Redirecting Mouth of Mississippi River Proposed as Way to Save Louisiana Coast

Vince Neary, Tennessee Tech University associate professor of civil and environmental engineering, says such a bold, large-scale plan is necessary to stop the disappearance of the state's coastal wetlands — which act as natural speed bumps against hurricanes and storm surges.

"If you really are serious, that's how dramatic the plan has to be," said Neary. "Up until now, the constraints of special interests of all types have driven the solution to piecemeal wetland mitigation and restoration projects. Now, the solution must drive the actions of everyone, and special interests will have to adapt. Itsy-bitsy fixes won't cut it anymore."

Neary met with dozens of fellow technical advisors, scientists, engineers, government representatives, oil and gas industry leaders and special interest group members last week at a conference designed to hammer out a dramatic, realistic solution for saving Louisiana coastal wetlands. According to America's Wetland organization, Louisiana loses 24 square miles of coastal wetlands each year, the equivalent of a football field every 30 minutes, due to loss of sediment buildup that used to occur naturally.

At the conference — Envisioning the Future of the Gulf Coast — groups were charged with creating maps and accompanying commentary that address the best workable solution for sustaining the coastal ecosystem and reducing the damage from storm surges. Neary said the consensus was to present one map recommending diversion of the extreme lower Mississippi River east and west to fully harness the sediment and rebuild the area's ecological system and natural protection.

"The main challenge that comes with this solution is how to maintain the navigation channel that supports the transportation of oil, gas, grain and other commodities," explained Neary. "Even with a consensus on what the best plan should be, we can't rely on just one strategy. We also have to entertain augmenting sediment and freshwater diversion through the Atchafalaya River and Bayou Lafourche, distributory channels that discharge west of the Mississippi River outlet."

River management techniques in the past 50 years have in part set up the scenario that played out during Hurricanes Katrina and Rita. Levees, which protect economic interests and personal safety, also have arrested the natural sediment accretion process that builds coastal marsh. Instead, the sediment is jetted out into the gulf. Without sediment, the coastal marsh subsides and erodes, becoming open water.

Why not let nature take its course? Neary says very little about the way the Mississippi currently flows is natural; the natural process has been arrested for decades to protect cities, promote navigation and reduce flood damages. Had nature had its way, New Orleans and Baton Rouge would be stranded major shipping ports.

"A river is very dynamic, especially at the outlet, and it changes directions once the sediment it carries and dumps builds up," said Neary.

Neary says a detailed study would have to determine where, between the towns of Myrtle Grove and Venice in the Plaquemines parish (see map), the best place would be to divert Mississippi sediments east and west.

"It would also probably depend on whether the present mouth of the Mississippi (through the bird's foot delta) could be maintained as a slack water (a stretch of water without current) navigation channel," Neary continued. "Maintaining a navigation channel is critical. Until this is studied in detail, the specific location

or locations for diverting the Mississippi cannot be specified."

Neary speaks from experience, having served as main design engineer for the Napa River Estuary flood project in California, known as the Living River Strategy because it incorporated river and tidal wetland restoration as part of the overall strategy for flood damage reduction. In that project, some levees in strategic areas were taken down to restore natural floodplains and lower water levels upstream. This plan also reduced erosion.

"The Napa plan, as will be the Mississippi River plan, is still very 'engineered,' and both require accurate modeling and monitoring in order to accurately predict what effects will occur," said Neary. "Hurricane Katrina has made it a higher priority now for the country to find time and money to commit to developing accurate models, plus or minus inches, not feet.

"Traditionally, we had to be very conservative and not take chances with large-scale changes in river systems, but better modeling tools allow us to consider broader options that take in environmental concerns, like preserving the salt marshes, while at the same time maintaining acceptable flood protection," he said.

"Environmentalists have been marginalized on this topic to a large extent for decades, even though these management and restoration issues have been on our radar for a long time," said Neary. "Only in the last five years or so, and certainly after Hurricane Katrina, have those with an economic stake in the area started to listen and communicate with environmentalists."

The group's map and recommendations will be presented to Louisiana's governor on June 1, the official start of hurricane season.

During the conference sponsored by British Petroleum, Neary and other participants toured the coastal area in Black Hawk helicopters and by boat to see the damage firsthand. Neary says the conference concluded with one theme articulated by speakers representing government, the oil and gas industry and other special interest groups.

“We have the science and engineering tools to develop and implement a viable strategy; but do we have the political will to do what it takes?" said Neary.

Source: Tennessee Technological University

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