-modernist ideology," which is the belief that experts, science, and centralized planning can solve problems for everyone. This approach often ignores the voices of the people most affected. The resettlement of Isle de Jean Charles is a good example: although the New Isle was designed with green infrastructure and organized housing, the plan failed to center the tribe's values, needs, and relationships with the land. Scott warns that when high-modernist thinking is combined with state power and weak civil resistance, it leads to harmful social engineering. He gives examples like forced collectivization in the Soviet Union and village resettlement in Tanzania. These are projects that displaced millions by ignoring how people actually live.

He shows how states care more about removing people from "problem areas" than helping them rebuild on their own terms. Historically, Indigenous and rural communities have been pushed into less valuable, flood-prone, or disconnected landscapes so they are easier to monitor and control. In Louisiana, many tribes have already been forced onto shrinking land due to coastal erosion and policy failures. Now, resettlement plans risk repeating that cycle

by ignoring people's desire to stay close to their ancestral homes.[xxviii]



An aerial view of the new homes at The New Isle resettlement community in Terrebonne Parish near Schriever, Louisiana, Aug. 24, 2022, built for the climate refugees from the Isle of Jean Charles. Cecile Clocheret/AFP via Getty Images, FILE

Architectural Interventions

In response to the forced relocation of Isle de Jean Charles residents due to climate change, this project proposes architectural interventions that allow the community to adapt without severing their deep-rooted connection to the land. Drawing from the LA SAFE Regional Adaptation Strategy and Terrebonne Parish Adaptation Plan, the design embraces a "living with water" approach by focusing on flood-resilient construction, sustainable land use, and community-led planning.[xxix]

One strategy can be elevating homes at least two feet above base flood elevation, using pier-and-beam construction to resist flooding and allow stormwater to pass beneath structures.[xxx] In areas with seasonal flooding, amphibious housing is also proposed. This technique, inspired by Dutch floating neighborhoods and storm-resistant homes in New Orleans, provides safety while maintaining access to traditional land.

Site planning prioritizes shared green spaces and walkable layouts, so homes are grouped to support social ties and intergenerational living, something the tribe values deeply. Stormwater is managed through bioswales and rain gardens, which slow and filter runoff which is like natural water cycles. These green infrastructure elements also serve as gathering areas, linking environmental function with community life.

To restore land and improve ecological health, the design can include native vegetation buffers and reconstructed marsh terraces. These elements reduce erosion and absorb storm surge, while supporting local ecosystems tied to tribal fishing and gathering traditions.[xxxi]

Most importantly, these strategies must be community-led. As research by O'Rourke shows, top-down relocation often fails when it ignores people's identity and voice. Architecture should support cultural survival, not just safety by helping communities stay rooted in the places that define them.

Conclusion

"The land is the mother of all things. She nourishes us, she teaches us, she shelters us. We belong to the land, just as the land belongs to us." The forced displacement of Isle de Jean Charles residents is more than just a story of climate change; it is a story of identity, resilience, and belonging. If we continue to treat relocation as the only solution, we risk erasing histories, traditions, and the deep connections people have to

their land. Using theories from Cairns, Büyükşahin, Colson, and Scott, the study explains how forced relocation often ignores people's culture, identity, and community needs. Through case studies like the amphibious homes in the Netherlands and storm-resistant houses in New Orleans, it explores real design strategies that adapt to water instead of fighting it. By studying Isle de Jean Charles and Louisiana's adaptation plans, the research creates a context for new design ideas that support both physical safety and cultural belonging. As climate change threatens more places, we must rethink how we design for the future, ensuring that people can live safely without being forced to abandon their heritage. By embracing adaptive and culturally sensitive solutions, we can create environments where displaced communities are not just relocated but truly belong.

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THESIS ADDENDUM

YEKTA JOURABCHI

Miami University

Personal Origins of the Thesis

I grew up in Iran, a place where many people of my generation have felt the pressure to leave home. Not because they wanted adventure, but because the situation in the country made it hard to stay. Many of us, including me, felt that we had to leave even for a short time to build a future, even if it meant being separated from family, culture, and everything familiar.

When I came to the United States, I expected to study and work hard, but I did not expect how deeply relocation would affect me. Leaving Iran felt like losing a part of myself. I felt the grief of losing belonging, the fear of losing my identity, and the sadness of being far from the land and people who shaped me. In this new place, I often felt like a stranger, trying to understand new systems, new expectations, and a new culture.

These emotions made me more sensitive to people who are forced away from their homeland. As I learned more about the history of the United States, I became interested in Native American communities. Their long history of displacement, injustice, and erasure made me feel close to them in an unexpected way. Even though our stories are different, I felt a small shared pain and the feeling of being pushed away from where you belong.

This curiosity led me to learn about the Biloxi–Chitimacha–Choctaw Tribe of Isle de Jean Charles in Louisiana. Their ancestors were pushed from their original homeland during the Trail of Tears and found refuge in a small island in the marshes. Now, because of land loss, climate change, oil canals, and state decisions, they are being forced to move again. When I discovered their story, I felt a strong connection. The pain of losing home and identity was something I understood. This is what led me to my thesis topic.

Understanding the Island

As I began my research, I realized that Isle de Jean Charles is not only a disappearing island, but also a symbol of how environmental and political decisions can affect people's lives for generations. The island has lost 98% of its land since 1955. Stronger hurricanes, saltwater intrusion, collapsing wetlands, and decades of oil and gas canals have made it almost impossible to live there.

At the same time, relocating the community has brought its own challenges. Even though the New Isle was meant to bring everyone together again, many tribal members were excluded from decisions, and many parts of the original plan were never built. People are now living far from the bayou that shaped their traditions, and many still feel disconnected from their identity.

This led me to my main question: Can architecture help people stay connected to their land and memories, even when the land is disappearing?

Learning from Culture, Landscape, and Tradition

Before developing my design, I needed to understand displacement not only as a physical condition, but also as an emotional and cultural one. Thinkers like Frantz Fanon and Sara Ahmed helped me frame displacement as a loss of orientation, belonging, and identity. Their work made me realize that being forced to move changes how people experience space, memory, and everyday life. This helped me see architecture not just as shelter, but as something that can help people re-orient themselves.

Artists like Julie Mehretu and Kameelah Rasheed influenced how I represent place through layering, fragments, and overlapping histories. Their work helped me understand that landscapes are not fixed, but hold many stories at once. This approach shaped how I studied the site and how I began to draw, map, and design.

From there, I focused on the tribe's culture and relationship with the marsh. Their daily practices are deeply tied to land and water:

1. basketry made from river cane

2. fishing nets tied by hand

3. pirogues carved from bald cypress

4. dances inspired by animals and movement

5. fishing, shrimping, and crabbing

These traditions became the foundation of my design thinking. I began to explore how weaving patterns could shape space, how net-making could influence structure, and how architecture could move with water instead of resisting it.

Concept Development: A Network Between Two Places

As my research grew, my design concept became clearer. Instead of choosing between the old island and the New Isle, I started to imagine a network that connects them.

In this vision:

1. The old island becomes a place for fishing, cleaning, and preparing catch and festivals.

2. New Isle becomes a place for markets, workshops, gatherings, and cultural production.

3. The two sites support each other, forming a cycle of movement and connection.

I also began exploring floating and amphibious structures. If the island continues to sink, architecture can rise with the water instead of disappearing. In this way, the community can still return to the island for fishing, ceremonies, or memory, even if the land becomes fully submerged.

The goal is not to "fix" the land, but to keep the tribe's presence alive on their ancestral ground.

Design Process: Still in Progress

Many ideas are developing, changing, and growing as I learn more. I am exploring:

1. how to use traditional patterns without being literal

2. How to design with sensitivity and respect

3. How to create spaces that support cultural practices

4.How to express identity through architecture

5. how to design for an uncertain future

This process has taught me that the project is not only about creating buildings. It is about understanding relationships between land and people, between the past and the future, and between memory and survival.

Next Steps

I am working on improving the structure of my presentation by clearly introducing the proposal first, before moving into history and background. This helps the audience understand the main idea early and prevents important information from becoming overwhelming. I am also being more precise about what already exists on each site and what I am proposing to add, especially when discussing precedent studies and how they directly inform my design.

In my drawings, I plan to simplify and strengthen communication by overlaying diagrams onto precedent images and case studies. Showing early sketches and process work will help make the design evolution more legible and grounded. I am also developing a large sectional drawing that shows the island, the New Isle, and the mainland together, including current and projected water levels. This section will clearly explain why a conditionally floating structure is necessary.

I am refining how I explain the structure itself. The project is not a fully floating building, but an anchored system that rises only during flooding. I am also clarifying that the island is not fully submerged today, that I am not building on the island, and that the site is located on the northwest side of the island where it is protected from storms. At the same time, I am continuing to test strategies for self-sufficiency through natural ventilation, water collection, and potential energy generation.

To better understand user needs, I plan to develop personas based on resident interviews and secondary sources, including elders, fishers, youth, and relocated residents. This will help me design spaces that support daily life, cultural practices, and continuity. I am also studying how people move between the island, the fishing hub, and the New Isle, including road access and water routes. Understanding canal systems and boat access may help form a stronger inland water network for transporting fish, baskets, and other products.

Economically, I am expanding the role of the New Isle market beyond selling fish and crafts. I am exploring how traditional skills such as basket weaving, net making, and boat building can scale into larger systems, including architectural elements, coastal restoration nets, and boats for other coastal regions. Inspired by oyster-based restoration projects, I am studying how oyster nets can clean water and act as natural storm barriers, and how the community's skills could support similar projects in Louisiana and beyond.

Alongside design work, I plan to continue building relationships by reaching out directly to the Isle de Jean Charles

community and attending cultural events such as the Pow-Wow festival.

Conclusion

The story of Isle de Jean Charles is not only local. It is a global story. As climate change reshapes coastlines around the world, many communities will face the same questions: What happens to identity when land disappears? How do we hold on to memory? What does home become?

Architecture cannot stop the water, but it can help keep stories alive. It can create spaces that honor memory, support culture, and help people stay connected even when they must relocate.

CONTEXT

Methodology

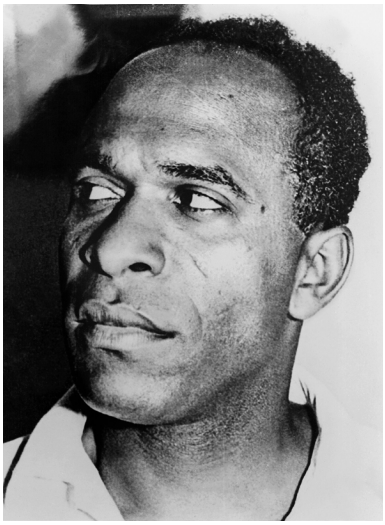
Research Phase

Literature Review	Review of academic papers, reports, and books on climate change, coastal erosion, and Indigenous communities to build a strong theoretical foundation.
Case Studies	Analysis of relevant projects such as amphibious housing and ecological infrastructure to understand different approaches to living with water.
Existing Interviews & Media	Study of documentaries, recorded interviews, and public talks to learn from the experiences and voices of residents and researchers.
Site & Historical Analysis	Investigation of land loss, environmental change, and the historical displacement of the community to understand the site's transformation over time.
Concept Development	Study of flooding, sea level rise, and site conditions to inform adaptive design strategies.
Concept Development	Early design thinking and idea generation based on research findings and cultural understanding.

Design Phase

Field Trip / Site Visit	Direct observation of Isle de Jean Charles and New Isle to understand physical conditions, spatial qualities, and lived experiences.
Mapping & Data Analysis	Creation of analytical maps to study environmental conditions, distances, access, and regional relationships.
Virtual Modeling	Use of digital tools to develop, visualize, and refine the architectural proposal.
Physical Model Making	Construction of physical models to explore form, structure, and spatial relationships.
Program Development	Definition and organization of project functions based on community needs, cultural practices, and environmental conditions.

Architectural Discourse



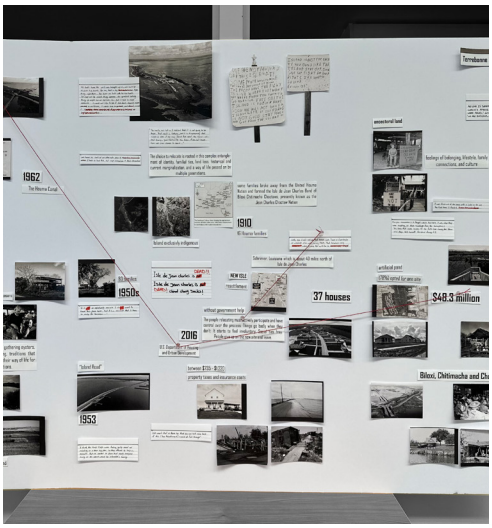
Frantz Fanon

Frantz Fanon's work frames displacement as more than the loss of land. He explains how being forced from one's home disrupts identity, memory, and a sense of belonging, showing that space is not neutral but shapes how people understand themselves and their place in the world. This perspective is important for understanding the relocation of the Isle de Jean Charles community as not only a physical move but a deep emotional and cultural rupture. Fanon's ideas allow climate migration to be read as a form of disorientation shaped by historical and environmental forces, positioning architecture as a response to psychological, cultural, and spatial trauma not only environmental risk.



Kameelah Rasheed





-by author-

Kameelah Janan Rasheed's work focuses on memory, language, and archives, often using fragments of text and found materials to show how histories are shaped by what is remembered or erased. Her work suggests that meaning is built through layers rather than complete narratives. This approach informs ways of representing Isle de Jean Charles through fragments, voices, and material traces, allowing architecture to acknowledge loss while supporting continuity and shared memory.

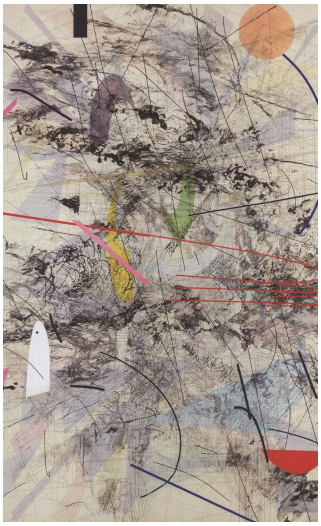


Sara Ahmad

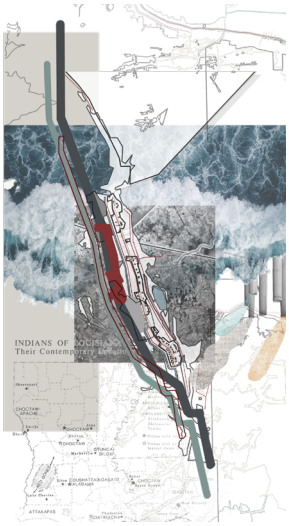
Sara Ahmed's work frames space through the ideas of orientation and disorientation. She shows how people become oriented through everyday spaces, routines, and familiar paths, and how losing these can make the world feel unstable and difficult to navigate. This means displacement happens not only physically but also emotionally and socially. Ahmed's theory allows climate migration to be understood as a loss of direction and belonging, rather than simply a change of location. In the context of Isle de Jean Charles, her ideas inform an architectural approach that re-orients people through familiar materials, shared paths, and collective gathering spaces, helping restore grounding, memory, and community after displacement.



Julie Mehretu





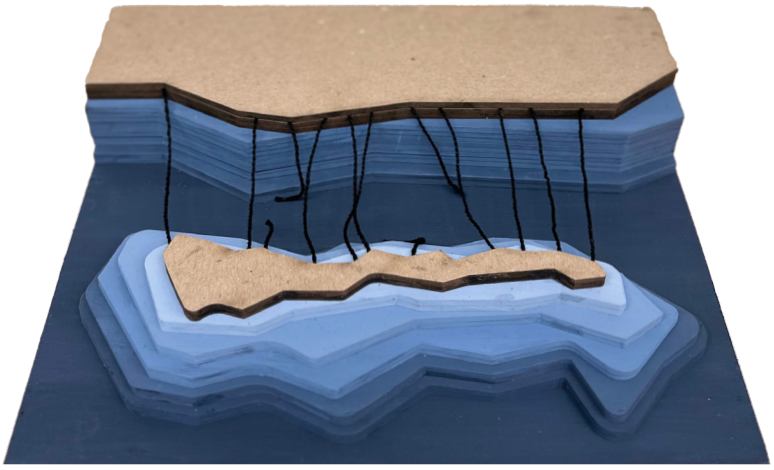


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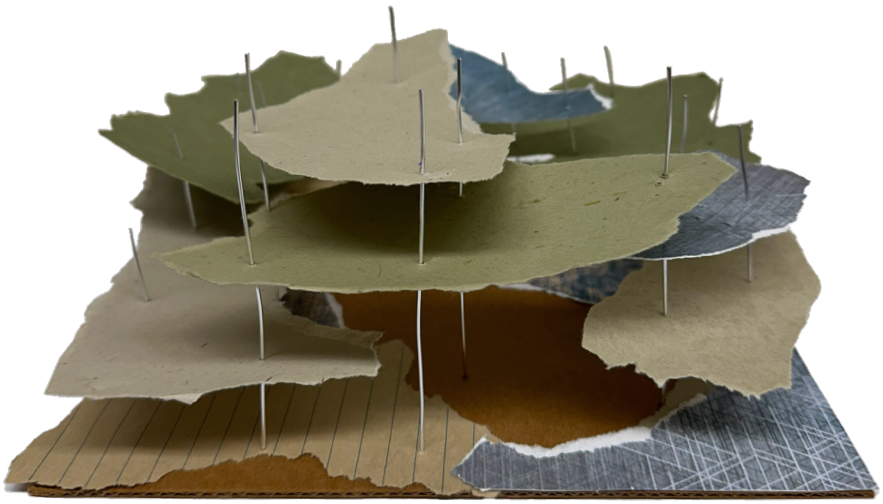
Julie Mehretu's work explores space through layering, movement, and mapping. She uses abstract lines, architectural drawings, and city plans to show how places are shaped by history, migration, and social change. Her work reveals that landscapes are never fixed; they hold many overlapping stories at once. This approach informs the way layered drawings and maps are used to represent Isle de Jean Charles, helping show memory, movement, and loss as interconnected rather than separate conditions.

Artifact

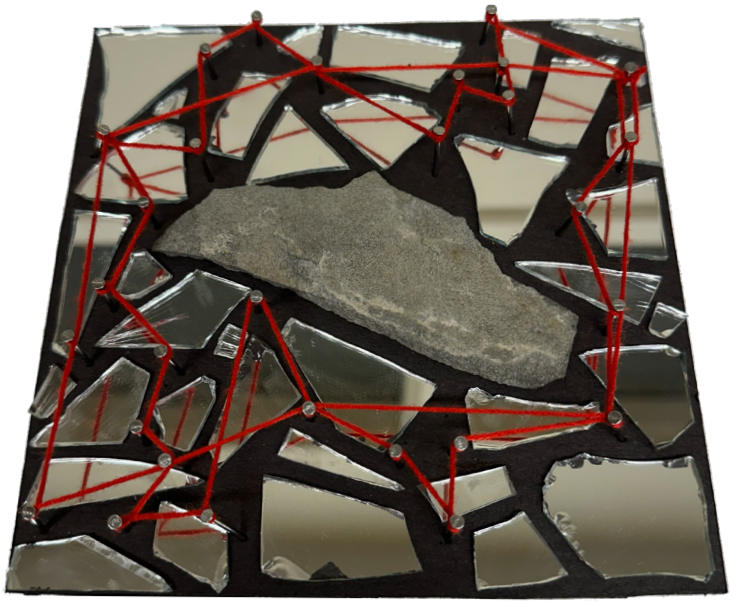
This model shows the relationship between Isle de Jean Charles and the mainland as water levels rise. The shades of blue represent rising water, the smaller form represents the island, and the larger form represents the mainland. The strings symbolize the emotional, cultural, and ancestral connections people have to their land. As the island becomes farther from the mainland, these connections become tighter and some begin to break, representing the risk of losing cultural ties, traditions, and a sense of belonging as displacement increases.

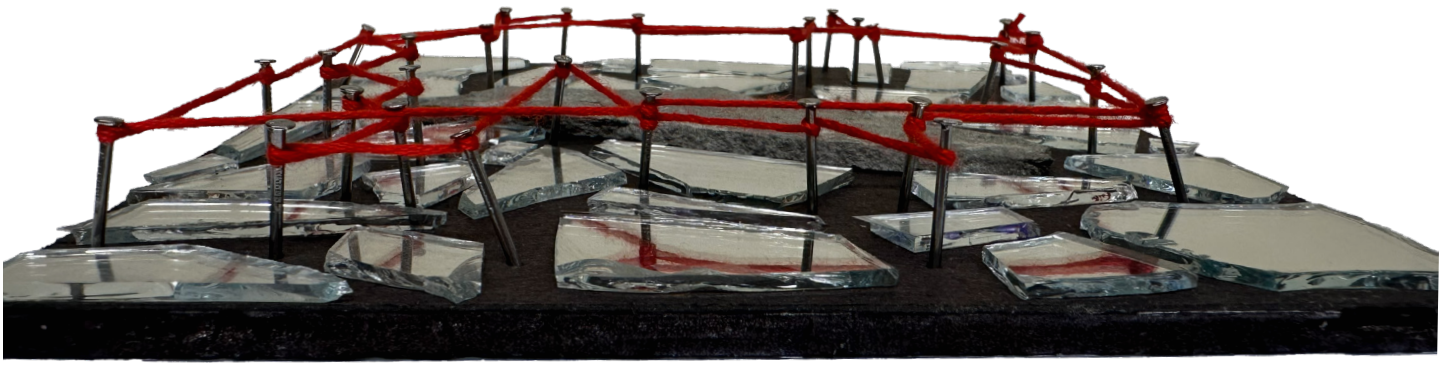


This model is an abstract view of the Isle. Each layer shows a part of the landscape. The solid ground, the marshlands, and the shifting waters. The raised pieces represent proposed elevated structures, like platforms that rise above the water and offer shelter. The model imagines the land as floating layers, stacked and fragile, but still holding together. The elevated forms act like protective hands, creating a space where people can live with the water instead of fighting against it. It reflects the idea of coexistence, where architecture becomes part of the landscape, honoring both the land and the water that surrounds it.



This model is inspired by Isle de Jean Charles and represents the slow fragmentation of land, memory, and community caused by climate change. The broken mirrors symbolize the island breaking apart through erosion and rising waters, reflecting how the physical landscape is gradually disappearing. At the center, the stone represents the Isle itself standing for the community's lasting presence despite environmental loss. The mirrors also act as carriers of cultural memory, capturing fragmented reflections that suggest how identity is remembered in pieces rather than as a whole. The nails and red strings connect these fragments, symbolizing relationships, shared histories, and ancestral ties that continue to bind the community together. Even as the land fractures, these connections remain visible and strong, showing that the community's sense of belonging stays rooted in their ancestral land, even as its physical form fades.





BACKGROUND



Introduction

Background

Isle de Jean Charles is a small island in southern Louisiana that has been home to the Biloxi-Chitimacha-Choctaw Tribe for generations. Since 1955, the island has lost 98% of its land because of rising seas, stronger hurricanes, disappearing wetlands, and thousands of oil and gas canals that brought saltwater deep into the marshes. Levees along the Mississippi River also blocked the natural flow of fresh water and sediment, so the land could no longer rebuild itself.

