

# Mississippi River Dynamics

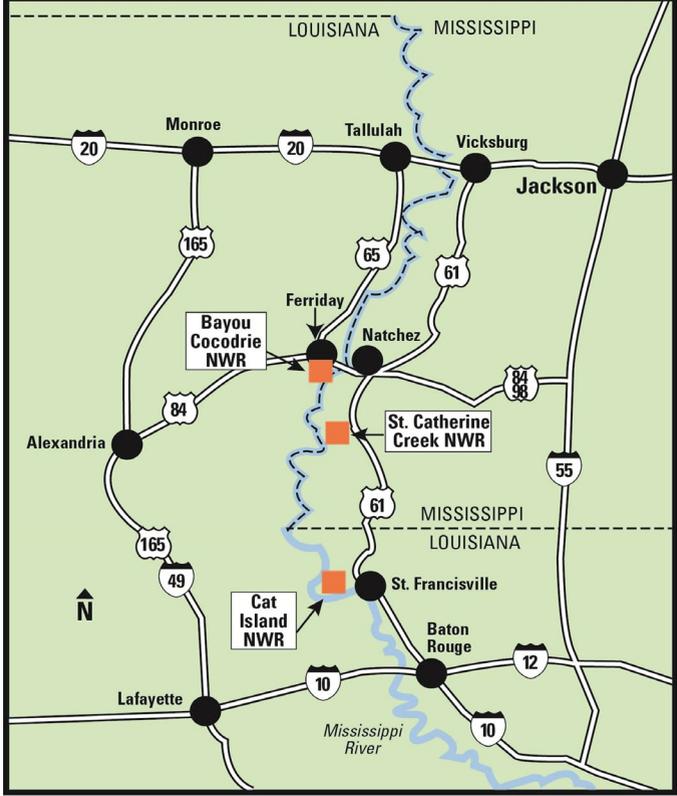
## Man's Impact

All along the river, the channel has been dredged and straightened. Flows are restricted by dams, flood control structures, and diversions. The Lower Mississippi River Valley is bisected by 1,600 miles of levees. This reduces the historic floodplain to a narrow ribbon to protect homes, businesses, and crops.

The "squeezing in" of the river has caused more frequent flooding, higher flood levels, and longer periods of flooding. Only 10% of the original floodplain receives overflow flooding and the annual wet and dry cycle that created the dynamic, productive system has been interrupted. Less than 20% of the historically 25 million-acre floodplain forests remain. Much of what does remain is in scattered patches. The sediment that historically fed Louisiana's vast coastal marshes is channeled into the Gulf of Mexico contributing to the annual loss of 19 square miles of coastal wetlands.

The loss of habitat has been devastating to fish and wildlife populations. Gone are species requiring large blocks of forested habitat.

## Lower Mississippi River Refuge Complex



### National Wildlife Refuges make a Difference

Over 30 national wildlife refuges have been established in the Lower Mississippi River Valley to preserve some of the last remaining bottomland forest habitat. Many of those refuges are intensively managed to make up for some of the habitat lost and provide food and shelter for deer, songbirds, ducks, and fish.

St. Catherine Creek, Bayou Cocodrie and Cat Island National Wildlife Refuges make up the Lower Mississippi River Refuge Complex. All 3 refuges are within 5 miles of the Mississippi River. St. Catherine Creek and Cat Island National Wildlife Refuges lie within the active floodplain of the Mississippi River. Here the wet/dry cycle still drives a highly productive system. Incredible numbers of shorebirds, wading birds, and ducks concentrate on these refuges.

These refuges also serve as places where visitors can enjoy wildlife while visiting a remnant of the once-vast floodplain ecosystem.

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(601) 442 6696  
[www.fws.gov/saintcatherinecreek](http://www.fws.gov/saintcatherinecreek)

