

the islands' western shores to the inner edge of the deeply submerged shelf, are marked in many places by a series of steps or terraces.

The continental shelf bordering the Arctic Ocean, the adjacent mainland particularly near the Mackenzie River delta, and the islands of the archipelago have been subjected to intensive scientific study and mineral resource exploration during the past 20 years. Coordinated programs of research and surveys have studied bedrock geology, development of the terrain, sediments on the sea floor and the nature and history of ice caps. Gravity, seismic, aeromagnetic, geomagnetic and geothermal investigations have obtained information on physical characteristics of the rocks beneath the surface, and the nature and stability of the crust underlying the islands, the continental shelf and the continental slope. A complementary program of geodetic, topographic and hydrographic surveys has provided background maps and charts, and information about both terrestrial and marine physiography. Also there have been less intensive but relevant studies of the biology of the Arctic lands and oceans. As a result a great deal of reliable scientific information is now available for an area about which very little was known 25 years ago.

## Islands

### 1.1.4

The largest islands of Canada are in the North, all in an arctic climate. The northern group extends from the islands in James Bay to Ellesmere Island which reaches 83°07'N. Those in the District of Franklin, north of the mainland of Canada, are generally referred to as the Canadian Arctic archipelago; those in the extreme north — lying north of the M'Clure Strait-Viscount Melville Sound-Barrow Strait-Lancaster Sound water passage — are known as the Queen Elizabeth Islands.

On the west coast, Vancouver Island and the Queen Charlotte Islands are the largest and most important but the coastal waters are studded with many small rocky islands.

The largest islands off the east coast are the island of Newfoundland (part of the province of Newfoundland), the province of Prince Edward Island, Cape Breton Island (part of Nova Scotia), Grand Manan and Campobello islands (parts of New Brunswick) and Anticosti Island and the Magdalen group (parts of Quebec).

Notable islands of the inland waters include Manitoulin Island 1,068 sq miles (2 766 km<sup>2</sup>) in area, lying in Lake Huron, the so-called Thirty Thousand Islands of Georgian Bay and the Thousand Islands in the outlet from Lake Ontario into the St. Lawrence River.

The areas of principal islands by region are given in Table 1.6.

## Surveying and mapping

### 1.1.5

The needs for maps and surveys of Canada are met mainly by the Department of Energy, Mines and Resources which compiles topographical, geological and aeromagnetic maps, aeronautical charts and specialized maps showing electoral district boundaries, land use and other features. Some types of maps and surveys are also produced by provincial and private agencies. In the field of geodesy, the Geodetic Survey maintains a network of horizontal and vertical control points across Canada. The Topographical Survey has completed the mapping of Canada at the scale of four miles to one inch (6.4 km/2.5 cm). All settled areas and regions of northern development have been mapped at a scale of one and a quarter inches to one mile (3.1 cm/km). There are 800 maps available on a relatively large scale covering all major cities and their suburbs. Photomaps, made possible by advances in air photography and photogrammetry, are also available. The Legal Surveys Division is responsible for the technical management of legal