

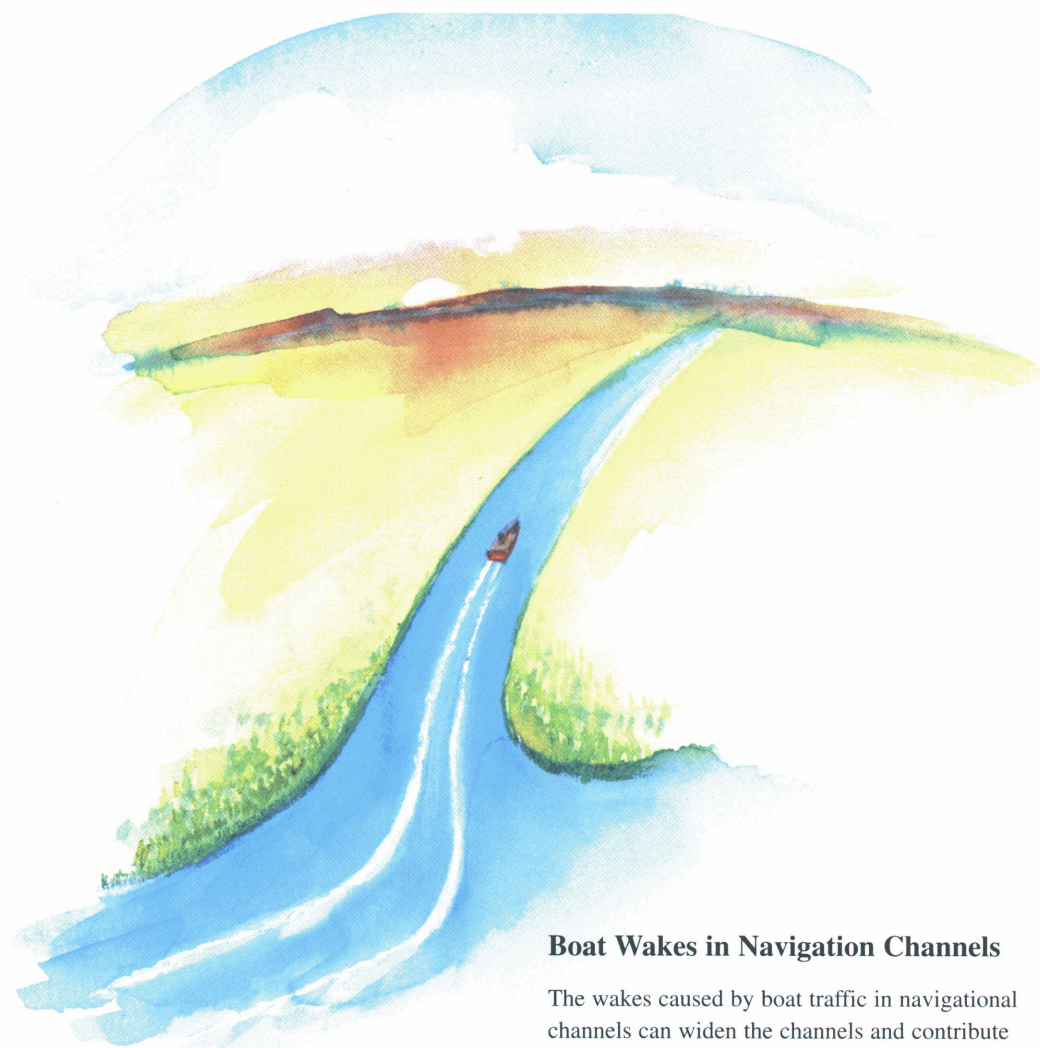
Priority Problem One:

HYDROLOGIC MODIFICATION

Hydrologic modifications are human-made alterations to the way in which water circulates and flows. In the Barataria-Terrebonne estuary, such modifications have altered the natural way in which water flows, and this has contributed to wetland loss.

While protecting the population from devastating floods, dams and an extensive Mississippi River levee system have reduced fresh water flowing into the estuary by as much as 70%. Fresh water is necessary because it supports freshwater habitats and because it mixes with salt water from the Gulf to create the proper salinity balance for the plants and animals that live in the estuary.

Water flow within the estuary has also been altered by the dredging of navigation channels and canals for oil and gas production. Human-made banks that result from digging these canals impede water flow and drainage. Linear canals invite salt water from open bays into isolated salt-intolerant wetlands. In addition, navigation channels increase boat traffic, which in turn aggravates shoreline erosion.



