

HOST TO OI AMERICAS AND WATERWAY TO THE US INTERIOR

New Orleans and the Mississippi River

New Orleans is one of the great cities of the Americas; its heritage and location make it an ideal site for OI Americas 2003.

New Orleans, probably more than any city in the Americas, has a multinational history and culture. In 1718 the French explorer, Jean-Baptiste Le Moyne, Sieur de Bienville, founded the city and named it Nouvelle Orleans in honour of Phillippe II, Duc d'Orleans. In 1722, Nouvelle Orleans became the capital of France's Louisiana Colony. Although the colony grew, it came to be seen as a burden by the French government. In 1762, the French ceded Louisiana to the Spanish. Throughout the rest of the 18th century, New Orleans remained a Spanish colony. In 1800, Napoleon Bonaparte approached Spain with an offer to make Louisiana a French colony again and the Spanish agreed. About this time, President Thomas Jefferson was looking to obtain access for westward expansion of the United States. Napoleon agreed to sell the entire Louisiana territory to the Americans for US\$ 15 million and, on 20th December 1803, the Louisiana Purchase was completed. New Orleans played an important role in the westward expansion of the United States and by 1840 the Port of New Orleans was the fourth largest in the world. New Orleans continues to be a major centre of commerce and principal gateway to the American interior. This year, Louisiana and the entire United States are celebrating the 200th anniversary of the Louisiana Purchase.

Mississippi River

New Orleans sits in the centre of what is by far the largest port complex in the United States and, reckoned by tonnage handled, the largest in the world. To appreciate the importance of the port, however, one should look at the river on which it sits. The Mississippi is North America's greatest river. The Mississippi River proper is about 3,705 kilometres in length, but that by itself does not convey the whole story. The Mississippi has the third largest drainage basin in the world. Only the Amazon and the Congo drain larger areas. The Mississippi drains 41 per cent of the area of the lower 48 states of the United States. This area includes portions of 31 states and also two Canadian provinces - a total of about 4 million square kilometres. According to the US Department of Interior, 92 per cent of the United States' agricultural exports are produced in the Mississippi River basin, including 78 per cent of the world's exports in feed grains and soybeans. Sixty percent of all grain exported from the United States is shipped via the Mississippi River through the Ports of New Orleans and South Louisiana. Waters from as far east as New York and as far west as Montana flow past New Orleans to the Gulf of Mexico. At its source in Minnesota, the river is only 1m deep; at New Orleans, it is over 60m deep. The average flow rate at New Orleans is about 17,000 cubic meters of water per second and the river moves an annual average of 159 million tons of sediment. The Mississippi River is a vast natural resource of the United States. The Mississippi supplies water and hydroelectric power throughout its length and is a major avenue for commerce in North America. Left uncontrolled, however, it could be just as significant a national liability. Floods were a common occurrence in the Mississippi Valley throughout the early history of the United States. Garcilaso de la Vega, an early Spanish explorer, described a severe flood that in 1563 that lasted about eighty days. Large floods in 1849 and 1850 caused widespread damage and by 1879 the need for river improvements led to the establishment of the US Mississippi River Commission. The seven-person commission was to include officers of the US Army Corps of Engineers and the US Coast and Geodetic Survey (now the NOAA Corps), as well as civilian civil engineers. The commission was charged with the responsibility of developing plans to permanently locate and deepen the navigational channels of the river, to prevent destructive floods and to promote commerce and trade. Although improvements in navigation were made, floods continued to devastate the Mississippi River Valley. In 1927 the worst flood in the history of the valley prompted the Flood Control Act of 1928. This act was the beginning of the massive flood control and navigation project that has transformed the Mississippi River into a safe and efficient waterway. The Mississippi River and Tributaries Project comprises four major elements:

- Levees to contain flood waters
- Floodways to divert excess flow around key sections of the river
- Channel improvement and stabilisation to provide efficient navigation and to protect levees and increase the flood-carrying capacity of the river and
- Tributary basin improvements throughout the entire drainage area

For visitors to OI Americas walking to the riverfront, the levees will be the most obvious of these elements. Levees are a natural feature of river flood plains but the 2,586 kilometres of Mississippi River levees have been created primarily by the Corps of Engineers. The levees are a system of high embankments along the sides of the river designed to contain the flow within the main channel. As you walk around New Orleans you are actually lower than the elevation of the river surface, protected from the river by the system of levees.

