

ISSUE FIVE : WINTER 2017

OPEN RIVERS : RETHINKING THE MISSISSIPPI



**NETWORKS &
COLLABORATION**

<http://openrivers.umn.edu>

An interdisciplinary online journal rethinking the Mississippi
from multiple perspectives within and beyond the academy.

ISSN 2471-190X

The cover image is of a Healing Place Collaborative network diagram. Members are listed around the outside of the circle and each line between them indicates a collaboration or work done between those two members. Image courtesy of Mona Smith.

Except where otherwise noted, this work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](#). This means each author holds the copyright to her or his work, and grants all users the rights to: share (copy and/or redistribute the material in any medium or format) or adapt (remix, transform, and/or build upon the material) the article, as long as the original author and source is cited, and the use is for noncommercial purposes.

Open Rivers: Rethinking the Mississippi is produced by the [University of Minnesota Libraries Publishing](#) and the [University of Minnesota Institute for Advanced Study](#).

Editors

Editor:
Patrick Nunnally, Institute for Advanced Study,
University of Minnesota

Administrative Editor:
Phyllis Mauch Messenger, Institute for Advanced
Study, University of Minnesota

Assistant Editor:
Laurie Moberg, Doctoral Candidate,
Anthropology, University of Minnesota

Production Manager:
Joanne Richardson, Institute for Advanced Study,
University of Minnesota

Contact Us

Open Rivers
Institute for Advanced Study
University of Minnesota
Northrop
84 Church Street SE
Minneapolis, MN 55455

Telephone: (612) 626-5054
Fax: (612) 625-8583
E-mail: openrvrs@umn.edu
Web Site: <http://openrivers.umn.edu>

ISSN 2471-190X

Editorial Board

Jay Bell, Soil, Water, and Climate, University of
Minnesota

Tom Fisher, Metropolitan Design Center,
University of Minnesota

Lewis E. Gilbert, Institute on the Environment,
University of Minnesota

Mark Gorman, Policy Analyst, Washington, D.C.

Jennifer Gunn, History of Medicine, University of
Minnesota

Katherine Hayes, Anthropology, University of
Minnesota

Nenette Luarca-Shoaf, Art Institute of Chicago

Charlotte Melin, German, Scandinavian, and
Dutch, University of Minnesota

David Pellow, Environmental Studies, University
of California, Santa Barbara

Laura Salveson, Mill City Museum, Minnesota
Historical Society

Mona Smith, Dakota transmedia artist; Allies:
media/art, Healing Place Collaborative

CONTENTS

Introduction

Introduction to Issue Five

By Patrick Nunnally, Editor 4

Features

What it Means to be a “Partnership Park” - The Mississippi National River and Recreation Area

By John O. Anfinson 7

Healing Place Collaborative

By Martin Case 13

Mississippi River Network: Headwaters to the Gulf

By Kelly McGinnis 24

An Orphaned River, A Lost Delta

By Valsin A. Marmillion 31

Perspectives

The National River Organizations

By John Helland 47

In Review

Museum on Main Street’s *Water/Ways*

By Joanne Richardson 53

Primary Sources

Treaties & Territory: Resource Struggles and the Legal Foundations
of the U.S./American Indian Relationship

