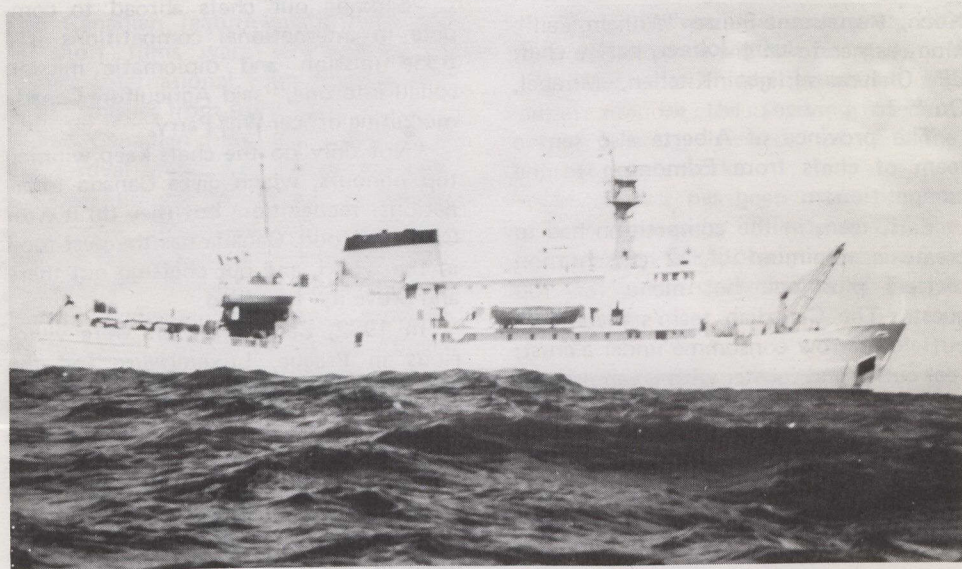


CSS Hudson undertakes seven-trip research program



CSS Hudson makes first expedition of the year.

Canada's largest oceanographic research vessel, the *CSS Hudson*, will return to Nova Scotia at the end of May following a study of ocean processes and testing of new equipment and methods in Bermudian waters, the first of seven major expeditions planned for *CSS Hudson* for 1983.

The program involves three separate phases and 56 marine scientists from the Department of Fisheries and Oceans' Bedford Institute of Oceanography (BIO), Dartmouth, Nova Scotia; the Department of Energy, Mines and Resources, also at BIO; Dalhousie University, Halifax, Nova Scotia; Memorial University, St. John's, Newfoundland; and Cambridge University, England.

The research is expected to provide more detailed information for long-range studies in such areas as pollution, climatic trends, fisheries, and growth rates of minute marine life.

During the first phase, biological oceanographers examined sub-surface oxygen levels and phytoplankton growth rates off Bermuda.

Using the end-point detector developed by the marine ecology laboratory at BIO, the biological oceanographers used a new method for measuring phytoplankton growth which can then be compared to traditional Carbon 14 methodology.

Chemical oceanographers also sampled suspended matter using BIO's new *in-situ* particulate sampler, as part of an ongoing study of the distribution of trace metals and their transport. The long-range objective of this work is to understand the magnitude of trace metal fluxes

and their transport processes in the ocean. This information is also relevant to phytoplankton growth and pollution studies.

Second phase

During the second phase, geological and biological oceanographers tested the BIO rock-core drill, obtaining samples from the ocean floor to supplement a previous study. If successful, this research will lay the groundwork for a Canada-US effort this fall off Vancouver Island. The biological oceanographers investigated seasonal cycles of biological production in deep water to determine if these processes change in the deep ocean.

As the *Hudson* works its way homeward over a 26-day period that began May 4, the third phase of the expedition will explore aspects of ocean circulation and ocean basin geophysics.

One scientific group will submerge current meters in the Gulf Stream to help uncover the dynamics of major current systems, an essential part of ocean circulation. This research will lead to more accurate predictions of trends in regional climate and the marine environment. Results will provide greater insight into the controlling influences on nutrients, temperature conditions in Canada's east coast fisheries, and the net transport of pollutants in this area.

A second party of scientists will bury temperature-sensitive probes in the bottom sediments of the continental rise south of Nova Scotia to determine heat flow variations between the old ocean basins and continental margins. This will

help test theories of sea-floor spreading.

The *CSS Hudson*, based at Bedford Institute of Oceanography, is 90.3 metres long, cruises at 14 knots with a range of 15 000 nautical miles, and is capable of working in both Arctic and tropical waters.

The *Hudson's* six laboratories are equipped with modern facilities and instrumentation, with a total area of 316 square metres. The vessel has its own data processing centre to record and process a wide variety of scientific measurements. The ship's complement is 19 officers, 44 crew and 25 scientific personnel.

Shortly after returning from Bermuda, *Hudson* will leave for the Grand Banks and the Canadian Arctic.

Dairy pact with Venezuela

Canada and Venezuela have signed agreements for a multi-million dollar project to increase dairy production in the South American country.

The memoranda were signed in Caracas, March 24, by Agriculture Canada Deputy Minister J.P. Connell and Dr. Nydia Villegas, Minister of Agriculture and Livestock for Venezuela.

The dairy project will help Venezuela reach its goal of full self-sufficiency in milk output. Semen from Mexican Criollo cattle will be used to inseminate Canadian Holstein cows. The first generation female progeny from these crosses will be purchased from Canadian livestock exporters CLEA Brantford Limited and resold to a consortium of Venezuelan producers. Agriculture Canada, through the Agricultural Products Board, will administer the program.

The progeny are expected to have the hardiness of the Criollo sires for the tropical climate and the superior milk producing qualities of the Holstein cows.

The project calls for the delivery to Venezuela of 1 500 heifers. The cattle are expected to be raised by 400 to 600 Canadian producers.

Under a separate agreement, Canada will also supply, on a cost-recoverable basis, technical dairy assistance to Venezuela's Fondo Nacional de Investigaciones Agropecuarias (FONAIP), the country's national fund for agricultural research.

If the pilot project is successful, a further agreement could lead to the sale of 30 000 or more head of the same cross to Venezuela with an estimated value of more than \$20 million.