



Energy, Mines and
Resources Canada

Énergie, Mines et
Ressources Canada

Geological Survey of Canada Commission géologique du Canada
Resource Geophysics and Geochemistry Division



Province of Nova Scotia
Department of Mines and Energy
Mineral Resources Division

GSC Open File 847

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DME Open File 482

NATIONAL GEOCHEMICAL RECONNAISSANCE

1:2 000 000 Coloured Compilation Map Series

Meguma Terrane, Southern Mainland, Nova Scotia

11D, 20-O&P, 21A and parts of 11E&F, and 21 B&H

Prepared as a contribution to the Canada - Nova Scotia Cooperative Mineral Agreement 1981-84

1982

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PREPARED APRIL 1982

Introduction

The National Geochemical Reconnaissance 1:2,000,000 Coloured Compilation Map Series is a product of the continuing National Geochemical Reconnaissance (NGR) surveys. Variables have been computer contoured and plotted utilizing an Applicon colour plotter. Coloured photocopies of these maps are available in the Coloured Compilation Map Series of Open Files.

The NGR is primarily a methodology for regional geochemical reconnaissance surveys. These surveys, based on sediment and water samples collected from streams and lakes across Canada, commenced in 1975. The surveys were first carried out under the auspices of Federal-Provincial Uranium Reconnaissance Program (URP) agreements, and presently under various Federal-Provincial Mineral programs, or by either Federal or Provincial Geochemical Reconnaissance Survey programs. Most importantly, all the surveys are carried out to essentially similar specifications, leading to a nationally consistent data base, whatever the source of survey funding. Sediments from all areas were analyzed for U, Zn, Cu, Pb, Ni, Co, Mn, Fe, Mo and those from some areas for Hg, Ag, As, V, F, W, Sn, Ba, Ca and Mg; additionally, the loss-on-ignition (LOI) was determined for many lake sediment samples. When collected, waters were analyzed for one or more of U, F and pH.

Open File 847: Meguma Terrane, Southern Mainland, Nova Scotia

The data compiled on these maps were acquired by the Nova Scotia Department of Mines and Energy, Mineral Resources Division, in a program funded through the 1975-80 Canada Department of Regional Economic Expansion - Nova Scotia (DREE-NS) Mineral Development Agreement.

The Meguma Terrane, and immediately adjacent areas underlain by Paleozoic and Mesozoic rocks, were the subject of a regional centre-lake bottom sediment sampling program carried out in the summers of 1977 and 1978. There were several objectives to the regional geochemical reconnaissance. Firstly, to provide data and geochemical maps of the Province that would stimulate exploration activity in the Meguma Terrane beyond the traditional interests in Au deposits and newly discovered U and Sn occurrences. Secondly, to provide a geochemical data base, consistent with NGR standards, for use in a wide range of geoscience endeavours; and finally, to provide baseline data for environmental, agricultural and other studies involving human interaction with the land surface and its chemistry. Simultaneously, and also funded in part by the DREE-NS Mineral Development Agreement, a separate study of the Pleistocene geology and glacial till geochemistry was undertaken, one of whose objectives was to provide supporting data to aid the interpretation of the regional geochemical reconnaissance data.

The lake sediment geochemical reconnaissance survey was undertaken at a sample density of 1 site per 2 square miles, corresponding to approximately 1 site per 5 km². This sampling was denser than the 1 per 5 square miles (1 per 13 km²) of most NGR surveys because of the overall size of the survey area, state of exploration history, and the previously stated objectives.

The sampling programs were undertaken by staff of the Mineral Resources Division. Sample preparation, quality control and analysis were carried out under contract, using NGR methodologies, by the Central Laboratory for the Investigation of Minerals (CLIM) at the Nova Scotia Technical University, Halifax. Data compilation was carried out by staff of the Mineral Resources Division. Assistance was given by the Resource Geochemistry Subdivision of the Geological Survey of Canada, Ottawa, in cartographic processing and statistical analysis of the digital data base.

Preparation of the NGR 1:2,000,000 Coloured Compilation Map Series

The maps and annotative material have been prepared directly from digital data by a computer mapping package (APPMAP) being developed in the Resource Geochemistry Subdivision, Geological Survey of Canada. This package makes use of an Applicon colour plotter and Applicon library software resident on a CDC Cyber 730 computer at the Computer Science Centre of the Department of Energy, Mines and Resources. The legend, border and annotative materials were entered through APPMAP directives. The generalized coastal outline and provincial boundary were obtained from a copy of the World Data Base II cartographic file maintained at the Computer Science Centre. The generalization removed many coastal islands, where no data were collected, and promontaries and bays less than 800 m in "relief". The geochemical survey data were accessed from archival data files.