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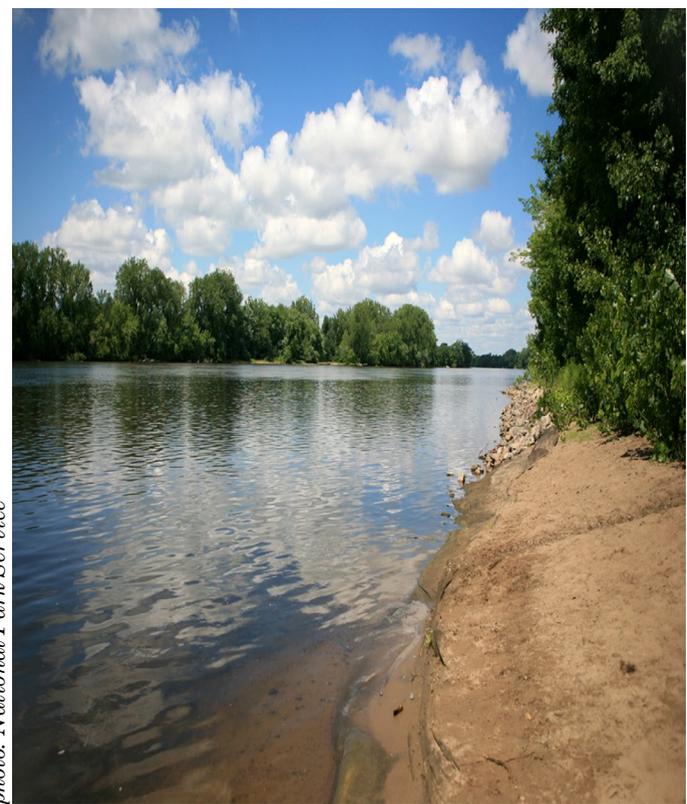


photo: National Park Service

Upper Mississippi River



photo: Allan Ludeman



Mississippi River Drainage Basin

**Background**

From Pennsylvania to Montana to New Mexico, the Ohio, Missouri, and Arkansas-Red Rivers collect water like a huge funnel emptying into the Mississippi River as it works its way to the Gulf of Mexico. In total, the Mississippi River drains more than 40% of the U.S. land area, including all or part of 31 states and 2 Canadian provinces.



Prothonotary Warbler

**Lower Mississippi River Valley**

South of Illinois, the Mississippi River and its adjacent floodplain is known as the Lower Mississippi River Valley. It was once a 25 million-acre forested wetland that flooded each spring when winter and spring rains combined with snowmelt to exceed the capacity of the river channel.

The flood prone area was characterized by dense bottomland hardwood forests, cypress swamps, and sloughs, and river scars. These slowly filled with sediment to form lakes and bayous. The annual floodwaters created recurring wet and dry seasons recharging fish and wildlife habitats and creating a dynamic system rich in biological diversity and abundance. The vast forested wetland supported populations of species requiring large forested blocks, such as ivory-billed woodpeckers, red wolves, and Florida panthers.



photo: Jon Sullivan

Crawfish

**River Connectivity = Increased Production**

Connectivity of the river to floodplain habitats is critical to the lifecycle for many wetland and aquatic species. Many of these species have adapted to use the wet/dry cycle and rich, dynamic system to increase survival and reproductive success.

When it's DRY (summer and fall) plants grow quickly and produce an abundance of seeds. When it's WET (winter and spring) waterfowl feed on the seeds and acorns as well as insects and crawfish... and the annual floods deposit a rich nutrient layer to support this highly productive system,

The same habitats used by ducks in winter provide cover for spawning fish such as alligator gar in the spring. After the larval gar hatch, they take advantage of the dense cover to avoid predators. As the young fish grow, they can move more freely to locate a variety of food resources. These include insects, crustaceans, and amphibians that may be out of reach during the dry season.

For other species, there is an indirect benefit provided by annual winter and spring flooding. The nutrient-rich floodwater boosts phytoplankton and algae growth, rapidly increasing the food supply for newly hatched shad and crawfish. In turn, the abundant shad and crawfish are the primary food for many other floodplain species such as largemouth bass, egrets, and raccoons.



photo: USFWS

Great Egret

Many forest breeding birds, such as Prothonotary Warblers, are benefitted as the floodwater pushes nest predators to higher ground while producing an abundance of insects to feed their young.

**It is not an Accident**

Millions of birds migrate along the Mississippi River each year. The birds find nearly ideal feeding conditions in the rich forests that produce an abundance of food in the form of nuts, fruits, berries, and insects. Additionally, fish and crawfish are abandoned in isolated pools left by the receding floodwater. These food resources are readily available for migrating birds when they temporarily stop to rest and refuel or for other birds that are building fat reserves to initiate migration and nesting.



photo: Charman Cupit

Raccoon