By Laura Matson 61

Geographies

Bridal Veil Falls

By Hilary Holmes 72

Teaching and Practice

Navigating the Ethics of Partnership

By Monica McKay 77

FEATURE

AN ORPHANED RIVER, A LOST DELTA

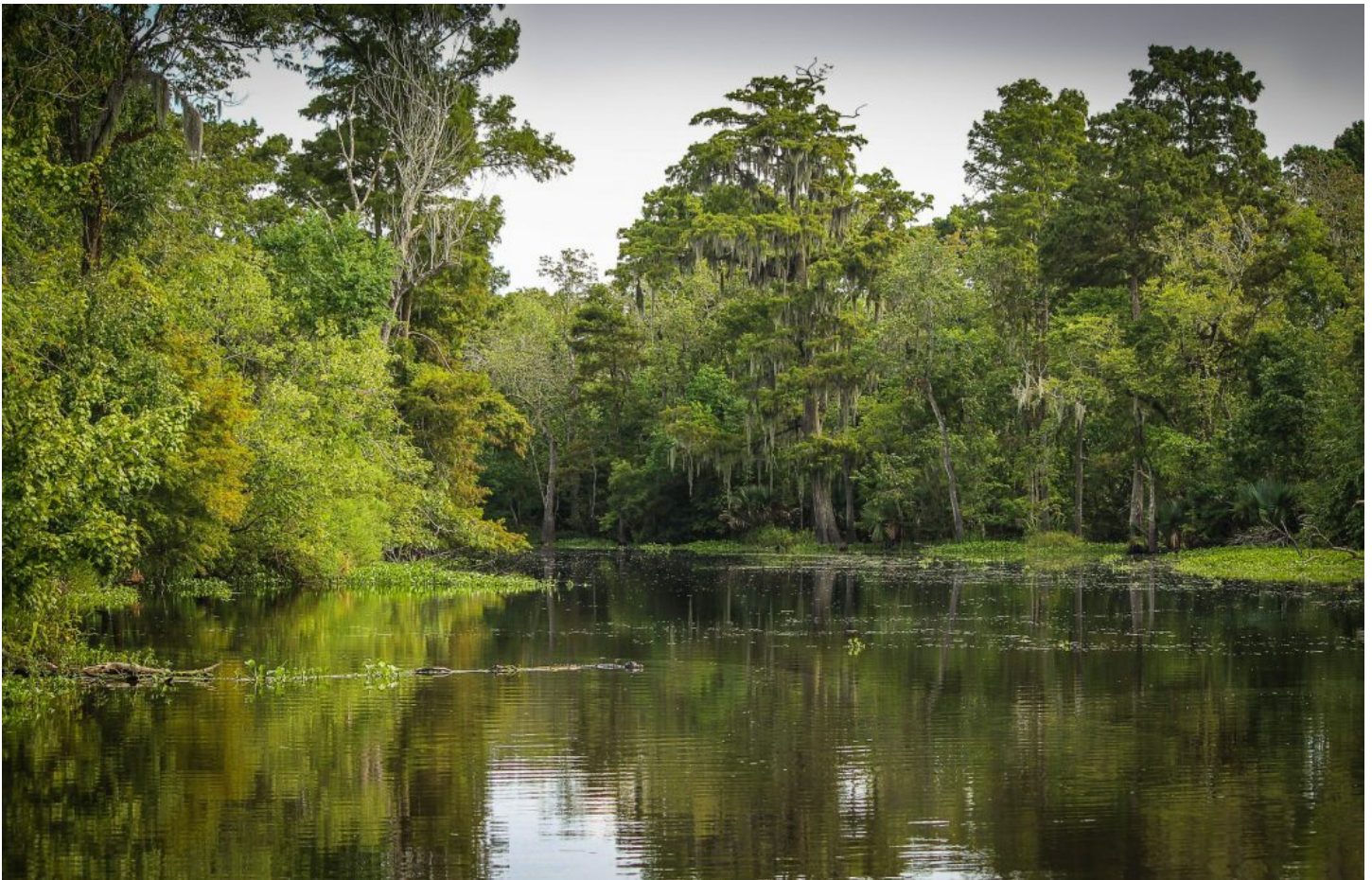
By Valsin A. Marmillion

Over thousands of years the Mississippi River deposited fresh water, nutrients, and sediment through a vast American territory to form one of the world's grandest deltas. Today, Louisiana's coastal wetlands—a critical ecosystem in this delta and a place we call “America's Wetland”—is dying.