APPMAP interpolates from the irregularly spaced reconnaissance data to a regular grid which, for these data, is 3,200 m on a side. The interpolation is in the form of a moving average where weighting is by an inverse distance function ($1/d^3$) using the five nearest data points. The effect of this moving average is to filter out the minor irregularities in the spatial data and emphasize the broader scale and regional features. Data percentiles have been used for contour interval selection.

The geological map, bound into the Open File as an overlay to the sample location map, may be removed and used as an overlay to the regional geochemical compilations. The geological map was redrafted to the same base as used in the colour compilation from the Nova Scotia 1:2,000,000 folio of geoscience maps (Keppie et al., 1979).

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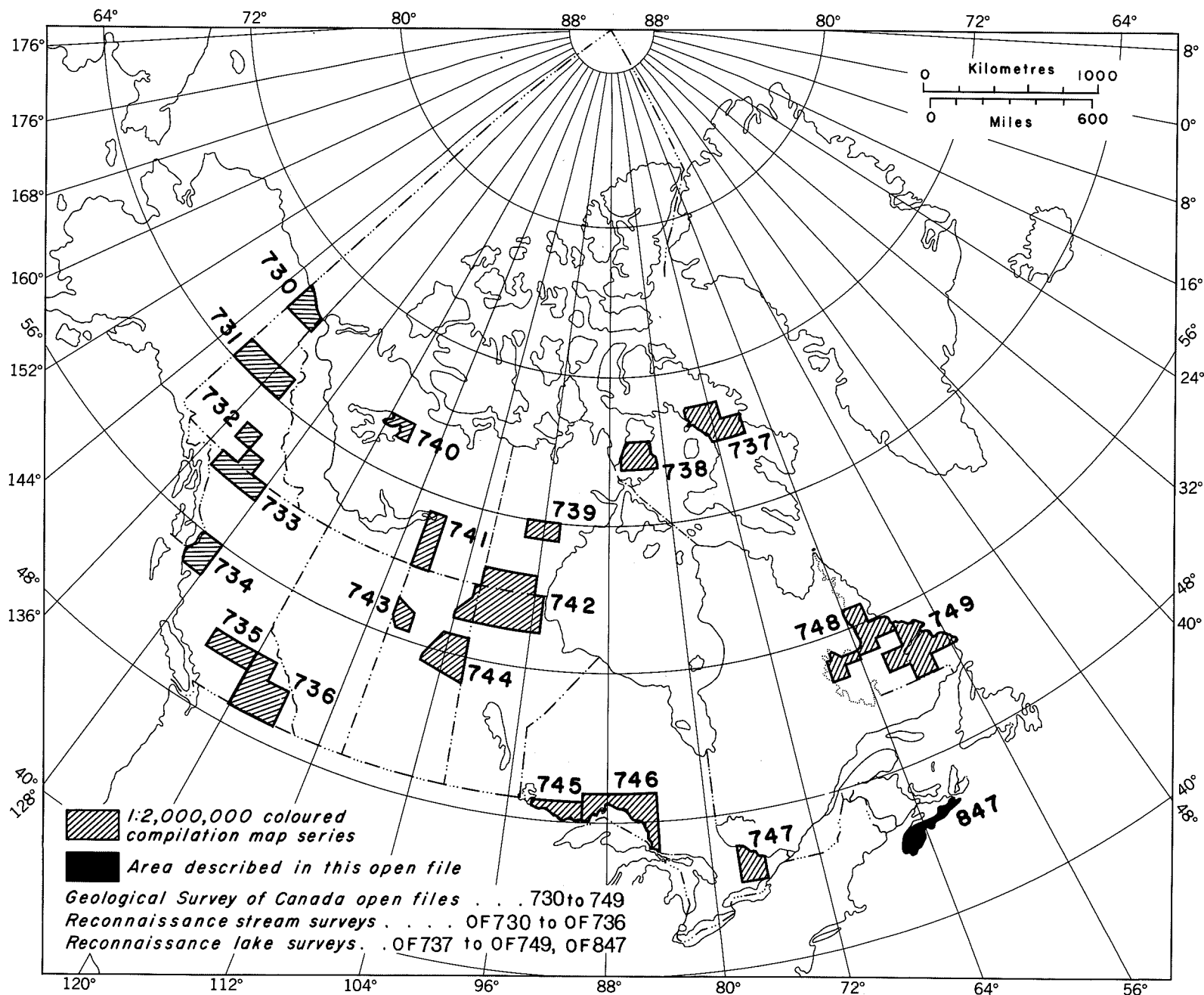
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Stea, R.R. and Fowler, J.H.

