

# WATER WORKS







ANNUAL REPORT | 2016

# **WATER WORKS**



Coastal communities around the world face increasing levels of uncertainty as sea levels rise and land subsides, putting people and businesses at risk. In my years of philanthropic work in the United States and as the former Ambassador to South Africa, I've seen how knowledge and the ability to put good ideas into action can help lift up communities and bring more security to the future.

Closer to home, I saw firsthand what this risk could mean to my home state as I served as chairman of the Louisiana Disaster Recovery Foundation formed in the wake of hurricanes Katrina and Rita.

That's why I'm so proud to serve as the new chair of The Water Institute of the Gulf's Board of Directors. The incredible work done at the Institute provides the knowledge and independent research necessary to allow decision makers to tackle the tough decisions facing Louisiana and communities around the world. The Institute understands that to solve the complex challenges that our coastal communities will face into the future, we must bring an integrated approach that bridges traditional research activities and focuses our applied studies at the intersection of the environment, the economy, and the human dimension.

The Institute's work on the state Coastal Protection and Restoration Authority's 2017 Coastal Master Plan, which outlines Louisiana's efforts to claim a more sustainable future for the state's residents, is just one example of how independent and interdisciplinary research remains an essential component of preparing for the future.

As we stride into another year, the Institute's purpose remains clear – to make a difference in people's lives toward a more resilient future. With your support, and the hard work and dedication of the Institute's expert professionals, the Institute looks forward to bringing a brighter future to coastal communities everywhere.

A handwritten signature in blue ink that reads "James A. Joseph". The signature is fluid and cursive, with a long horizontal stroke at the end.

**Ambassador James Joseph**, Chair of the Board

**CHAIR OF THE BOARD**  
**AMBASSADOR JAMES JOSEPH**

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When The Water Institute of the Gulf was formed in 2011, it started as a good idea generated by forward-thinking people who saw an opportunity to form an independent water research organization with a mission to gather together the best and the brightest to tackle the many challenges facing coastal Louisiana and beyond. The chance to be at the helm and help the Institute grow into that ideal over the last five years has been a highlight of my long career working towards providing sound science that informs good policy.

From the dedicated researchers at the Institute to the partnerships we've been able to foster in Louisiana and around the world, we are at the forefront of providing what coastal communities need to prepare for the future. In 2016, much of that work focused on supporting the production of Louisiana's 2017 Coastal Master Plan, the most scientifically advanced state plan to date.

While valuable to Louisiana, the cutting-edge tools used to inform those decisions have already been applied to answer other coastal questions, most recently in the Lake Anahuac area in Texas where the Integrated Compartment Model was used to help The Nature Conservancy, the National Wildlife Federation, and other partners look at possible benefits of securing freshwater inflows for several Texas estuarine and wetland ecosystems.

Although we're most known for our Louisiana work, our talented staff and partners have built bridges of communication around the world from the Mekong River Delta to the Nile, and those prospects continue to expand. We have also taken steps to apply our coastal water systems capabilities to providing scientific support for water resources management.

I'm very proud of what we've accomplished during our first five years and I'm excited to watch the continued growth of the Institute we have all built. Thank you for the opportunity to be a part of this wonderful organization's formation and development. I'll be expecting great things in the Institute's future.



**Chip Groat**, Founding President and CEO



# REFLECTIONS

We are all indebted to Chip Groat for his leadership and vision in building The Water Institute of the Gulf into the exceptional applied research organization it is today. I am honored to join this remarkable group pioneering some of the most innovative science and engineering projects in the world.

Most recently, the Institute has been privileged to support the development of the 2017 Louisiana Coastal Master Plan and we look forward to working with our many partners in its implementation. We are particularly excited to be involved in some of the world's largest restoration projects as our team supports advancing the Mississippi River sediment diversion program which will rebuild the delta in a way that supports our ecosystem, economy, and coastal communities.