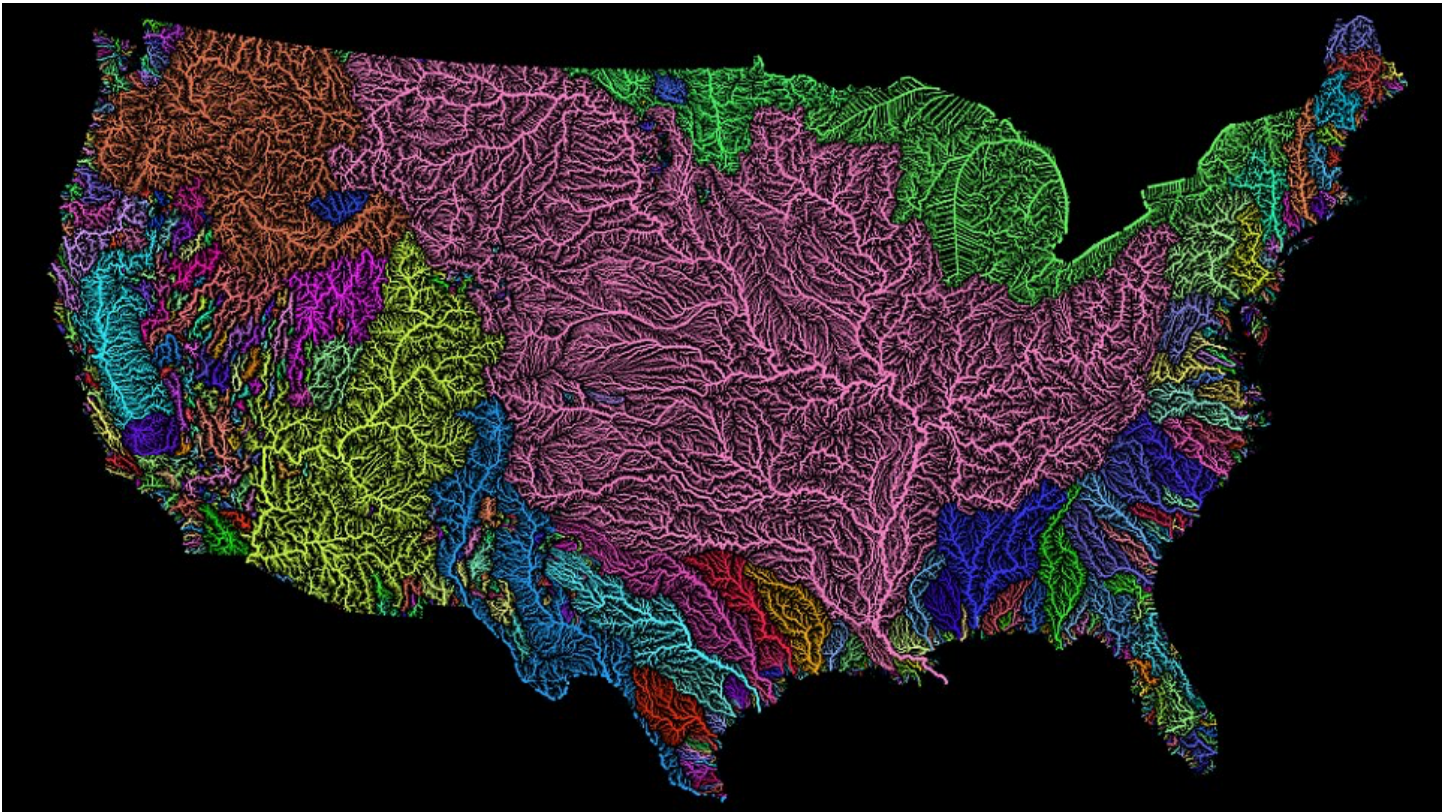
The Mississippi River Delta is the seventh largest deltaic region in the world, created as the river periodically flooded over 6,000 years. The delta's lifeline was in deposits derived from a drainage

basin comprising 41 percent of what is now the continental United States.[i]

