

## **Gulf Barrier Islands Now More Vulnerable**

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GULFPORT, Miss. — Hurricane Katrina swamped barrier islands along the Gulf Coast, further gnawing away at the dunes and beaches that act as hurricane speed bumps and leaving the coastal area even more vulnerable to big storms.

Among the hardest-hit were the fragile Chandeleur Islands off the southeast coast of Louisiana. Known as a nesting ground for pelicans and rest stop for migrating songbirds, the string of islands was made famous by a visit from Theodore Roosevelt and from the naturalist paintings of Walter Anderson.

Even before Katrina, these islands in Breton Sound was under stress. The storm inundated them, leaving only a small section visible during fly-overs in recent days.

It has been difficult to get a complete picture of damage to all the barrier islands, including Mississippi's, because boat and air traffic has been restricted by search and rescue efforts.

Barrier islands, which are made up of sand drifts, naturally shift with currents over time. But there has been a gradual loss of the islands over the past century, especially along the Louisiana coast. A hundred years ago many of the islands were twice the size they are today and even were home to villages and plantations.

The islands help block big waves and storm surge. "Katrina would have been much worse if the islands hadn't been there," said Klaus Meyer-Arendt, a University of West Florida coastal expert who has done extensive studies of the gulf's barrier islands.

He said the Chaneleurs are probably just shoals now.

In Mississippi, the series of islands off the coast from Biloxi -- Ship Island, Horn Island, Petit Bois -- were also scoured and breached by the extraordinary storm surge.

Ned Kremer, a marina owner in Gulfport, said the islands are likely devastated. Ship Island was a favorite spot for tourists and locals with its hot dog stands, blue waters and peaceful beaches. There is also a historic fort -- Fort Massachusetts -- on Ship Island.

"I can't imagine," Kremer said.

However, Klaus-Arendt said the Mississippi islands should be able to recover because they were higher than the Chandeleurs to begin with.

There were signs that Louisiana's barrier islands farther to the west were not devastated as feared. Those islands -- Grand Terre and Grand Isle in particular -- have had major restoration efforts.

Windell Curole, a Louisiana hurricane expert, said a recent survey of Grand Isle showed much of the island intact although there was a lot of damage to homes, fishing camps and other structures on the island.

Little work to restore the Chandeleurs has been done in recent years, in large part because they sit so far out in Breton Sound. The logistics of moving new sand out by pipeline or other means are immense.

Roosevelt declared the islands a bird refuge in 1904 -- making them the second oldest U.S. refuge -- and visited the islands in 1915 to see with his own eyes flocks of birds.