The work we are doing in Louisiana will have applications far beyond our own coast because while the challenges we face here are complex, they are not unique. The solutions that we generate at The Water Institute can be applied to combat the effects of sea level rise in the South Pacific, the building of sustainable communities along the coast of Chile, while addressing the many stressors confronting the Mekong Delta.

Prior to joining the Institute, I had the honor of establishing the Gulf Coast Ecosystem Restoration Council – the independent federal agency tasked with administering billions of dollars in penalties arising from the Deepwater Horizon oil spill. Working with the five states and six federal agencies that comprise the Council, I saw first-hand that the challenge of restoring our ecosystem, economy, and protecting our way of life transcends political party and geographic location.

Combatting sea level rise, subsidence, and ensuring we are ready for the next storm unites us. Meeting these challenges will require the best minds in the world working together to generate innovative and inter-disciplinary solutions. I look forward to deepening the collaboration with our many partners in Louisiana and around the world as we all work towards a more resilient and sustainable future.



**Justin Ehrenwerth**, President and CEO

AND PROJECTIONS

# BACKGROUND AND HISTORY



*In early stages of construction, the Institute's new home on the Water Campus located on the bank of the Mississippi River just south of the I10 bridge.*

Founded in late 2011, with the first staffing hires made in 2012, the Institute fulfilled an idea that had been talked about for years – the creation of an independent, centralized hub for coastal science and research.

The Institute connects academic, public, and private researchers to perform applied research that serves communities, industry, and decision-makers' needs.

Most recently, the extensive work Institute staff performed in the development of the state's 2017 draft Coastal Master Plan helped make it one of the most scientifically advanced master plans Louisiana's Coastal Protection and Restoration Authority (CPRA) has ever produced. Other recent technical work includes answering questions surrounding the reduction of saltwater intrusion into the Calcasieu Ship Channel, modeling outfall management options, and examining the socio-economic well-being of Louisiana coastal communities. Outside of Louisiana, partnerships and projects include work in Latin America, the Mekong River delta, and a memorandum of understanding signed with the Secretariat of the Pacific Regional Environment Programme that lays out a framework for future cooperation.

In 2014, the Institute was selected by CPRA as the Resources and Ecosystem Sustainability, Tourism Opportunities, and Revived Economy of the Gulf Coast (RESTORE) Act Center of Excellence for Louisiana. In that capacity, the Institute developed a Research Strategy in coordination with CPRA, Louisiana universities, and the public to set the framework to award approximately \$3 million in research grants to be announced in the spring of 2017. Over the 15-year life of the Deepwater Horizon settlement, it's anticipated that more than \$20 million will be made available to fund coastal research.

## TECHNICAL TEAM

Hailing from around the world, the Institute's team of technical experts gives the research heart of the operation the flexibility and the integration needed to address a wide range of questions. With research interests including coastal ecology, sediment transport, community well-being, hydrology, policy analysis, geology, and morphodynamics, the Institute's dedicated staff is the key to our ability to approach projects across disciplines.