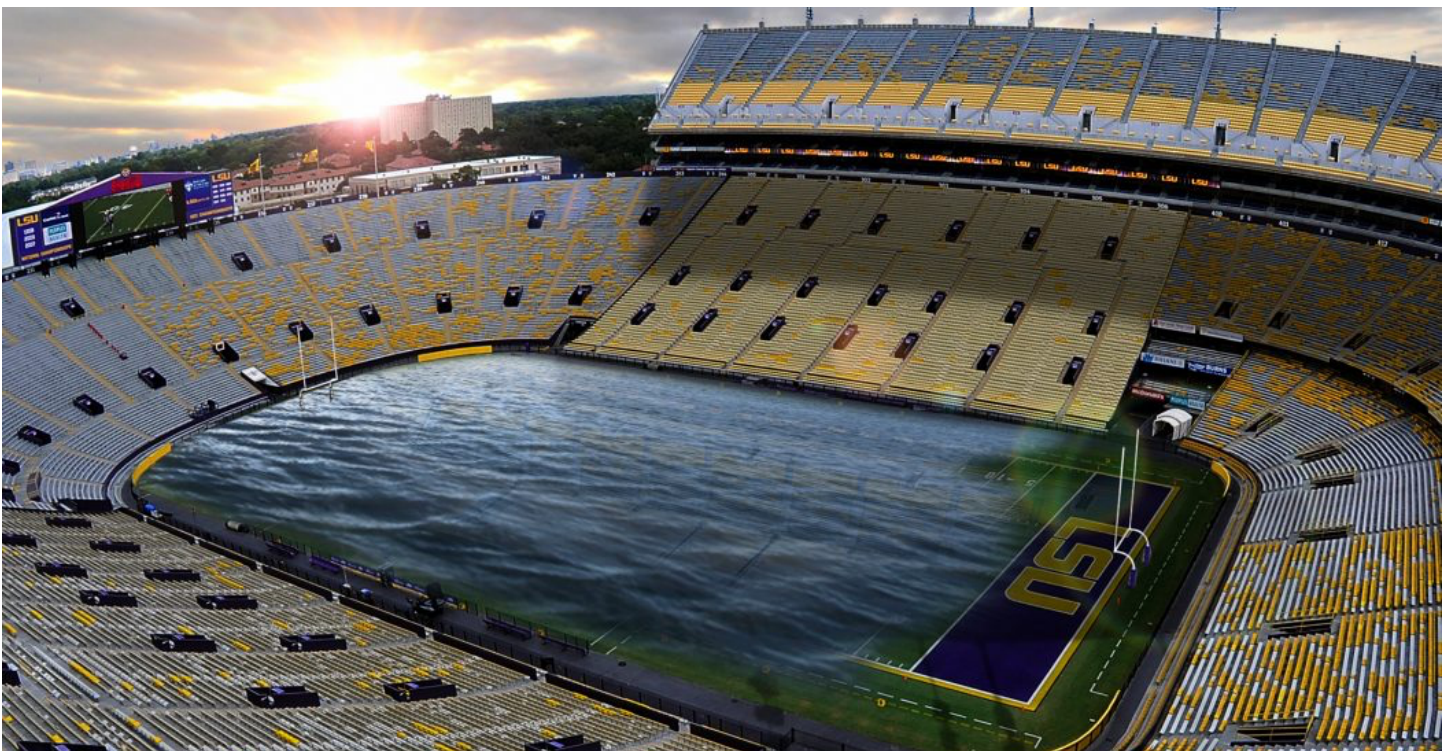
From the Mississippi's waters, an amazingly complex ecosystem of freshwater swamp, salt-water marshes, and forests grew into 3 million acres, or approximately 6,000 square miles of wetlands, an area twice the size of the Everglades that represents 40 percent of the nation's coastal wetlands in the lower 48 states.[ii]



Louisiana wetlands. By JamesDeMers [CCo], via Wikimedia Commons.



This map highlights (in pink) the massive expanse of river basins across the country that feeds the Mississippi River. Image Courtesy Robert Szucs, <https://www.etsy.com/shop/GrasshopperGeography>



A dramatization of a flooded Tiger Stadium at Louisiana State University. Courtesy America's WETLAND Foundation.

Through the centuries, this fragile wetland has been subsiding under its own weight, only to be rebuilt annually by new sediments and nutrients, the natural process for sustainability.

Today, the equivalent of a football field of land is being lost every hour.[iii] During the past 80

years, almost 2,000 square miles of Louisiana's coast has turned to open water, posing a lethal threat to an important ecosystem and an energy and shipping corridor vital to the nation's economy.

The Problem

After the Great Mississippi River Flood of 1927, the U.S. Army Corps of Engineers responded to public demand for flood protection by building a vast levee system along the banks of the Mississippi River Valley. Historic documents show that at that time engineers and scientists raised concerns that the future of the Mississippi delta and its prolific wetlands would hang in the balance, but the outcry for action and the resulting political response created the massive public works project for levee construction.

View a silent film of the [1927 flood damage](#) by the U.S. Signal Corps and published in 1936, via USGS.

The ensuing years would see a complex system of locks and dams built by the federal government, trapping sediment, and starving the delta of the

natural processes that built it over the last 6,000 years. To compound the problem, the federal government also built jetties that jettison 150 million tons of sediment each year off the outer continental shelf, only to be lost to the depths of the Gulf of Mexico.[iv] Thus, federally sponsored programs, advancing subsidence, trapping of sediments, as well as oil and gas exploration canals and sea level rise have all been contributing factors threatening to seal a fate of economic and environmental destruction of this rare and valuable region.

View an animation showing the [proliferation of dams](#) based on data from the [National Inventory of Dams](#). Courtesy Irina Overeem, Ph.D., Research Scientist, University of Colorado, Boulder.

National Implications of Louisiana's Land Loss

Coastal Louisiana is of world ecological significance. The potential collapse of this intricate ecosystem where 95 percent of Gulf marine life spends all or part of their lifecycle and more than 10 million waterfowl winter each year will have catastrophic environmental consequences for wildlife habitat and marine species.[v]

It is also a working wetland; Louisiana is the third largest producer of petroleum, and the second largest producer of natural gas, supplying slightly more than one-quarter of the total U.S. production. It is from this area that distribution of energy for the entire eastern U.S. begins.



Tri-colored Heron, via National Park Service.