Process of Land Loss



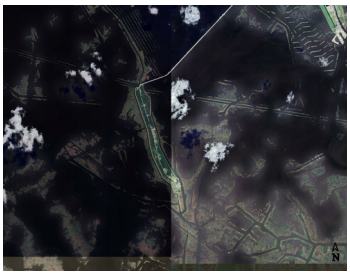
1990



2006



2020



2023

The tribe first came to the island in the 1830s after being forced from their original homelands. Today, because of climate change, many families have moved again to a new resettlement site called New Isle. The project did not fully meet the community's needs, and strict rules limited their connection back to the island.

Thesis Question

Can architecture help people stay connected to their land, memories, and identity, even as rising water forces them to relocate?



Thesis Statement

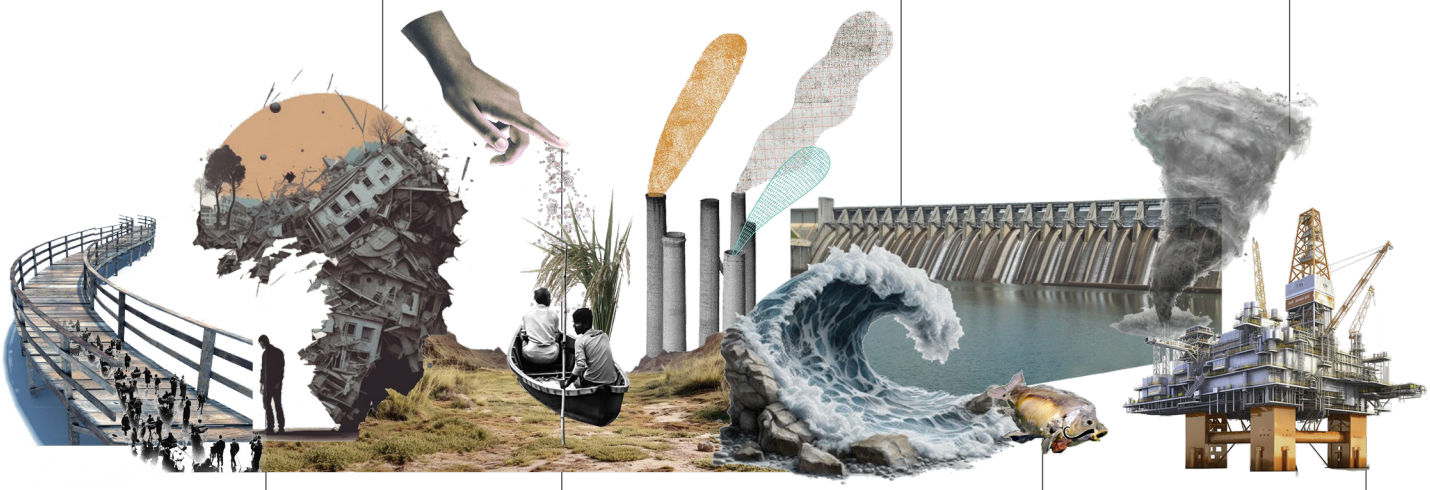
Architecture can help the Biloxi–Chitimacha–Choctaw community stay connected to their ancestral land and cultural traditions as Isle de Jean Charles disappears by using adaptive structures and creating a network that links the island with the New Isle.

Problem Statement

Flooding and erosion collapse houses, making the island unlivable

Levees along Mississippi Riverblocked the natural flow of fresh water and sediment that used to rebuild the wetlands

Climate change has created more frequent and intense hurricanes that strike the island



Loss of land and homes forces residents to move inland unwillingly

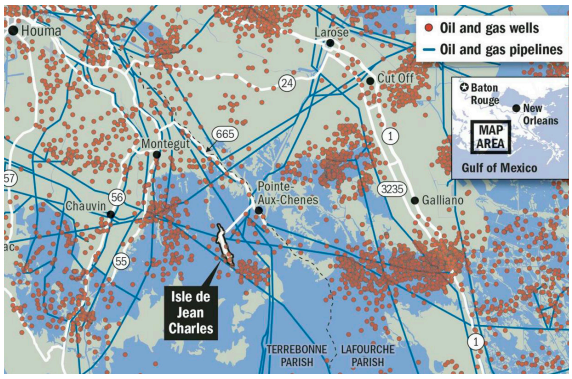
Saltwater Intrusion killing vegetation, damaging soil quality, and making farming impossible

Massive fish kills occur due to lack of oxygen in the water

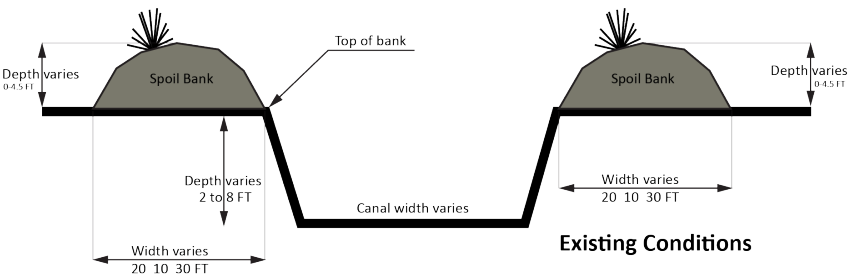
Oil and Gas companies have dug canals for over 50 years speeding up the saltwater intrusion

Gas and Oil Industry

Oil and gas companies cut over 20,000 kilometers of straight canals through the marshes. These canals let storm surge rush inland and exposed the soft soils, causing rapid erosion. Over time, they even split Isle de Jean Charles into three parts.







Existing Conditions

Location | Iale de Jean Charles

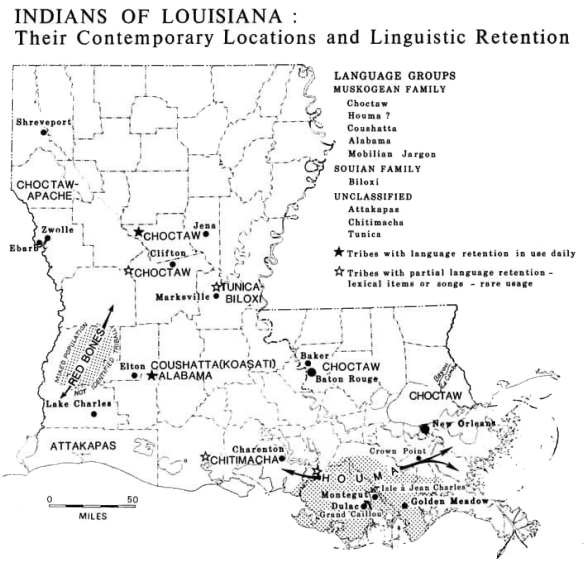


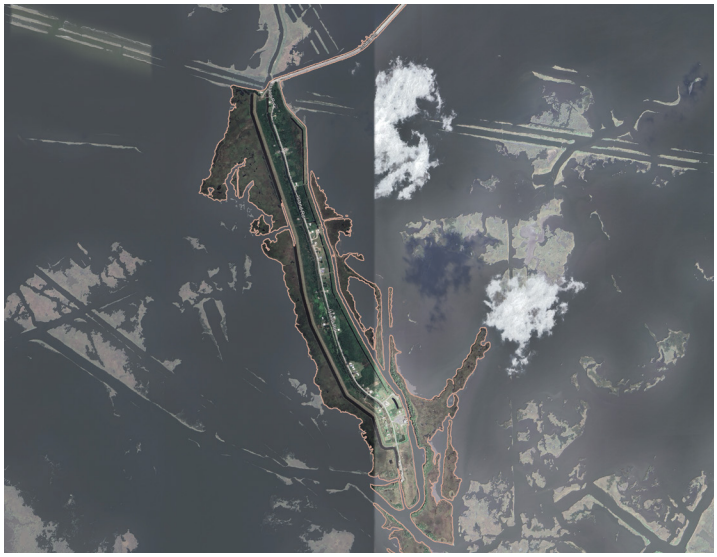
Isle de Jean Charles is a small island located about 80 miles southwest of New Orleans, deep in the marshes of Terrebonne Parish. Reached by a single narrow road, the island has been the home of the Biloxi–Chitimacha–Choctaw community for generations. Today, the land around it is disappearing rapidly, making it one of the most visible examples of climate-driven land loss in the United States.

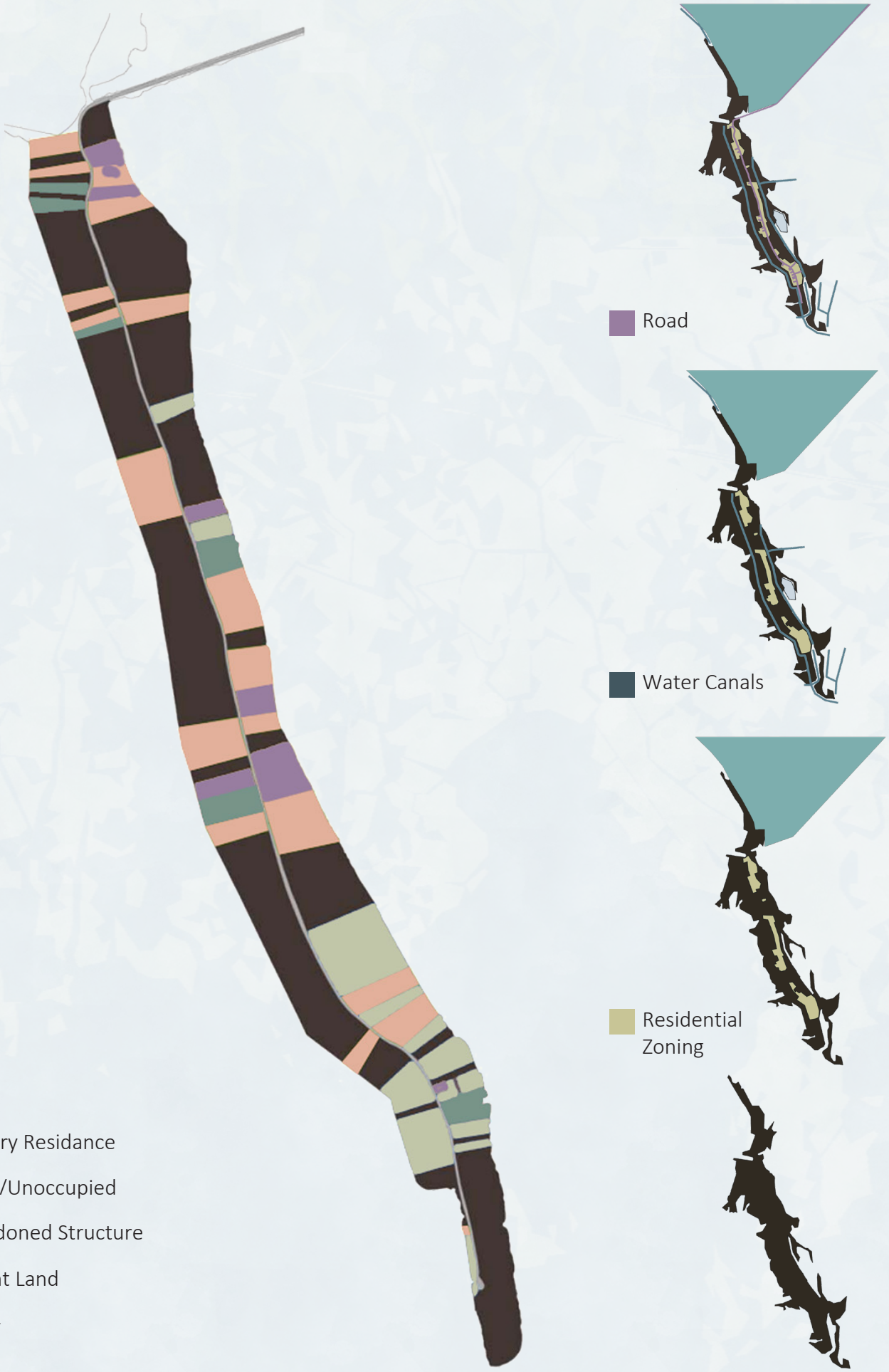




Isle de Jean Charles






Primary Residance
Camo/Unoccupied
Abandoned Structure
Vacant Land
Other
Road
Water Canals
Residential Zoning

Timeline

1830| Indian Removal Act
Native Nations, including Choctaw, Cherokee, Creek, Seminole, and Chickasaw, are forced off ancestral lands (Trail of Tears). Some groups seek refuge in Louisiana marshes

1830s| Settlement on Isle de Jean Charles
Ancestors of the Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw and the United Houma Nation settle on the island, seeking isolation and safety

1840 | Early French Levees
French colonists begin levee construction along the Mississippi River to protect colonial settlements. This interrupts natural flooding and sediment flow that once replenished wetlands

1927 | Great Mississippi Flood
The flood destroys ~1,500 miles of levees, killing hundreds and displacing thousands

2006| Flood Control Act
Ring levee construction begins to protect Isle de Jean Charles from flooding.

Early 1900s|Oil & gas discovery
Louisiana authorizes massive canal dredging for rigs, pipelines, and navigation. Over 20,000 km of canals are cut, creating saltwater intrusion and vegetation die-off

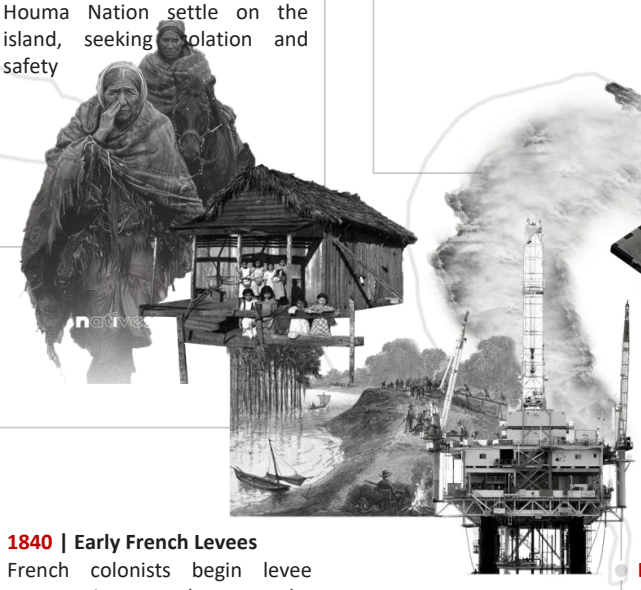
2002| Climate change relocation attempt



2020-2022| New Ise construction
Home construction begins, two years late. By Feb 2022, families are preparing to move into the new community

2024-present| Continuing struggles
Former residents report frustrations with housing quality and relocation process; Isle itself is shifting into use as recreational "fishing camps"

2006-present| Wetland collapse
Coastal Louisiana loses ~4,800 Km2 of land between 1932-2016. Terrebonne Parish alone lost ~502 sq mi; Isle de Jean Charles shrank ~98%



pirogues; boats carved from cypress



One of the first structures on the island







Who Are They?





Traveling to the Isle by pirogue



Mending cast nets





Oyster and crab



beading basket





Cultural Identity and Traditions



Traditional Dancing

Dancing is part of cultural gathering and celebration for the Isle de Jean Charles community. Powwow dancing, music, and regalia help bring families together and keep Indigenous identity visible across generations. These events are not only performances; they are moments of memory, pride, and community connection.



Boucheries Festival

Boucheries are part of South Louisiana food culture, where families and neighbors gather around shared cooking. For the island community, food traditions connect people to place, family, and seasonal life. Seafood, communal meals, and local celebrations are important ways of keeping relationships strong.



Fishing

Fishing, shrimping, crabbing, trapping, hunting, and oyster gathering shaped daily life on Isle de Jean Charles for generations. These practices were both a livelihood and a form of local knowledge, based on understanding tides, marshes, weather, and shallow waterways.



Basket Making

Basket making is an important Indigenous craft tradition in the region. It uses natural materials such as cane and palmetto, turning local plants into useful and meaningful objects. This practice carries knowledge of materials, patterns, patience, and cultural memory.



Net Making

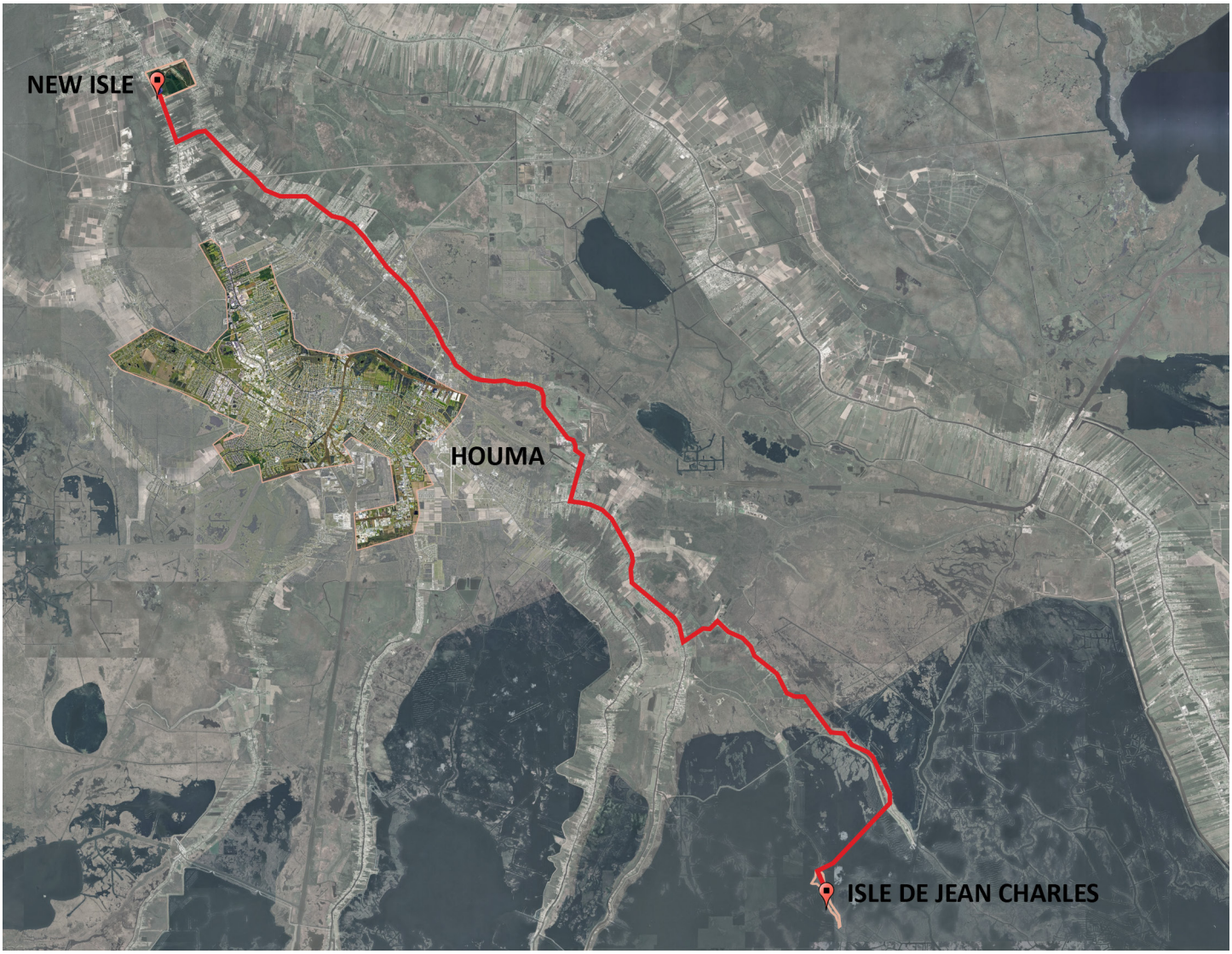
Net making and net repair are connected to fishing life. They show the practical skills needed to live with the water and support fishing, crabbing, and shrimping. These skills were often learned within families and passed down through daily work.



Boat Making

Pirogues were essential for moving through the bayous and marshes. They are narrow, shallow boats traditionally carved from cypress wood and moved by paddle or push pole. Children even traveled by pirogue to school in Pointe-aux-Chenes, showing how deeply boat culture was part of everyday life.

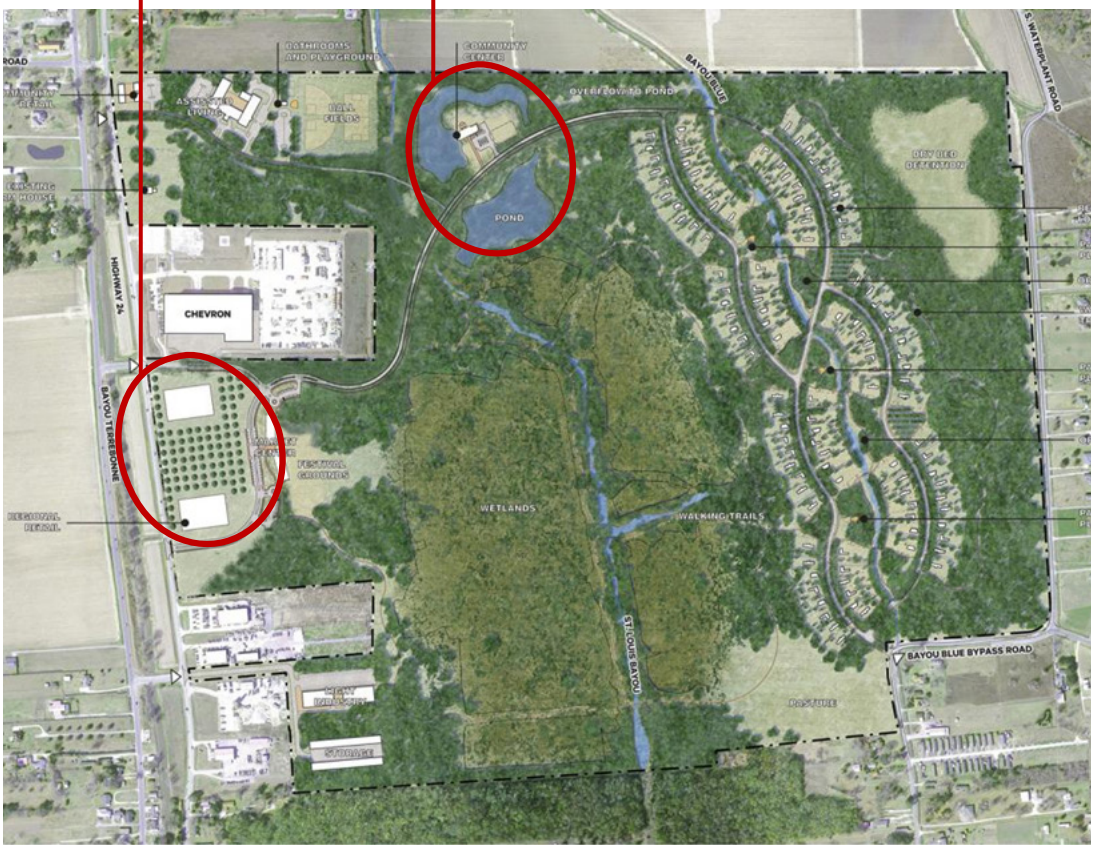
The New Isle



The New Isle is located about 40 miles north of Isle de Jean Charles, near Schriever and Thibodaux, on higher and safer ground. In 2016, the community received a $48 million federal grant from HUD,the first climate-relocation grant in the U.S.,to create a new settlement where families could reunite. The original plan included around 100 homes, a community center, workshops, market space, and shared cultural areas. However, only 37 homes were built, and many planned community spaces were never completed. Today, the site sits between light industrial areas and open fields, with a festival ground and a pond near the community center site. Although the New Isle is closer to daily services, many residents feel it does not replace the identity and memories of the original island. Some appreciate the safety, but many still express a sense of loss and continue to call the old island their true home.