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**NATIONAL GEOCHEMICAL RECONNAISSANCE 1:2,000,000
 COLOURED COMPILATION MAP SERIES**

GSC

Project Co-ordinators

R.G. Garrett and J.D. Keppie

Computer Mapping Package (APPMAP)

D.J. Ellwood

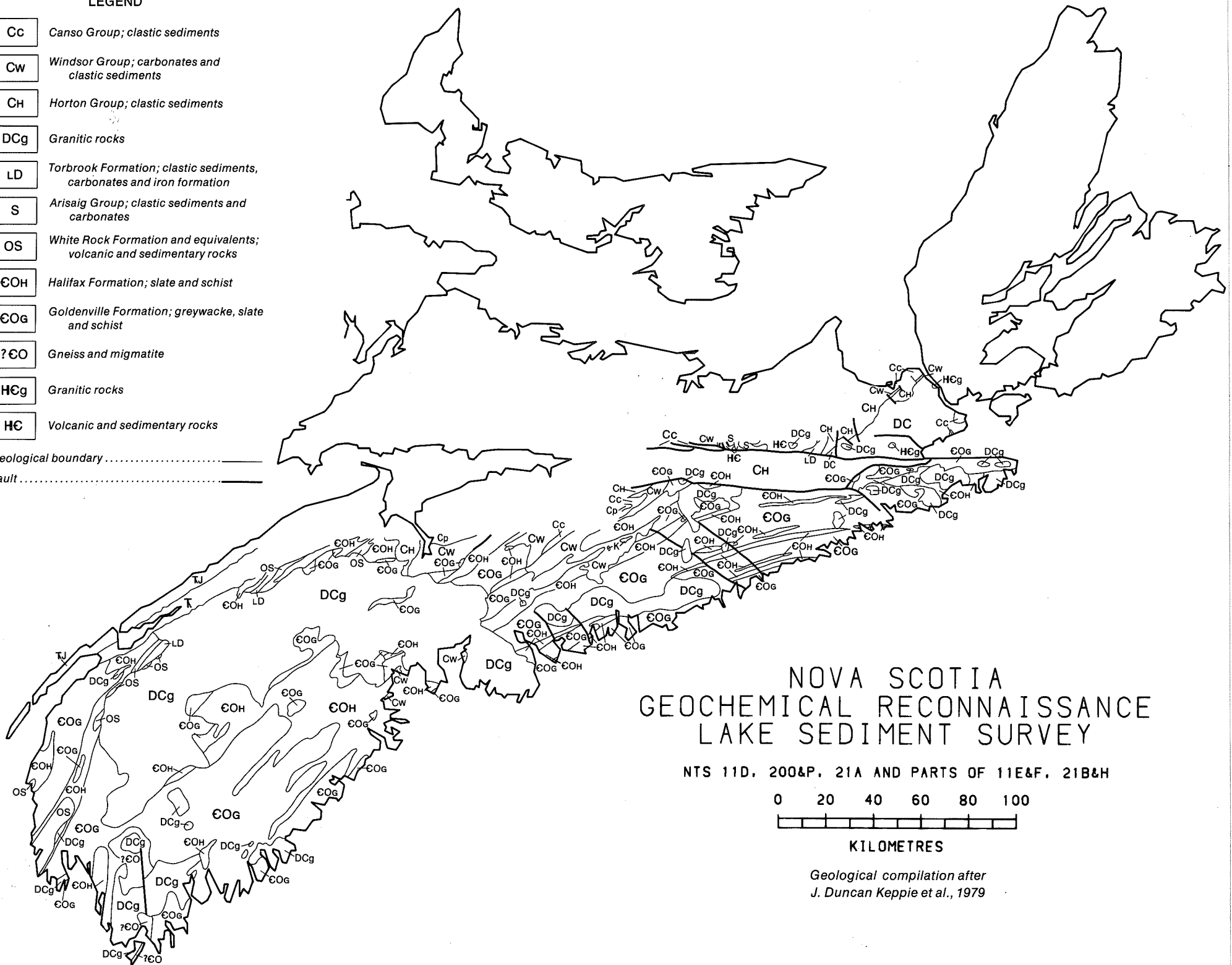
1:2,000,000 Colour Compilation Maps

- | | |
|-----------------------------|--|
| 1. Sample Locations | 9. Molybdenum in Lake Sediment |
| 2. Lead in Lake Sediment | 10. Uranium in Lake Sediment |
| 3. Zinc in Lake Sediment | 11. Manganese in Lake Sediment |
| 4. Copper in Lake Sediment | 12. Iron in Lake Sediment |
| 5. Nickel in Lake Sediment | 13. Calcium in Lake Sediment |
| 6. Cobalt in Lake Sediment | 14. Magnesium in Lake Sediment |
| 7. Mercury in Lake Sediment | 15. Loss-on Ignition for Lake Sediment |
| 8. Arsenic in Lake Sediment | |