As the wetlands disappear, energy, shipping, and maritime infrastructure along the coast become exposed to open Gulf conditions. Wells, pipelines, ports, roads, and levees that are key to energy and commodity delivery become more vulnerable, the potential for damaging oil spills increases, and the probability of interruption of oil and gas production and distribution to the nation increases.

The Gulf Intracoastal Waterway runs through these coastal wetlands. This shallow-draft canal, an integral part of the inland transportation system of the United States, makes it possible to supply domestic and foreign markets with chemicals, agriculture products, and other essential

goods from America's heartland. Wetland loss along Louisiana's shore poses an immediate threat to this vital water transportation route once sheltered by wetlands and now experiencing open water conditions and channel widening as land is lost.

Louisiana's coastal wetlands also act as a natural buffer for coastal communities as the first line of defense against hurricanes and major storms. The rapidly eroding wetlands are integral to the safety and security of more than two million people and a truly unique culture inextricably tied to the land.

Creation of a National Movement

In response to this threat, the America's WETLAND Foundation (AWF) was established in Louisiana in 2002, in response to a comprehensive coastal study calling for the need to alert the state, nation, and world to the devastating loss of Louisiana's coastal wetlands and how that loss affects the rest of the nation. When AWF noted that Louisiana was losing the equivalent of



Media Interview of Commissioner Jay Dardenne, Louisiana's Director of Administration. Courtesy America's WETLAND Foundation.

ISSUE FIVE : WINTER 2017

“a football field of land each hour,” the metaphor stuck and the reference became ubiquitous in media depictions of the impending tragedy.

Since then, AWF has developed a comprehensive strategic communications plan, which has been followed and updated annually to achieve substantial earned media results and position the dialogue in ways that keep a focus on the urgency of action to restore disappearing wetlands. AWF has effectively used public opinion, earned media, triggering events, conferences, and workshops to swing political and public support for wetland restoration.

The Foundation is perhaps best known for continuously demonstrating the link between a strong environment and a secure economy. It serves successfully as a neutral convener,

bringing diverse interests to the table to seek and establish solutions for ensuring the sustainability of the Gulf coast.

The Foundation is led by a diverse and accomplished board of directors, chaired by civic leader and former Whitney Bank chair, R. King Milling of New Orleans, LA, who also chairs the Governor’s Advisory Commission on Coastal Protection, Restoration, and Conservation in Louisiana. CEOs of national corporations and NGOs sit on the board along with civic and educational leaders.



America’s WETLAND Meeting in Chicago. Courtesy America’s WETLAND Foundation.

Solutions are at Hand

This board, together with partner organizations, scientists, and policy makers, has been working to find solutions for the loss of coastal wetlands. While there has been rigorous debate about how to save coastal Louisiana, the best science and engineering have led the way for restoring the coast. The depth of research and planning engaged in by the state of Louisiana is impressive and has led to reorganizing its government and creating the Louisiana Coastal Protection and Restoration Authority. Recognizing that a comprehensive process was required, a master plan of solutions has been developed, including both integrated ecosystem restoration and hurricane protection. In its third iteration, Louisiana’s Comprehensive Master Plan for a Sustainable Coast addresses the notion of “multiple lines of offense”—the urgent need for aggressive, large-scale diversions and land creation measures designed to address the calamitous loss of land.[vi]

While there has been a rush toward more politically popular protection measures, restoration advocates, including AWF, have held firm that restoration cannot be left behind or we will pay



Coastal Protection and Restoration Authority of Louisiana

the price of wholesale ecosystem collapse, where other short-term and expensive measures may be sacrificed or compromised without the natural system of wetlands and barrier islands.

AWF continues to be a strong advocate for Louisiana’s Coastal Master Plan, and the 2017 plan now moves into implementation phases. (The plan is mandated by law to be updated and adapted every five years.) Earlier, the state modeled 109 high performing projects that could



*Louisiana Governor
John Bel Edwards.
Courtesy America’s
WETLAND Foundation.*

deliver measurable benefits to our communities and coastal ecosystem over the coming decades. The plan shows that if these projects are fully funded, the state could substantially increase flood protection for communities and create a sustainable coast.

The price tag for achieving success is upwards of \$50 billion and more is now on the table as protection measures for economic and community assets are part of the options.[vii] Many significant obstacles to comprehensive coastal restoration remain, including dedicated

funding, a lack of Federal commitment and an overabundance of red tape, and the potential for diverting funds held in a trust fund. Despite this, Louisiana's new Governor John Bel Edwards has stood firm in the face of shrinking state revenues.

