

Prior to the construction of large seaplane bases on the Atlantic and Pacific Coasts, Newfoundland, Labrador and in Hudson Bay, detailed hydrographic surveys were conducted; suitable buoys, ranges and anchorage sites were laid out, and large-scale charts of the areas were supplied. Special hydrographic operations were performed in connection with the establishment of harbour defences such as anti-submarine, anti-torpedo, anti-mine installations, and submarine detecting devices. The laying of submarine cables for gunfire-control of connected coastal batteries required precise sea-floor investigations.

At all major harbours and coastal defence establishments in Canada and Newfoundland, undersea examinations were made for the purpose of locating suitable sites for the installation of degaussing apparatus for ships. For compass adjustment, true bearings of visual lines were calculated. To enable vessels to try out their speeds, a number of measured-mile distances were laid off at various places on the sea-coasts, the St. Lawrence River and the Great Lakes. Special hydrographic operations were conducted in the Ottawa River in connection with the development of the plant for the production of atomic bomb materials.

Due to very limited hydrographic floating equipment, much of the war work conducted at sea was performed under adverse conditions. At the outbreak of hostilities, two of the three marine survey steamers were turned over to the Navy for use as patrol and naval-training vessels and, as a consequence, hydrographic operations in strategic Atlantic coastal areas were carried out with a fleet of small sea-going motorboats, all equipped with modern automatic recording echo-sounding instruments. To expedite the work in the St. Lawrence River, the Gulf of St. Lawrence and on the Atlantic, these small charting units were based at convenient points along the coast. Important hydrographic work in Newfoundland, Labrador and in sub-arctic waters was performed by hydrographers operating from a Department of Transport vessel. The single marine survey steamer operated by the Service during the war years was used off the Pacific Coast.

Through intimate knowledge of navigation conditions in little-frequented parts of Canada's waters, the Hydrographic Service was in a position to furnish considerable specialized nautical data to the Defence Forces pertaining to the location of beaches and landing places on the coasts; selection of sites for wireless stations and listening posts; establishment of emergency fuel caches; construction of wharves, breakwaters and harbour defences; and first-hand information on navigating conditions on various coasts, including Hudson Strait and Bay.

Mention should also be made of the work of the Tidal and Current Division. Installation and maintenance of coastal defences, launching of warships, fleet and convoy movements all required accurate tidal data. For the most part, this and other tidal data were provided through the medium of the Standard Tide Tables and other tidal publications, but many special studies and reports were supplied on request to Canadian War Departments, the British Admiralty, the United States Government, and commercial interests engaged in coastal war-construction.

Precise data pertaining to the fluctuations of the lake and river levels of the Great Lakes-St. Lawrence Waterway were also a necessity. Such levels greatly affected the loading capacity of ships; a few extra inches beneath a keel meant the possibility of hundreds of extra tons of war-cargo above it. The projected location of new major war plants often depended upon the water levels that could be relied