Ports of New Orleans and the Lower Mississippi

The French Quarter of New Orleans is about 155km up the river from the Gulf of Mexico. Beginning with New Orleans, the adjacent mega-ports of New Orleans, South Louisiana and Baton Rouge extend 277km along both banks of the river. A navigable depth of 45 ft (13.7 m) is maintained by dredging where necessary, from the Gulf of Mexico to Baton Rouge, Louisiana, a distance of 375km upriver from the Gulf of Mexico, the Mississippi at New Orleans may be the world's busiest waterway. More than six thousand ocean-going vessels move through New Orleans annually to call at one of the lower Mississippi River ports. In recent years, the combined port complex of the lower Mississippi River has handled about 428 million tons of waterborne cargo and half a million cruise passengers annually. New Orleans and the lower Mississippi River port complex sit at the base of the nation's 23,330km inland waterway system. Upstream from Baton Rouge, the navigation depth is maintained at 12ft (3.66m) for barge navigation. In a typical year, more than 230,000 barges pass through the port of New Orleans. A walk from the convention centre to the riverfront, day or night, will almost surely be rewarded with the impressive sight of ocean-going vessels and tug-barge combinations negotiating the current through the turn of the river at New Orleans.

Hydrography and Navigation

The US Army Corps of Engineers and the National Oceanic and Atmospheric Administration (NOAA) share hydrographic and charting responsibilities for the lower Mississippi. NOAA produces nautical charts and the Coast Pilot for the 349km of the Mississippi River from the Gulf of Mexico to Baton Rouge. These products primarily serve the ocean-going traffic in the lower river. The Corps of Engineers, on the other hand, produces river navigation maps that primarily serve the tugs and barges of the inland transportation system. These navigation maps differ from nautical charts in several ways, the most noticeable being the absence of depth soundings. Even though depth soundings do not appear on the river maps, the New Orleans District of the Corps of Engineers manages a large hydrographic survey programme. The District operates a fleet of eight dedicated survey vessels between 13.5m and 18.3m and three 7.5-m outboard-powered survey vessels. The vessels are equipped with DGPS for positioning and single-beam echo sounders for depth measurement. Side scan sonar and magnetometer are also used to locate wrecks and obstructions in the river. The District has recently acquired a multibeam sonar system that will be used for special investigation surveys. Although the surveys are provided to the River Pilots to support their work in guiding ships up and downstream, their primary purpose is to determine when, where and how much dredging is required. Much of the river is naturally deep but at the places where there is a sharp bend in the river, known as crossings - where the deep channel of the river crosses from one bank to the other and the flow spreads out and slows - frequent surveying and dredging is required. Nearly constant surveying and dredging is also required near the mouth of the river, a 32-km stretch of waterway where the Corps of Engineers' mission to maintain a 45-ft channel depth comes into conflict with Mother Nature's desire to form a delta. Under normal river conditions the area is resurveyed every 3 to 4 days. In high water conditions, when this section of the river can shoal at a rate of 0.6m/day, the entire 32 km may be surveyed every day. Survey data are processed concurrently with acquisition, and the completed survey plots transferred immediately to the dredging team. About 33 million cubic metres of sediment are dredged from the lower Mississippi River each year to maintain the navigational channel. As many as nine dredges working at the same time can be required to maintain the channel in periods of heavy river flow. Without constant hydrographic surveying and dredging, the ports of the lower Mississippi could not remain open and the products of the US interior would have to find less efficient means to reach the sea.

To Learn More

The OI visitor to New Orleans may wish to learn more about the city and the river. The web addresses below were used as sources for this article and will be a good start for a web search:

- www.mvn.usace.army.mil
- <http://images.usace.army.mil/main.html>
- www.new-orleans.la.us
- www.nps.gov/miss/features
- www.lonelyplanet.com/destinations/north_america/new_orleans
- www.portno.com