After years of grassroots and stakeholder interaction, the America's WETLAND Foundation has outlined specific issues and identified 12 solutions articulated below. These solutions are grouped into three main categories of solution that overlap and intersect ecological actions, financial support, and policy.

Ecological Actions: Transition Projects

AWF has designed projects to promote innovation in project design and financing. Many coastal leaders understand that turning dirt immediately for large-scale projects will still mean years before achieving positive effects from building wetlands

or protection mechanisms. For that reason, the Foundation has focused its work on what it terms "transition projects" that will provide the ability to hold current wetland assets in place while waiting for larger projects to come on line.



*Newly created berm, ready for the installation of Vegetated EcoShield™.
Courtesy America's WETLAND Foundation.*

ISSUE FIVE : WINTER 2017

One key example of these transition projects in action is work with the Gulf Intracoastal Waterway (GIWW). For decades, navigable waterways designed to support transportation and commerce, such as the GIWW, have felt the effects of coastal erosion and the dramatic loss of coastal wetlands. The waterway, second in tonnage to the Mississippi River, experiences ongoing neglect as both the state of Louisiana and the U.S. Army Corps of Engineers disagree about which entity is responsible for maintaining the channel built by the federal government.

In south Louisiana, the GIWW has become a virtual line of demarcation for erosion and wetland loss. In Lafourche Parish on the north side of the channel, the loss of shoreline has

resulted in widening of the channel, which has taken private land and resulted in the loss of vital fish and waterfowl habitat. In past years, private landowners at the project site have had to rebuild the embankment numerous times due to continual erosion caused by tidal surge and other forces. This AWF project was designed to demonstrate the effectiveness of innovative green shoreline strategies in stabilizing wetland boundaries and fortifying embankments to prevent further land loss, while also highlighting that these strategies have potential for replication throughout the region and nation.

Both traditional and innovative technologies were used in the form of low-cost bucket dredges and the vegetated, recycled plastic matrix material



Lifting up of one layer of EcoShield to unveil roots of plants below. Courtesy America's WETLAND Foundation.

ISSUE FIVE : WINTER 2017

called Vegetated EcoShield™, produced from recycled, post-consumer plastic that protects shorelines and stabilizes banks while promoting vegetative growth. By providing a protective medium for vegetation to establish, grow, and spread, it enhances the natural processes of the system by creating vegetated shorelines and important coastal habitats.

Phase One of the America's WETLAND Foundation Gulf Intracoastal Waterway (GIWW) Shoreline Stabilization and Restoration Project

is complete; one mile of Vegetated EcoShield™ has been installed and planted to create habitat and provide protection from storm surge for the community of Larose and for critical energy infrastructure. The project provides a clear path for private investment to protect environmental, community, and economic assets at an affordable cost, about a sixth of the cost of similar projects using rocks.



EcoShield in the midst of installation. Courtesy America's WETLAND Foundation.

Multiple Lines of Offense

Louisiana’s coastal sustainability requires building “multiple lines of offense” that include reconnecting the Mississippi River with the wetlands through reintroduction of fresh water and sediments from the lower river into the upper basins and also possibly re-engineering the mouth of the river to achieve beneficial land building.[viii] Multiple lines of offense include: the immediate beneficial use of dredged material, fortification of ridges and barrier

islands, and the critical, long-term efforts such as Mississippi fresh water and sediment diversions. AWF believes Louisiana’s coastal program must proceed with transparency about realistic timelines and financing so that both commerce and communities can adapt to change. Incentives to provide greater community and private sector participation are needed immediately to stem the rising tide and coastal land loss.

Building with Nature

The Foundation supports restoring the natural processes of the Mississippi River, the Atchafalaya River and Bayou Lafourche both through the re-introduction of sediment and fresh water to the wetlands and through hydrological efforts needed to prevent accelerated land loss along the coast in the western part of the

state. These efforts are in keeping with measures in the Netherlands where more than 800 years of engineering has led to conclusions that long-term restoration requires utilizing nature’s natural processes in tandem with compatible measures for restoration and protection.[ix]



Six months after installation of EcoShield. Courtesy America’s WETLAND Foundation.

Beneficial Use of Dredged Materials

The Foundation promotes the beneficial use of dredged material to aid in restoration. To that end, the Foundation supports the U.S Army Corps of Engineers' Principles and Guidelines for Water Resources and calls for funding that would allow dredged materials from maintenance of

shipping channels to be used to restore coastal wetlands. A cost benefit analysis demonstrates that the cost to the U.S. of coastal land loss is much greater than the cost of beneficially utilizing dredged materials from our nation's largest river and other federally controlled waterways.