Market
Festival Ground

Community Center
Pond

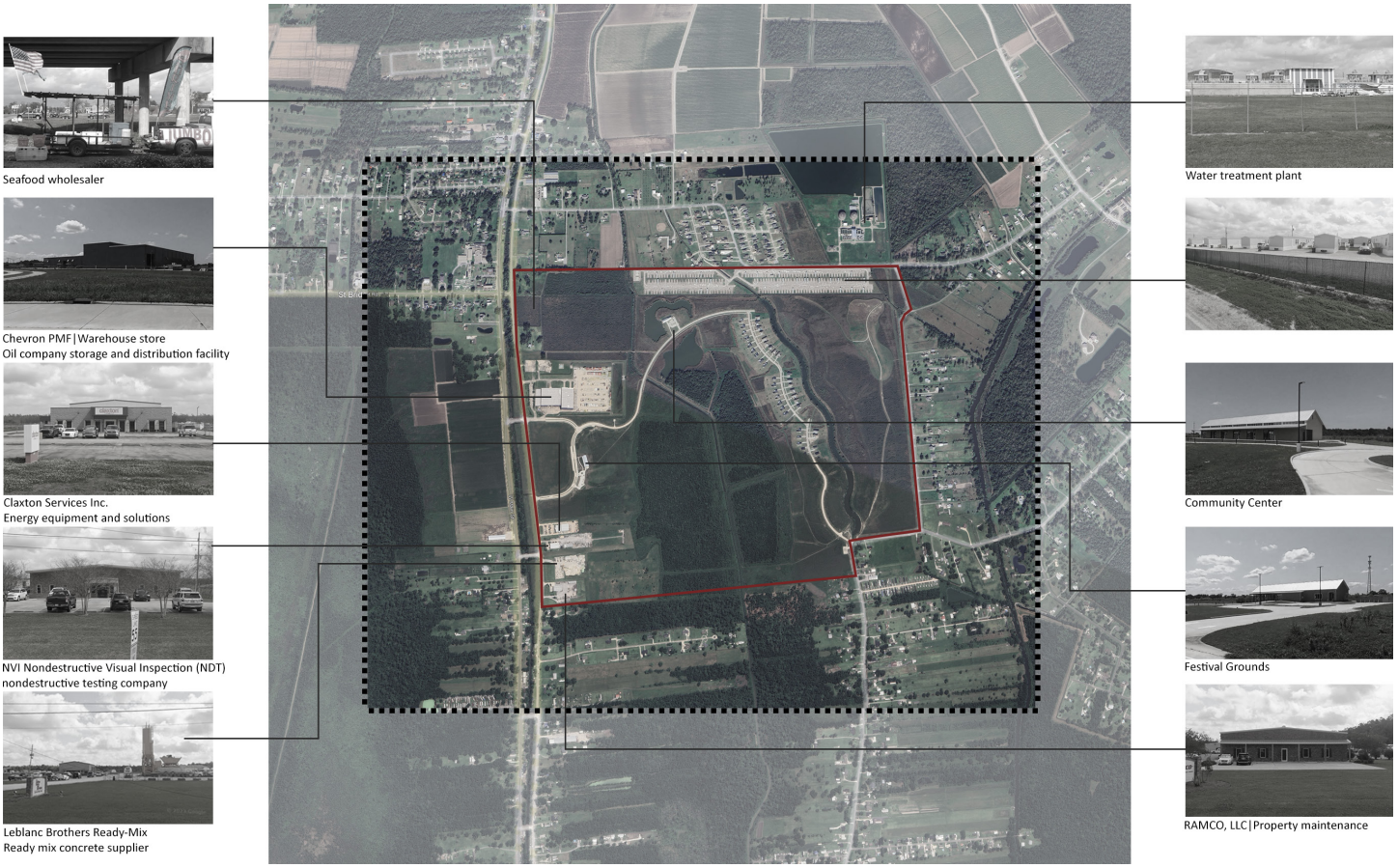


Proposed Plan



Reality

The New Isle | Surrounding Context



Industrial Surrounding

Majority of nearby businesses are oil, gas, and service related.
Includes RV/boat repair shops, plumbing supply stores, mechanic shops, gas stations.
Reflects decades of industry that shaped the region.

Presence of Water-Related Businesses

A few seafood and fish markets appear along the main corridor.

Opportunities for Cultural & Economic Connection

Tribal traditions align with fishing, shrimping, crafting, and water work.
These local businesses can support future growth and community-led enterprises.
The New Isle sits between industry and nature, creating both challenges and possibilities.

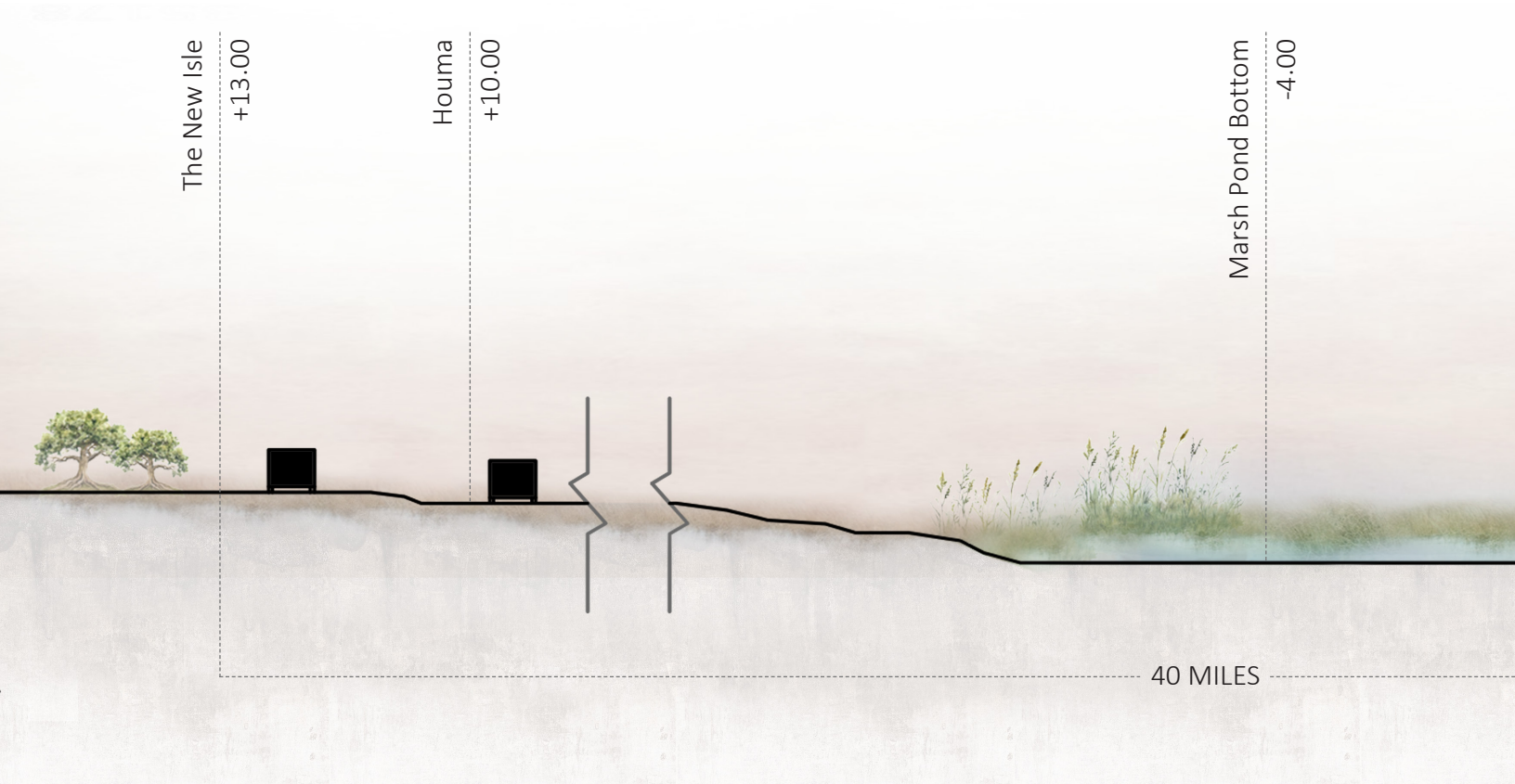


The New Isle is much closer to Houma and Thibodaux, which are the main nearby cities. This location gives the community better access to schools, hospitals, stores, and jobs. Compared to the old island, the New Isle is less isolated and closer to important services and everyday needs.

Section | The New Isle to Isle de Jean Charles

Land Loss
98% of island land lost since 1955
Coastline is transitioning: land → marsh → open water

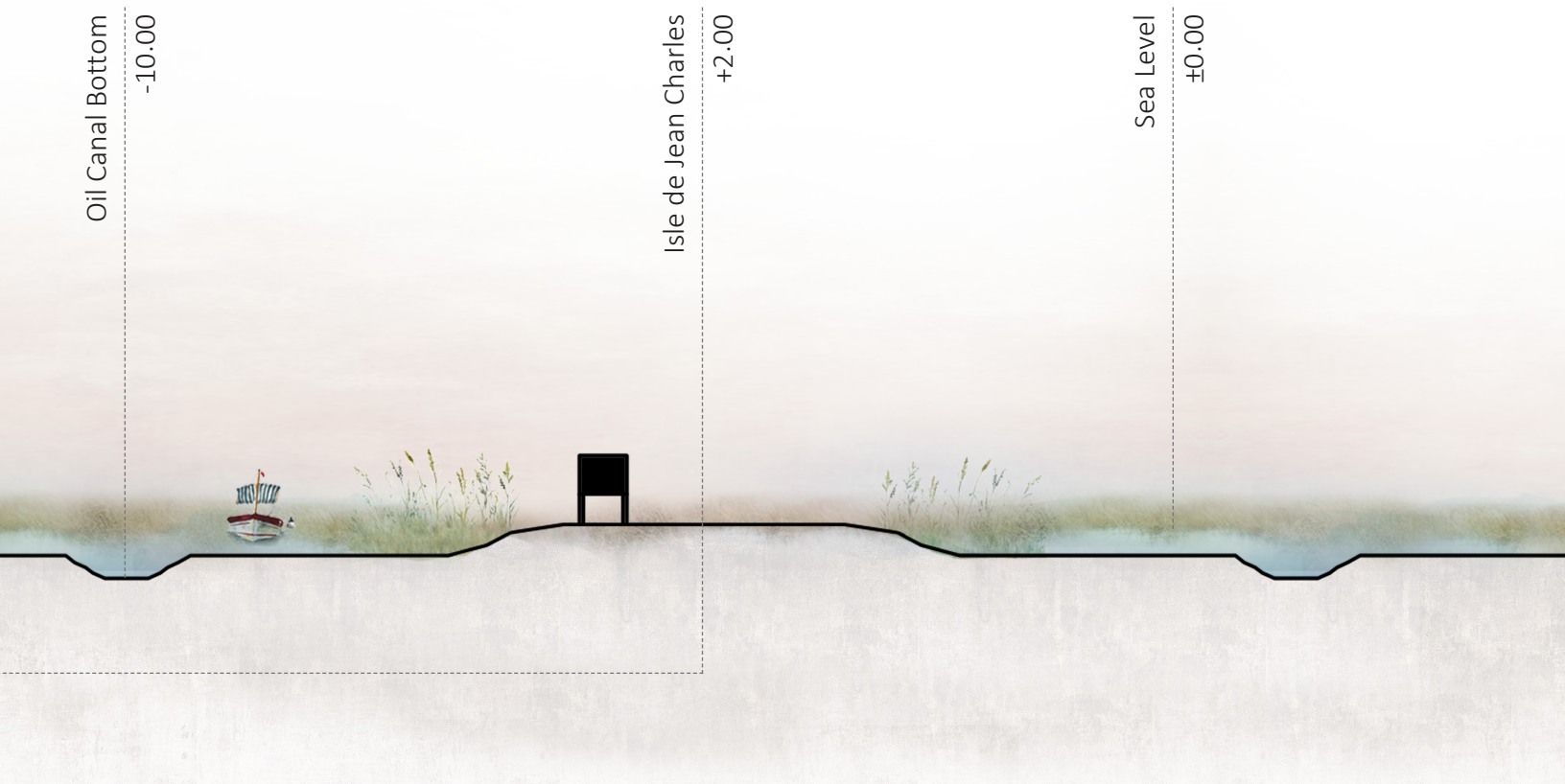
Relative Sea-Level Rise
Louisiana marshes experience one of the fastest rates on Earth:
≈ 0.5 inch per year
(sea rise + land subsidence combined)



Time	Water Level Increase
10 years	+5–10 inches
20 years	+1–2 ft
50 years	+2.5–5 ft

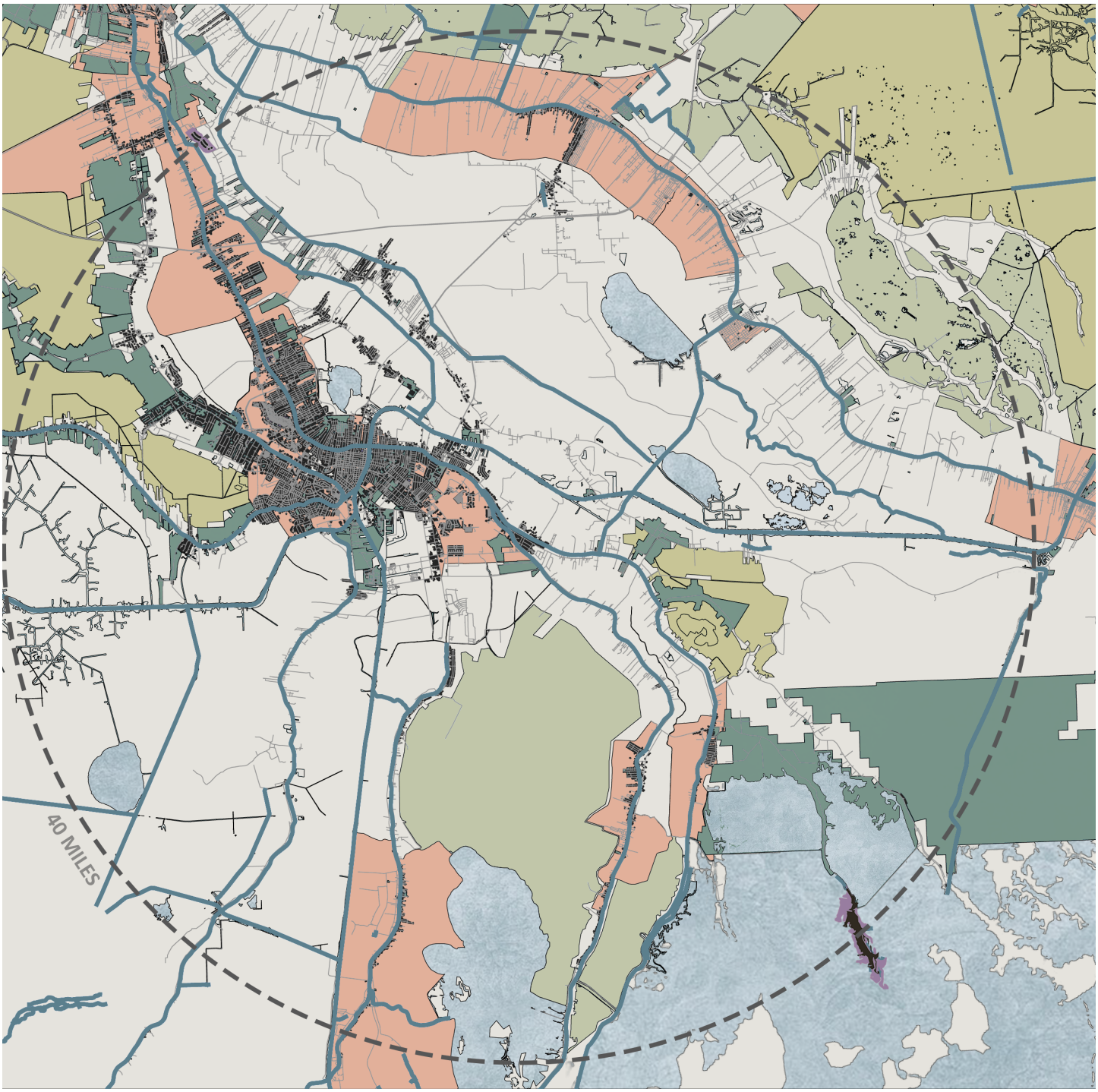
Future Habitability

10–20 years: permanent habitation unlikely
20–40 years: only fragmented marsh remains
Later this century: open water landscape



ANALYSIS

Distance and Land Use Pattern



This map shows the regional context between Isle de Jean Charles and the New Isle. The New Isle is about 40 miles north, moving the community from a fragile coastal landscape to a more developed inland area.

Urbanized & Developed Zones

Wetlands / Marshlands

Protected Areas / Wildlife Management

Swamp Forest

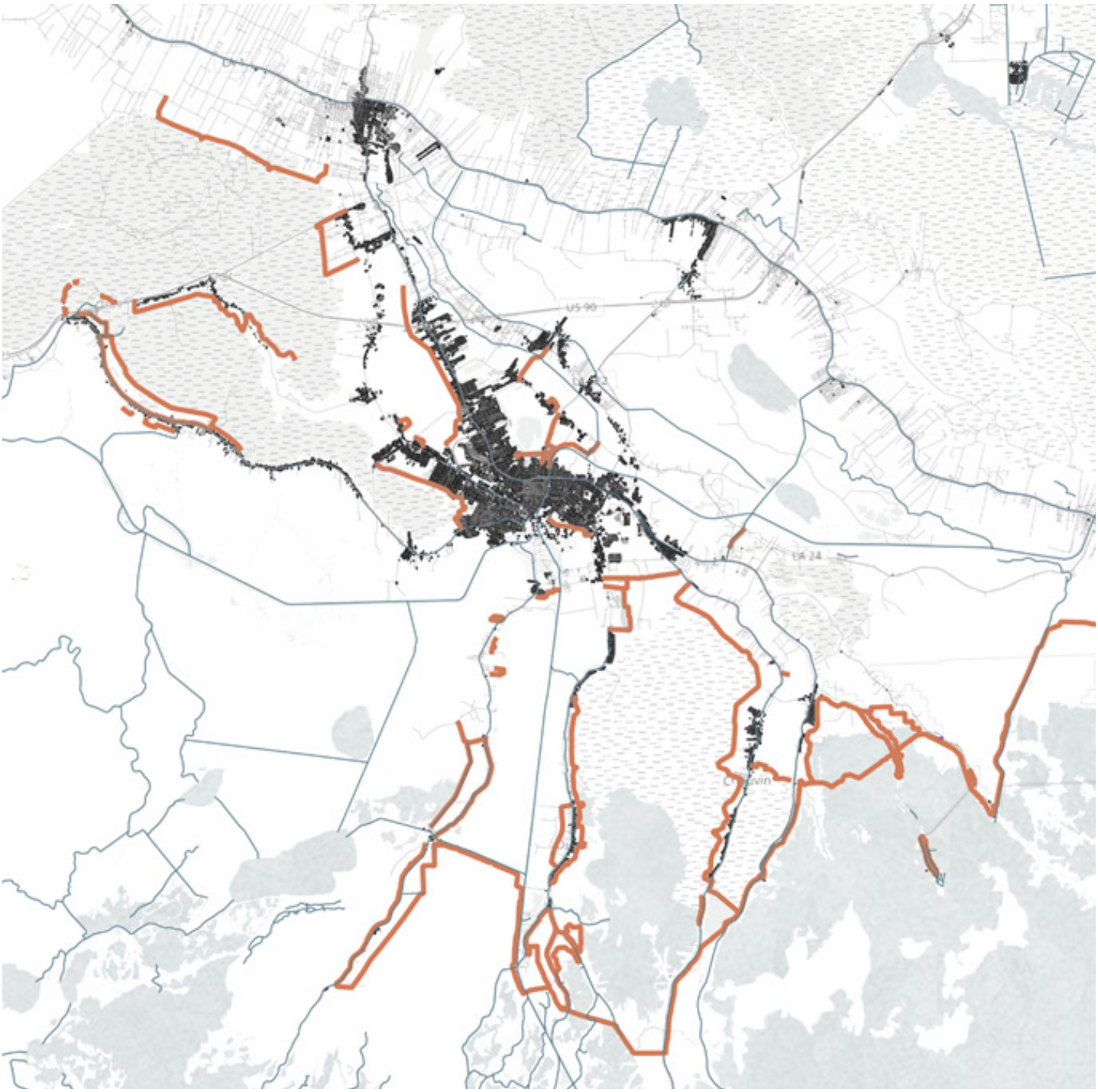
Water

Regional Dispersion of Tribal Residents



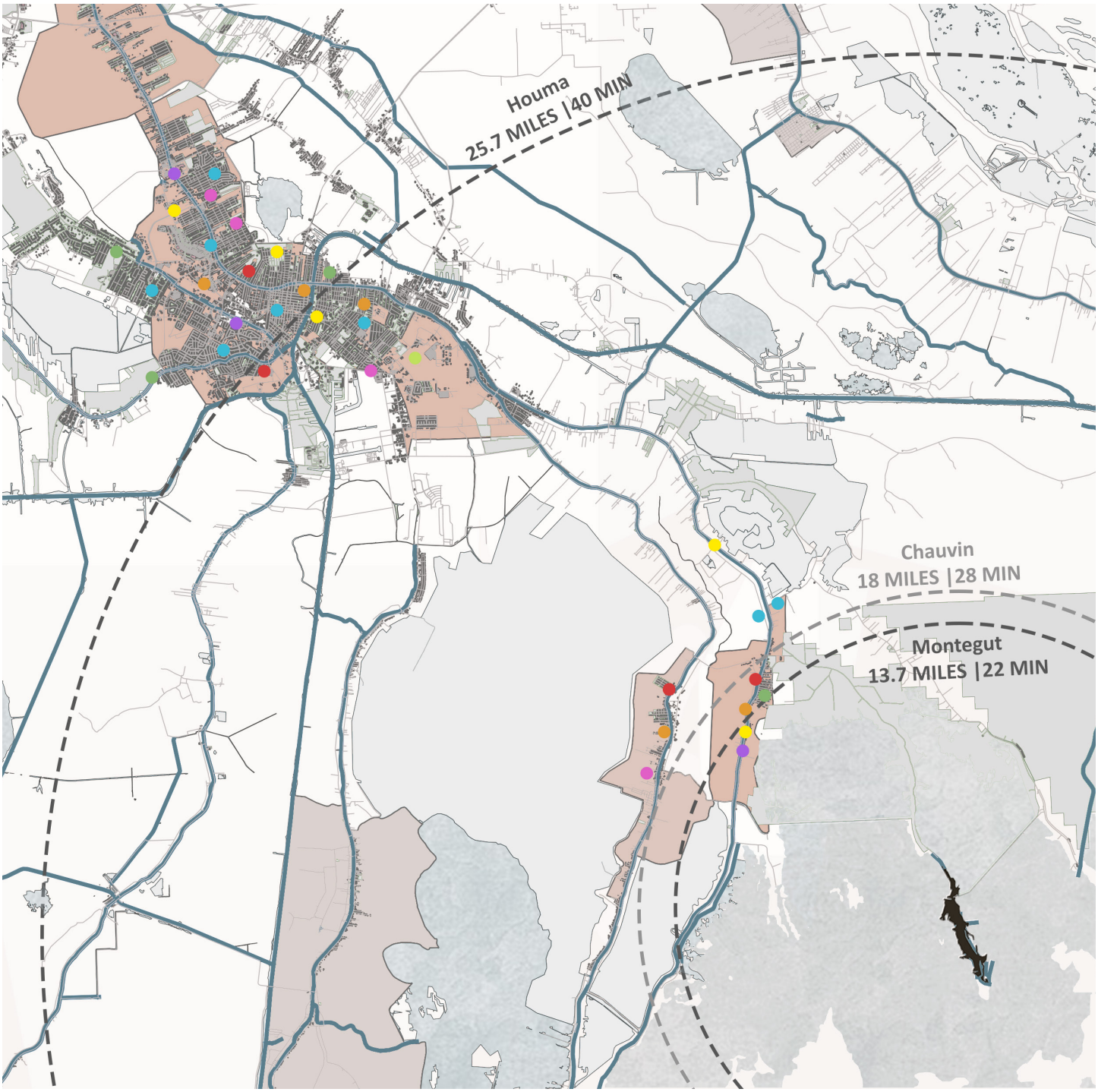
The relocation to New Isle did not fully reunite the community. Because of conflicts, limited trust, and the government's failure to keep many of its promises, many tribal members chose not to move there. As a result, families remain scattered across nearby towns and cities, creating distance between people and making daily community life and cultural practices harder to maintain.

