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Hydrologic alterations have reduced connectivity in the Atchafalaya Basin. © Joe Baustian/TNC

Pulse of a River

Restoring natural hydrology benefits land, water and the coast

Years in the making, The Nature Conservancy is about to embark on a hydrological restoration project to reconnect the swamp forest located at its 5,000-acre Atchafalaya Preserve with the river. Since 2017, TNC has been moving through proper channels and teaming up with the State of Louisiana and other partners to develop this project that aims to modify portions of the federal floodway to support more natural water flows.

“On a daily basis, there are large- and smaller scale systems that control the flow and direction of the Atchafalaya River,” says Joe Baustian, TNC’s senior ecologist in Louisiana. “In pursuing these manipulations, we’ve lost important connections between the river and surrounding floodplain.”

According to Baustian, the river’s course—which is mostly fast and

straight—is diverted away from wetlands that are key to filtering water and trapping harmful pollution and sediment flowing downstream. In turn, these wetlands are cut off from the river’s ebbs and flows, and subsequent oxygenation, required for healthy cypress trees, wild crawfish and other plants and animals characterizing this unique ecosystem.

Specifically, the project—which serves as a pilot—involves cutting small gaps in portions of levee banks to invite water into the swamp from the north and send it back to the river in the south. If successful, it could potentially guide actions in a broader system that drains two-thirds of the country. Baustian adds, “Allowing water to move between the river and swamp, as nature intended, should yield significant benefits for water quality and wildlife habitat, as well as for recreation and commercial fishing.”



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Coastline Connectivity

Louisiana’s coast will always be somewhere, perpetually moving and changing. It is shaped by actions, taking place further inland, that impact the quality and quantity of sediments and waters reaching downstream to enrich the coastline and feed the bayous. In between, healthy forests and marshes in places like the Atchafalaya River Basin perform nature’s handiwork as natural filters, wildlife habitat and key resource for local livelihoods.

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Former Conservation Fellow Lauren Kong checks crawfish traps in the Basin. © Alexa Ballinger

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The Swamp Warbler

The diminutive prothonotary warbler (*Protonotaria citrea*) is easy to please. A tree cavity for a cozy nest and some insects or seeds will have it singing sweet melodies and illuminating the landscape with its bright golden feathers.



© Elan Blitch

Conservation Fellows Program

Graduate students advance conservation science in Louisiana.

In a field where science guides strategy, good data reigns supreme. And thanks to The Nature Conservancy's Louisiana Conservation Fellows Program, there is extra help for TNC science staff who are often spread thin.

Since 2009, TNC has recruited graduate students as Conservation Fellows to conduct research projects around the state. From hydrologic modeling to studying the effects of water quality on the growth of iconic Cypress trees, the fellows focus on applied, interdisciplinary research with diverse professionals outside the walls of a classroom.

Research like Lauren's, which occurs prior to restoration, allows us to later document changes that the project has produced.

Dr. Bryan Piazza, Director of Science

effectively and to different audiences. Once fellows complete a project, their research is used to influence conservation results in Louisiana and beyond.

Lauren Kong, a former Conservation Fellow and current biologist for the U.S. Fish & Wildlife Service, observed crawfish in hydrologically impaired areas and compared them to populations in healthy areas to study the differences.

"It was definitely a life-changing, life-affirming and honestly one of the best experiences I've had in my life," says Kong. "It really set me on this path to where I am now." Lauren's research continues to inform TNC's restoration approach in the Atchafalaya Basin.

"We don't have the capacity in-house to do as much research as we would like," says Bryan Piazza, TNC's director of science in Louisiana. "Research like Lauren's, which occurs prior to restoration, allows us to later document changes that the project has produced. It helps us answer questions about how the ecosystem is operating now and how they might improve in the future. Their research really matters."

With oversight by their university professor, each fellow works on a priority research project identified by TNC. In addition to conducting the research, fellows participate in training on how to communicate their research findings

While stable, like many songbirds the ultimate survival of prothonotary warblers depends on the health of two habitats on which they depend. They spend winters in mangrove forests along the coast of Central and South America. Come summer, which is breeding season, they migrate across the Gulf of Mexico in search of tree cavities located near water, preferably swampy forests and flooded woodlands like those found in Louisiana's Atchafalaya Basin.

In the southeastern United States, competition for nest holes poses challenges for the warblers. However, their biggest threat to prothonotary warblers is the loss of mangrove habitat, a challenge requiring global protection and restoration efforts. From TNC's programs in the southern hemisphere to nature preserves in Delaware and here in the Atchafalaya Basin, we are working with colleagues and partners around the world to safeguard these and other migratory birds throughout their ranges.