Beneficial Use of Carbon

The restoration and avoided loss of coastal wetlands and habitats offer significant potential for the sequestration of carbon, which could simultaneously restore ecosystem health while reducing greenhouse gases. In addition, coastal habitat restoration is a key strategy in adapting to changing climate conditions and helps to mitigate impacts. A tremendous potential exists

for public/private partnerships to simultaneously restore our coasts while mitigating for greenhouse gas emissions. The Foundation supports the development of science protocols for the use of wetlands for carbon sequestration, and endorses policy considerations for the beneficial use of carbon by the private and public sectors for recycling and reuse of carbon dioxide.

Financial Support: Innovation in Financing Ecosystem Restoration

Globally, in response to increased concerns about climate change and sea level rise, corporate shareholders and boards are seeking investments in ecosystem sustainability programs that yield competitive returns. New mechanisms can enable land-based offsets and the financial value of natural systems to effectively approach the scale of restoration needed if certain policies are adjusted is one possible approach. Wetland carbon sequestration is an added value that can induce

more financing to mitigation banking and Natural Resource Damage Assessment (NRDA) credits; if allowed for large-scale mitigation, wetland carbon sequestration in Louisiana can facilitate large venture capital plays. In October, AWF organized a convening of public and private sector leaders and outlined the case for restoration using private financing by establishing greater certainty for investment financing of large-scale restoration and ecosystem valuing parameters.

Dedicated Funding for Coastal Restoration

The America's WETLAND Foundation supports the creation of dedicated funding streams for coastal restoration along America's coasts. One

funding stream should come from increasing the sharing of offshore revenues for coastal restoration as called for in the Gulf of Mexico Energy

Security Act (GOMESA). In addition, RESTORE grants from BP oil spill fines should be carefully monitored to ensure the funding aligns with high probability restoration solutions. Finally, establishing specific national funding mechanisms to address the need for adaptation and resiliency

strategies would be an enduring funding solution for a majority of the U.S. population residing in coastal communities who face climate change impacts of increased sea level rise and storm related events.

Use of the Harbor Maintenance Trust Fund as Intended

America's WETLAND Foundation contends that funds from the Harbor Maintenance Trust Fund be made available at the outset of each annual Congressional Budget Cycle for the US Army Corps of Engineers.[x] AWF also urges Congress and the Administration to mandate this funding be used for its intended original purpose—the

operation and maintenance of America's ports and harbors and navigable waterways. AWF also suggests that the Corps be authorized and funded to beneficially use dredged materials from these efforts.



*AWF's October Coastal Restoration Leadership Roundtable.
Courtesy America's WETLAND Foundation.*

Policy:

Resolution of Conflicting Federal Policies

The federal processes in place to address the restoration and protection of this vulnerable coastline are fraught with conflicting agency missions and policies. Existing policies and regulations are expensive, cumbersome, slow, and without regard to the unique nature of coastal landscapes and functions of this region that directly benefit and have an impact on the rest of the nation. Understanding unprecedented urgency and the scale of restoration and protection in America's coastal regions, immediate action and a national resolve are critical to restore environmental, economic, and energy assets at risk. With the emergence of the RESTORE Council to distribute

BP fine monies, a coordinated effort by federal agencies is promising.

AWF will continue to seek the commitment of Congress and the new Administration to resolve conflicting federal policies and to change federal procedures that slow and often prevent the ability to restore, rehabilitate, protect, and sustain coastal regions. The Foundation has issued detailed reports and met with federal agencies to help identify federal impediments, to act effectively, to design mechanisms for streamlining the process to sustain the region, and to focus on innovation in rule-making to speed restoration work.[xi]

Emergency Permitting for Restoration

The Foundation endorses the development of an emergency rule that would expedite restoration projects meeting the priorities of approved coastal plans. This permitting would prevent environmental degradation caused by lengthy delays

and cost overruns associated with the current regulatory delays and impasses. Mitigation for environmentally beneficial projects also burdens the process and inhibits costly restoration in a timely manner.

Establishment of a Federal Coastal Restoration Agency

The lack of a focused mission in any funded federal agency that drives coastal priorities is leading to irrevocable degradation of the Gulf Coast with enormous economic, environmental, and social consequences. The Foundation favors the formation of a consolidated federal coastal

restoration agency based on the principles of the RESTORE Council to "restore the coastline of the United States of America" through a comprehensive approach that fast tracks restoration efforts and coordinates priorities across agencies.

