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Wetlands save states billions, new study says Research helps put dollar value on maintaining, restoring coast

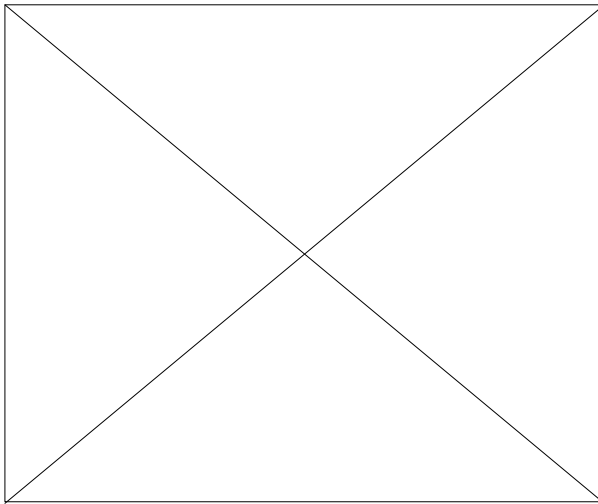
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By Mark Schleifstein
Staff writer

Coastal wetlands are self-maintaining "horizontal levees" that provide \$23.2 billion worth of protection from hurricane-related flooding in the United States each year, according to a new study.

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But Louisiana has lost \$29.4 billion in flood protection benefits from the disappearance of 1,927 square miles of coastal wetlands during the past century, including the loss of \$1.1 billion in benefits resulting from the erosion of 77 square miles of wetlands during Hurricanes Katrina and Rita in 2005, the study found.

"Coastal wetlands provide 'horizontal levees' that are maintained by nature and are far more cost-effective than constructed levees," wrote the authors of the study, published this week in *AMBIO*, a peer-reviewed scientific journal of the Royal Swedish Academy of Sciences.

"The experience of Hurricane Katrina provided a tragic example of the costs of allowing these natural capital assets to degrade," the study said.

"If the frequency and intensity of hurricanes increases in the future, as some are predicting as a result of climate change, then the value of coastal wetlands for protection from these storms will also increase," it said.

Investing in the maintenance and restoration of coastal wetlands "is proving to be an extremely cost-effective strategy for society," the study concluded.

The protective value of wetlands was determined by a mathematical formula that took into account the value of the communities they protect, the intensity of hurricanes potentially able to damage the communities and the size of the wetlands in the paths of those potential storms, said lead author Robert Costanza, director of the Gund Institute for Ecological Economics at the University of Vermont.

Costanza is a former LSU professor.

The scientists measured the size of wetlands using aerial and satellite photographs. They determined the size and value of developed areas by measuring the amount of light in nighttime satellite photographs and applying a formula that translates the light from homes and businesses into gross domestic product.

They then outlined 100-kilometer-wide swaths along the paths of 34 major hurricanes that have hit U.S. coastal communities since 1980 and measured the damage that occurred in those areas.

The formula results explain about 60 percent of the value associated with wetlands, compared with actual measurements for individual storms.

In some areas, such as Louisiana, wetlands protect developed areas whose values are less than major cities, such as New York, with few wetlands. Thus, while a hectare of wetlands, about 2.47 acres, had an average value nationwide of \$8,240 a year in avoided damages, the value could range from as little as \$250 a year in some locations to \$51,000 a year in others.

The average in Louisiana was \$1,700 a hectare per year.

Other studies have assigned wetlands a value -- what Costanza refers to as "natural capital" -- averaging \$11,700 per hectare nationwide for their benefits other than flood protection, such as acting as nursery grounds for recreational and commercial fisheries, treating urban runoff for pollutants and providing places for hunting and birdwatching.

Costanza said he hopes the new study will help better define the value of wetlands when agencies such as the Army Corps of Engineers are considering whether to build major restoration projects or to allow wetlands to be destroyed for economic developments.

"For years, officials have said they can't put a precise number on (wetlands' natural capital), but that's really a lame excuse," he said. "The burden of proof should be on the parties that intend to remove that asset or intend to deplete it."

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