

URGENCY OF RESTORING LOUISIANA'S COAST

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QUESTION 9

IS RESTORATION OF LOUISIANA'S COAST SOMETHING THAT THE FEDERAL GOVERNMENT NEEDS TO DO NOW?

Louisiana is indeed facing a coastal crisis, but some have wondered whether this crisis justifies a substantial federal investment given other national priorities.

OUR ANALYSIS

We considered the Mississippi River Delta to include the area from southeast Louisiana stretching west to the wetlands of the Chenier Plain. We examined a range of sectors using standard indices of economic impact. As in Question #8, our key assumption was that the delta's economic value was at risk from storm damage if we do not recreate a strong wetland buffer through large scale restoration activities. We further assumed that the feasibility of restoring the delta was not in question, and that options exist for saving this ecosystem.

WHAT THE SCIENCE SAYS

Our analysis fully supports the utility of a federal investment in coastal Louisiana's restoration based on the ability of wetlands to reduce storm surge and stabilize river levees. Specific economic sectors that would benefit from the wetlands' protective function are discussed in more detail below.

Navigation and Mississippi River Commerce

The nation as a whole benefits from the navigation system of the Mississippi River. The Mississippi River is one of the world's most important economic transport corridors, carrying 60 percent of all grain exported from the U.S., along with coal and other products. U.S. waterborne foreign trade along the Mississippi River in 2003, adjusted to 2005 dollars, had an import value of \$103.8 billion, an export value of \$53.5 billion and a total economic value of \$157.3 billion.

All of this commerce depends on a functioning entry to the river from the Gulf of Mexico. The deepwater ports along the Lower Mississippi River from Baton Rouge through New Orleans to the gulf collectively constitute the largest tonnage port in the Western Hemisphere. Waterborne commerce along this corridor amounts to some \$35 billion annually and provides approximately 300,000 jobs. The 2004 Nelson Study found that a seven day closure of the lower Mississippi River would raise shipping costs by \$50 million. A 14 day closure would raise costs by \$200 million and cost the nation \$88.6 million in lost earnings as well as over \$323 million in lost sales.

Energy Production

Louisiana is the U.S. number one in crude oil production, number two in total energy production, number two in petrochemical production, number two in natural gas production, and number two in refining capacity. In addition, the Louisiana Offshore Oil Port facility provides critical infrastructure for bringing imported oil to the nation. There are two major refineries in Louisiana's coastal area, seven major petrochemical facilities, and three gas processing facilities. Thousands of miles of pipelines move a major share of natural gas produced in the Gulf of Mexico to markets in the northeast, including New York, Philadelphia, and Washington, D.C.

The nation's Strategic Petroleum Reserve is located in four, 2000 feet deep salt caverns in Louisiana and Texas that contain approximately 755 million barrels of crude oil. While the salt caverns are virtually invulnerable to meteorological hazards and are relatively immune from earthquakes, their distribution network shares the hazards of the other energy infrastructure: damage from encroaching salt water and storm surge. Should these risks intensify, the national costs will be enormous. The combined economic impact of a three week oil production and natural gas outage is over \$4.5 billion in sales and 45,000 jobs.



Figure 1: Pipelines located in the Outer Continental Shelf, offshore of Louisiana's coast (BSEE, 2012).



Figure 2: Outer Continental Shelf oil and gas production platforms, offshore of Louisiana's coast (BSEE, 2010).

Fisheries and Wildlife

Protecting and restoring the estuaries of the Mississippi River Delta is vital to sustaining fisheries and endangered species in the Gulf of Mexico. Louisiana fisheries contributed 13 percent of total U.S. commercial landings between 1995 and 2004, and this figure does not include the fish and shellfish reared in the Mississippi River Delta but caught elsewhere in the Gulf of Mexico. One-third of the nation's oysters come from the Mississippi River Delta, and this fishery constitutes a \$300 million industry in Louisiana. In addition to fisheries, the Mississippi River Delta ecosystem supports 100 million migratory, nesting, and wintering birds.

Summary

Louisiana's coastal ecosystems provide at least \$12 to 47 billion in benefits to people every year. If this natural capital were treated as an economic asset, the coast's minimum natural capital asset value would be \$330 billion to \$1.3 trillion (using a 3.5 percent discount rate). These values come from a study by Batker et al. (2010) that calculated the most comprehensive measure of the economic value of Louisiana's coastal systems to date.

As shown in the table below, the estimated costs of protecting and restoring the coast range from \$15 billion to \$150 billion. Is this national investment worthwhile during a period of financial crisis? Our analysis results say "yes." If business as usual continues, we estimate economic losses of \$41 billion annually, excluding damages from future hurricanes, caused by a disorderly retreat inland that damages people and businesses at great cost to the nation. By comparison, if a large scale restoration program is implemented that maintains and expands the Mississippi River Delta, an additional annual net benefit of at least \$62 billion in ecosystem services would be realized. This value does not include other benefits that the nation would gain, such as increased protection for levees, or avoided catastrophic impacts such as levee breaching. It does not include the benefit of reduced displacement of residents, reduced FEMA relief and recovery costs, lower insurance rates, lower national oil and gas prices, less litigation, or the benefits of an expanding coastal economy, greater employment, and stability gained for existing communities and residents.

PROTECTING AND RESTORING THE COAST: A RANGE OF BUDGET ESTIMATES	
SOURCE	PROJECTED COST
Coast 2050	\$15 billion over 30 years
Louisiana Coastal Area Study	\$2 billion for near-term, priority projects.
2007 State Master Plan	Over \$50 billion
LACPR	\$100 to \$150 billion
2012 State Master Plan	\$50 billion over 50 years
Entergy Report	\$44 billion for key infrastructure projects over 20 years

IMPLICATIONS FOR POLICY MAKERS

Restoration of the Mississippi River Delta should be a national priority. An investment of up to \$50 billion in initial costs to modernize the coast in ways that allow it to gain ground and sustain critical transportation infrastructure far into the future is justified, particularly if we substitute natural renewable energy for fossil energy to transport sediment from the river to coastal wetlands. The future of one of the world's most unique and important ecosystems is at stake, along with all the economic and cultural benefits associated with that ecosystem. In addition, the economic health of much of the United States depends on sustaining the navigation, flood control, energy production, and seafood production functions in this region. Each of those functions is currently at severe risk due to the degradation of coastal wetlands.

- Consumers throughout the nation will pay the price should we fail to act. Because the national implications are so far reaching, protecting these assets should not fall on one state or region.
- Unless the delta is restored and maintained, the entry to the Lower Mississippi navigation system, the lynchpin of the entire Mississippi navigation system, is likely to collapse. Even if the system could be temporarily repaired, which is doubtful, interim losses and damage to the U.S. economy would be staggering.
- Wetlands' ability to reduce storm surge makes their restoration a wise federal investment. The ability of wetlands to reduce storm surge should be of particular interest given that massive amounts of federal disaster aid are often required to address the aftermath of severe storms. Beyond effects on the federal budget, the economic impacts of disasters include unemployment, loss of investor confidence, increased foreign indebtedness, and depletion of capital reserves.
- Any threat to the energy sector in Louisiana is a direct threat to the U.S. economy. By restoring protective wetlands and barrier islands in Louisiana, this extensive energy infrastructure will gain needed storm protection, security, socioeconomic support, flood protection, and cultural stability.
- Wetland restoration not only enhances current carbon sequestration but also prevents the release of previously stored carbon. This will have huge climate and economic implications as carbon cap and trade systems come on line in coming years.