



UPDATES FROM THE WATER INSTITUTE

DECISIONS BASED ON SCIENCE

The Water Institute is an independent, non-profit, applied research institution advancing science and developing integrated methods to solve complex environmental and societal challenges. We believe in, and strive for, more resilient and equitable communities, sustainable environments, and thriving economies.

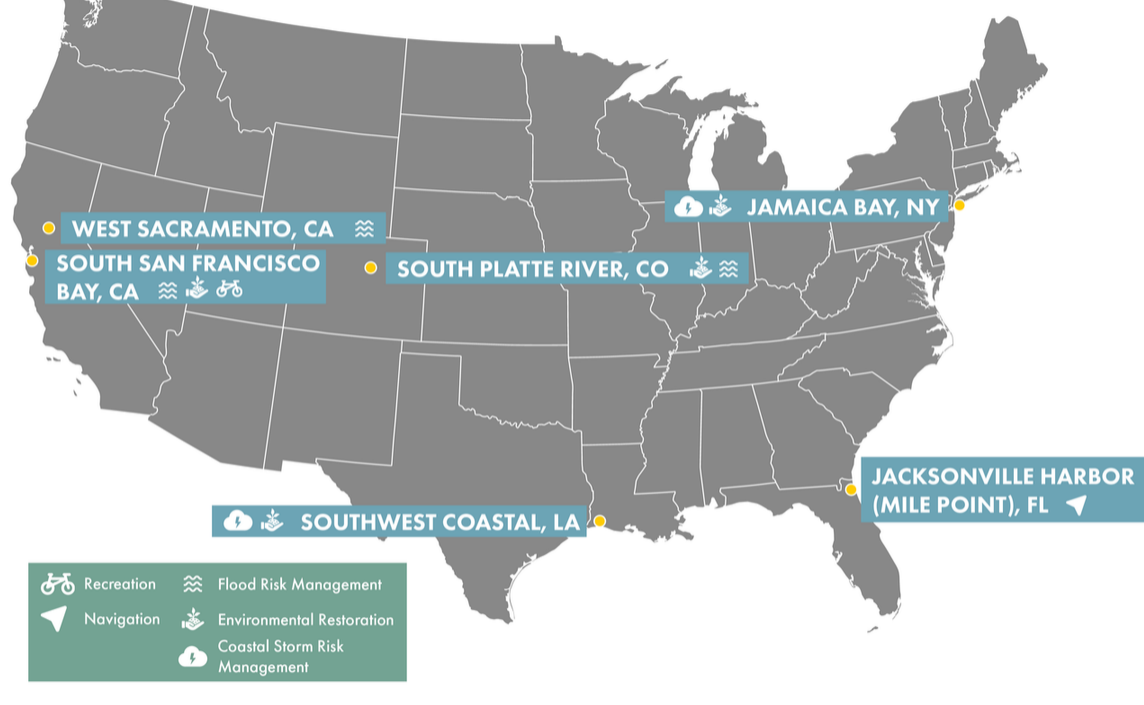
Here are a few updates on the work The Water Institute is doing to advance science, planning, policy, and technology towards a more sustainable future.

ENHANCING BENEFITS EVALUATION FOR USACE WATER RESOURCES PROJECTS

For the past two years, The Water Institute and the U.S. Army Corps of Engineers (USACE) Engineering With Nature® Initiative have been working how to best quantify, and potentially monetize, the full range of economic, environmental, and social costs and benefits that nature-based solutions provide.

Currently, the benefit-cost analysis (BCA) places a substantial emphasis on the dollar value of the properties a proposed project would protect. However, the science of quantifying the environmental and social costs and benefits of nature-based solutions has drastically improved over the years, and if applied, could provide a more complete assessment of how such nature-based solutions complement and enhance traditional infrastructure projects.

On June 21, 2023, a final report outlining the analysis of six case studies and providing recommendations for future action was released. The report and numerous supporting documents and reports can be found [here](#).



