How Humans Control the Mississippi River

Today, the Mississippi River is one of the most engineered rivers in the world. Over the past two centuries, engineers have built a vast system of **levees, dams, spillways, control structures, and engineered outlets** to reduce flooding, improve navigation, and protect communities and farmland.

- **Levees** are earthen embankments built along the river to keep floodwaters within the channel and prevent flooding of nearby communities and agricultural lands.
- **Dams and reservoirs**, located primarily on the river's tributaries, store water during periods of heavy rainfall, reduce downstream flooding, generate hydroelectric power, and maintain water supplies.
- **Spillways** are emergency channels that divert excess floodwater away from the main river when water levels become dangerously high. Louisiana's **Bonnet Carré Spillway** and **Morganza Spillway** are two of the largest examples.
- **Control structures** regulate how much water flows into different rivers or channels. The **Old River Control Structure** helps keep the Mississippi River flowing past Baton Rouge and New Orleans instead of naturally shifting into the Atchafalaya River.
- **Engineered outlets and passes** direct water and sediment toward the Gulf of Mexico while also helping maintain navigation channels. More recently, engineered sediment diversions and restoration projects have been designed to reconnect the river with nearby wetlands to help rebuild Louisiana's disappearing coast.

Together, these structures form a complex flood-control and navigation system that protects millions of people and supports commerce along the Mississippi River. However, they also alter the river's natural ecology by reducing seasonal flooding, changing sediment transport, disconnecting floodplains and wetlands, and affecting fish and wildlife habitats. The challenge for today's engineers and resource managers is finding a balance between protecting people and allowing the river to continue performing the natural processes that sustain healthy ecosystems.

See video (Engineering the River.mp4) for an illustrated discussion of different ways engineers control the river.