LEGEND

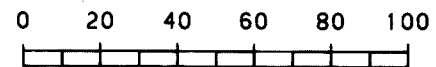
- Cc** Canso Group; clastic sediments
- CW** Windsor Group; carbonates and clastic sediments
- CH** Horton Group; clastic sediments
- DCg** Granitic rocks
- LD** Torbrook Formation; clastic sediments, carbonates and iron formation
- S** Arisaig Group; clastic sediments and carbonates
- OS** White Rock Formation and equivalents; volcanic and sedimentary rocks
- EOH** Halifax Formation; slate and schist
- EOG** Goldenville Formation; greywacke, slate and schist
- ?EO** Gneiss and migmatite
- HCg** Granitic rocks
- HC** Volcanic and sedimentary rocks

Geological boundary
 Fault



NOVA SCOTIA
 GEOCHEMICAL RECONNAISSANCE
 LAKE SEDIMENT SURVEY

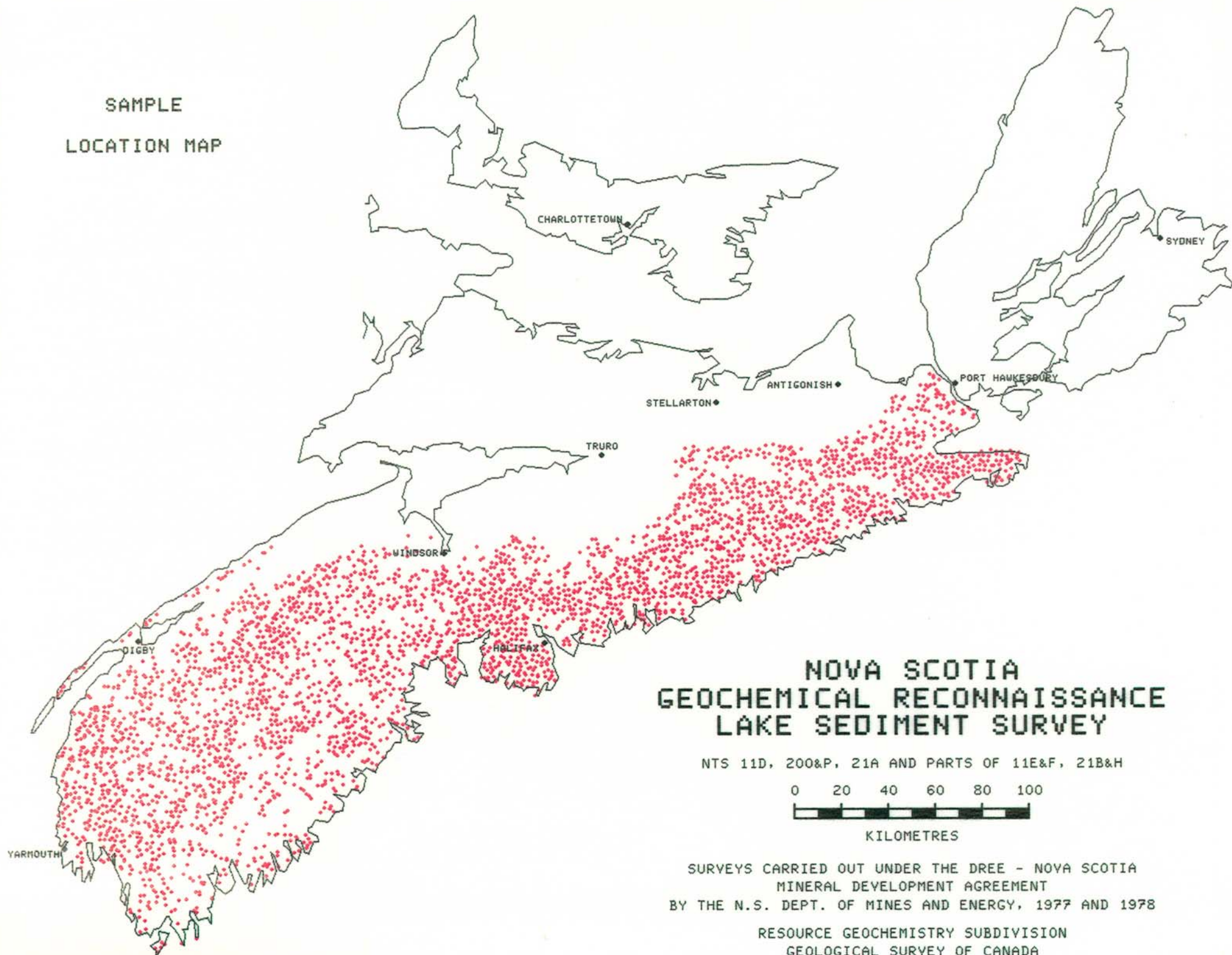
NTS 11D, 200&P, 21A AND PARTS OF 11E&F, 21B&H



