

# HURRICANE ANDREW IMPACT ON THE TIMBALIER BARRIER ISLAND ARC

## Terrebonne and Lafourche Parishes, Louisiana

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### INTRODUCTION

The U.S. Geological Survey (USGS), in cooperation with the Coastal Research Laboratory in the Department of Geology and Geography at Louisiana State University (LSU), is conducting the Arcuate and Barrier Islands and Shoals of Louisiana (ASBIL) study. The ASBIL study is an ongoing effort to document the geomorphic evolution of Louisiana's barrier islands and shoals. The study area includes the Terrebonne and Lafourche Parishes, Louisiana. The objective of this report is to present the impact of Hurricane Andrew on the Timbalier Island arc, the long-term (1847-1995) and short-term (1990-1995) erosion of the Timbalier Islands (McElroy and others, 1995).

The Timbalier Islands are located about 100 km south-southwest of New Orleans (Figure 1). This barrier island arc is 350 km long and extends from the Gulf of Mexico to the Terrebonne Delta. The Timbalier Islands represent a striking barrier island system developed from the accretion and erosion of an island of coastal sand and silt. Although the Timbalier Islands have been extensively studied in the past (e.g., McElroy and others, 1995), the Timbalier Islands have never been mapped in detail. The primary objective of this report is to present the impact of Hurricane Andrew on the Timbalier Islands, and to include a discussion of erosion processes.

In the Hurricane Andrew storm event, we used the method of cross-sections from McElroy and others (1995) to measure the cross-sections of the Timbalier Islands (Figure 2).

**HURRICANE ANDREW**  
Hurricane Andrew developed from a nearby wave which moved off the west coast of Africa into the Atlantic Ocean on August 14, 1992 (Figure 3). It developed into a major storm on August 17, 1992, approximately 130 miles west of the Texas coastline and moved west-southwest for 3 days with few changes in intensity. It rapidly intensified to a classified Category 5 hurricane. One Category 5 storm (maximum winds) on August 21, becoming a Category Five hurricane by the afternoon of August 21 with maximum winds of 140 mph (225 km/h). Hurricane Andrew made landfall in Louisiana on August 23, 1992, at approximately 5:30 a.m. EDT on August 23 with maximum winds of 60 mph (97 km/h) in the Gulf of Mexico (Figure 3).

The impact of Hurricane Andrew on the Timbalier Islands is described in this report. The primary objective of this report is to present the impact of Hurricane Andrew on the Timbalier Islands, and to include a discussion of erosion processes. The primary objective of this report is to present the impact of Hurricane Andrew on the Timbalier Islands, and to include a discussion of erosion processes. The primary objective of this report is to present the impact of Hurricane Andrew on the Timbalier Islands, and to include a discussion of erosion processes.

**SHORELINE CHANGE ASSOCIATED WITH HURRICANE ANDREW**  
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**TIMBALIER ISLAND**  
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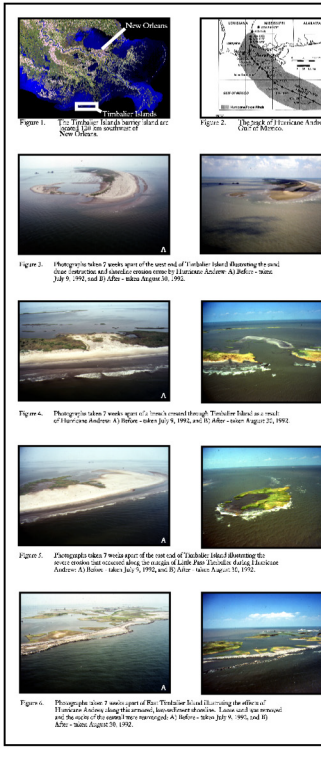
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**SUMMARY**  
The high water surge and storm surge conditions generated by Hurricane Andrew produced dramatic changes in the Timbalier Islands and East Timbalier Islands. The primary objective of this report is to present the impact of Hurricane Andrew on the Timbalier Islands, and to include a discussion of erosion processes.

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Year	Timbalier Islands gullible migration of change (meters)					Timbalier Islands gullible measurement of change (meters)				
	Jan 1990	Oct 1992	Jan 1993	Oct 1995	Jan 1996	Jan 1990	Oct 1992	Jan 1993	Oct 1995	Jan 1996
1990-1992	-1.4	0.3	2.2	0.3	-2.1	0.5	1.1	0.1	0.3	0.5
1992-1993	0.1	0.2	0.5	0.2	0.5	0.1	0.2	0.5	0.2	0.5
1993-1995	0.1	0.2	0.5	0.2	0.5	0.1	0.2	0.5	0.2	0.5
1995-1996	0.1	0.2	0.5	0.2	0.5	0.1	0.2	0.5	0.2	0.5