Levees



Levee System

Public Services and Amenities| Isle de Jean Charles



This map shows the distance from Isle de Jean Charles to nearby amenities. Montegut is about 13.7 miles away, Chauvin is 18 miles away, and Houma is 25.7 miles away. These distances show how isolated the island is and how residents must travel for basic services.

Church

Grocery Shop

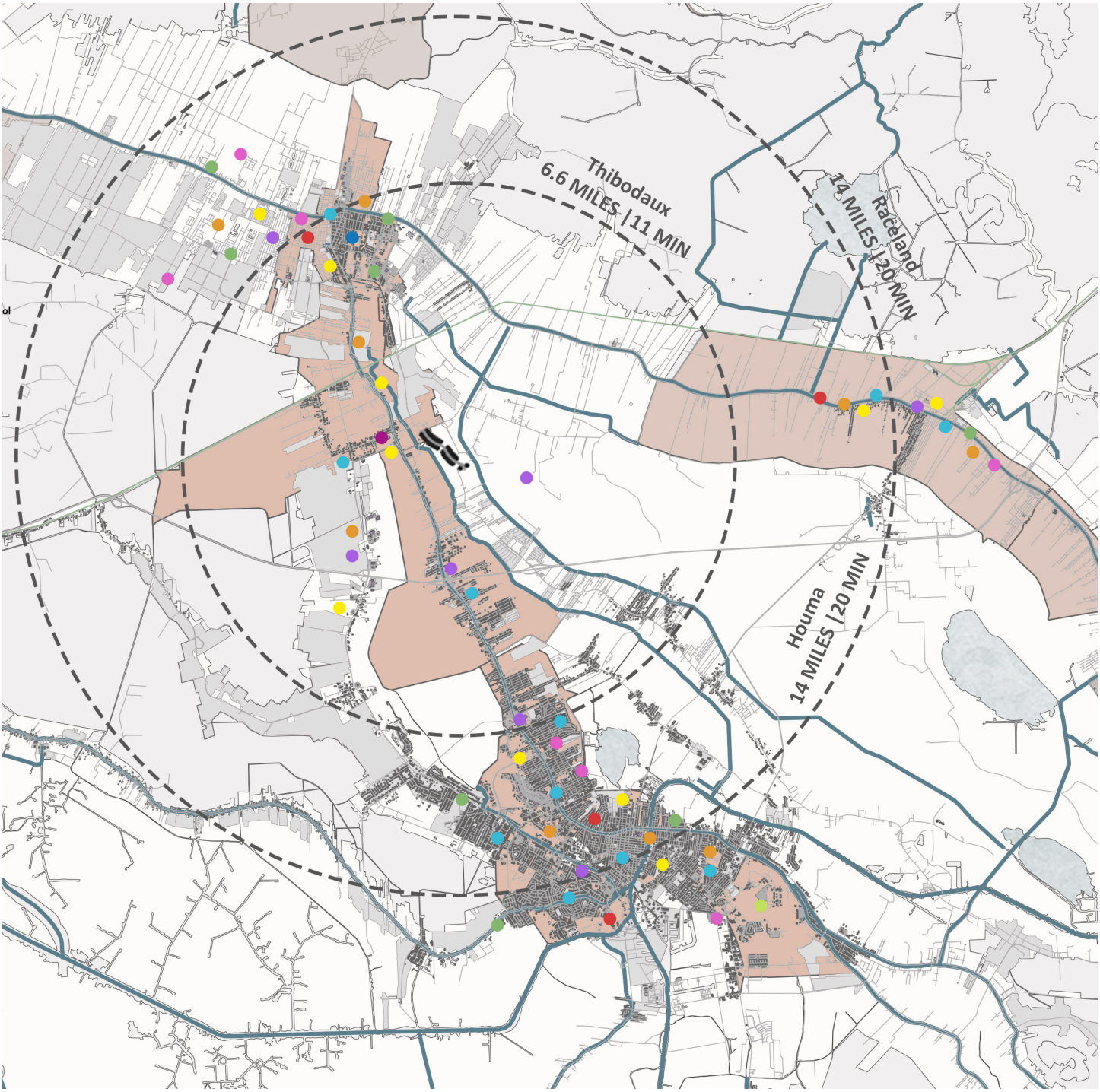
Guest Lodging

Elementry&High School

Recreation Center

Fire Station

| The New Isle



The New Isle is closer to major facilities such as hospitals, universities, senior centers, and the airport. Houma is about 14 miles away, and Thibodaux is about 6.6 miles away, showing improved access to essential services compared to Isle de Jean Charles.

Hospital

University

Airport

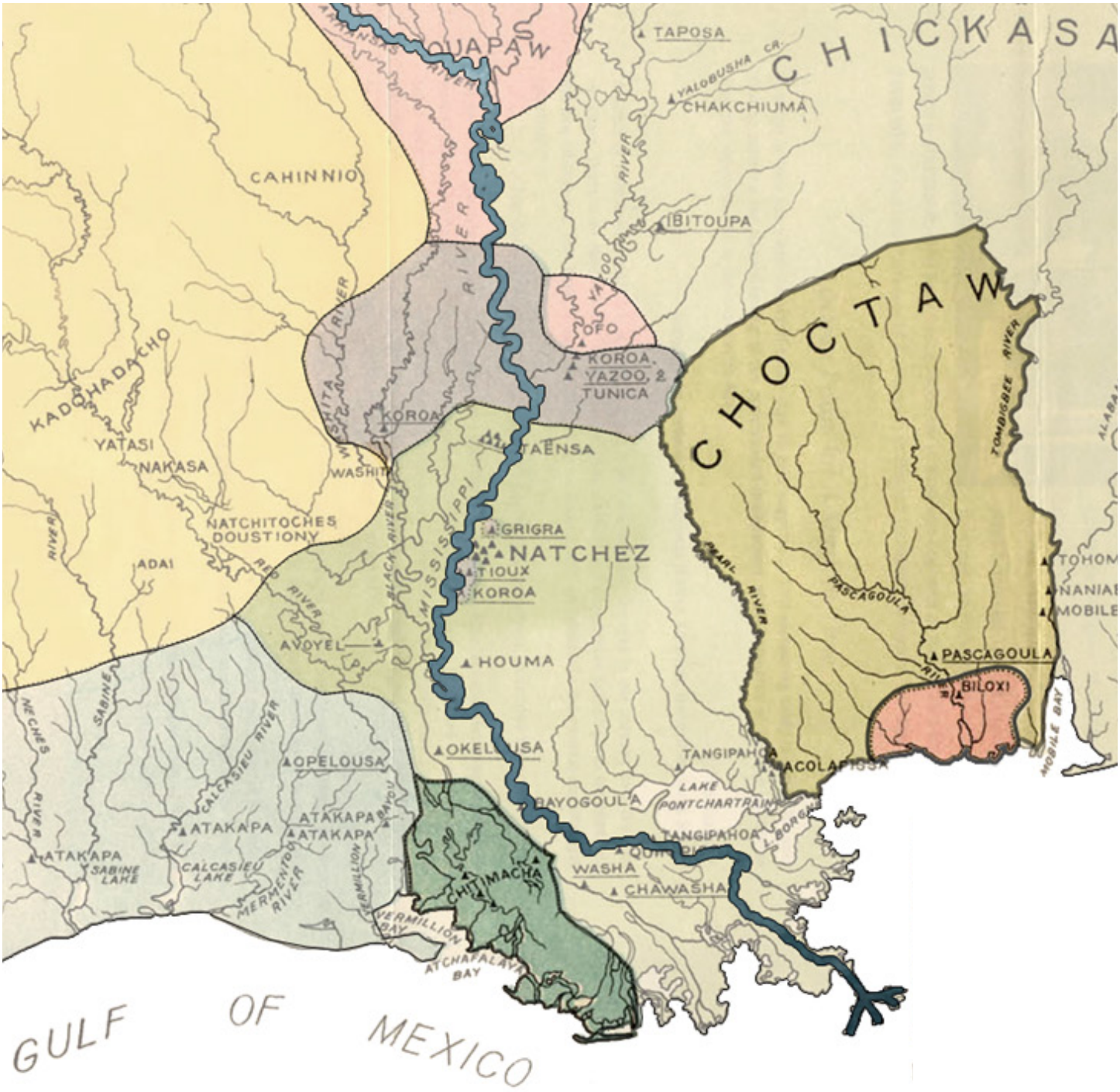
Senior Center

Patterns of Tribal Migration



Choctow Tribe	Mississippi Gulf Coast
Chitimacha Tribe	Atchafalaya Basin & Bayou Teche
Biloxi Tribe	MS, LA, AL homelands
Tunica-Biloxi Tribe	

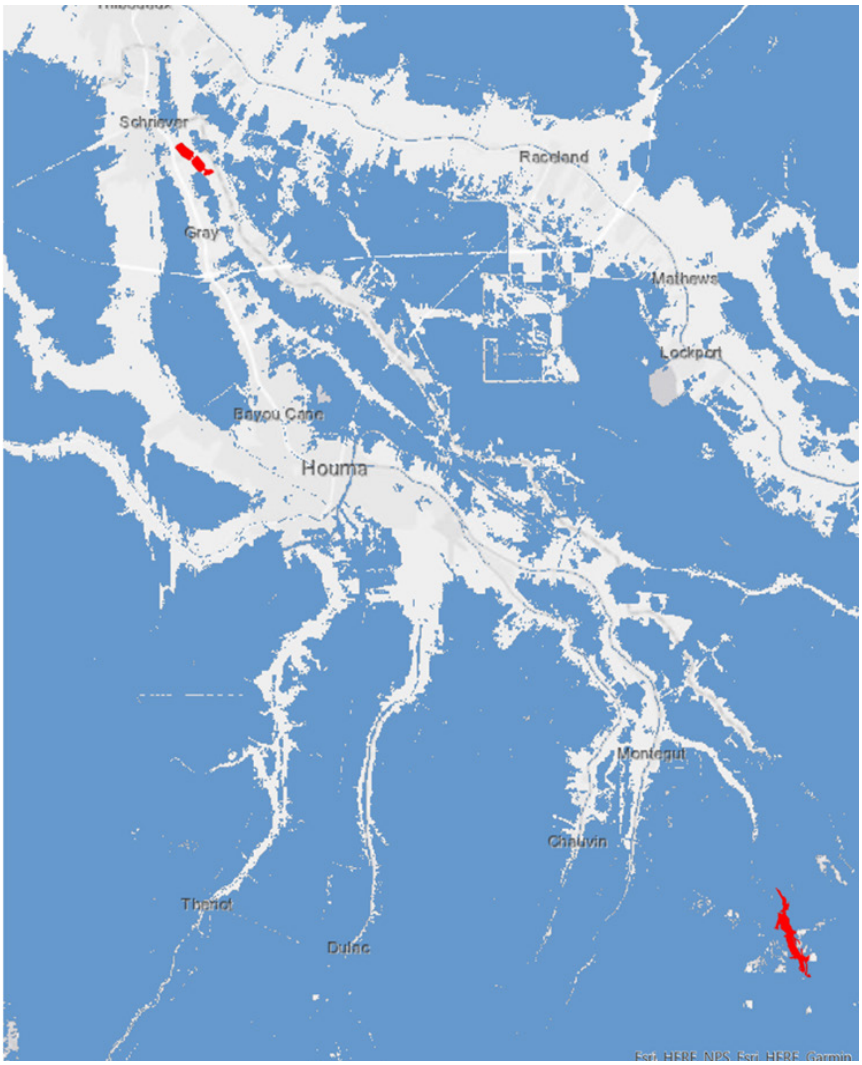
Linguistic Map of Tribes



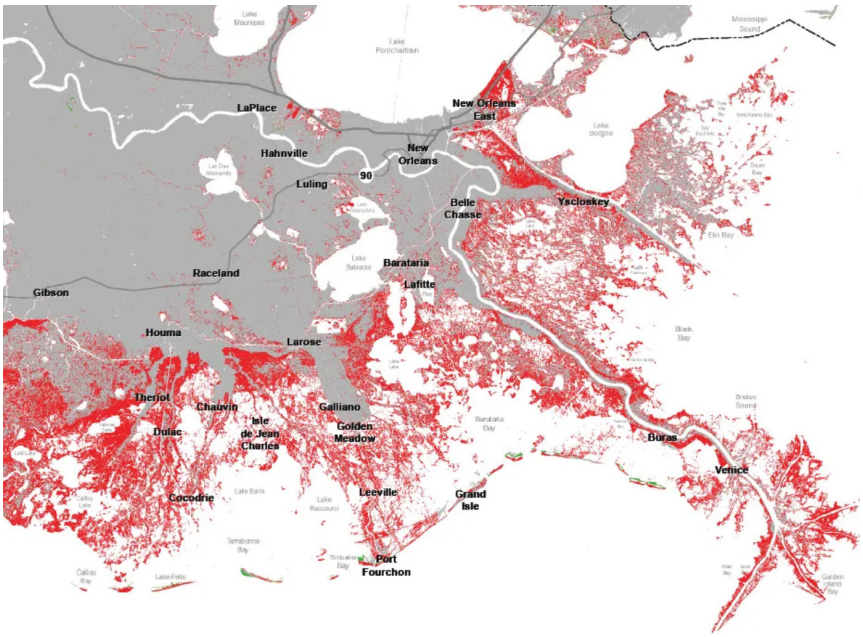
Linguistic Families | Indian Tribes of the Lower Mississippi and Adjacent Gulf Coast

- Atakapan
- Caddoan
- Siquan
- Muskhoge an
- ,, Of the Natchez Group
- Tunican
- Chitimachan

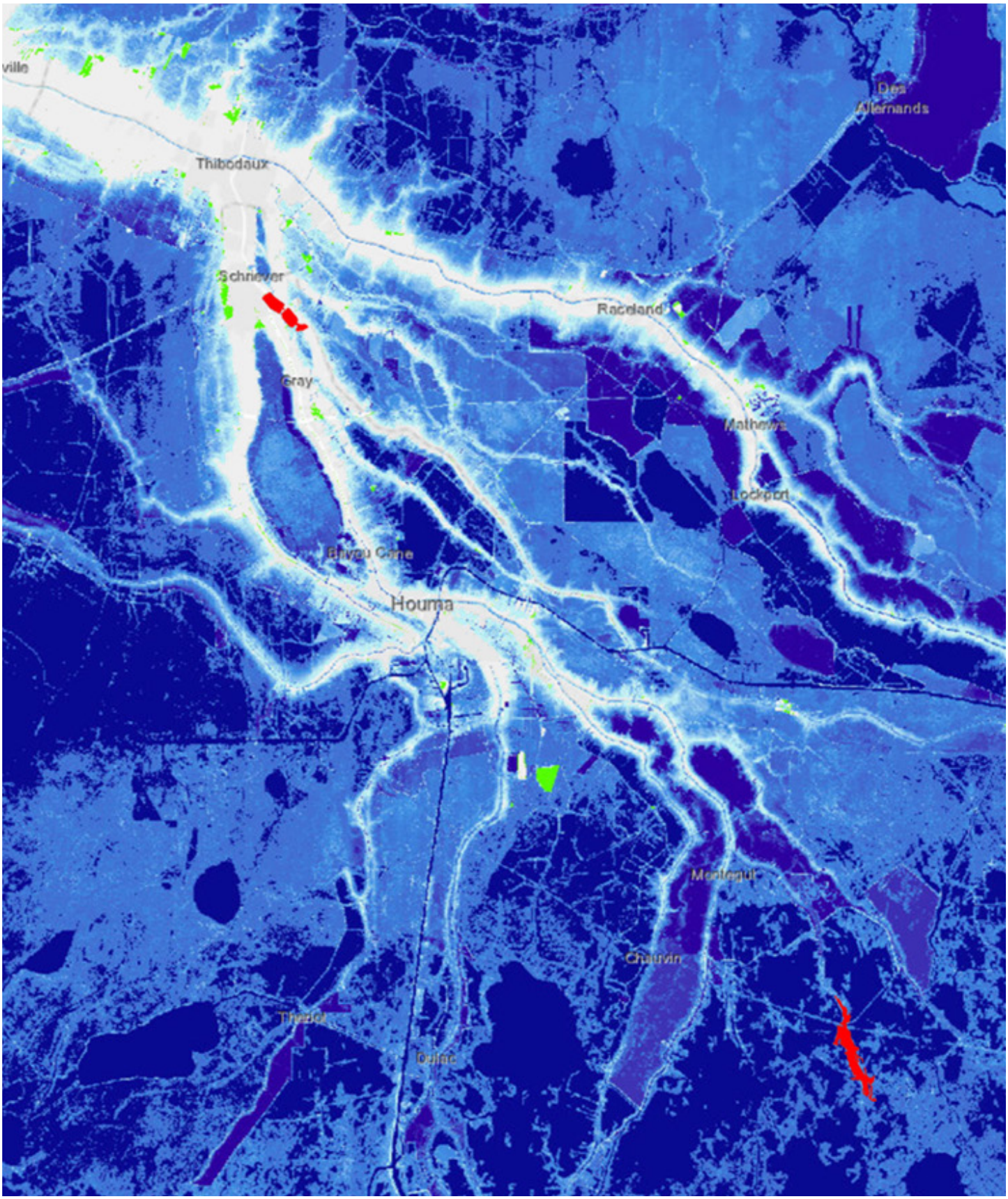
Flood Analysis

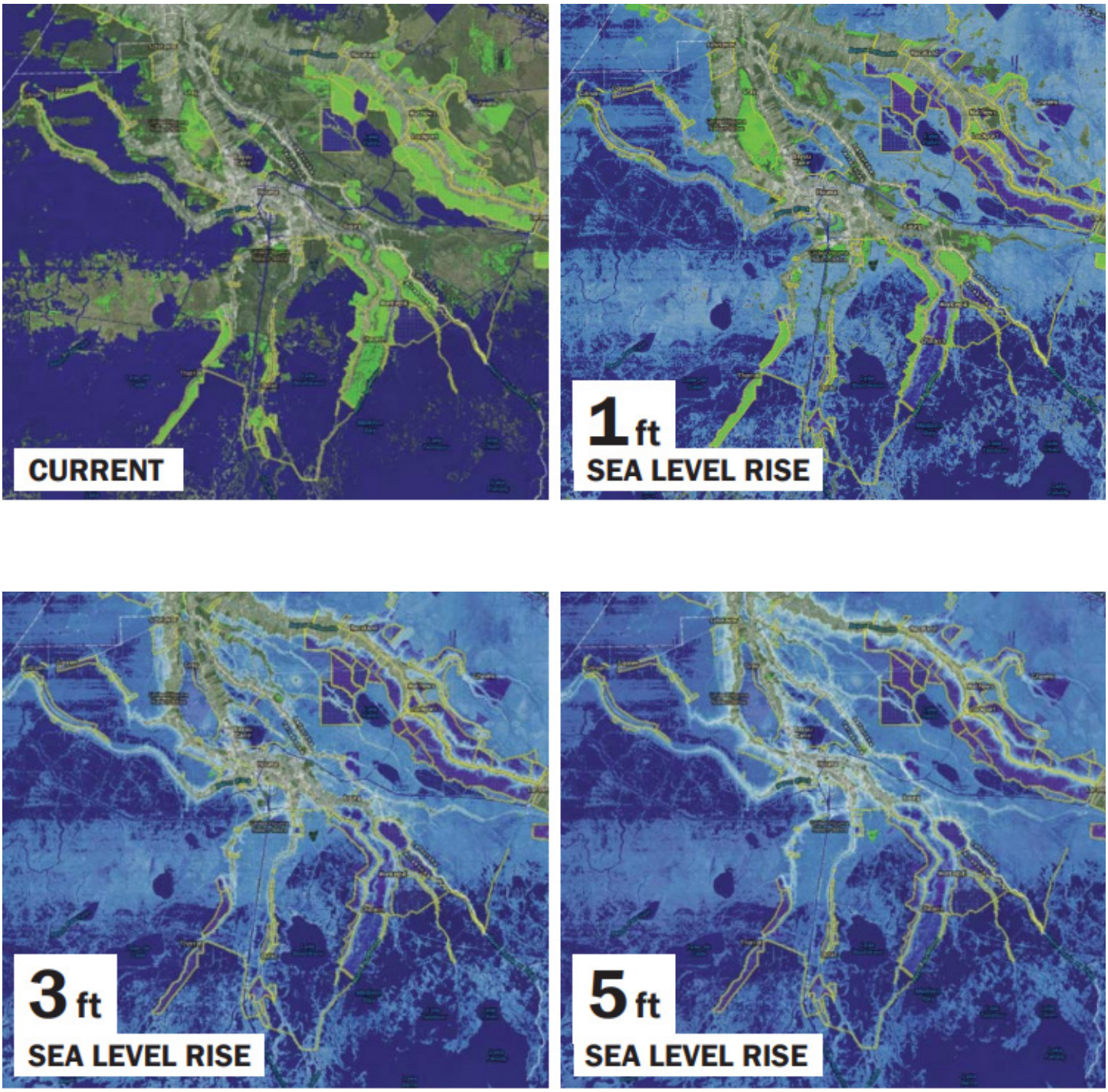


Land inside the 100-year floodplain (high flood risk; 1% chance of flooding each year)



Areas in red are projected to become underwater during the next 50 years.

