

develop up to 4000 megawatts of hydroelectric generating capacity in the Columbia basin. The Yukon River, also an international river and the largest on the Pacific slope, has not yet been developed in Canada.

Utilization of inland water. Over 43% of all water withdrawn in Canada (excluding withdrawals associated with hydro projects) is for condenser cooling in steam-electric plants. About 99% is returned. Municipal use, including small industrial processors served by municipal systems, accounts for 10.5% of current water withdrawals. On average, approximately 75% of the water pumped into the system is discharged as storm and sanitary sewage containing waste materials.

Other industrial users, manufacturing and mining firms, account for 38% of total withdrawals of water and about 10% of that intake is consumed or lost. Discharged water is frequently returned to source in a highly polluted condition and may be unfit for most uses downstream. Canadian agriculture depends largely upon supplies of water from melting snow and rainfall. In many regions, however, such natural sources are inadequate. Agriculture requires 7.7% of the nation's total withdrawals annually for irrigation, stock watering and rural domestic use.

Hydroelectric power generation uses the kinetic energy of falling water to produce electricity. Except for evaporation losses from the surface of reservoirs, the water is not consumed or changed in any way. However, flooding of land for storage and interference with natural flow may have adverse effects.

Water transport is no longer the principal mode of transportation, but competes with railways, pipelines, aircraft and motor carriers. Water is still the most economical means of transporting bulky raw materials such as wheat, pulp and paper, lumber and minerals for export, especially in the Great Lakes–St. Lawrence and Mackenzie River regions.

The popularity of water-oriented recreational activities, including swimming, boating, sightseeing, fishing, hunting, and water skiing, is growing as more leisure time becomes available. Although provincial and federal governments produce recreation data, co-ordinated national information on the role of water in outdoor recreation is not yet available.

Fish and wildlife from river and lake systems make a vital contribution to Canada's economy. In addition to sport-fishing and hunting, the inland waters support important commercial fisheries. Fish and wildlife require water of high quality. When water systems are put to multiple-purpose use, pollution can destroy these resources. Within government agencies there has been increased work on water pollution problems. Universities are also developing programs in environment-related water research.

Coastal waters

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Canada's coastline, of over 241 402 kilometres, comprises the following measurements – Mainland: Atlantic 15 841 km; Pacific 7 022 km; Hudson Strait 4 253 km; Hudson Bay 12 268 km; Arctic 19 125 km; total 58 509 km. Islands: Atlantic 29 251 km; Pacific 18 704 km; Hudson Strait 8 594 km; Hudson Bay 14 775 km; Northwest Territories south of Arctic Circle 22 209 km; Arctic 91 755 km; total 185 289 km.

Atlantic. Along this coastal area, the sea has inundated valleys and lower parts of the Appalachian Mountains and the Canadian Shield. The submerged continental shelf is distinguished by great width and diversity of relief. From the coast of Nova Scotia its width varies from 60 to 100 nautical miles, from Newfoundland 100 to 280 nautical miles at the entrance of Hudson Strait, and northward it merges with the submerged shelf of the Arctic Ocean. The outer edge varies in depth from 183 to 366 metres. The overall gradient of the Atlantic continental shelf is slight but the whole area is studded with shoals, plateaus, banks, ridges and islands. The 73 m line is an average of 12 nautical miles from the Nova Scotia coast and is the danger line for shipping. The whole floor of the marginal sea is traversed by channels and gullies cutting deep into the shelf.

The topography of much of the Atlantic marginal sea floor was shaped by processes of glacial erosion and deposition. Large areas, however, undergo constant change because of continuous marine deposition of materials eroded by rivers, wave action, wind and ice.