KILOMETRES

Geological compilation after
 J. Duncan Keppie et al., 1979

SAMPLE
LOCATION MAP



NOVA SCOTIA
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LAKE SEDIMENT SURVEY

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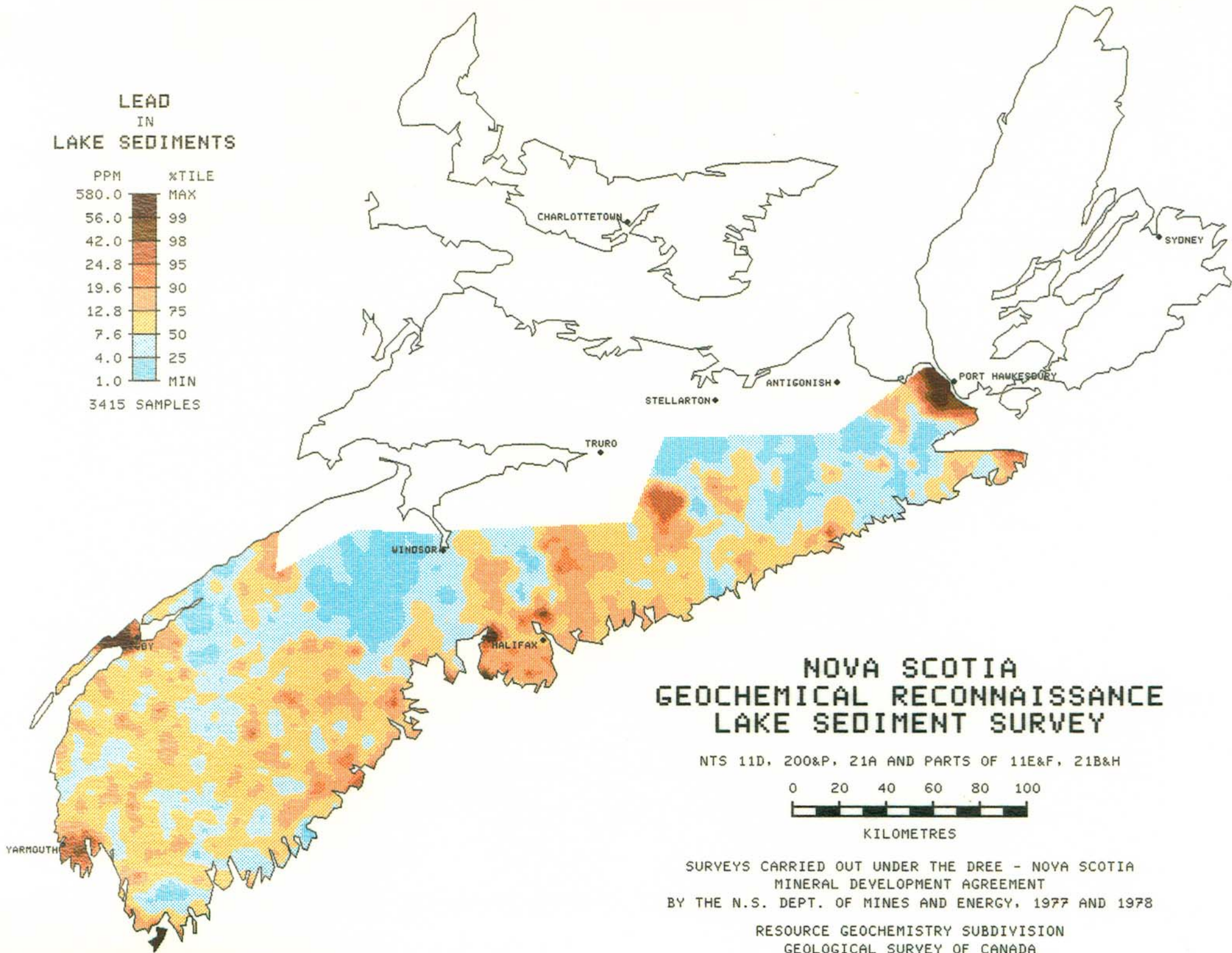
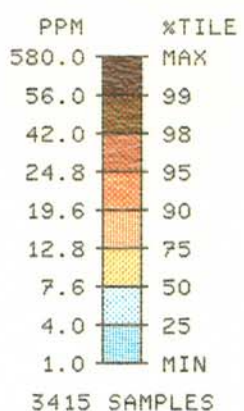


