

on equal terms to all countries, and Canadian ships must compete with foreign-flag ships.

13.5.1 Canadian water carriers

Ships of Canadian registry. Part I of the Canada Shipping Act sets out the sizes, types and ownership of vessels which must be registered. As at January 1, 1984, there were 35,622 ships with a total gross register tonnage (GRT) of 5,360,433 (equivalent to 15 179 057 m³) in the Canadian registry. Of these, 86.4% were less than 50 GRT, 9.6% from 50 to 500 GRT and only 4.0% over 500 GRT. This was an increase of 1,519 ships since 1982.

Statistics on water transportation. During 1982, revenues of \$1.8 billion were generated by 288 Canadian-domiciled for-hire, private, government and sightseeing marine carriers, according to the 1982 annual survey of water transportation. This survey excludes operators earning less than \$100,000 gross operating revenues in the previous year. Revenues for 1981 were \$2.1 billion for 315 carriers. The largest portion of 1982 revenues, \$1.2 billion, was generated by 191 carriers in the for-hire water transportation industry. In 1981 there were 212 for-hire carriers which generated \$1.3 billion. The water transport operations of 41 private carriers accounted for \$268.8 million in 1982 compared with \$311.7 million by 51 carriers in 1981. The 28 government carriers accounted for \$386.8 million, down from 29 carriers and \$406.1 million in 1981. Sightseeing undertakings contributed the balance of the total revenue.

The 288 carriers in 1982 employed 17,072 crew who earned wages totalling \$474.3 million. Of these totals, the 191 for-hire carriers employed 7,062 crew, with wages of \$220.1 million.

13.5.2 Freight movement

Shipping traffic. Table 13.19 shows the number and tonnage of vessels entering Canadian customs and non-customs ports, except for exclusions from the source surveys or from the tabulations. In coastwise shipping these are vessels of less than 15 net register tons (equivalent to 42 m³), Canadian naval vessels and fishing vessels. A register ton is an internationally recognized measure used to indicate the capacity of space within the hull and the enclosed spaces above the deck of a vessel. For international shipping, fishing vessels and ships not engaged in trade are excluded from the tabulations.

Freight movement through large ports includes cargoes for or from foreign countries and cargoes loaded and unloaded in the coasting trade between Canadian ports. Table 13.20 presents data by province on these freight movements. In 1982 there were 306 million tonnes loaded and unloaded at Canadian ports, compared with 356 million tonnes in 1981. Table 13.21 shows the principal commodities loaded and unloaded in international and coast-

wise shipping at 10 ports handling large cargo volumes in 1982. These ports handled 71.6% of Canada's international shipping and 45.4% of cargo loaded and unloaded in the coastwise shipping. The specific commodities shown are those transported in volume, mainly in bulk.

Many ports also have in-transit movement of vessels that pass through harbours without loading or unloading or move from one point to another within a harbour. Shipping statistics, which cover traffic in and out of both customs and non-customs ports, do not include freight in transit or freight moved from one point to another within the harbour.

13.5.3 Ports and harbours

Canada has 25 large deep-water ports and about 650 smaller ports and multi-purpose government wharves on the east and west coasts, along the St. Lawrence Seaway and Great Lakes, in the Arctic and on inland lakes and rivers.

Transport Canada is responsible for planning and providing adequate public port facilities to serve commercial interests and for improving or phasing out facilities in response to economic growth or changes in traffic patterns resulting from new industries, new types of ships and new developments in cargo handling. Specialized deep-water terminals for bulk commodities, particularly coal and oil, are also provided when needed under long-term full cost-recovery agreements with individual shippers. These often complement related development programs sponsored by the department of regional industrial expansion.

Transport Canada establishes and collects fees from users of port facilities. All rates assessed by ports under federal jurisdiction are subject to departmental approval. Harbour dues, cargo rates, wharfage, berthage and other charges on goods and vessels are subject to some regional and local variation.

In addition to public facilities, there are extensive wharf and associated cargo handling facilities owned by private companies, usually for handling coal, iron ore, petroleum, grain and pulpwood.

The continuing trend to larger ships has resulted in increased investment in ports for facilities farther from shore, for channel dredging, larger turning basins and more complex systems of aids to navigation and traffic control.

Increasing use of containers has brought significant changes in cargo routing and handling. Container ships travel at high speeds and port turnaround time is critical. Port facilities have to be efficient and specialized; they include special ramps for roll-on/roll-off vessels; large container cranes which can handle 20-ft (6.096 m) and 40-ft (12.192 m) containers of various heights; special container packing facilities; large open storage areas for containers, automobiles, lumber and bulk products such as coal; and facilities for loading and unloading rail cars and trucks.