Boat Wakes in Navigation Channels

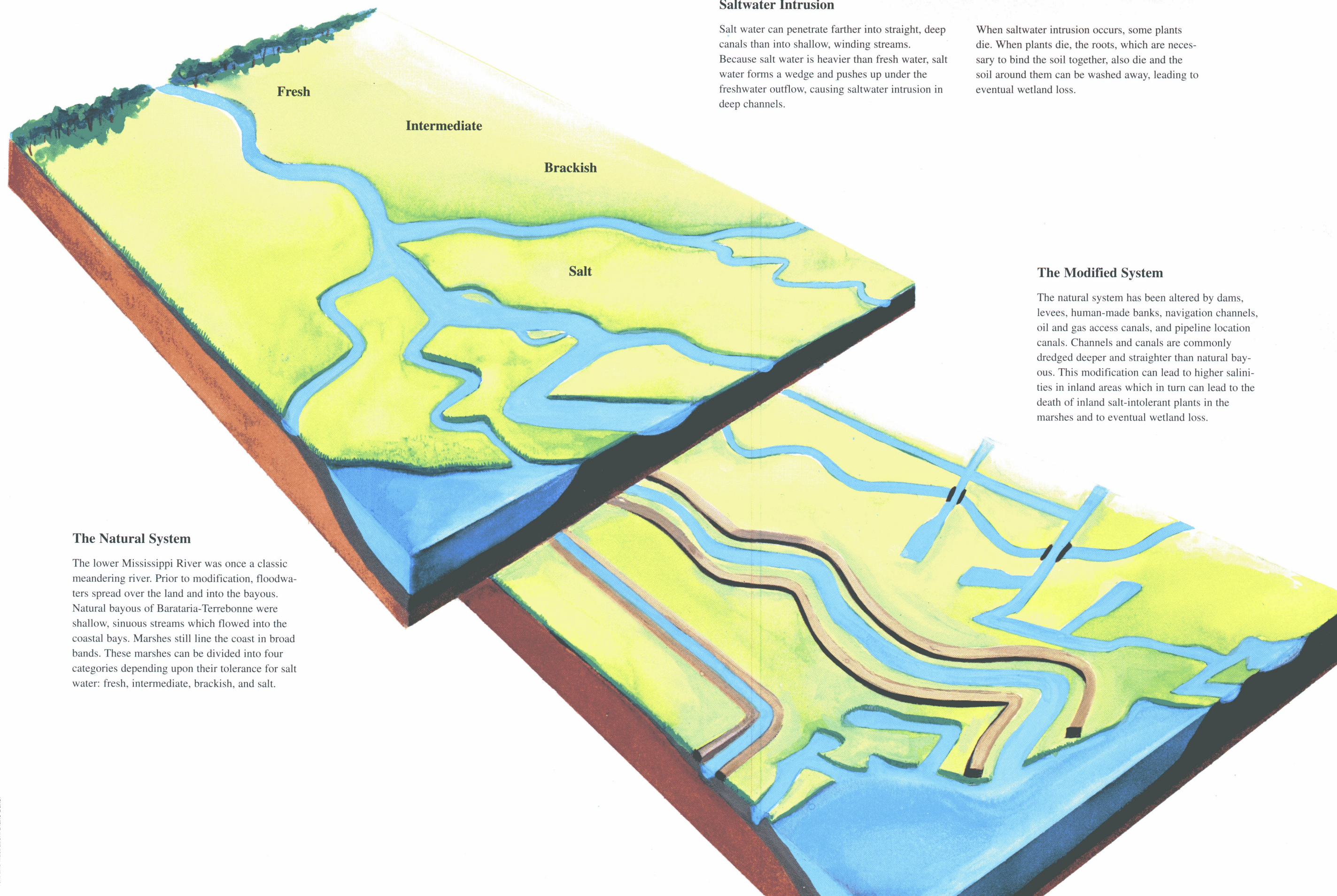
The wakes caused by boat traffic in navigational channels can widen the channels and contribute to shoreline erosion.



Saltwater Intrusion

Salt water can penetrate farther into straight, deep canals than into shallow, winding streams. Because salt water is heavier than fresh water, salt water forms a wedge and pushes up under the freshwater outflow, causing saltwater intrusion in deep channels.

When saltwater intrusion occurs, some plants die. When plants die, the roots, which are necessary to bind the soil together, also die and the soil around them can be washed away, leading to eventual wetland loss.



The Natural System

The lower Mississippi River was once a classic meandering river. Prior to modification, floodwaters spread over the land and into the bayous. Natural bayous of Barataria-Terrebonne were shallow, sinuous streams which flowed into the coastal bays. Marshes still line the coast in broad bands. These marshes can be divided into four categories depending upon their tolerance for salt water: fresh, intermediate, brackish, and salt.

The Modified System

The natural system has been altered by dams, levees, human-made banks, navigation channels, oil and gas access canals, and pipeline location canals. Channels and canals are commonly dredged deeper and straighter than natural bayous. This modification can lead to higher salinities in inland areas which in turn can lead to the death of inland salt-intolerant plants in the marshes and to eventual wetland loss.



**Barataria-Terrebonne
NATIONAL ESTUARY PROGRAM**

P.O. Box 2663 • Thibodaux, LA 70310 • (800) 259-0869