BLUE CARBON

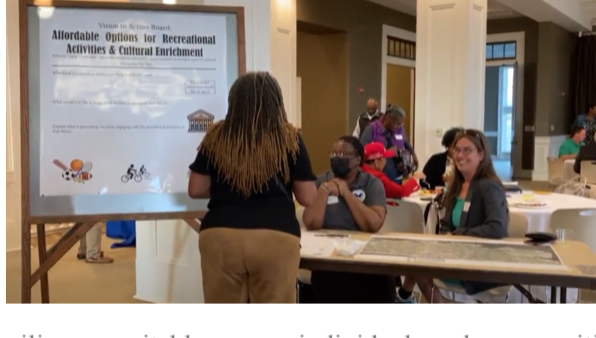
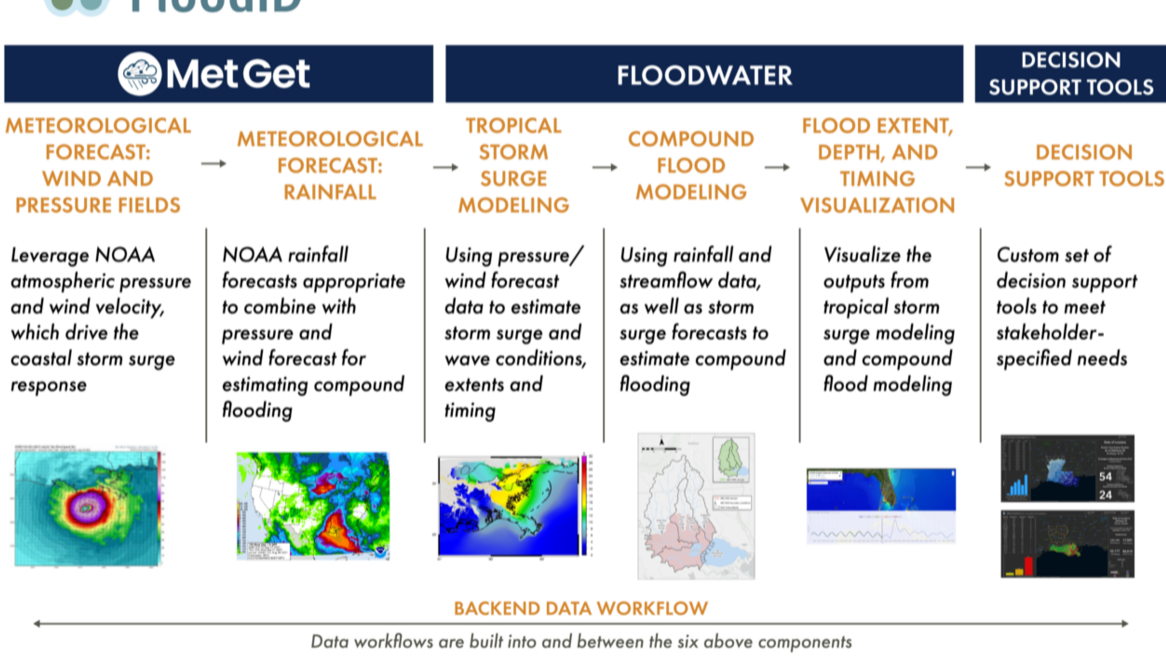
Recent research on coastal wetlands indicates they play an important role in the global carbon cycle and have the potential to be an important component of national Greenhouse Gas emission strategies, to meet the demand of the international voluntary carbon markets and incentivize private investment through the revenue potentially generated from carbon markets. The Water Institute, as a collaboration hub of numerous partners, is working together with experts across Louisiana, the northern

Gulf of Mexico, and the world to reduce scientific uncertainties critical to informing policy updates needed to establish a financially viable carbon accreditation for tidal marshes in Louisiana. Read more about the work [here](#). Watch a presentation about the work [here](#).

LOUISIANA FloodID

Louisiana is prone to damaging floods through tropical systems, heavy rainfall, or a combination of the two, known as compound flooding. In 2021, The Water Institute and our partners were tasked by the Office of Community Development, the Governor’s Office of Homeland Security and Emergency Preparedness, and Louisiana Coastal Protection and Restoration Authority to develop a user-friendly Louisiana FloodID to support a wide range of emergency management functions and decision makers in preparation of and in response to storms.