### **Justin Ehrenwerth**

President and CEO

### **Chip Groat, Ph.D.**

Senior Advisor

### **Denise Reed, Ph.D.**

Chief Scientist

### **Mead Allison, Ph.D.**

Director of Physical Processes and Sediment Systems

### **Tim Carruthers, Ph.D.**

Director of Coastal Ecology

### **Scott Hemmerling, Ph.D.**

Director of Human Dimensions

### **Ehab Meselhe, Ph.D., P.E.**

Director of Natural Systems Modeling

### **Kai Midboe, J.D.**

Director of Policy Research and General Counsel

### **Monica Barra**

Research Assistant: Human Dimensions

### **Melissa Baustian, Ph.D.**

Coastal Ecologist

### **Andres Calderon**

Senior Advisor: Latin American Program

### **Ryan Clark**

Geologist: Human Dimensions

### **Alaina Grace**

Research Scientist: Coastal Ecology

### **Christopher Esposito, Ph.D.**

Research Scientist: Water Resources

### **Andrea Jerabek**

Research Associate: Coastal Ecology

### **Hoonshin Jung**

Research Scientist: Hydraulics and Water Quality

### **Man Liang, Ph.D.**

Research Scientist: Water Resources

### **Katja Löffler**

Data Manager

### **Francesca Messina, Ph.D.**

Research Scientist: Water Resources

### **Leland Moss**

Research Scientist Associate: Coastal Ecology

### **Collin Ortals**

Research Associate: Water Resources

### **Cyndhia Ramatchandirane**

Scientist Associate: Water Resources

### **Sequoia Riley**

Research Associate: Human Dimensions

### **Kazi Sadid**

Research Scientist: Hydraulics and Morphology

### **Yushi Wang, Ph.D.**

Research Scientist: Water Resources

### **Dallon Weathers**

Coastal Scientist: Physical Processes and Sediment Systems

### **Eric White, P.E.**

Research Engineer: Water Resources

### **Brendan Yuill, Ph.D.**

Research Scientist: Water Resources

*"The opportunity to work with bright, experienced, and dedicated team members is what makes the Institute one of the great places to be in coastal science. It's amazing what we have built and accomplished in five years."*

*Denise Reed, Ph.D., Chief Scientist*

## SUPPORT TEAM

The Institute's behind-the-scenes support team provides expertise in policy, communications, program management, technology, and operation.

**Jennifer Butler**  
Director of Grants and Contracts

**Jeffrey Heaton**  
Program Manager

**Mark Legendre**  
Chief Financial Officer and Director of Operations

**Nick Speyrer**  
Director of Planning, Coordination, and Outreach

**Shila Daswani**  
Executive Assistant

**Phillip LaFargue**  
Associate Director of Communications

**Lyndsey Mitchell**  
Human Resources Manager

**Jesse Saska**  
IT Systems Administrator

**Laurie Wales**  
Grants and Contracts Analyst

**Amy Wold**  
Research Communications

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Texas Southern University

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South Florida Water Management District

**16**  
PEER-REVIEWED  
PUBLICATIONS  
[IN 2016]

**97**  
PRESENTATIONS  
[IN 2016]

**38**  
TEAM  
MEMBERS

**12**  
PH.D.'S  
ON OUR TEAM

COUNTRIES OF ORIGIN:

- BANGLADESH
- CHINA
- EGYPT
- FRANCE
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- GREAT BRITAIN
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- ITALY
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- UNITED STATES

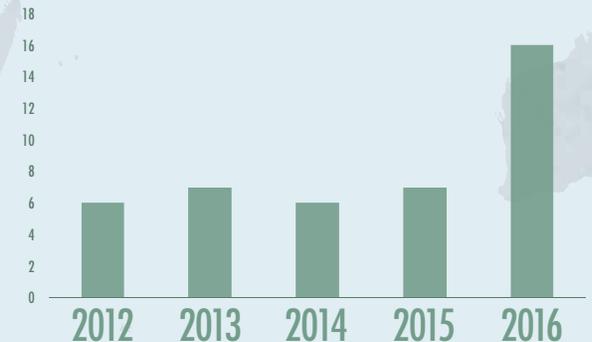
FUNDS AWARDED TO PARTNERS TO CARRY OUT WORK SINCE INCEPTION:

**120** OPEN SUBAWARDS  
& SUBCONTRACTS FOR **\$9M**

**34%** OF ALL FUNDING  
AWARDED TO OTHERS

**\$16M**  
FUNDS AWARDED

UNIQUE FUNDING SOURCES BY YEAR:



# PROJECT HIGHLIGHTS

*"Five years of work, both internally at the Institute and externally with multiple partners, resulted in the most advanced, science-based plan for coastal Louisiana the state has ever seen."*

*Ehab Meselhe, Ph.D., P.E. Director of Natural Systems Modeling*

# USING SCIENCE TO INFORM A \$50B COASTAL MASTER PLAN

With a recommended 120 projects, Louisiana's 2017 Coastal Master Plan lays out a framework and direction for how the state plans to address coastal land loss and storm surge flooding. As the projects have become larger and more complex, the Coastal Protection and Restoration Authority (CPRA) found a need in 2012 for numerical predictive modeling improvements and turned to the Institute for help in preparing for the five-year update set for 2017. With \$150 billion in project ideas being considered, an amount that far exceeded the state's reasonable expectations for funding, the analysis provided by the improved models were vital.