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RESOURCE GEOCHEMISTRY SUBDIVISION
GEOLOGICAL SURVEY OF CANADA

**LEAD
IN
LAKE SEDIMENTS**



**NOVA SCOTIA
GEOCHEMICAL RECONNAISSANCE
LAKE SEDIMENT SURVEY**

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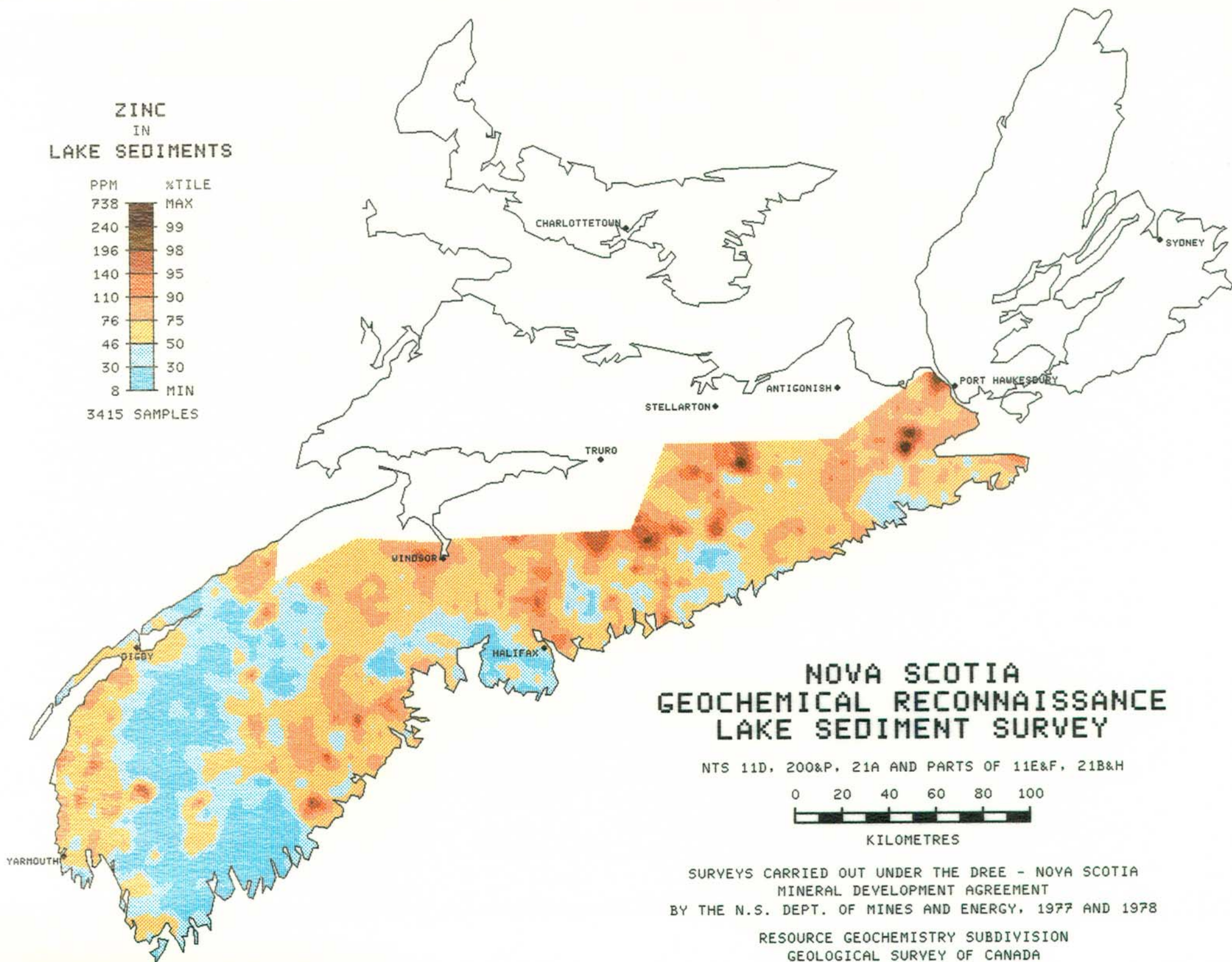
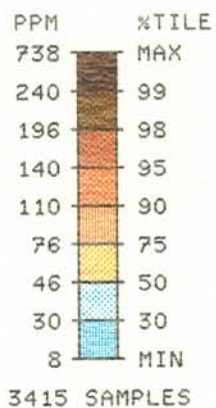