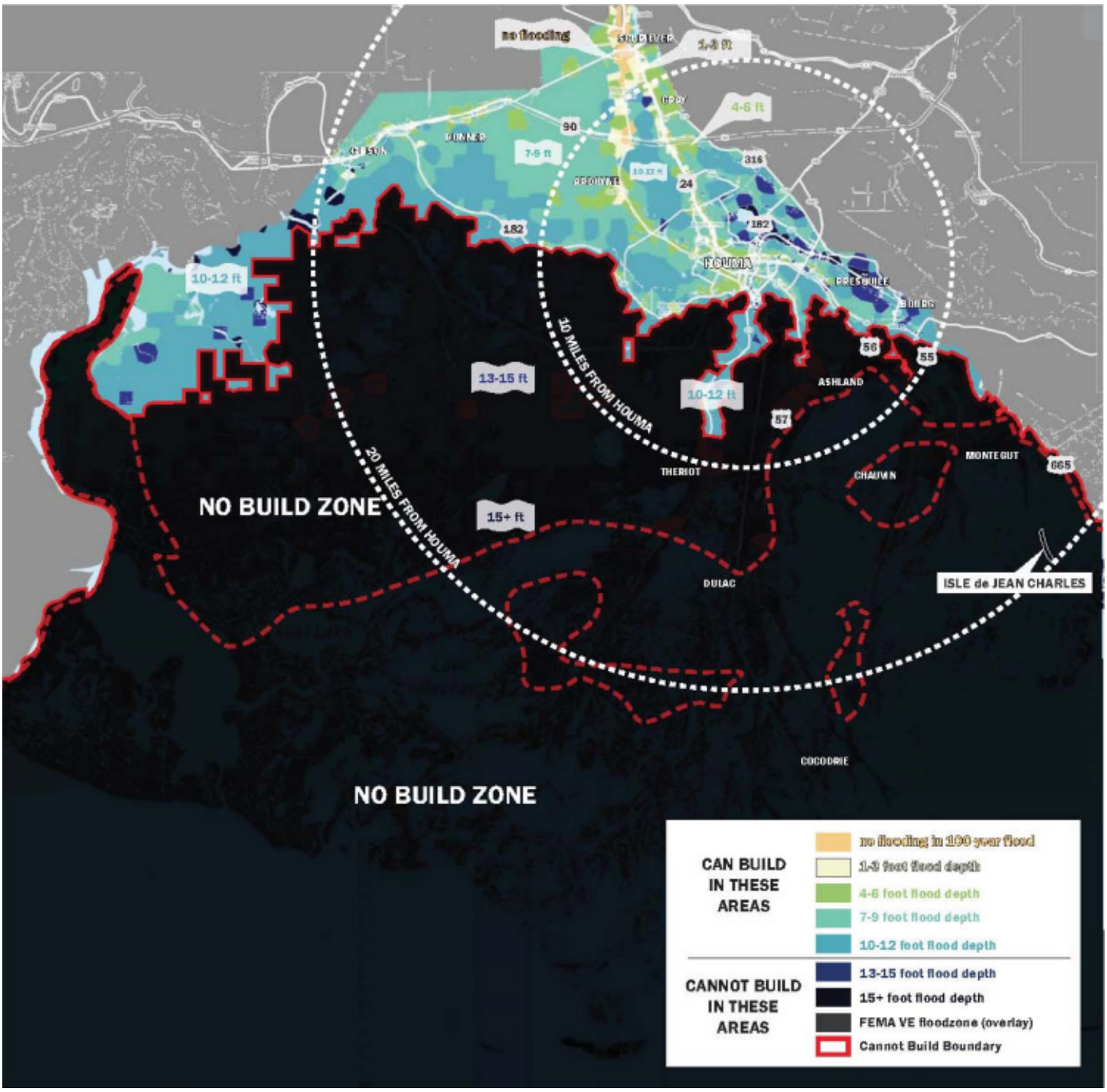

Des Allemands
Thibodaux
Schriever
Raceland
Gray
Mathews
Lockport
Bayou Cane
Houma
Montegut
Chauvin
Theriot
Dulac



The Resettlement of Isle de Jean Charles: Report on Data Gathering and Engagement Phase. (2016, updated 2017). Louisiana Office of Community Development.

Isle de Jean Charles is highly vulnerable to flooding and long-term land loss. Over time, it has changed from a wider marsh landscape into a narrow strip of land surrounded by water. Today, regular tides and seasonal storms can flood the island road and limit mainland access.

The maps show how sea level rise will continue to affect the region. Even a 1-foot rise expands flooded areas, while 3 to 5 feet could submerge much of the island and nearby marshes. This shows flooding as an ongoing and accelerating threat.

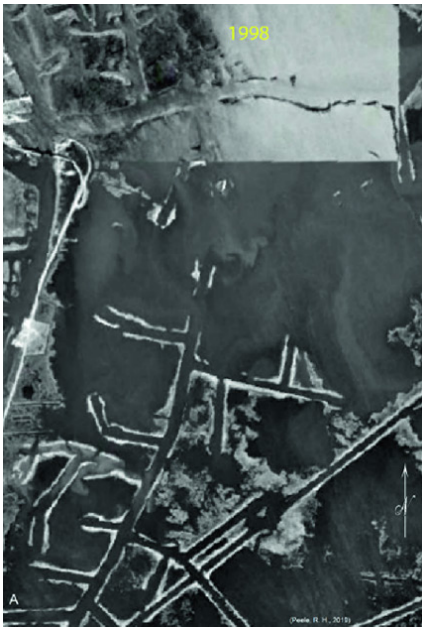


The Resettlement of Isle de Jean Charles: Report on Data Gathering and Engagement Phase. (2016, updated 2017). Louisiana Office of Community Development.

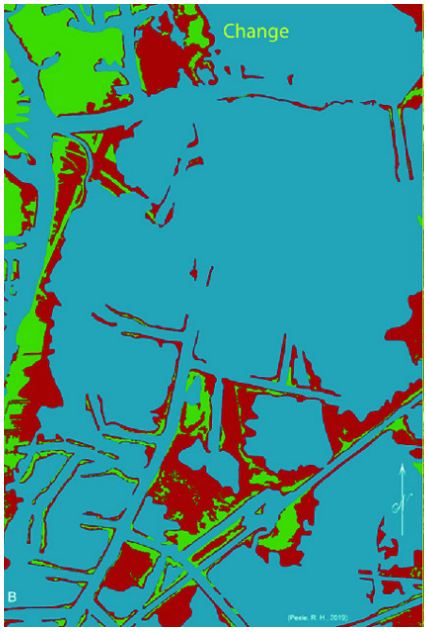
This map highlights flood depth and land suitability across the region. Large areas fall within high-risk flood zones, where water levels can reach several feet during storm events. These areas are identified as "no-build zones," showing that long-term settlement is unsafe under current and future conditions.

Safer zones are limited and located further inland, where flood depths are lower and more stable. This condition has directly influenced relocation decisions, as communities are pushed away from vulnerable coastal areas toward higher and less flood-prone land.

Oil Canals



1998

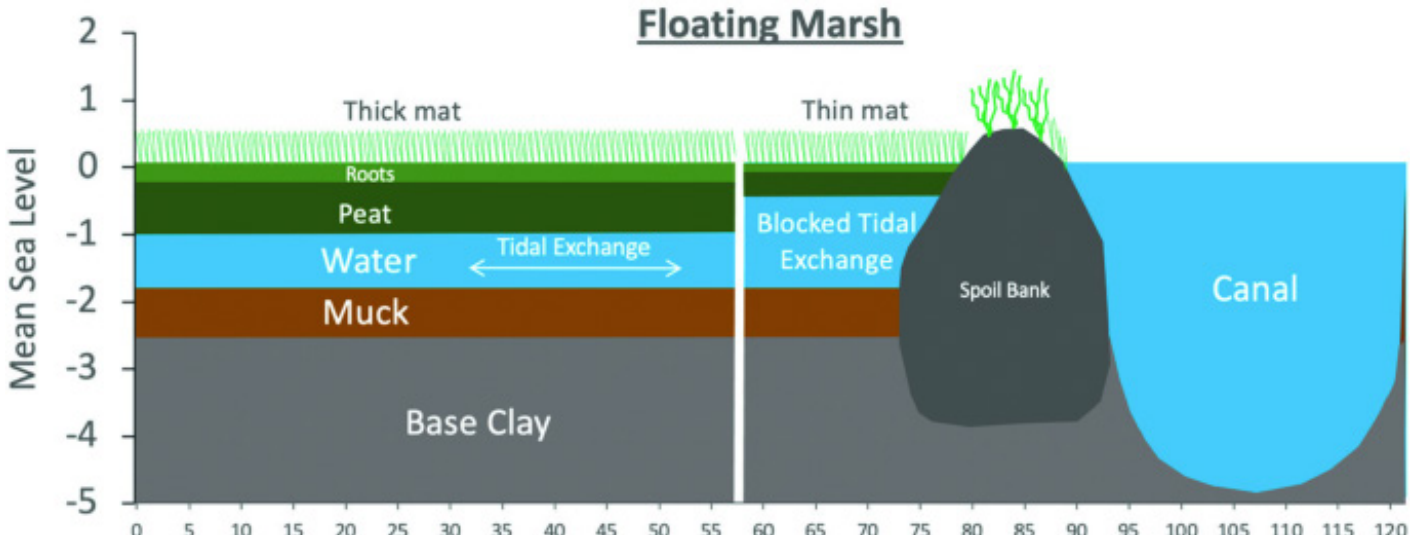


Change

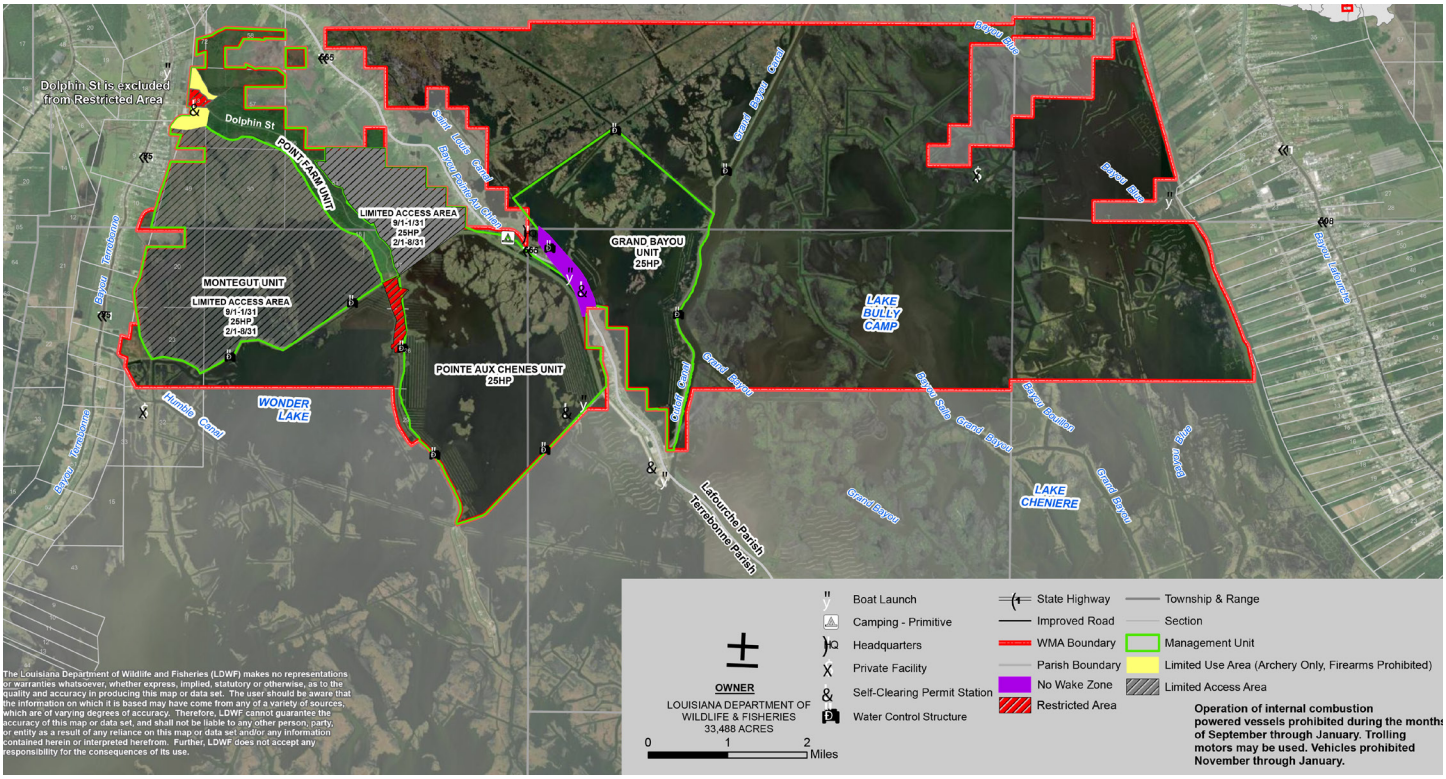


2017

Oil and gas infrastructure has played a major role in damaging the marshlands around Isle de Jean Charles. The canals cut through the wetlands disrupted natural water and sediment movement that once supported the land. This allowed saltwater to enter inland marshes, killing vegetation and weakening the peat soils that hold the land together. As the soil collapsed, erosion and flooding increased, turning stable land into open water. These changes continue to shape the landscape today, contributing to land loss, isolation, and the growing risk faced by the island and its community.

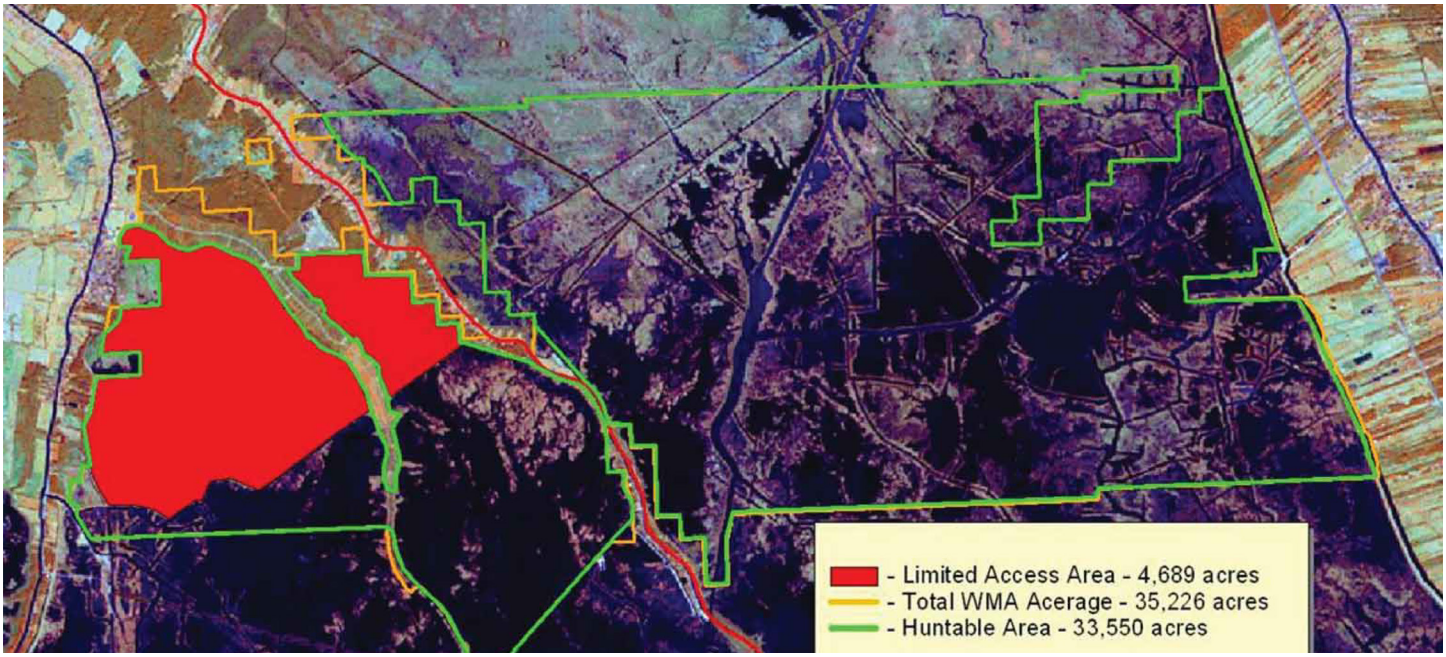


Wildlife Management Area



Louisiana Department of Wildlife and Fisheries. (n.d.). Pointe-aux-Chenes Wildlife Management Area. https://www.wlf.louisiana.gov/page/pointeauxchenes

The marshes around Isle de Jean Charles are part of the Pointe-aux-Chênes Wildlife Management Area, managed by the Louisiana Department of Wildlife and Fisheries. The goal is to protect and restore damaged wetlands through water control and environmental regulation. While these measures help the ecosystem, they also limit access and traditional practices, affecting how residents use and move through their ancestral land.



Louisiana Department of Wildlife and Fisheries. (n.d.). Pointe-aux-Chenes Wildlife Management Area. https://www.wlf.louisiana.gov/page/pointeauxchenes

Site Observation | Isle de Jean Charles




















KEEP OU
PRIVATE
PROPERT





Site Observation |Isle de Jean Charles

When I visited Isle de Jean Charles, everything I had researched became real. It was no longer just maps, articles, and satellite images. It was real homes, real silence, and real loss. Most houses were damaged or abandoned, and only a few still showed signs of life.

Eventually, I saw a man living with his family in an RV. I asked if anyone else was still living there. He said only a few families remained, and then walked away. A woman's voice from inside said they were not interested in talking or being photographed.

That moment stayed with me. I understood that they were tired of being studied, photographed, and promised help while still losing their land and community. They did not want to be seen as a case study. They wanted dignity, privacy, and the right to remain connected to their ancestral land.









Site Observation | The New Isle







At New Isle, I saw the empty community center and market spaces. These were planned to bring people together, but they felt quiet and unfinished. Seeing both places helped me understand the gap between relocation as a plan and relocation as a lived experience.







PRECEDENT

Makoko Floating School





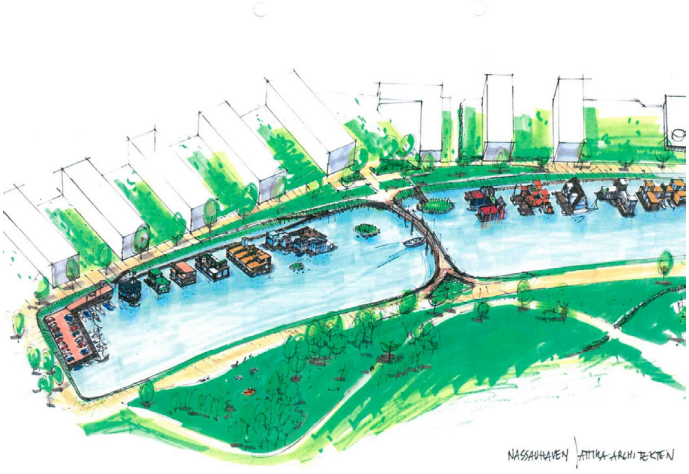


Location: Lagos, Nigeria

The Makoko Floating School in Lagos, Nigeria is an important example of how to build in flood-prone and water-based environments. It was designed for the Makoko community, where people live directly on the lagoon. Instead of trying to block the water, the building responds to rising water by floating with it. The structure sits on a floating base made of recycled plastic barrels, which allows the building to move up and down as water levels change. A lightweight timber frame supports a triangular shape that helps the building stay stable in wind while using local and affordable materials. The school was designed not only as a place for learning, but also as a shared space for the community, showing how architecture can support daily life in vulnerable conditions. Its construction system is simple, flexible, and easy to repair, which makes it suitable for communities with limited resources. Although the original structure was later dismantled, the project is still important as a model for resilient, floating architecture. It shows how buildings can live with water instead of fighting it and offers important lessons for designing adaptive structures for climate-affected communities like Isle de Jean Charles.

Nassauhaven Floating Homes







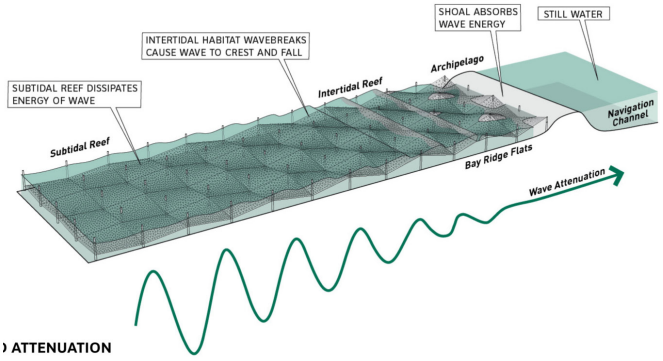
Location: Nassauhaven, Rotterdam, Netherlands

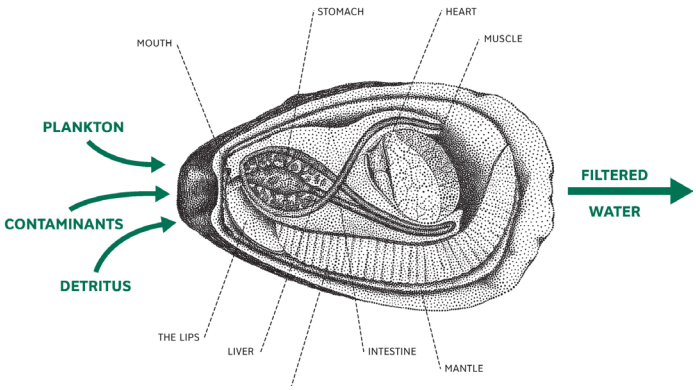
The Nassauhaven Floating Homes in Rotterdam, Netherlands are a residential project designed to adapt to rising water levels. The homes are built on floating concrete platforms that allow them to rise and fall with the water, staying stable during floods. Each house is anchored to guide piles, which keep it in place while allowing vertical movement.

The houses use lightweight construction and simple materials, making them efficient and practical for long-term living on water. Walkways and floating jetties connect the homes, creating a shared neighborhood rather than isolated units. This project shows how housing can safely coexist with water and offers an important example of flood-resilient living for communities facing climate change, such as Isle de Jean Charles.

Oyster-tecture









Location: New York Harbor, Red Hook and Gowanus Canal, Brooklyn, New York

Oyster-tecture is a coastal resilience project by SCAPE that combines landscape design, ecology, and water infrastructure. Instead of using only hard barriers, the project proposes living oyster reefs as a protective and ecological system. These reefs are made with underwater structures, such as “fuzzy rope,” where oysters, mussels, and other marine species can attach and grow.

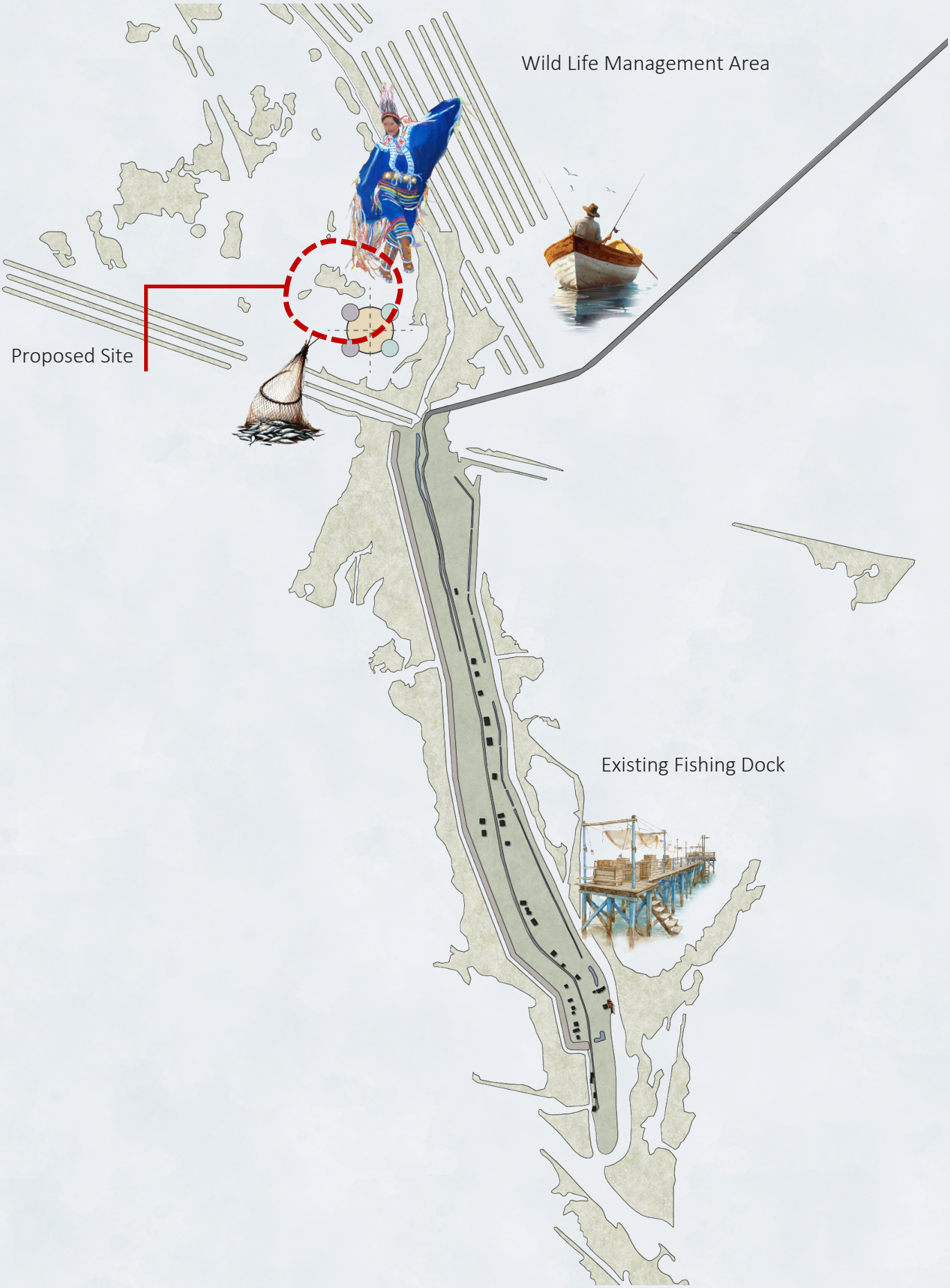
The oyster “cliffs” or reefs act as living breakwaters. Their rough, layered surfaces slow down waves, reduce erosion, and create protected spaces where marine species can live. Oysters also improve water quality by filtering plankton, particles, and pollutants from the water. Research on oyster reefs, including the reef at Baruch Marine Field Laboratory, shows how oysters attach to each other and build strong reef structures over time.