CPRA and the Institute worked with a team of more than 50 experts from the public, private, and academic sectors to improve the entire modeling suite including the creation of the Integrated Compartment Model.

*Francesca Messina, Research Scientist, is one of The Water Institute's modelers who works primarily on delta management modeling runs in support of the state's planned sediment diversions.*

This tool brings together hydrodynamics, geophysical processes, and ecological process-response to better reflect coastal landscape and ecosystem dynamics and their response to restoration strategies.

By integrating numerous aspects of the coastal system such as vegetation, wetland changes, fishery habitats, and barrier island changes, the Integrated Compartment Model helps decision makers look at impacts of restoration projects as well as climate change effects ranging from sea level rise to changing rainfall patterns.

As a foundation for the Integrated Compartment Model, the Institute worked with teams to develop or refine specific subroutines including sediment distribution, marsh edge erosion, barrier shoreline, and ecosystem outcomes.

Informed by the analysis, CPRA released the state Coastal Master Plan in January with the final plan being submitted to the legislature for consideration by April 25.

## WHAT WE DO

### INTEGRATED NATURAL SYSTEMS MODELING, ANALYTICS, AND INTEGRATED DECISION SUPPORT

We develop and apply world-class integrated hydrologic, morphodynamic, and ecosystem numerical tools to understand short- and long-term dynamics of complex riverine, coastal, and deltaic systems. These predictive numerical models support and inform decision-makers on how to manage and sustain valuable natural resources and infrastructure. The team also develops and applies integrated decision support systems linking sensors, predictions, and analytics in a real-time framework that can support coastal planning, preparedness, operations, and emergency response at local and regional scales. The goal is to link data, models, and end users more seamlessly in order to provide high quality information to support effective and transparent decision making.

# PROJECT HIGHLIGHTS

*“When the August floods hit the Amite River we were able to leverage the work we were already doing on basin sustainability to address fundamental questions surrounding how the flood reshaped the river channel and impacted the Maurepas Swamp and how drainage improvements modified the flood’s passage through the basin. The information gathered will be useful in the planning for future flooding events.”*

*Mead Allison, Ph.D. Director of Physical Processes and Sediment Systems*

*Ryan Clark, geologist with The Water Institute of the Gulf, records results of sediment cores taken in Lake Maurepas as part of a study about the south Louisiana August floods.*

# RESPONDING TO A RECORD FLOOD

Rain started falling in south Louisiana August 11. By Friday, August 12, that rain had turned into a deluge resulting in more than 19 inches in Baton Rouge alone. Watson, in Livingston Parish, received more than 31 inches of rain and Livingston received more than 25 inches.

As it moved through the Amite and Comite river systems, the slow-moving mass of water devastated communities in northern East Baton Rouge Parish before moving south into Livingston and Ascension parishes and into the Maurepas wetland basin. With help from a National Science Foundation<sup>1</sup> rapid response grant and funds from the Charles Lamar Family Foundation, Institute researchers started taking field measurements supplemented by satellite data soon after the floodwaters receded. Researchers wanted to know what the floodwaters had done to the Amite River morphology and what those changes could mean for future flooding, drainage planning in the burgeoning suburbs around Baton Rouge, and future coastal restoration projects planned for the Maurepas Swamp. Results of extensive field work in the flooded watershed should be released in late spring 2017.

In the meantime, the Institute developed a new real-time forecasting tool communities can use to help identify infrastructure needs to better plan for future flooding events. This tool combines information

from multiple sources, including National Oceanic and Atmospheric Administration, U.S. Geological Survey, state of Louisiana, and U.S. Army Corps of Engineers. This tool also takes into account multiple information feeds including salinity, wind, temperature, and rainfall to build a seven-day hindcast and a seven-day forecast of water flow.

