

The Canadian Hydrographic Service (CHS) is involved in tackling various aspects of this problem. One is the improvement of navigational methods by which ships fix their positions. This work involves a blending of satellite data, the Loran navigational system and old fashioned "dead reckoning". CHS is also improving Arctic navigational charts. Apart from the routine challenge of charting unfamiliar waters, this task is complicated by the need to plot shipping routes through or around natural minefields made up of "pingoes" (hillocks and spear-like ice-coned formations pushing up from the Arctic floor, in some cases to less than 20 metres from the surface).

ARCTIC INFORMATION

Because of increased activity in the Arctic, the Canadian government has established a central facility to co-ordinate and store the mass of information now being generated from a multitude of Arctic studies.

This centre, part of the newly established Oceanographic Information Division (OID), is located at the Institute of Ocean Sciences. Since its inception in 1980, it has been the focal point for all data gathered in the western Arctic and along the Canadian west coast.

Information from studies carried out separately and jointly by government and industry is relayed *via* the centre to government regulatory bodies such as the Federal Environmental Assessment Review Office (FEARO), for use in environmental assessments of Arctic projects.

BEDFORD INSTITUTE OF OCEANOGRAPHY

Located at Dartmouth, Nova Scotia, the Bedford Institute serves as a base for the scientific exploration of two of Canada's ocean frontiers — the Atlantic and the Arctic. Scientists attached to three government departments work there, each pursuing a specific ocean interest: fisheries and oceans; energy, mines and resources; and environment. But Bedford is no ivory tower of the oceans. Its scientists work on problems directly related to the urgent needs of the moment, one of which is the necessity to pry open, safely but effectively, the treasure of energy off Canada's Arctic and Atlantic shores.

This, however, is only a small part of the work carried out at Bedford, which is one of the best equipped ocean institutes in the world. It is home base for five major vessels, including the *CSS Hudson*, which made history in 1970 when it became the first ship to circumnavigate the Americas. The scope of Bedford's scientific activities has grown to include physical, chemical, geological and geophysical studies of the oceans, as well as biological and fisheries studies. The institute also plays a major role in the charting of navigation channels (hydrography) and natural resource mapping.

Installation of a marigraph for tidal studies: Fury and Hecla Strait, Northwest Territories.