The FloodID development team leveraged several pieces of Institute-developed technology such as MetGet and the Floodwater Simulation System to create a sophisticated system that combines multiple meteorological datasets and numerical models to forecast coastal and compound flooding, as well as operational decision support tools, for pre-, during, and post-storm conditions. The decision support tools found within FloodID include dashboards for search and rescue, roadway inundation, impacts to critical response infrastructure, and damage estimates. While the FloodID system has been developed to meet Louisiana’s immediate needs, it has been designed to be extensible to support other geographies. Read more [here](#). Watch a presentation on the work [here](#).



GULF CENTER FOR EQUITABLE CLIMATE RESILIENCE

A new initiative of The Water Institute, the Gulf Center for Equitable Climate Resilience (Center) works with partners, stakeholders, and local communities to enhance and expand climate

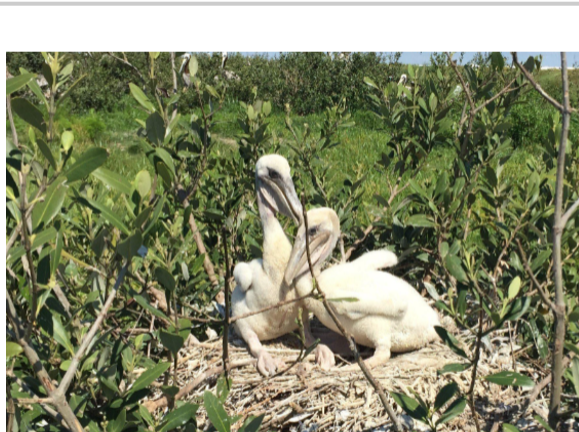
resilience equitably among individuals and communities in the northern Gulf of Mexico. The work helps communities move beyond assessment and study of risk towards an exploration of strategies that can be implemented across individual, neighborhood, municipal, state, and federal levels. Acknowledging that climate resilience is about more than physical safety and that strategies must be as diverse and unique as the communities they will serve, the Center is collaborating with a network of individuals and organizations that bring together research, lived experiences, and other resources to advance equitable climate resilience in the Gulf. Read more [here](#).

SMARTPORT

Using an innovative crowd-sourced data gathering approach, The Water Institute has partnered with more than a dozen vessel operation companies to develop technology that transforms depth sounder readings into bathymetric maps. Nearly a billion depth observation readings have been gathered to date which are powering a machine learning model that will be used to develop the most up-to-date depth map of the Mississippi River channel currently available.



When completed, this new resource will be released to benefit a wide range of stakeholders who need to understand how sediment builds up in the Mississippi River channel. An RFQ to develop a web-based dashboard for port-level resilience planning was released in early June. Read more [here](#).



GUIDANCE FOR RESTORATION AND MONITORING TO IMPROVE BIRD NESTING HABITAT

With the number of coastal restoration projects being planned or designed following the Deepwater Horizon oil spill in 2010, the Louisiana Trustees identified a need in guidance on the

ecosystem restoration and monitoring specific to creating or improving bird-nesting habitat. The Water Institute worked with partners to organize more than 100 facilitated calls and working sessions over a period of two years which brought together subject matter experts, ecosystem restoration project team members, and agency representatives who are involved in coastal restoration activities. This extensive input, along with a broad literature review, was used to develop the, “Guidance for Coastal Ecosystem Restoration and Monitoring to Create or Improve Bird-Nesting Habitat” document. Read more [here](#).

LOUISIANA'S 2023 COASTAL MASTER PLAN

The Water Institute has been involved in nearly all aspects of developing and updating Louisiana’s \$50 billion, 50-year Coastal Master Plan (CMP). Between each CMP cycle, the Institute works with the Coastal Protection and Restoration Authority (CPRA) and partners to improve the functionality, resolution, and performance of the suite of models used to evaluate ecosystem restoration and flood risk reduction projects.



For the 2023 plan, The Water Institute led the flood risk analysis including simulating thousands of possible storm events and updating the flood risk metrics and analysis methods within the CLARA risk assessment model to evaluate project effectiveness. The Water Institute also supported CPRA in the continued development of the ICM model, explored nuisance/high frequency flooding in Louisiana’s low-lying areas, engaged key partners to advance the technology solutions to support model simulations and accessibility of model outputs, and led the creation of the Barrier Island System Management model. Read more [here](#).

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