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ZINC
IN
LAKE SEDIMENTS



NOVA SCOTIA
GEOCHEMICAL RECONNAISSANCE
LAKE SEDIMENT SURVEY

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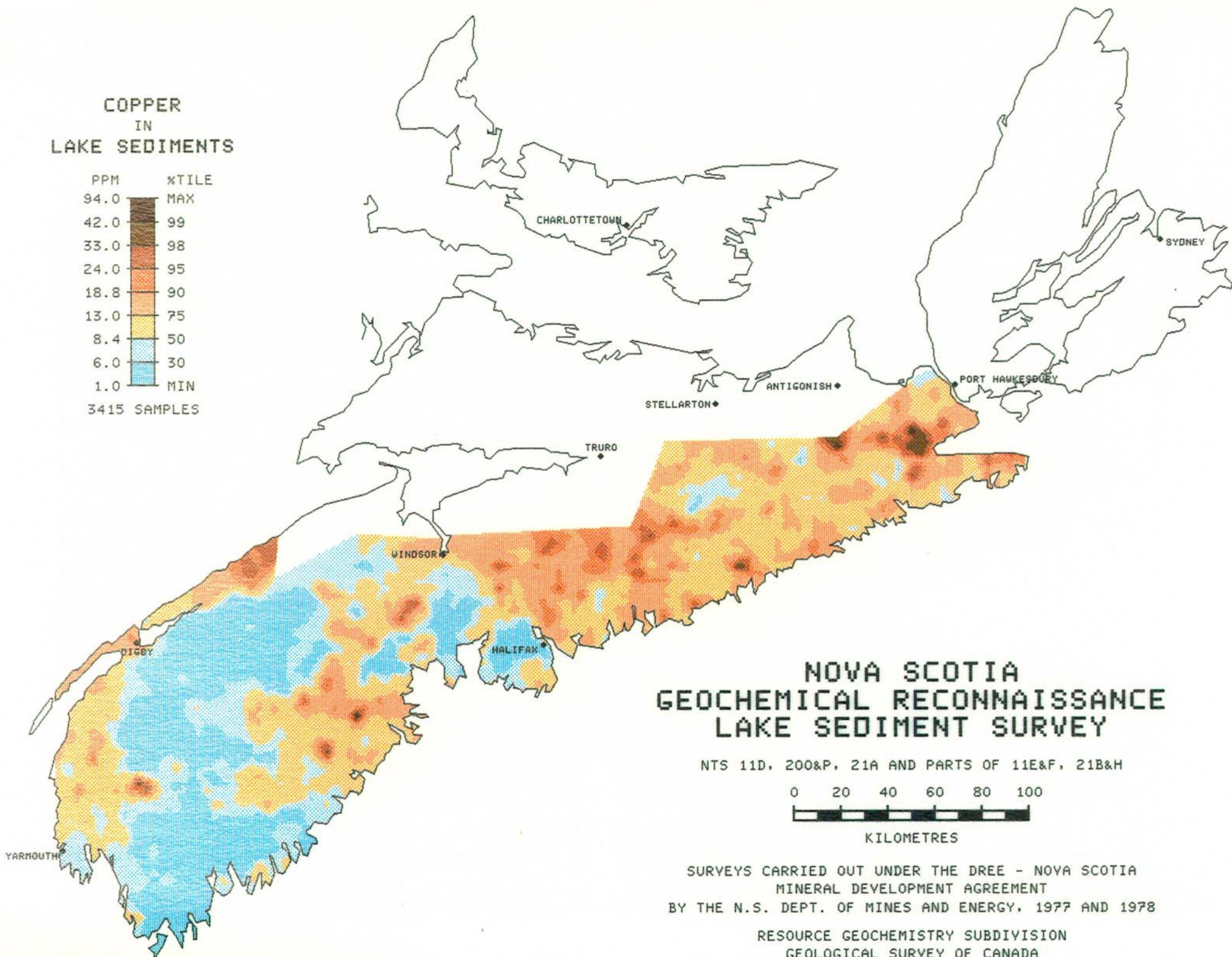
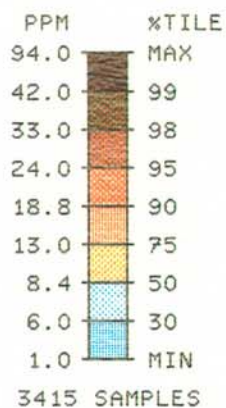


