# TRANSPORTATION ON INLAND WATERWAYS

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The waterway towing industry is discussed. Statistics on tonnage, extent of navigable waterways, different components of the waterway system, and the difference between foreign and domestic tonnage are provided. The difference between East- and West-Coast towing operations also is discussed, and lighter-aboard-ship and Seabee vessels engaged in foreign commerce are examined briefly.

•THE DIVISION of Inland Waterways in the Office of Domestic Shipping of the Maritime Administration promotes domestic waterborne commerce on the nation's inland waterways. Similar divisions promote waterborne commerce on the Great Lakes and in coastal and noncontiguous ocean trades.

## SYSTEM SIZE

If we disregard the Great Lakes, Saint Lawrence Seaway, and coastal routes, the heart of the navigable inland waterways system is the Mississippi River system and its tributaries that pass through Sioux City, Iowa; Minneapolis, Minnesota; Chicago, Illinois; Pittsburgh, Pennsylvania; Knoxville, Tennessee; and New Orleans, Louisiana. This represents about 6,000 miles (9600 km) of commercial waterways with minimum 9-ft (2.7-m) channels. On the Gulf of Mexico is the Gulf Intracoastal Waterway and its tributaries, which represent 2,700 miles (4300 km) of navigable water from Brownsville, Texas, to Saint Marks, Florida. On the Atlantic Ocean the Atlantic Intracoastal Waterway and its tributaries and the New York and New England waterways represent another 4,300 miles (6900 km) of channels. On the West Coast a waterway system extending inland from San Francisco and the Columbia River system in the northwest United States represents another 2,300 miles (3700 km) of waterways. This makes a total of about 15,300 miles (24 480 km) of inland waterway systems that have 9 ft (2.7 m) or more navigable depth. The newest addition to the system—the Tennessee-Tombigbee project—which is primarily in the state of Mississippi, is now under construction.

## TONNAGE AND MARKET SHARE

In 1970, 581 million tons (522.9 million metric tons) moved in the nation's foreign waterborne commerce and 950 million tons (855 million metric tons) moved in domestic waterborne commerce. When we consider that U.S. flag vessels move less than 10 percent of U.S. foreign commerce, we can see that the U.S. domestic fleet carries about 30 times more tonnage than ocean-going vessels engaged in international trade do.

A declining trend in market share for both rail and water transportation, an increasing but recently stable trend for truck transportation and a steadily increasing trend for pipeline transportation are evident. Traffic tonnage for all modes of transportation is increasing, but trucks and pipelines are increasing faster than railways or water carriage. Water transportation now makes up about 30 percent of the market.

The 4 main beneficial characteristics of water transportation are flexibility, high capacity, high speed, and low cost. Water transportation, for all practical purposes, competes only with railways and pipelines. The high capacity and low cost of water transportation are its main advantages over railways, its primary competitor. These

advantages are the competitive strengths of this mode. Nondimensional cost-capacity curves for the various modes of transportation also demonstrate the competitive strengths of this mode.

The commodities that are moved by water carriage are primarily liquid and dry bulks: petroleum, chemicals, coal, ore, sand and gravel, and grain products.

Deep-sea, inland-waterway, and Great Lakes components make up domestic water transportation. Inland waterways have about 30 percent of the domestic water transportation market, but they carry about 60 percent of the tonnage. Inland waterways move more tonnage but for shorter average distances than Great Lakes and deep-sea transportation do.

Beginning in 1969 inland waterway tonnage for 19 major commodity groups was slightly over 450 million tons (364.5 million metric tons), which can be expected to grow to almost 870 million tons (783 million metric tons) by the year 2000—an increase of 114 percent. In 1969, all modes transported 837 million tons (753 million metric tons) in the inland waterways trade area, which indicates that water transportation had a 48 percent share of the market. Total transportation will increase by 121 percent by the year 2000; market share for water carriage is expected to decrease slightly from 48 to 46.7 percent. U.S. Department of Transportation projections verify these estimates.

After separately listing the largest U.S. ports in 1970 in terms of foreign commerce tonnage and largest U.S. ports in terms of inland waterways tonnage and then combining and ranking the 2 lists, one finds that in 1970 New York and New Orleans ranked first and second. These 2 ports were ranked this high because of inland waterway tonnage, not foreign commerce tonnage. In fact, Huntington, West Virginia, is a major port in waterborne commerce because of the volume of coal that moves through its terminals.

## EAST-COAST AND WEST-COAST TOWING

Specialized towing on the East and West Coasts differs somewhat from that on the Mississippi River system. In the Pacific Northwest the tows are smaller and the barges are much less standardized. Curious-looking, but functional, special-purpose barges are commonplace.

## LIGHTER-ABOARD-SHIP AND SEABEE VESSELS

By the end of 1975, 27 lighter-aboard-ship (LASH) and Seabee vessels will be in service. The LASH mother vessel carries 375 ton-lighters that are loaded on board by means of a huge crane on rails that picks up the lighter over the stern and then moves it forward in the vessel to stowage. The Seabee mother vessel carries 1,000 ton-barges that are loaded on board by means of a 2,000-ton (1800-metric-ton) elevator at the vessel's stern. Both the LASH and Seabee systems provide a new type of door-to-door service in which cargo is not rehandled between origin and destination.

## INLAND WATERWAY PORTS

When a large tow arrives in New Orleans, it drops off all barges and picks up a northbound tow that has been made up and is ready to go.

The dropped-off barges are unloaded and then moved to a fleeting facility where they are cleaned and held until they are made up for a tow heading back up the river. In any given year, the New Orleans area handles more than 90,000 barges.

Ports and terminals on the inland waterways are different from the familiar seaports along the coasts. Terminal facilities generally are not concentrated at river ports. A river port is a group of separate individual terminals that may stretch for 20 miles (32 km) along the river. Different facilities, such as a grain elevator, a petroleum terminal, an ore-loading facility, a coal transloader, and a multipurpose municipal terminal may make up the group.