In the wake of a series of devastating floods, the tool can help communities get a clearer picture of where their flooding concerns are located and can be used to test approaches to reducing future flooding.

An additional project on the Amite River uses the Integrated Compartment Model, developed in support of the state's Coastal Master Plan, to determine the minimum amount of water needed to maintain the ecosystem for resources such as blue crab, cypress, and marsh in Lake Maurepas.

The need to better understand the freshwater inflow needs of estuaries to support improved future water planning is an issue across the Gulf coast and around the world. Periodic drought conditions are a reality in Louisiana and the methods and analysis developed in this pilot project along the Amite River and Lake Maurepas could be beneficially applied elsewhere.

## WHAT WE DO

### FIELD INVESTIGATIONS

We undertake a wide range of boat-based and fixed-station observations and field investigations of riverine, deltaic, coastal, and continental shelf environments. Our team performs river channel surveys of bathymetry, hydrodynamics, and sediment dynamics as well as a range of faunal and vegetation sampling. We also have technology that enables us to conduct sub-bottom acoustic surveys, perform geological measurements, characterize wetland vegetation, soil and fauna, and collect data in complex and rugged coastlines.

### REAL-TIME SENSOR DATA COLLECTION & FIELD WORK

Using sensors and data collection platforms over long periods of time, the Institute gathers data for parameters such as flow characteristics, suspended sediment, water quality, and meteorology.

### MONITORING DESIGN

The Institute also designs monitoring frameworks to maximize efficiency of collecting long-term measurements that can be analyzed to detect change that may result from a variety of sources, including large-scale restoration and protection projects, environmental disturbances, changing climate, and other major drivers.

<sup>1</sup> Part of this material is based upon work supported by the National Science Foundation under grant No. 1660244.



# PROJECT HIGHLIGHTS



*“Being designated as the Center of Excellence for Louisiana allows the Institute to direct funding toward universities and organizations for research that will directly inform to the important work of implementing Louisiana’s Coastal Master Plan.”*

*Melissa Baustian, Ph.D., deputy director of the Center of Excellence and coastal ecologist*

# BUILDING A CENTER OF EXCELLENCE

After the Deepwater Horizon oil rig exploded in April 2010 releasing millions of barrels of oil into the Gulf of Mexico, the federal government responded with the 2012 passage of the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act (RESTORE Act).

The RESTORE Act dedicated 80 percent of all administrative and civil penalties related to the Deepwater Horizon spill to a Gulf Coast Restoration Trust Fund to be allocated to five pots of money. One of those pots designates 2.5 percent to be allocated to the Gulf states in support of research through Centers of Excellence.

The state Coastal Protection and Restoration Authority selected the Water Institute of the Gulf, in collaboration with the state's research universities, to serve as the state's RESTORE Act Center of Excellence. On November 1, 2015, the U.S. Department of the Treasury awarded CPRA a grant to support the program.

*Louisiana has lost 1,800 square miles of coastal wetlands since the 1930s resulting in fragmented marshes that put communities, infrastructures, and a way of life at risk.*

The mission of the Center is to support research directly relevant to implementation of Louisiana's Coastal Master Plan by administering a competitive grants program and providing the appropriate coordination and oversight support to ensure that success metrics are tracked and achieved. The Center is a separate program within the Institute.

After developing a near term research strategy for the program through coordination with CPRA, Louisiana universities, and public input including a town hall meeting on October 3, 2016, the Center issued a Request for Proposals in November 2016 for the first \$3 million in grants available. The three grant opportunities included collaborative grants, research awards, and two-year grants for Louisiana graduate studentships.

Proposals are being reviewed by independent experts with funding made available to grant recipients in August 2017.

