
Science - Marine Science; Research from University of Texas Austin Has Provided New Study Findings on Marine Science (Unintended consequences of modifying coastal river systems)

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2024 DEC 6 (NewsRx) -- By a News Reporter-Staff News Editor at Science Letter -- Fresh data on marine science are presented in a new report. According to news reporting from Austin, Texas, by NewsRx journalists, research stated, "Coastal infrastructure projects, particularly the modification of coastal river channels, are becoming increasingly significant to economic activities worldwide as a response to climate-driven changes and urbanization."

The news reporters obtained a quote from the research from University of Texas Austin: "The benefits of channel modification projects can be realized quickly, but the altered movement of sediments in the river channel can lead to unintended geomorphic changes years or decades later. An example of this is the closure of the San Bernard River mouth, located on the central coast of Texas, which was clogged with sediments by the 1990s as a result of two major projects in the area: the diversion of the Brazos River channel (1929) and the construction of the Gulf Intracoastal Waterway (GIWW) (1940s). The objective of this study was to a) document the delayed geomorphic response to the projects using a GIS analysis of historical maps and aerial imagery, and b) provide a snapshot of altered flow pathways in the area using measurements collected in situ. Results showed that the GIWW was the main conduit for river flow as it bisects the San Bernard River 2 km inland of its river mouth, reducing discharge in the terminal limb of the river. Due to reduced flow, the river mouth became clogged with wave-transported sediment supplied by the still-adjusting Brazos River which had been diverted to within 6 km of the San Bernard River. With a limited connection to the sea, altered sediment and flow pathways have led to numerous hazards and costly corrective dredging projects surpassing \$12 million to date."

According to the news editors, the research concluded: "Optimizing the cost-effectiveness of channel modification projects requires considering their long-term impact as managers continue to adapt to ever-changing coastal zones."

For more information on this research see: Unintended consequences of modifying coastal river systems. *Frontiers in Marine Science*, 2024,11. (*Frontiers in Marine Science* - http://www.frontiersin.org/Marine_Science). The publisher for *Frontiers in Marine Science* is Frontiers Media S.A.

A free version of this journal article is available at <https://doi.org/10.3389/fmars.2024.1492435>.

Our news journalists report that more information may be obtained by contacting John Malito, University of Texas Austin, **Bureau of Economic Geology**, Jackson School of Geosciences, Austin, TX, United States. Additional authors for this research include David Mohrig.

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