This project is important for Isle de Jean Charles because it shows how ecological infrastructure can support both protection and restoration. Oyster reefs can help soften wave energy, clean the water, rebuild habitat, and create a more adaptive edge between land and water.

DESIGN DECISION



Program | Isle de Jean Charles



As the island is slowly sinking and losing land, the proposal is placed in the water on the northwest side of Isle de Jean Charles. This location allows the project to stay close to the original island while using the remaining land and marsh edge as protection from stronger winds and waves.

The project introduces a conditionally floating structure that can respond to flooding and changing water levels. It is anchored to the ground but can rise when the water rises, allowing the programs to remain active even as the landscape changes.

The program brings together community, fishing, and environmental functions. It includes a fishing hub for catching, cleaning, storing, and preparing fish, along with spaces for net and trap repair. It also includes a community center, festival ground, workshops, gathering decks, restaurant, and museum. Together, these spaces create a place where people can return, work, gather, celebrate, and keep their cultural connection to the island alive.

Programs

Community Program

Community center
Festival ground
Open gathering deck
Workshops
Restaurant
Museum

Fishing Program

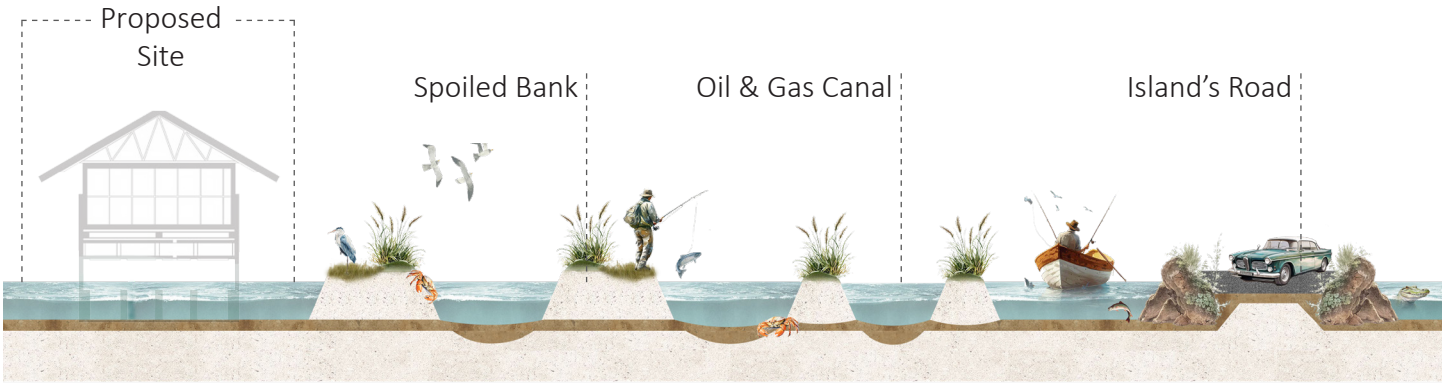
Fishing hub
Cleaning area
Equipment storage
Cold storage
Packaging zone
Net and trap repair

Material & Environmental

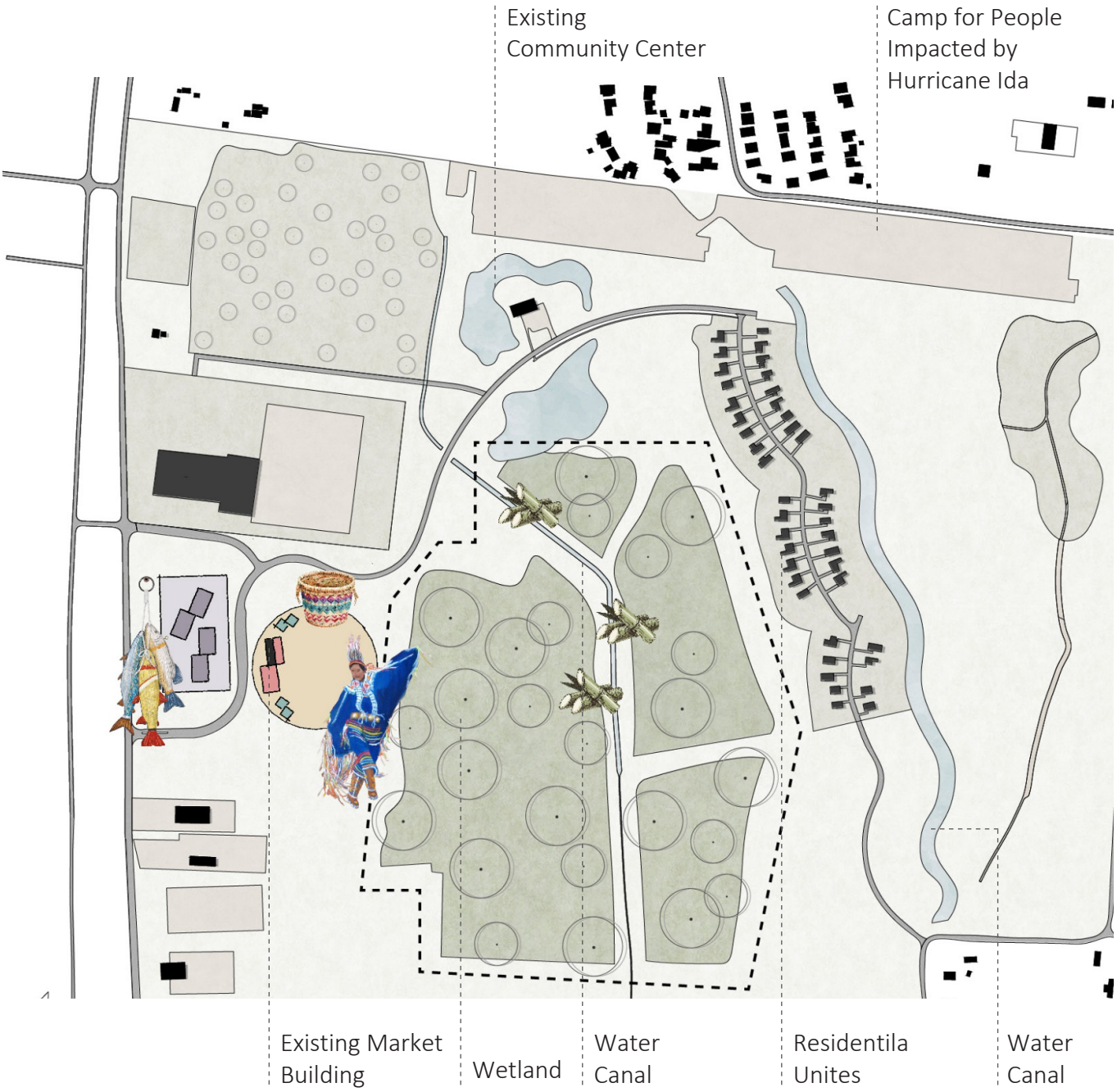
Conditionly Floating platform
Woven shade structures
Oyster nets for water cleaning



Section | Isle de Jean Charles



Master Plan |The New Isle



The goal of the master plan is to reconnect Isle de Jean Charles with the New Isle, turning relocation into a continued relationship rather than a complete separation. It also works to support the promises made to the community by activating the market and community center.

The island remains a place for fishing, oyster harvesting, basket making, and net making, while the New Isle becomes a place to sell these products because it is closer to larger cities like Houma. This creates income for the community and helps support daily life. Over time, this system can fund future growth on the island, allowing the community to expand and shape the project based on their own needs.

Programs



Festival Ground

Dancing



Boucheries



Community Center

Decision Making



Workshop

Basket Making



Market

Industrial Surrounding

Reintroduce river cane
Bring back lost habitat
Provide material for traditional crafts

Workshops and Community Center

Basket making
Net making for sale and for oyster traps on the island
Private, resident-focused area

Festival Ground

Space for ceremonies
Dancing and community events
Located beside the wetland

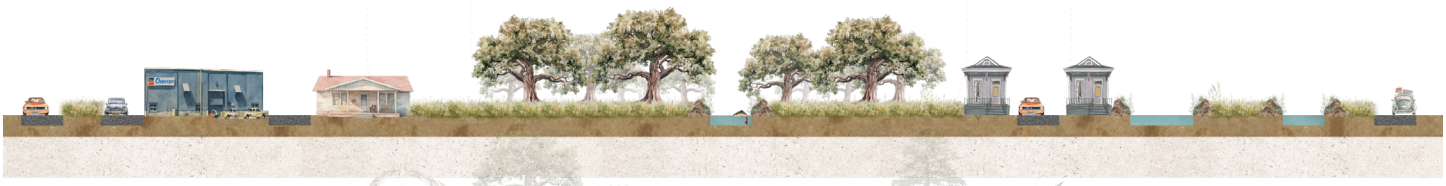
Public Market

Positioned near the main road
Selling baskets, nets, crafts
Selling fish caught on the island
Supports economic growth

Reconnection Between Two Sites

New Isle produces and sells
Island continues fishing traditions
Relocation becomes reconnection

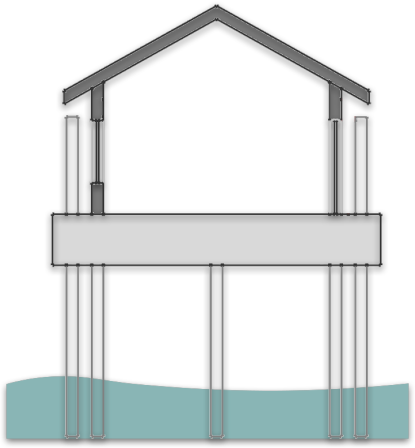
Section | New Isle



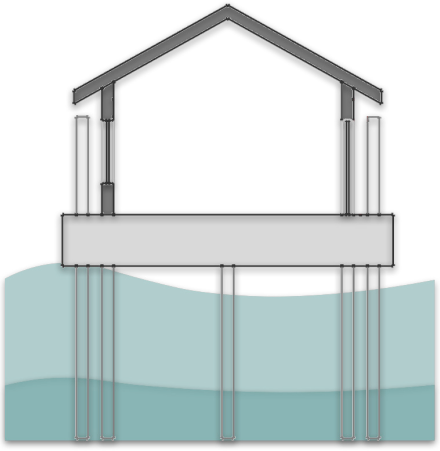
Environmental Concept | Amphibious Structure

Flood Frequency
Wind + high-tide flooding: multiple times per year
Major storm flooding: about every 2–3 years

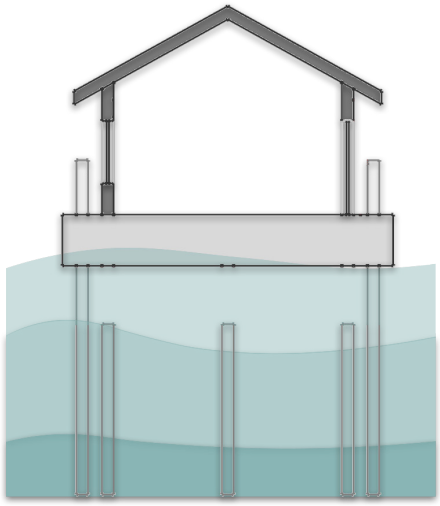
Storm Surge (temporary rise of sea above normal level)
Common storms: +4–6 ft water level
Major hurricanes: +8–12 ft water level
Typical waves inside marsh: ~2 ft



Level 1 | Normal Condition
The structure sits about 12 feet above the sea level. Normal waves can pass underneath without touching the platform.

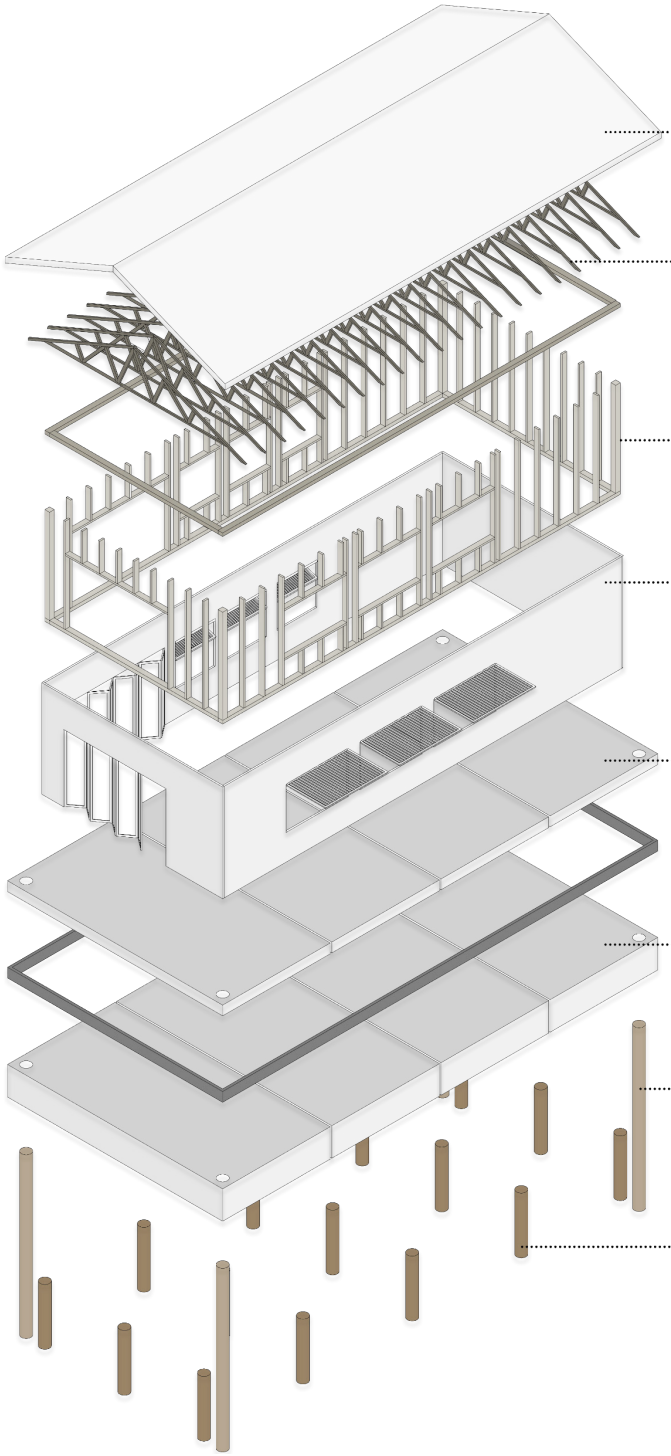


Level 2 | High Water / Taller Waves
When the water rises, taller waves can still move under the elevated structure, reducing direct impact on the building.



Level 3 | Hurricane / Extreme Flooding
When water rises above 12 feet, the amphibious platform floats upward with the water. Guide piles keep it aligned and prevent it from shifting sideways.

Amphibious Structure Components



Marine-grade Aluminum Standing Seam roof



Timber Roof Trusses

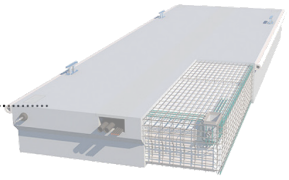
Timber Stud Structure

PVC Cladding



Raft Slab

Buoyant reinforced concrete pontoons with closed-cell foam core



Concrete Pontoons

Buoyant reinforced concrete pontoons with closed-cell foam core

Guide Piles

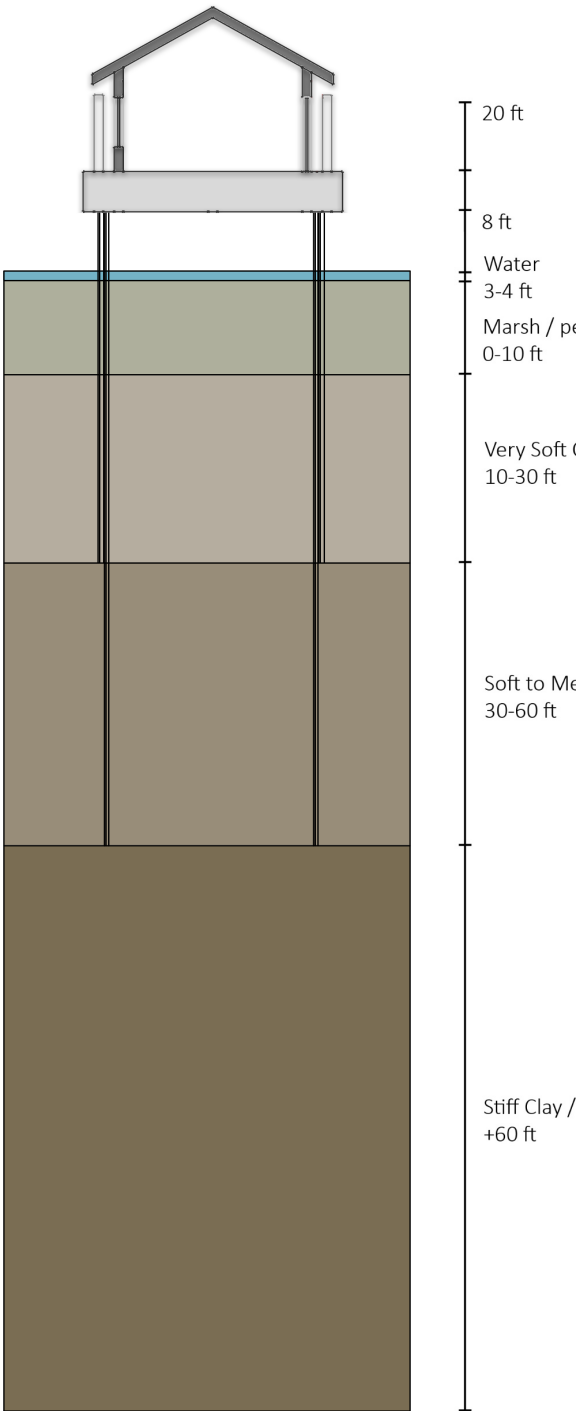
Timber guide piles with low-friction sleeves

Foundation Piles

Pressure-treated timber piles



Soil Conditions & Pile Depth



Southern Louisiana marshes are made of very soft and compressible ground. The upper layer is usually organic marsh soil, peat, and very soft clay. These soils hold a lot of water and are not strong enough to support heavy structures. Studies of Louisiana coastal marshes show that the top 5–18 feet often include very soft organic clay, clay, and peat, and other coastal reports describe very soft marsh deposits continuing to around 16 feet in some locations.

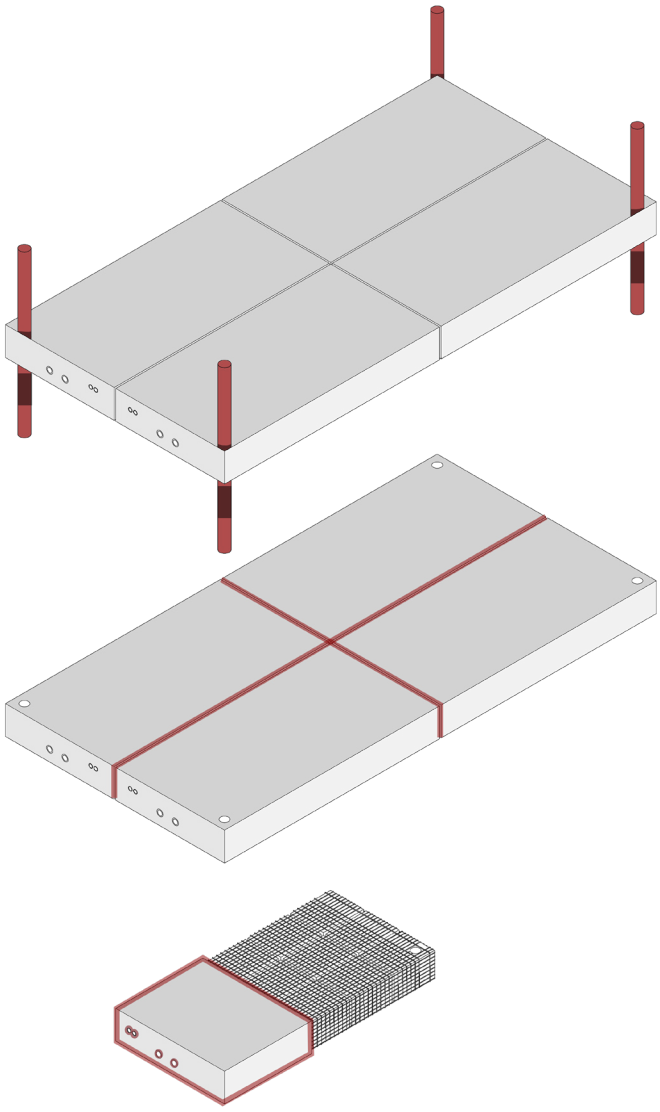
Below this layer, the soil usually changes into soft to medium clay. This layer is stronger than the peat, but it can still compress and settle over time. Deeper layers, often below about 60 feet, may include stiffer clay or denser soil that can give better support. Because of this, the shallow marsh soil cannot be trusted as the main foundation layer.

For this project, the foundation piles need to go deeper, about 40–80 feet, so they can pass through the weak marsh and clay layers and reach more stable soil. These piles carry the main weight of the structure and resist wind, waves, and movement.

The guide piles can be shallower, about 25–50 feet, because they are not carrying the full building load. Their main job is to keep the floating platform in place and allow it to move vertically with rising water without shifting sideways.

Final pile depth must be confirmed by a site-specific geotechnical test, because soil layers can change from one part of the marsh to another.

Amphibious Network Components



Pile Guide Sleeve

Low-friction steel or HDPE guide collar with internal rollers that allows smooth vertical movement along the pile while limiting lateral drift and reducing wear.



