

# Mississippi river diversions: driving land gain or land loss?

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Gene Turner Credit: LSU

River diversions have not created or maintained land, but resulted in more land loss, according to a new paper in the peer-reviewed science journal *Restoration Ecology*. LSU Boyd Professor R. Eugene Turner and his LSU co-authors Erick Swenson and Michael Layne, and Dr. Yu Mo, University of Maryland, used satellite imagery to study the differences between the percent land before and after a river diversion was opened.

The scientists analyzed two large river diversions over the span of decades in Louisiana using two different kinds of [satellite imagery](#)

analyses. They tested for differences between the percent land before and after the diversion was opened and compared them to adjacent reference areas. The results demonstrated an increased land loss in both areas. The results were confirmed for one diversion using independently collected data and supported by the example from a larger third [river diversion](#) that broke through river levees in 1973 to become a "loss accelerant."

Why these diversions had a [negative impact](#) may be due to the increased [nutrient availability](#) for organic soils, greater flooding and physical scouring. Diversion models need to include the on-the-ground results of existing diversions of river water into wetlands in order to calibrate them.

"Using river diversions for wetland restoration is relatively new, complex and expensive, so knowing the long-term consequences makes it important to develop management plans," Turner said.

The limited understanding about the unanticipated chronic and delayed effects indicate that the \$5 billion of the planned future diversions may do more harm than good through unintended consequences, said the scientists.

**More information:** R. Eugene Turner et al. Net Land Gain or Loss for Two Mississippi River Diversions: Caernarvon and Davis Pond, *Restoration Ecology* (2019). [DOI: 10.1111/rec.13024](https://doi.org/10.1111/rec.13024)

Provided by Louisiana State University

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