*This project was paid for with federal funding from the Department of the Treasury under the RESTORE Act.*

**MORE INFORMATION ABOUT THE RESTORE ACT CENTER OF EXCELLENCE FOR LOUISIANA CAN BE FOUND AT [LA-COE.ORG](http://LA-COE.ORG).**

## WHAT WE DO

### INDEPENDENT EXPERT REVIEW AND ADVICE

The best water, ecosystem, and infrastructure decisions are based upon independently reviewed technical information to ensure it is sound, evidence based, and meets best practice standards. The Institute's experience and relationships in the scientific community provide the opportunity to conduct peer reviews either with in-house experts or by tapping into the Institute's network of researchers around the world.

# PROJECT HIGHLIGHTS



*"The international experience of the Institute's staff presents unique opportunities to partner with organizations around the world. The Memorandum of Understanding we signed with the Secretariat of the Pacific Regional Environment Programme (SPREP) in November was initiated through linkages made when I worked at SPREP."*

*Tim Carruthers, Ph.D., Director of Coastal Ecology*

One of The Water Institute of the Gulf's strengths in addressing the concerns of coastal communities around the world comes from the international staff who integrate their expertise into a comprehensive approach in offering options for adaptation in the face of coastal change. Subsidence, development pressures, sea level rise, water security, and much more aren't issues that impact communities in isolation. Finding solutions that work means integrating all components of numerical modeling, field investigations, monitoring, analysis of socioeconomic and ecosystem changes while providing the decision support that communities need to take action. Hailing from almost a dozen countries, the Institute's technical team applies the decades of Louisiana coastal, deltaic and water knowledge to communities around the world.

# REACHING OUT THROUGHOUT THE WORLD

## INTERNATIONAL INITIATIVES

### LATIN AMERICA

Expertise in integrating science with societal needs led to a developing relationship with Harvard's David Rockefeller Center for Latin American Studies work on building more sustainable coastal communities in Chile. Joining with grassroots organizations in fishing communities along the coast, the Institute brings experience in effective integrated coastal management with the goal being long-term community sustainability.

### NETHERLANDS

Not long after the Institute was formed, a Memorandum of Agreement (MOA) was signed for cooperation between the Institute and Deltares USA, the United States affiliate of Deltares in the Netherlands. This

was followed by a more detailed Strategic Alliance Agreement. In April 2015, the Institute became the first North American based organization to receive a Delft3D Modeling Center certification. Through their formal agreements and common goals of better water management through science, The Water Institute and Deltares collaborate on numerous projects, including water management in New Orleans, training for modelers, and understanding the role of natural systems in protecting communities.

### NILE DELTA

With a long-history of human modification and development, the Nile River Delta faces concerns surrounding erosion, sea level rise, and subsidence. Institute scientists continue their dialogue with colleagues in Egypt, including sharing information about

Institute-developed real-time forecasting and sharing new numerical modeling techniques at sustainable water resource management conferences.

These kinds of international connections and mutual interests show how we intend to leverage the experience we have gained in the Gulf Coast to apply these lessons for better management of coastal and delta systems around the world.

### MEKONG DELTA

Working as part of the Department of the Navy, office of Naval Research's Tropical Deltas Directed Research Initiative, Institute researchers collected water and sediment information in the Mekong River Delta to better identify how sediment moves through the system. Additional

work is planned to expand the effort to include Cambodia and Laos farther up the basin and is a prime example of how the Institute's Louisiana coastal knowledge can be exported to help communities.

### PACIFIC ISLANDS

The Institute and members of the Secretariat of the Pacific Regional Environment Programme signed a Memorandum of Understanding (MOU) for future cooperation between the two organization in November 2016. The agreement recognizes that the Institute's holistic approach to sustainability questions translates to better answers as well as underlining the common themes between Pacific island countries interests and the Institute's expertise.

# PROJECT HIGHLIGHTS

*“In seeking out locations to live, for example, people have always tried to find the right balance between access to employment opportunities and access to environmental amenities. In coastal Louisiana, striking this balance is complicated by the fact that the amount of high ground is extremely limited and must be shared between both residents and businesses. ”*

*Scott Hemmerling, Ph.D., Director of Human Dimensions*

# CONNECTING LA COMMUNITIES WITH ECOSYSTEMS AND ECONOMIES

Almost 34 percent of all workers in Louisiana live in coastal parishes, closely tied to the industrial economy and the ecological bounty provided by life on the coast.