Splash-Zone Wrap

Marine-grade treated timber pile with a protective HDPE/-FRP pile wrap at the tidal splash zone to prevent rot, marine borers, and damage from repeated wet-dry cycles.



Dock Hinge Joint

Heavy-duty corrosion-resistant joint connecting floating platforms while permitting vertical movement and absorbing wave action.

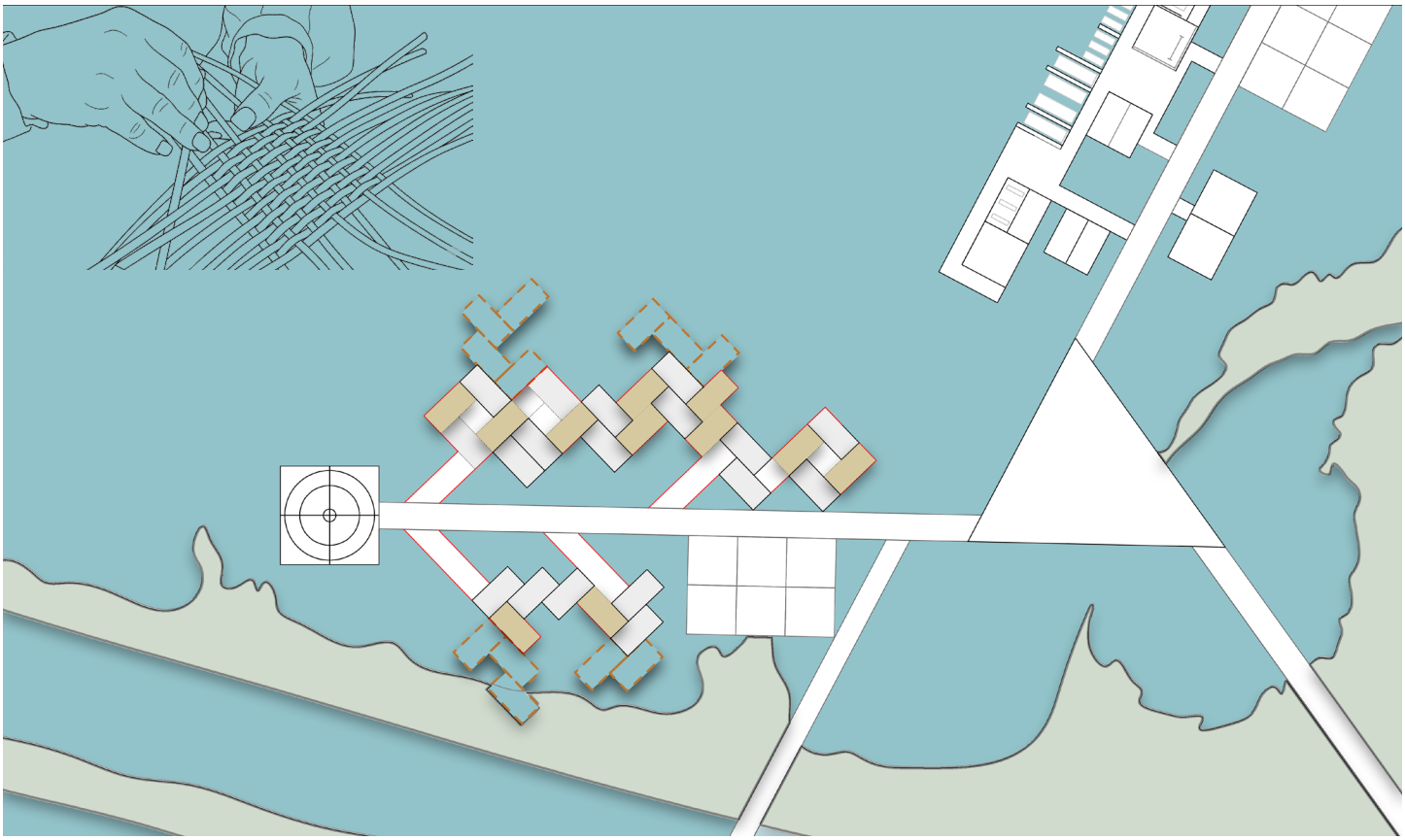


Utility Duct Openings

Precast reinforced concrete pontoon with integrated service ducts for routing electrical and utility lines through the floating structure.



Cultural Concept | Basket Weaving





The cultural concept comes from basket weaving, a tradition that is deeply connected to the tribe's identity, daily life, and knowledge. It is more than a craft. It is a process of learning from elders, working together, and passing skills and stories from one generation to the next. Each basket carries memory, culture, and a way of understanding the environment.

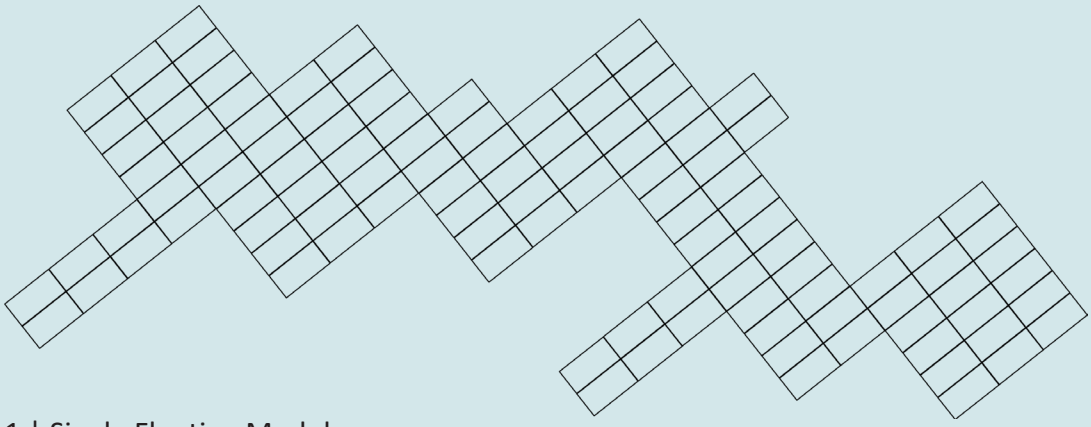
In weaving, thin and flexible strands are brought together to create something strong. Strength does not come from one piece, but from the connection between many pieces. This idea shapes the design. The platforms overlap, interlock, and support each other, forming a continuous network across the water. Each platform has its own function, but together they create a system that connects people, activities, and spaces.



The weaving concept also reflects movement and flexibility. Just like a basket can expand and adapt its pattern, the layout allows growth over time. New platforms can be added, and existing ones can change based on the needs of the community. There is no single fixed form. Instead, the system stays open and adaptable.

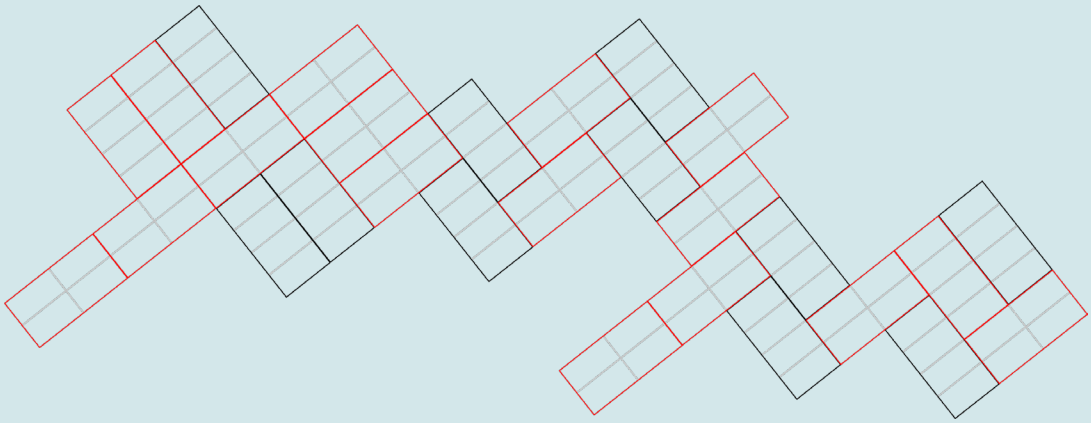
The project acts as a base, not a finished design. It allows the community to add, change, and reshape spaces over time while keeping their culture, connection, and resilience alive.

Modular Platform Development



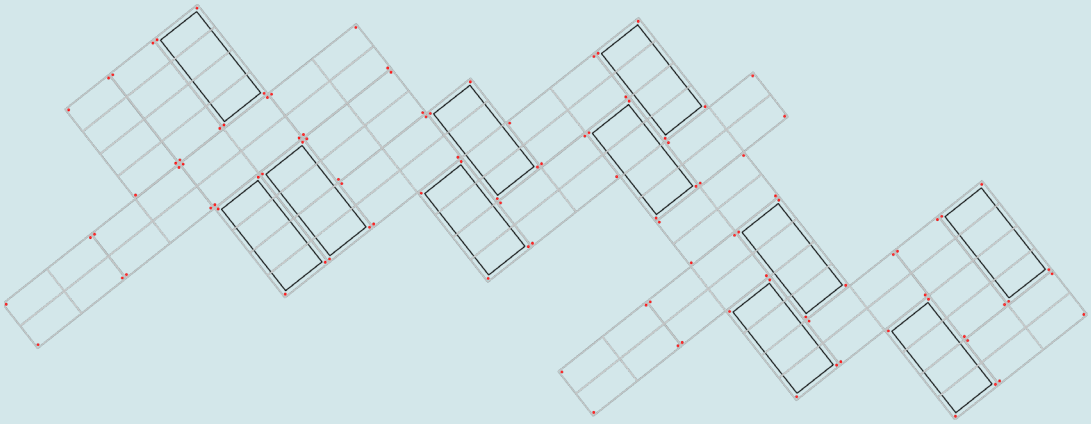
1 | Single Floating Module

The system begins with a repeatable floating module sized 11 ft 6 in by 23 ft. This size makes the module easier to build, transport, float, and connect to other modules.



2 | Larger Platform Unit

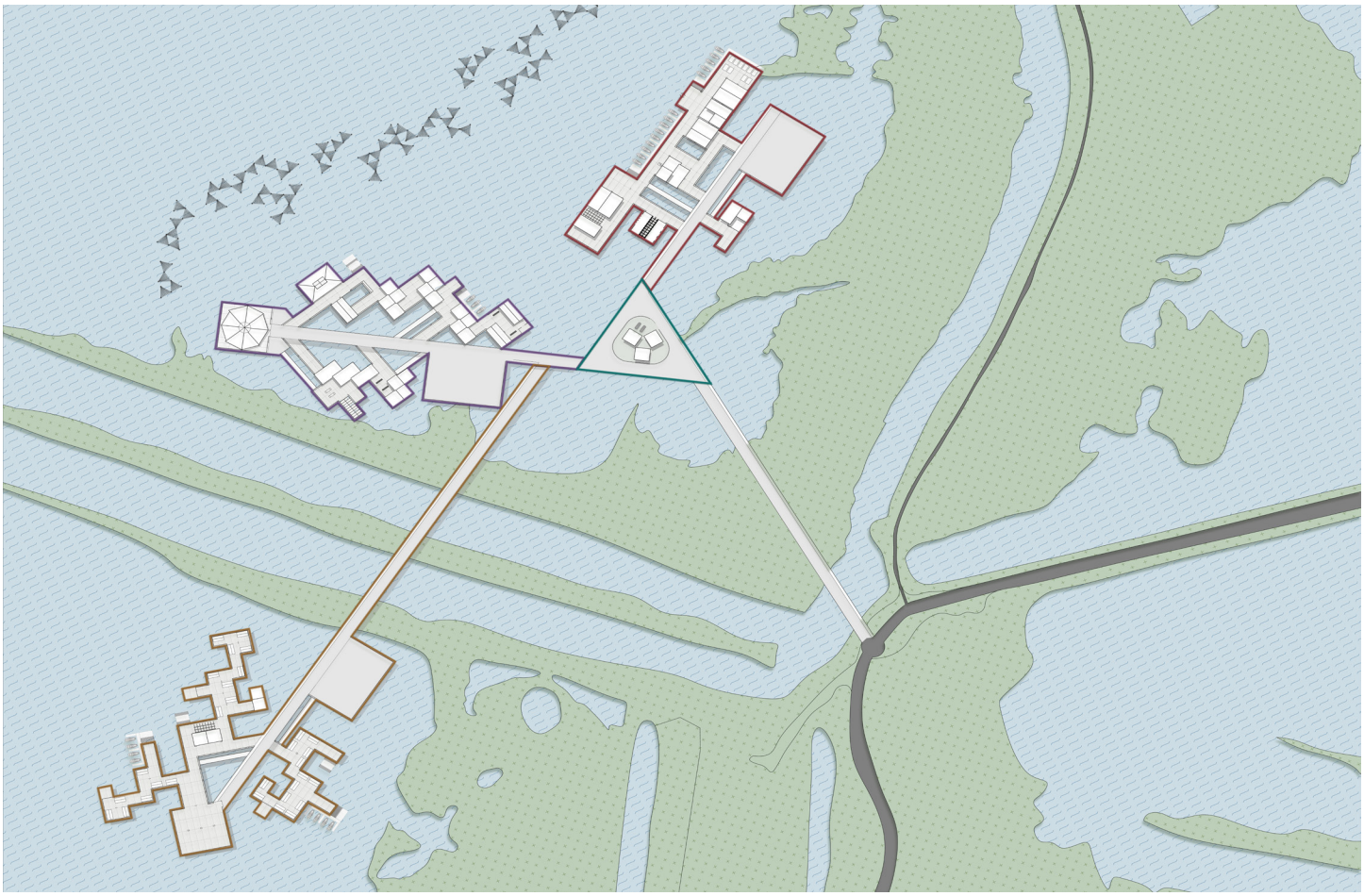
Four smaller modules are connected together to create a larger platform. This gives the system more stability and enough space for enclosed rooms, outdoor work areas, and circulation paths.



3 | Amphibious Platform System

Each larger platform works as one amphibious unit. Guide piles are placed at the corners to keep the platform aligned as it rises and falls with the water. Some platforms support buildings, while others stay open for gathering, movement, and connection to the marsh.

Site Plan



Visitor Center

Fishing Hub

Cultural Center

Tent Street

Oyster Catching Nets

Water

Marshland

Permanent bridges connect the development to the island road and organize access across the water. When people arrive, a wayfinding board with arrows guides them toward each program. The visitor center works as the first point of arrival, with an information office for questions, a small coffee shop, and a store where visitors can buy tribal crafts and artifacts. The fishing hub is more public because visitors and transportation boats may come there. The cultural center and tent street are more private, designed mainly for tribal members to gather, learn, celebrate, and stay connected to their culture.

Tent Street



The tent street provides temporary overnight space for tribal members during festivals and gatherings. Families can stay on the island, share meals, tell stories, and reconnect with each other in the bayou landscape. The platform is flexible and simple. Tents can be added, removed, or stored when not in use, allowing the community to shape the space based on their needs and traditions.

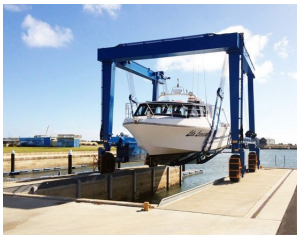


Render | Axonometric View | Cultural Center

Fishing Hub | Plan



- Office & Management
- Fishermen Lounge
- Boat Repair
- Net Repair
- Fish Clenaing Area
- Walk-in Cooler
- Storage
- Pirogue Making Workshop
- Wood Storage
- Restroom
- Loading Dock
- Utilities
- Parking
- Walking Path



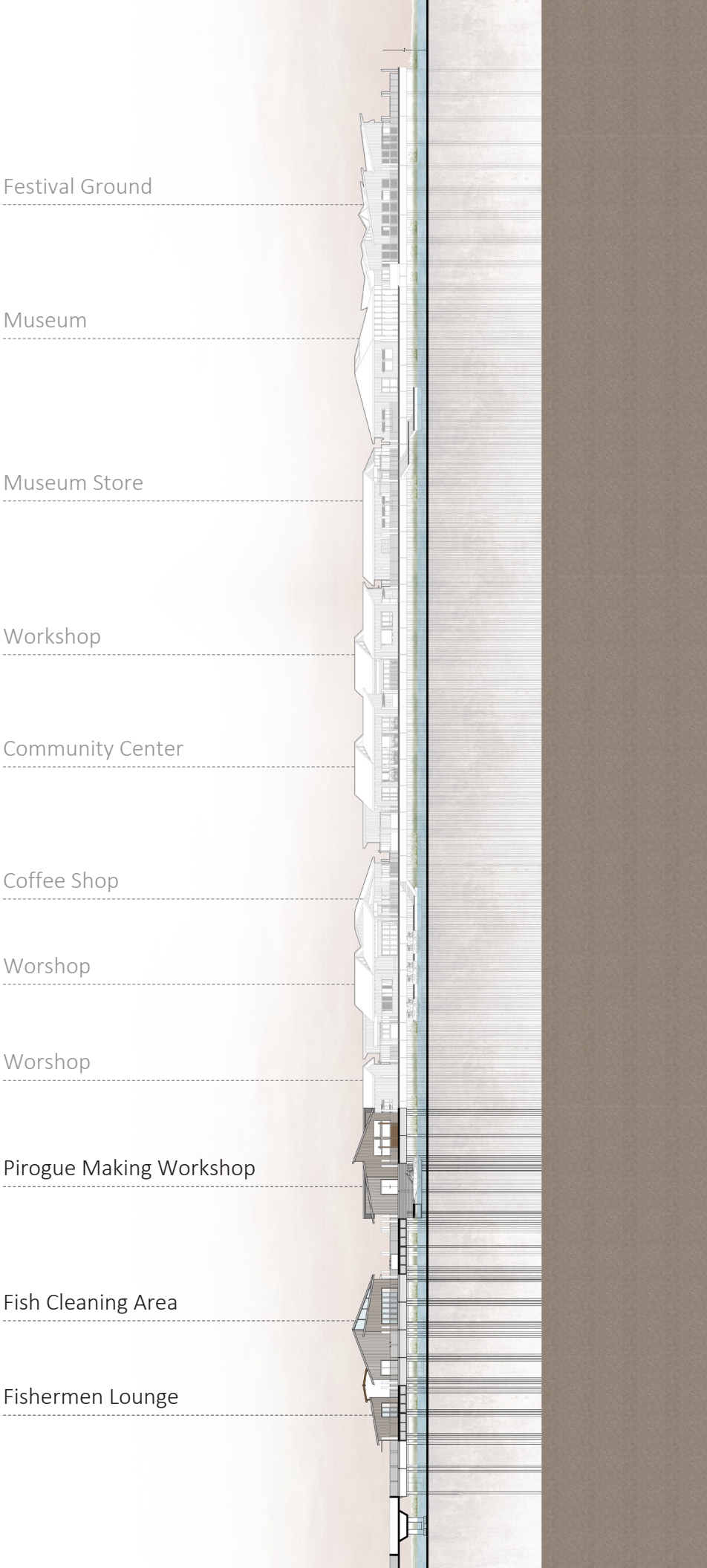
Loading Dock | Boat Lift

A boat travel lift is used to lift boats out of the water and move them onto the dock. It helps fishermen repair, clean, and store their boats more easily and safely.

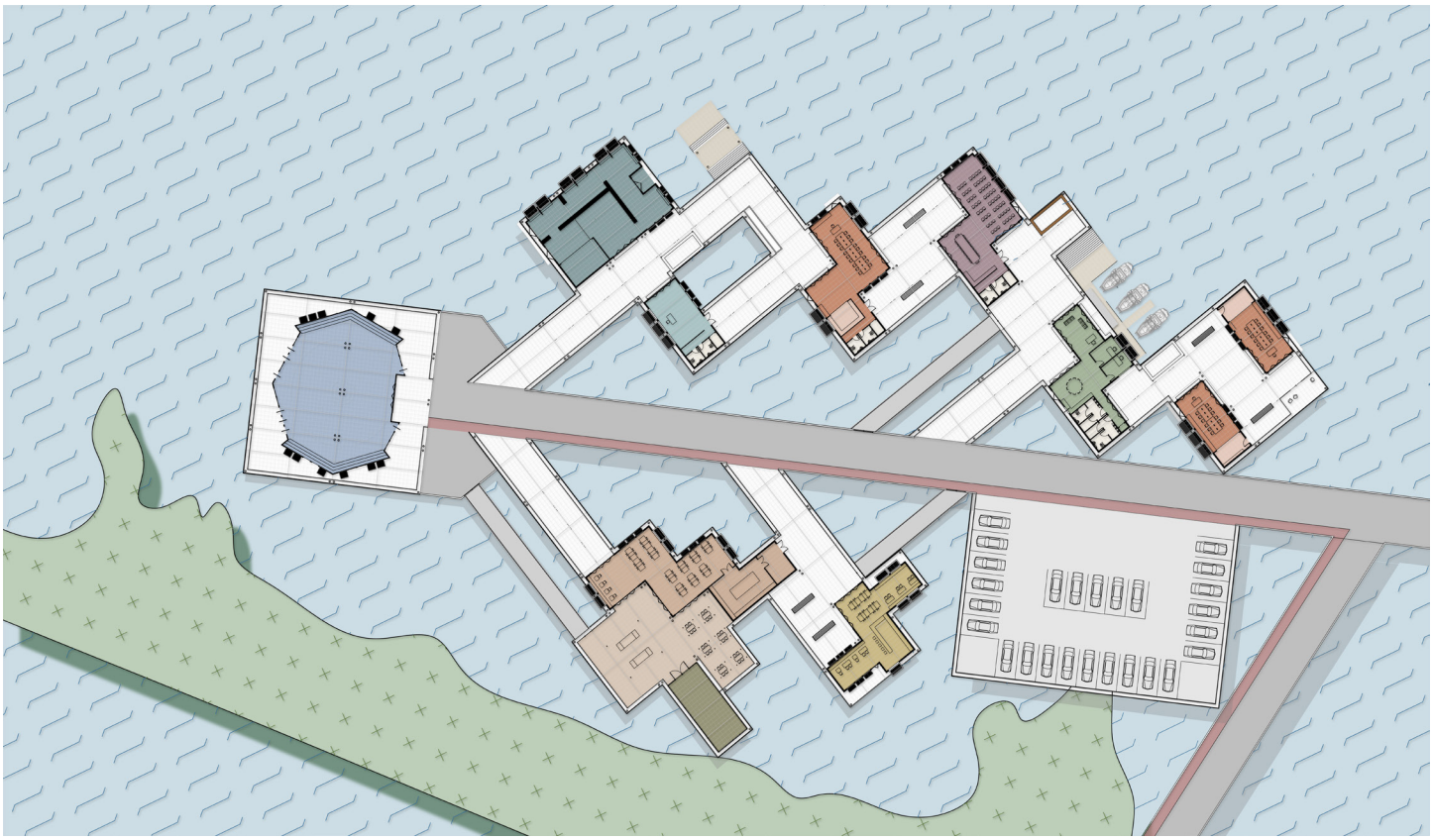
The fishing hub is a working space where tribal members can return to the water for both community and personal fishing. After the fish are caught, they can be cleaned, packaged, stored, and then transferred to New Isle and local markets to be sold. This creates a small economic system for the community.

The hub also supports boat repair, net repair, storage, and traditional pirogue making. Large folding doors allow the enclosed spaces to open to the outdoor platforms, so the work areas can expand and stay connected to the dock and water.

