Determining Atlantic Canada's Extended Continental Shelf

The continental shelf is an underwater extension of land that can stretch out to sea for many kilometres. Government scientists are studying the Canadian continental shelf in the Atlantic Ocean as part of the Extended Continental Shelf (ECS) Program, a large initiative set up to identify characteristics of the shelf under the Atlantic and Arctic Oceans. The aim of the Program is to define the outer limits of the shelf where it extends beyond 200 nautical miles (NM) from coastal baselines, thereby determining with precision where Canada may exercise its existing sovereign rights over the natural resources of the seabed and subsoil. The scientific data collected as part of this initiative will be used for Canada's submission to the United Nations Commission on the Limits of the Continental Shelf (CLCS).

The research in the Atlantic Ocean, off Nova Scotia and Newfoundland and Labrador, combines existing data with newly acquired data to determine the areas where Canada's continental shelf extends beyond 200 NM.

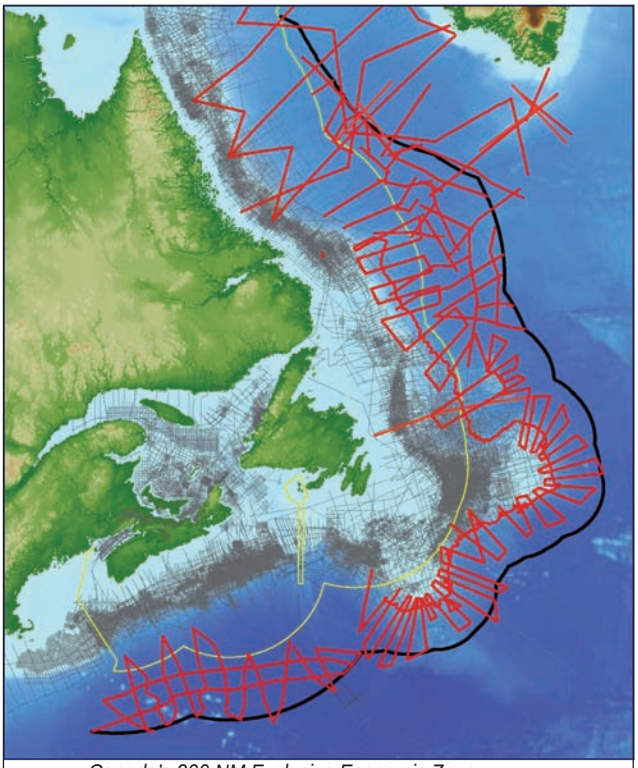

Figure 1. *Map of Atlantic Canada*

A Desk Top Study

Unlike the offshore Arctic region of Canada, Canada's Atlantic margins have been researched extensively and a significant amount of scientific data has already been collected. Therefore, some detective work to uncover this data was required prior to designing a research program to determine the extended continental shelf.

Scientists at Natural Resources Canada (NRCan) and Fisheries & Oceans Canada (DFO) dug into Canada's archives, and turned to previous collaborators, such as Germany, Denmark, and the U.S.A., to compile existing seismic and bathymetric data. In addition, the Canada-Nova Scotia and Canada-Newfoundland and Labrador Offshore Petroleum Boards supplied information on data collected by oil and gas companies for exploration purposes. After amalgamating the existing data, it became clear that the focus of previous data collection had been on or near the continental slope and that large information gaps existed in areas further offshore.

Using the existing information as a guide, NRCan and DFO researchers determined where the additional data was required, as well as the type of data (e.g. bathymetric or seismic) that was needed, to fill in the gaps and be able to define the outer limits of the continental shelf according to the United Nations Convention on the Law of the Sea (UNCLOS).

Collecting New Information

As a result of the desk top study, NRCan and DFO scientists identified three main areas where new data was required. Contracts to collect seismic and bathymetric data were issued over a three-year span. The missions were as follows:

Location	Type of Data Collected	Area Surveyed (km)	Year
Grand Banks	Bathymetric	18500	2006
Offshore Nova Scotia	Seismic	6900	2007
Offshore Labrador	Seismic	3825	2009

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Canada

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Project Partners

Foreign Affairs and International Trade Canada is the lead in the ECS Program and has overall responsibility for Canada's submission to the CLCS. NRCan and DFO are responsible for the scientific work needed for the submission. Both bring specialized expertise to the Program: NRCan's Geological Survey of Canada has expertise in seismic interpretation while DFO's Canadian Hydrographic Service is responsible for the interpretation of bathymetric data.

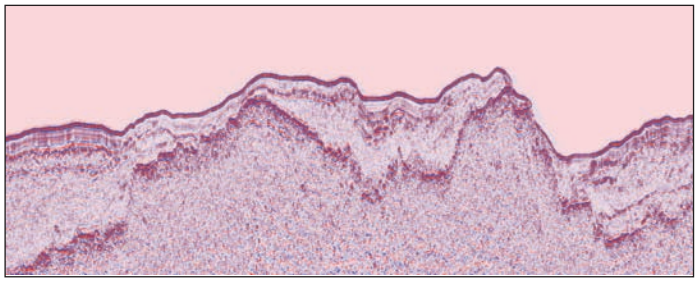

Figure 2. *Example of seismic data collected in the centre of the Labrador Sea during the 2009 seismic mission.*

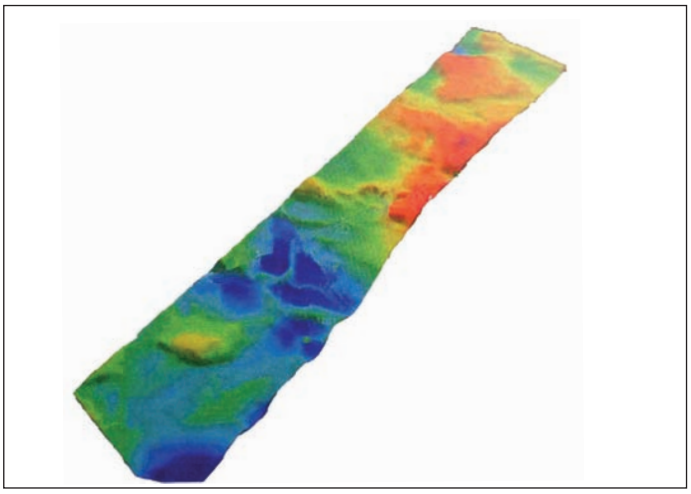

Figure 3. *Example of a bathymetric profile collected during the 2006 survey off the Grand Banks.*

Key Findings

1. All data from the Labrador, Grand Banks and Scotia Margins has been collected according to the original plan.

2. The data is generally of high quality and is presently being processed and analysed to determine if the quantity and quality is sufficient for a strong submission to the CLCS. If needed, additional data will be collected in the 2011 field season.

Making a Difference

All data collected in this program will be used to prepare Canada's submission to the CLCS. The program is on track to meet the deadline of December 2013. By following the process set out in the United Nations Convention on the Law of the Sea, Canada will secure international recognition for the full extent of its continental shelf beyond 200 NM. At the end of the program, all newly collected data will be released and made available for further research on the continental margins in the Atlantic Ocean.

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