As Louisiana moves forward with an ambitious coastal restoration and protection program, difficult decisions are made with limited resources and it is important to know what residents value about their surroundings.

Institute researchers published a first look at this intersection of infrastructure, people, and nature through the “Trends in oil and gas infrastructure, ecosystem function, and socioeconomic wellbeing in coastal Louisiana” publication in fall 2016. The report examines the links between historical changes in infrastructure density, ecosystem function, and socioeconomic wellbeing in coastal Louisiana since the 1950s.

*Like this scene along Robinson Canal in Terrebonne Parish illustrates, water is a way of life for most of south Louisiana.*

Louisiana’s historical and ongoing coastal land loss provides a backdrop for this synthesis of change since almost 1,900 square miles of land has been lost since 1932. The dynamic landscapes in which people live and work means coastal Louisiana residents have a long history of adapting to changing environmental, economic, and social conditions.

With information from 53 communities, the report found that those with higher socioeconomic wellbeing were farther away from the coastline, had a higher density of oil and gas infrastructure within a 10-minute drive time, and were within 30 minutes of habitat with the potential to support fish and shellfish.

People often choose to live closer to more industrialized areas to take advantage of the economic opportunities afforded to them while also placing value on access to high-quality fishing areas within an easy driving distance, for both commercial and recreational purposes.

Study results show that community wellbeing has remained fairly stable on a coastwide basis from 1960 through 2010, but there were differences found among regions, with wellbeing in the southwest being lower than in the similarly situated south central, capital, and southeast regions. It’s unclear why that is the case, although excluding Lafayette, most of the southwest population lives in low-income agricultural communities.

## WHAT WE DO

### SPATIAL ANALYSIS OF SOCIOECONOMIC AND ECOSYSTEM CHANGE

By using geospatial analytics to gather information and various data visualization tools to display it, the Institute helps communities and decision makers see patterns of change and the relationship of the natural system to society in an understandable way. This includes analysis of the U.S. Census and American Community Survey data, reconstruction of historic ecosystem change, and the investigation of potential future system response to planned restoration and protection measures.



*Top left, Melissa Baustian, Ph.D., Coastal Ecologist collects data for research into plant decomposition rates in different wetland types.*

*Bottom left, Scott Hemmerling, Ph.D., Director of Human Dimensions, facilitates a community meeting in Chauvin.*



*Right, Collin Ortals, Research Association in water resources, and Leland Moss, research scientist associate in coastal ecology, collect data from an area of mangroves near Port Fourchon.*

## SUPPORTERS

Our supporters provide generous financial and in-kind assistance and our clients provide us opportunities to make a difference. We are thankful to them for supporting us in a variety of ways.

Baton Rouge Area Foundation

Bureau of Ocean Energy  
Management

Coast Builders Coalition

Coastal Protection and  
Restoration Authority

Coypu Foundation

Deltares USA

Duplantis Design Group, PC

Federal Emergency Management  
Agency

JESCO Environmental and  
Geotechnical Services

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Consortium

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Foundation

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Atmospheric Administration

Restore the Earth

The Nature Conservancy

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Office of Naval Research

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Lafayette

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DHI Water and Environment, Inc.

Emergent Method

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Hanson and Associates

Louisiana State University and  
Agricultural and Mechanical  
College

Moffatt and Nichol, Inc.

Nicholls State University

RAND Corporation

Tulane University

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University of Arizona

University of Louisiana at  
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THE WATER INSTITUTE  
OF THE GULF

301 NORTH MAIN ST., STE. 2000  
BATON ROUGE, LA 70825

+1 (225) 448-2813

[THEWATERINSTITUTE.ORG](http://THEWATERINSTITUTE.ORG)