# CANADA'S OCEANOGRAPHIC RESEARCH

CANADA faces three oceans: the Pacific, the Atlantic and—about the most formidable—the Arctic. Historically, Canada has focused its major attention and energies on pushing back the substantial land frontier. It has now begun to pay increasing attention to pushing back the last frontier: the oceans.

Fisheries, long a very important economic factor in the maritime provinces, is even more so today. Oil and gas on the continental shelf are receiving more attention than ever before and there has been a steadily increasing activity in exploration with encouraging indications of hydrocarbons.

Exploitation of resources in the Arctic, rich in petroleum and hard minerals, is in turn pushing development of technology necessary for various types of vessels to operate effectively in these ice-covered waters.

Considering the vital statistics, all of it is imperative. Indeed inevitable.

The total area of Canada is about 3,851,000 square miles and it is the second largest country in the world. With an ocean coastline totalling about 33,000 miles—not including the 27,000 miles of shoreline of the Arctic Islands,—the total area of the continental shelf adjacent to Canada is estimated to be almost 40% as large as the country's total area. Considering that the world average of the ratio of continental shelf to total land area is less than 15%, Canada by far is among the most well-endowed nations in this respect.

The fresh water area is about 8% of the total and some of the inland lakes are quite large: about 10 of them, in fact, could be considered as fresh water seas, presenting problems and opportunities akin to the ocean. It has been estimated that this represents about 30% of the world's total supply of fresh water.

The continental shelf is considered an extension of the land area, and Canada's land area is rich in mineral resources. It is, in fact, among the world's first five producing countries for minerals.

Exploration for offshore oil is increasing rapidly, too, with millions of dollars being spent every year; by 1980, over $1 billion would have been committed.

In fishing, of course, Canada has long been ranked second among world fish exporters. Founded upon cod, herring, salmon and lobsters—all in heavy demand on the export market—the Canadian fishing industry is reaping the benefits of research and advanced technology. And much else.

In 1972, the Federal Government announced an ocean policy earmarking a progressively larger portion of government-funded research and development to be done by industry. Its main thrust was to ensure that R&D results were translated more effectively into additional industrial capacity. The application of this policy is beginning to show encouraging results.

In July 1973, the government added a new dimension to what is described as the policy on the ocean industry, science and technology. The important aims of the policy are to stimulate increasing participation of industry in the exploitation of Canada's offshore resources; to ensure emphasis on a wide range of ocean science and technology programs relating to management of marine environment, renewable and non-renewable resources, development and maintenance of ocean engineering