Revised Mitigation Policies

Mitigation for environmentally beneficial projects can be a major barrier to funding coastal restoration projects. The Foundation recommends a review of mitigation policies and the elimination

of mitigation for projects that increase coastal sustainability and restoration. In addition, AWF contends that preserving healthy wetlands should earn private landowners mitigation credits rather

than penalizing the act of private restoration. Private land owners need incentives to proceed immediately to restore their land consistent with federal and state plans. As such, AWF believes that incentive programs should be created for landowners and industry willing to fund and build restoration projects. Development of an environmental exchange with an inventory of projects for private support should be utilized.

This will continue to bring the complexities of coastal restoration and its financial, environmental, and social consequences to the public's attention. The history of Foundation approaches shows encouraging results and continues to move the needle of political will necessary to address the menacing challenges that could sink a state and nation's economy.

Footnotes

[i] Coastal Wetlands Planning, Protection, and Restoration Act. "The Mississippi River Delta Basin." Accessed January 25, 2017, https://lacoast.gov/new/About/Basin_data/mr/.

[ii] Williams, S. Jeffress. "Louisiana Coastal Wetlands: A Resource at Risk." Accessed January 25, 2017, <https://pubs.usgs.gov/fs/la-wetlands/>.

[iii] Coastal Protection and Restoration Authority of Louisiana. "Louisiana Coastal Facts." Accessed January 25, 2017, http://www.dnr.louisiana.gov/assets/OCM/OCM/webfactsheet_20110727.pdf.

[iv] Thorne, Colin, Oliver Harmar, Chester Watson, Nick Clifford, David Biedehharn, and Richard Measures. *Current and Historical Sediment Loads in the Lower Mississippi River* (July 2008). Accessed January 25, 2017, http://media2.lpb.org/images/pdf/TT_MSsediment.pdf.

[v] Blanco, Kathleen Babineaux. "Saving Louisiana's Delta," *Global Issues: Shared Oceans, Shared Future* 9, no. 1 (April 2004): 24–27.

[vi] Coastal Protection and Restoration Authority of Louisiana. *Louisiana's Comprehensive Master Plan for a Sustainable Coast* (Baton Rouge: OTS-State Printing, 2017). Accessed January 25, 2017, http://coastal.la.gov/wp-content/uploads/2016/08/2017-MP-Book_2-page-spread_Combined_01.05.2017.pdf.

[vii] Schleifstein, Mark. "The \$50 billion plan to save Louisiana's coast gets a rewrite," *The Times-Picayune*, October 13, 2016. Accessed January 25, 2017, http://www.nola.com/environment/index.ssf/2016/10/louisiana_coastal_flood_protection_plan.html.

[viii] America's WETLAND Foundation. *Comments on the Preliminary Gulf of Mexico Regional Ecosystem Restoration Strategy Report* (New Orleans: America's WETLAND Foundation). Accessed January 25, 2017, <https://www.americaswetland.com/files/102611-AWF-EcosystemTaskForceCommentsFINAL.pdf>.

[ix] de Vriend, Huib, Mark van Koningsveld, and Stefan Aarninkhof. "Building with nature': The new Dutch approach to coastal and river works." *ICE Proceedings Civil Engineering* 167, no. 1 (February 2014): 18–24.

Footnotes Continued

[x] Davis, Jeff. “What To Do About the Harbor Maintenance Trust Fund?” *Eno Transportation Weekly* (September 30, 2016). Accessed January 25, 2017, <https://www.enotrans.org/article/harbor-maintenance-trust-fund/>.

[xi] America’s WETLAND Foundation. *Beyond Unintended Consequences: Adaptation for Gulf Coast Resiliency and Sustainability* (New Orleans: America’s WETLAND Foundation). Accessed January 25, 2017, http://www.futureofthegulfcoast.org/AmericasWETLANDFoundation_Beyond.pdf.

Recommended Citation

Marmillion, Valsin A. 2017. “An Orphaned River, A Lost Delta.” *Open Rivers: Rethinking The Mississippi*, no. 5. <http://editions.lib.umn.edu/openrivers/article/an-orphaned-river-a-lost-delta/>.

About the Author

Valsin A. Marmillion is managing director of America’s WETLAND Foundation (AWF). Marmillion has managed the work of AWF since 2002. AWF serves as a respected Gulf Coast voice for preserving the environmental, economic and community assets of the region. With more than a decade of Congressional service and drafting legislation impacting coastal zones, Marmillion combines his 30 years of public outreach experience with deep knowledge of coastal policy.