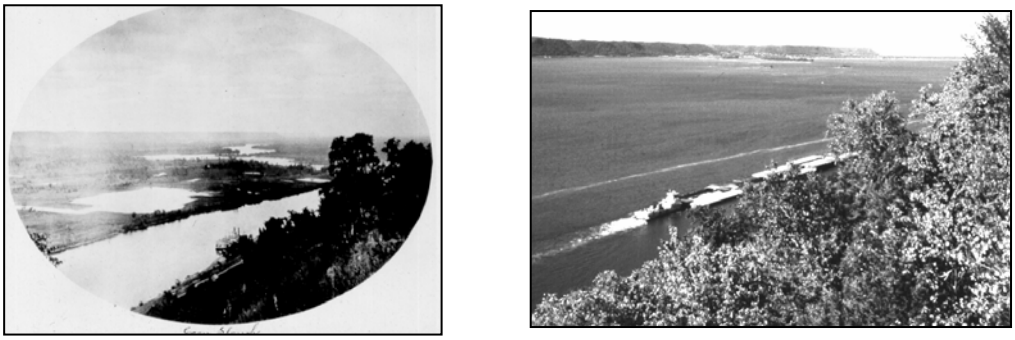
FISH AND WILDLIFE



Lower Pool 8, Mississippi River. 1890 on left, 1990 on right. The locks and dams created a series of impoundments that flooded vast areas of the floodplain.

The multitude of habitats within the Mississippi River's floodplain provide homes for hundreds of species of fish and wildlife. From the secretive lives of the critters that live in the river's murky depths, to the majestic eagle that soars high above the valley, all of these animals have one thing in common – they are each a part of the web of life dependent on a healthy river.

The connections these creatures have with each other, and humans with whom they share the river, are complex and enjoyable.

The Mississippi River was a mosaic of braided channels, islands and wetlands prior to human efforts to tame its waters and make it suitable for commercial navigation. The basic framework of the Mississippi River was created during the melting of the glaciers 11,000 years ago. Huge amounts of water ran down the valley created by past glaciations. The sediment-laden waters began to build up numerous islands between the bluffs. It wasn't until the mid 1800's that habitat on the Mississippi began to be changed significantly by humans.

The Mississippi River has been altered to meet the demands of humans and provide for safe river navigation for commerce the last 160 years. The removal of snags and other obstructions began in 1830; wing dams and closing dams were constructed to divert the power of the Mississippi's waters into a single channel to provide first a 4.5-foot channel in 1878 and later a 6- foot deep channel beginning in 1907; and finally the construction

of locks and dams in the 1930's to create a minimum 9-foot deep stairway of water from St. Paul to St. Louis.

Below the earthen dike which is part of a lock and dam system, the habitat "looks" similar to what is did pre-impoundment, or before the dams were built.

The biggest change caused by humans was the construction of locks and dams to create a minimum 9-foot deep stairway of water between St. Paul Minnesota and St. Louis, Missouri. The locks and dams created a series of impoundments, or pools, which are named after the dam that creates it. For example, Pool 8 is created by Lock and Dam 8.

There are essentially three different sections, or parts within each pool. The upper one-third of each pool looks very much like it did before the locks and dams were built. From the air, this area of a pool reveals an intricate mosaic of flowing and dead end channels, shallow water marshes, wetlands and wooded islands which makes up the backwaters of the Mississippi River. When the earthen dike of the locks and dams were built, some of the backwaters in this portion of the pool were cut off from flowing water.

The middle one-third of each pool reflects a transition area where backwater habitat is giving way to riverine lakes. This diverse area has fewer islands and many more wetlands. Due to the increase in water elevations, soils on many islands in this area are too saturated to support trees and therefore the islands are dominated by grasses. Here, Great River's current is slows and does not have the energy to carry its burden of silt and sand brought to it from tributaries. An unnaturally fast rate of sediment accumulation is occurring in backwater lakes

Middle section of a pool. From the air (left) and on the ground (right).

and wetlands.

The most dramatic change has occurred in the lower section of the pools. Here the water levels were increased the most by dams, flooding the river valley and creating numerous islands. Islands serve many roles in the Mississippi River's complex web of life. The islands are home to deer, raccoons, mink and otters. Ducks nest in the lush vegetation and turtles lay their eggs in the golden-tan sand. Islands in the lower third of a pool protect aquatic vegetation by deflecting

The lower end of a pool, from the air (left) and on the water (right).

the river's current and breaking up waves as they roll across large expanses of water immediately above the locks and dams. The aquatic vegetation located in the "shadow zone" behind islands is used for food by migrating waterfowl and homes for aquatic life.

Erosion by waves, ice and river currents have reduced the number and acreage of islands in this section of a pool. When an island is lost due to erosion, the impact is more than losing some land within the river's floodplain. A chain of events begins to occur. River currents now enter into the once protected area, uprooting some of the vegetation beds. More vegetation beds are uprooted and lost because of the unchecked energy of waves rolling across miles of open water. The waves continue to build in size and eventually stir up sediment from the bottom. Once the sediment is suspended in the water, it acts like a liquid veil, shading out light the underwater plants need to grow.

1939

1989

Island erosion in lower Pool 8, Mississippi River

Definitions of Mississippi River Habitats

Tailwater

Tailwaters extend for about half a mile below each dam. The habitat here is comprised of swift currents, well-oxygenated water and little to no vegetation. If the river is in flood, the gates of the dam are raised out of the water and the dam is said to be "out of control," meaning that the dam can no longer control water levels on the Mississippi. Locks and dams on the Mississippi only

manage water levels for the purpose of commercial navigation, they have no role in flood control.

Main channel and Main Channel Border

The main channel is where a minimum 9-foot deep channel is maintained for commercial navigation. In some respects, it could be considered the "interstate highway" of the Mississippi River habitats. Habitat in many portions of the main channel are limited due to continued disturbance by commercial and recreational vessels. Main Channel border habitats are buffer zones between heavy traffic in the main channel and habitats close to land. Wing dams, closing dams and riprap influence currents in main channel border habitat.

Secondary Channel

Secondary channels are larger side channels of the Mississippi where commercial navigation does not occur. They can vary in width from 100 to more than 500 feet wide. Water depths and sediment type are variable making these channels similar in appearance and function to their pre locks and dams counterparts.

Backwater

Backwater is a term applied to areas of the river that contain many different types of habitat. A trip through this area reveals a maze of sloughs (channels), wetlands, forested islands, lakes, isolated wetlands and sand bars. Backwaters are the most productive and diverse habitat on the Mississippi River.

Riverine Lake or Impounded Area

The area of the River that exists above each lock and dam is referred to as the impounded area, or riverine lake. The characteristics of this area, which most commonly comprises the lower third of a pool, differ from pool to pool depending on how much the water elevations were increased by the dams. Typically, these areas have relatively few islands and water depths of 3-6 feet.