Section B-B

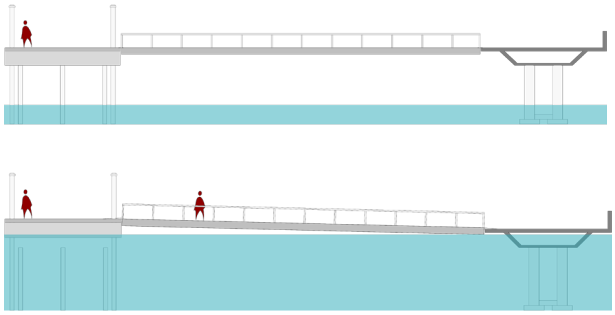

Festival Ground
Museum
Museum Store
Workshop
Community Center
Coffee Shop
Worshop
Worshop
Pirogue Making Workshop
Fish Cleaning Area
Fishermen Lounge

Cultural Center | Plan



- Office & Management
- Community Center
- Workshop
- Storage
- Museum
- Museum Store
- Restaurant
- Outdoor Festival Ground
- Greenhouse
- Coffee Shop & Bar
- Festival Ground
- Parking
- Restroom
- Walking Path





Normal Condition

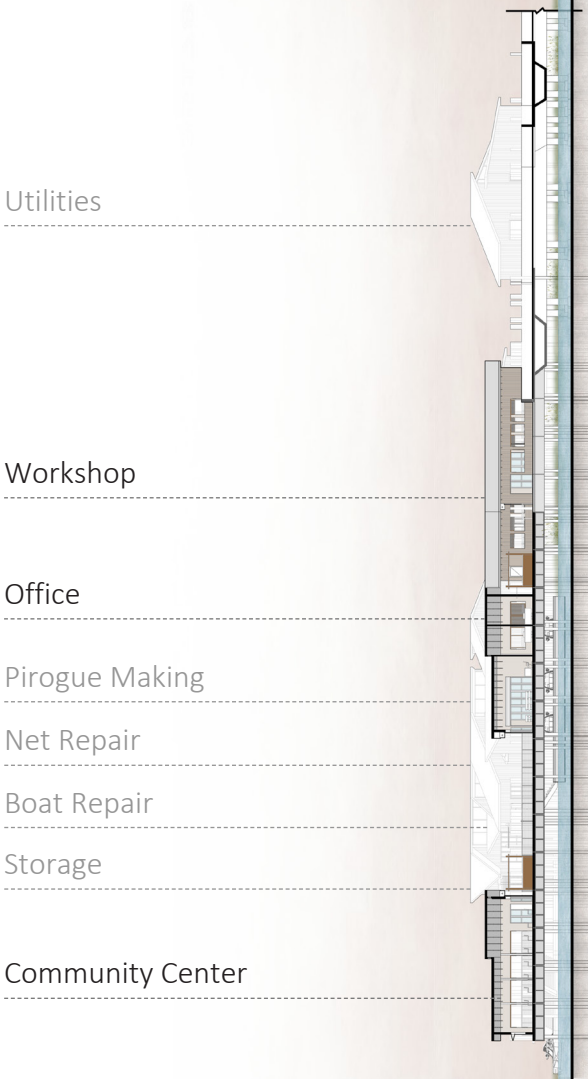
The bridge is inactive and used only for emergencies. Regular access is by boat and dock.

Flooding / Rising Sea Level

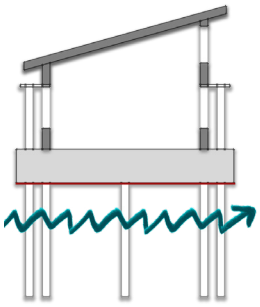
The bridge connects floating structures to permanent paths and creates a safe slope as water levels rise.

The cultural center supports cultural continuity for tribal members. It creates spaces where elders can teach younger generations traditional practices such as basket making, net making, and storytelling. The museum helps preserve the tribe's history and memory, while the community center and festival ground bring people together to celebrate, gather, and keep their culture active.

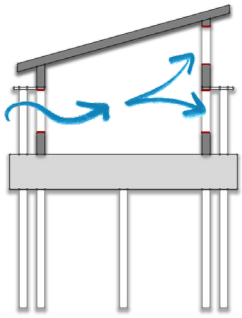
Section A-A


Utilities
Workshop
Office
Pirogue Making
Net Repair
Boat Repair
Storage
Community Center

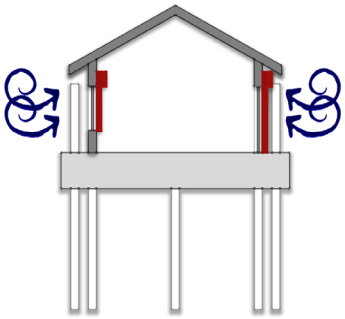
Climate Responsive Design Strategies



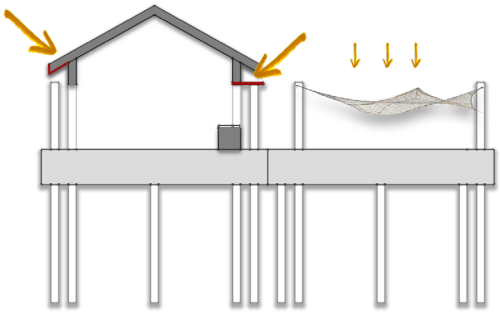
Elevated Platform
Raised above water so daily tides can pass underneath.



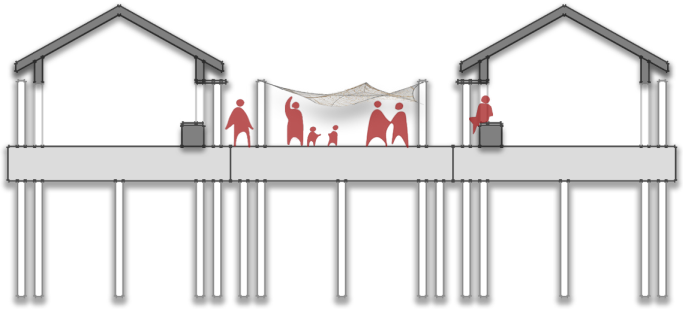
Natural Ventilation
Operable windows allow airflow in the hot, humid climate.



Storm Shutters
Openings close during storms for protection.



Shading Strategy
Overhangs and woven screens reduce harsh sun.



Communal Space
Shared spaces between buildings support gathering and community life.



Section | Cultural Center

PROJECT PHASING

Phase 1 | Initial Development



Platform
Building & Tent
Island Road
Marshland
Water
Oyster Catching Nets

Key Map



Marshland
Pointe Aux Chene

Although the project imagines a new future for the island, environmental change will continue over time. For this reason, the proposal is organized in phases that can adapt as conditions shift. Phase 1 focuses on establishing the core of the community. The Fishing Hub, Cultural Center, visitor spaces, tent street, oyster nets, and initial amphibious structures are introduced as the first layer of occupation. These elements create spaces for work, gathering, and cultural activities, allowing people to return and reconnect with the island. Elevated bridges link all programs together, forming a clear and safe circulation network above projected flood levels. In this phase, the project acts as a stable starting point, supporting daily life while setting up a flexible framework that can grow and adjust in the future.

Phase 2 | Adaptation and Expansion



Extension
Wave Attenuator
Island Road
Marshland
Water
Oyster Catching Nets



Wave Attenuator

Key Map



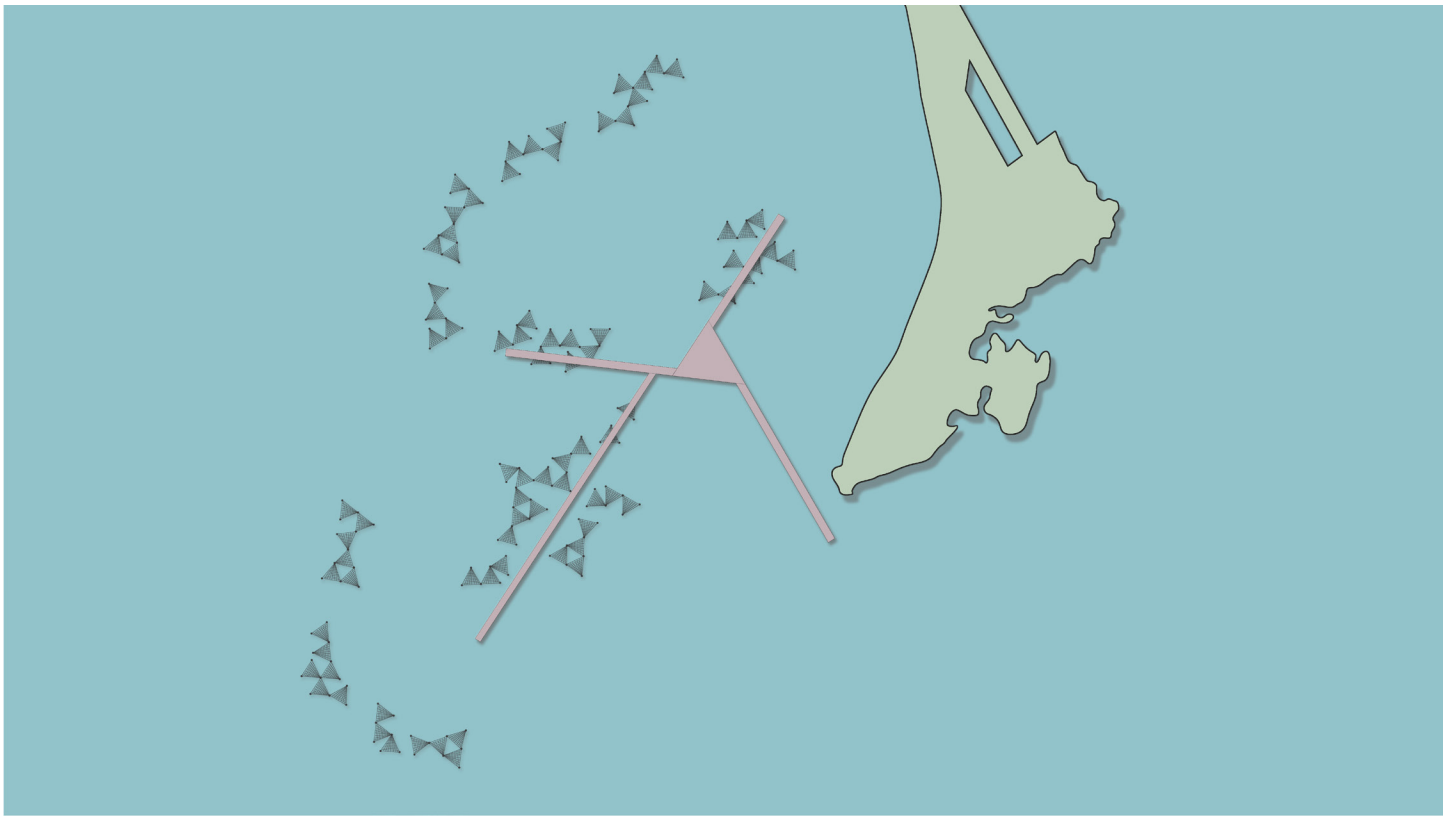
Marshland
Pointe Aux Chene

As the marshland continues to shrink, the project is designed to adapt rather than remain fixed. Phase 2 allows the system to grow with the changing landscape and the changing needs of the community.

New platforms can be added to extend the Fishing Hub, Cultural Center, and temporary gathering areas. The bridge network can also expand, creating stronger connections between programs and allowing future generations to shape the project over time.

This phase also strengthens the environmental edge of the site. More oyster nets, oyster reefs, marsh terraces, and wave attenuators can be introduced around the development. These elements help filter the water, support marine habitat, slow erosion, and reduce the force of waves and storm surge. In this way, the project becomes both a community space and a protective ecological system.

Phase 3 | Relocation and Ecological Future



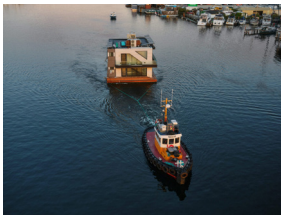
Bridges

Marshland

Water

Oyster Catching Nets

Dyna Builders is a Seattle-based custom design and construction company

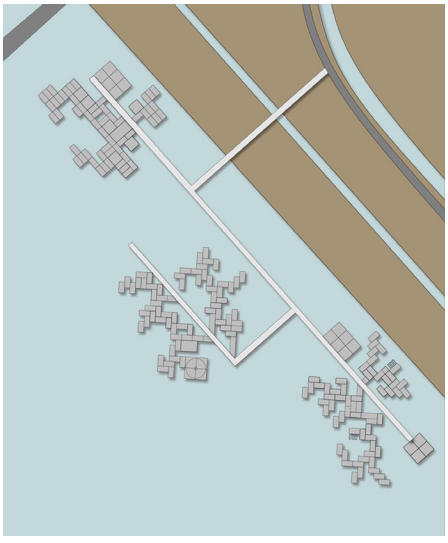


Key Map



Marshland

Pointe Aux Chene

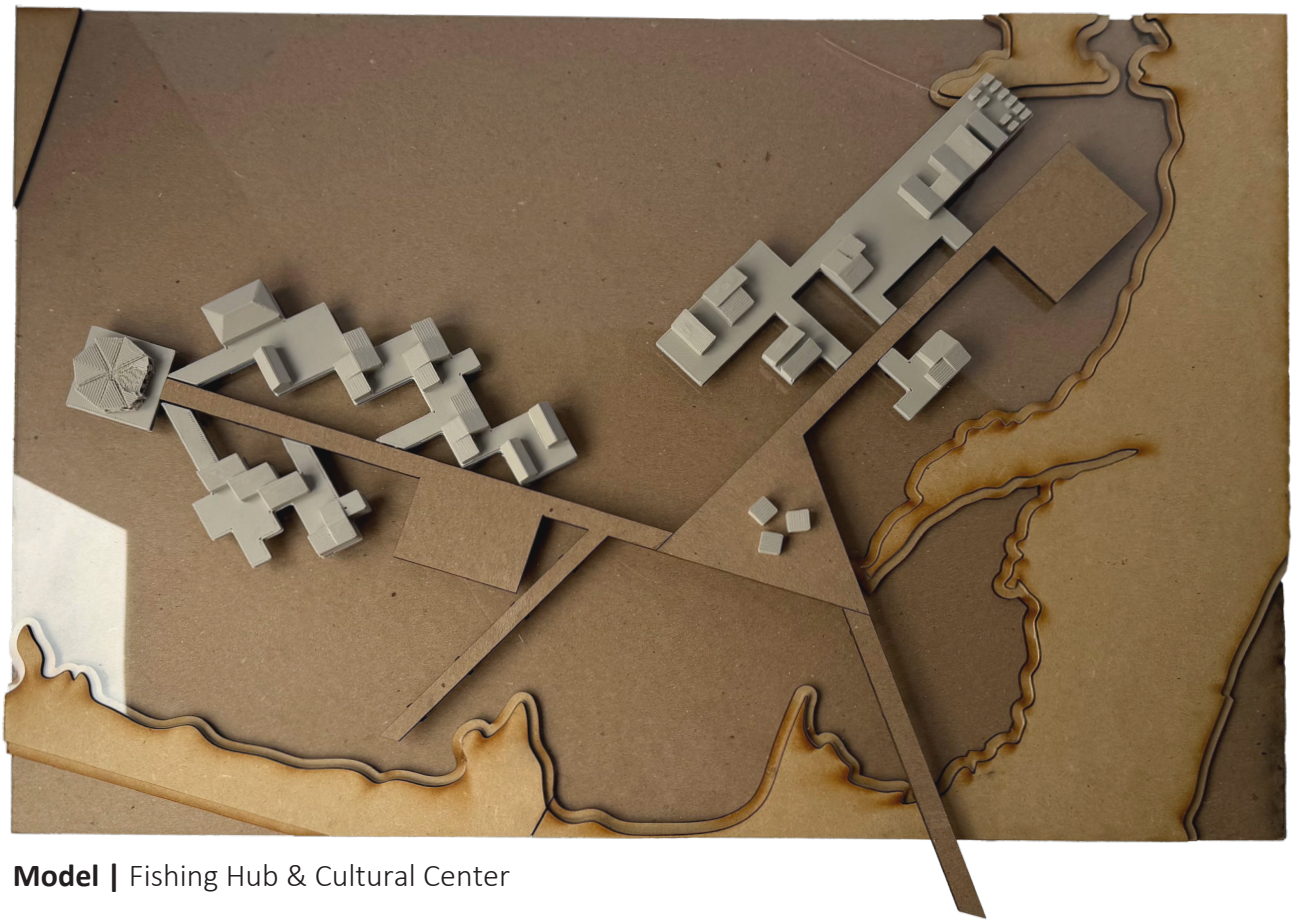


Future Expansion Zone

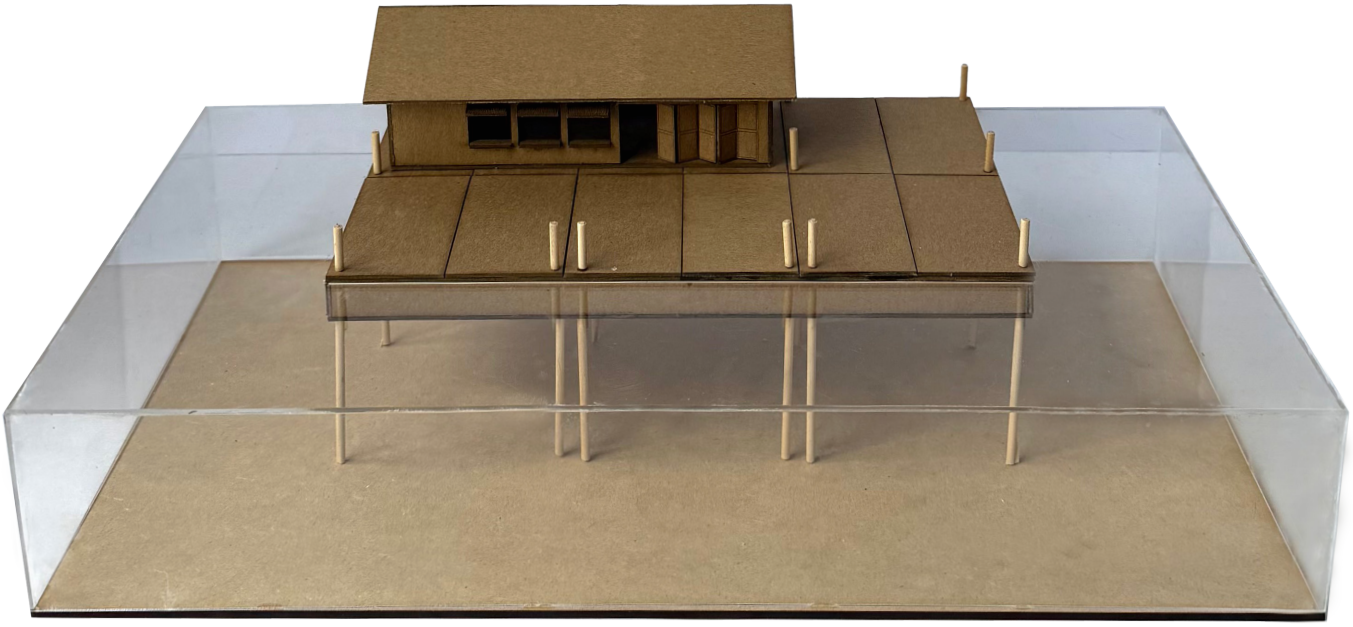
In Phase 3, the project accepts that the island may eventually become open water. If this happens, the floating structures can be detached and moved by boat closer to safer land, instead of being abandoned.

The permanent bridges remain in place and take on a new role as an ecological spine. They can support oyster growing, fishing access, marine habitat, water monitoring, and marsh restoration. In this phase, the project protects not only physical structures, but also the memory, culture, and ecological future of the island.

VISUALIZATION



Model | Fishing Hub & Cultural Center



Model | A Building in Cultural Center





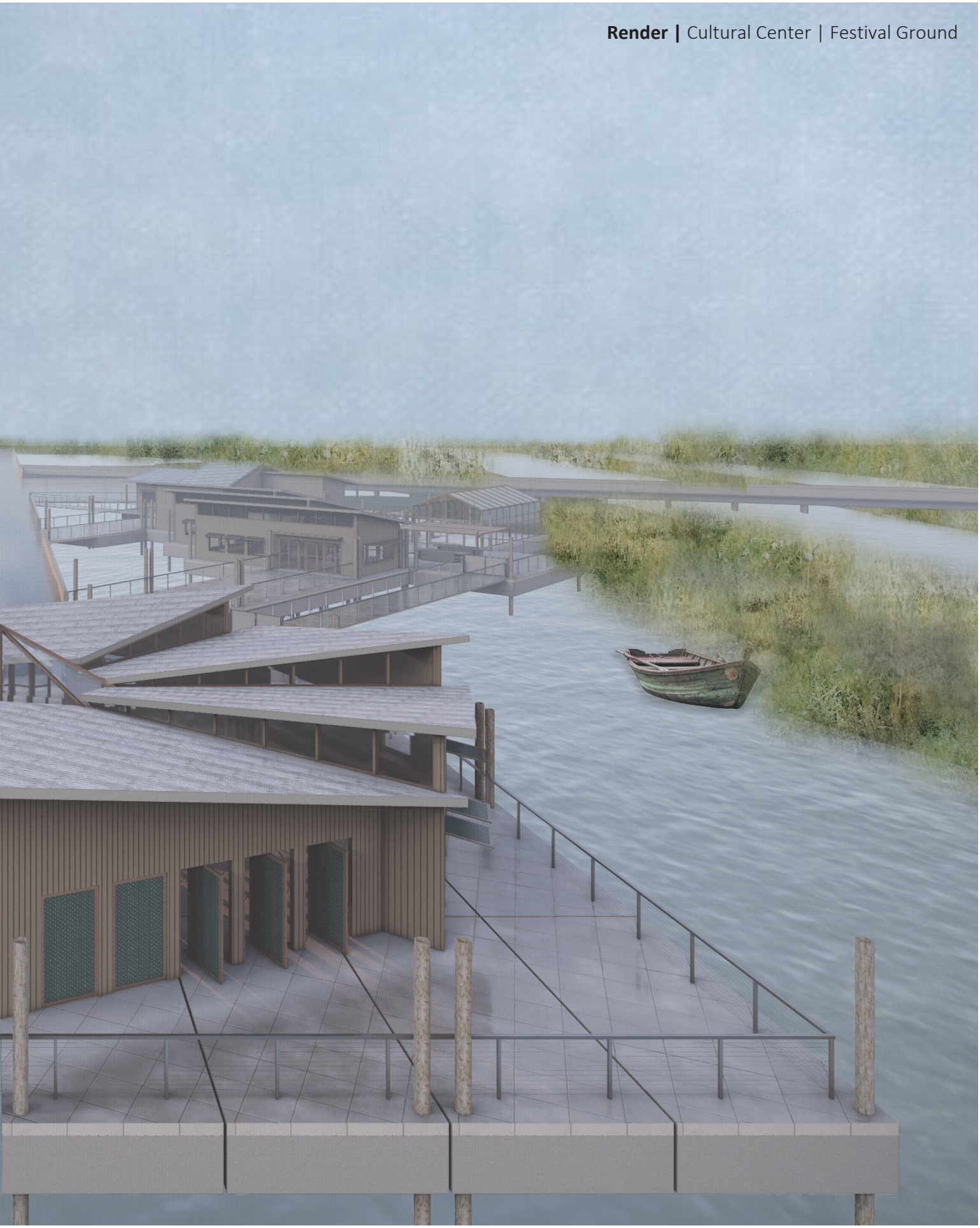


Render | Cultural Center | Outdoor Festival Ground





Render | Cultural Center | Festival Ground





THANK YOU

Spring 2026