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**COPPER
IN
LAKE SEDIMENTS**



**NOVA SCOTIA
GEOCHEMICAL RECONNAISSANCE
LAKE SEDIMENT SURVEY**

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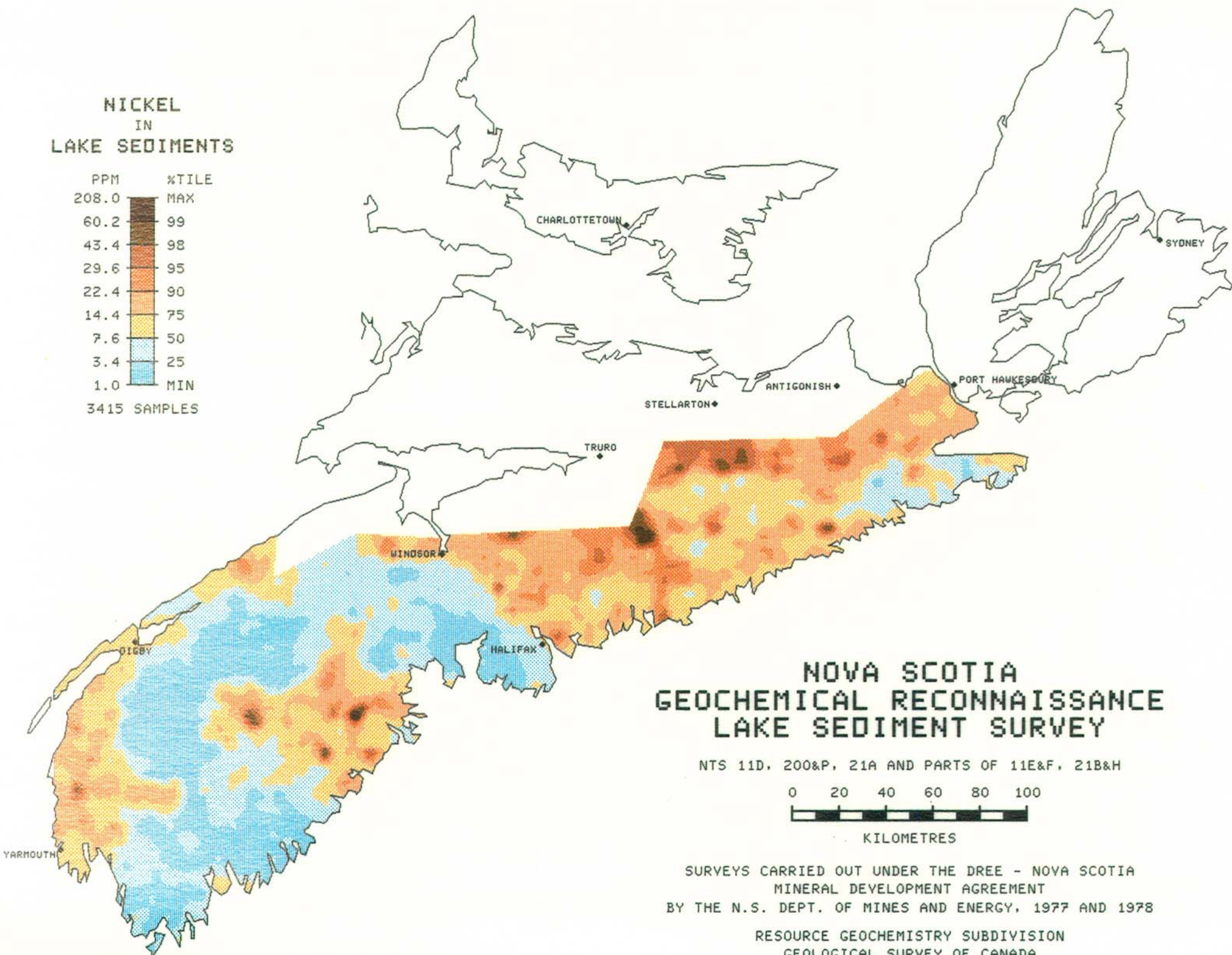
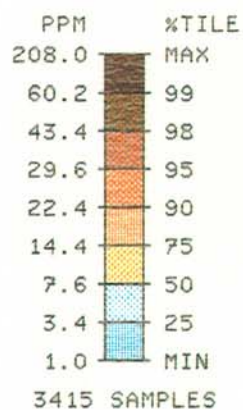


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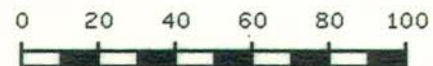
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**NICKEL
IN
LAKE SEDIMENTS**



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LAKE SEDIMENT SURVEY**

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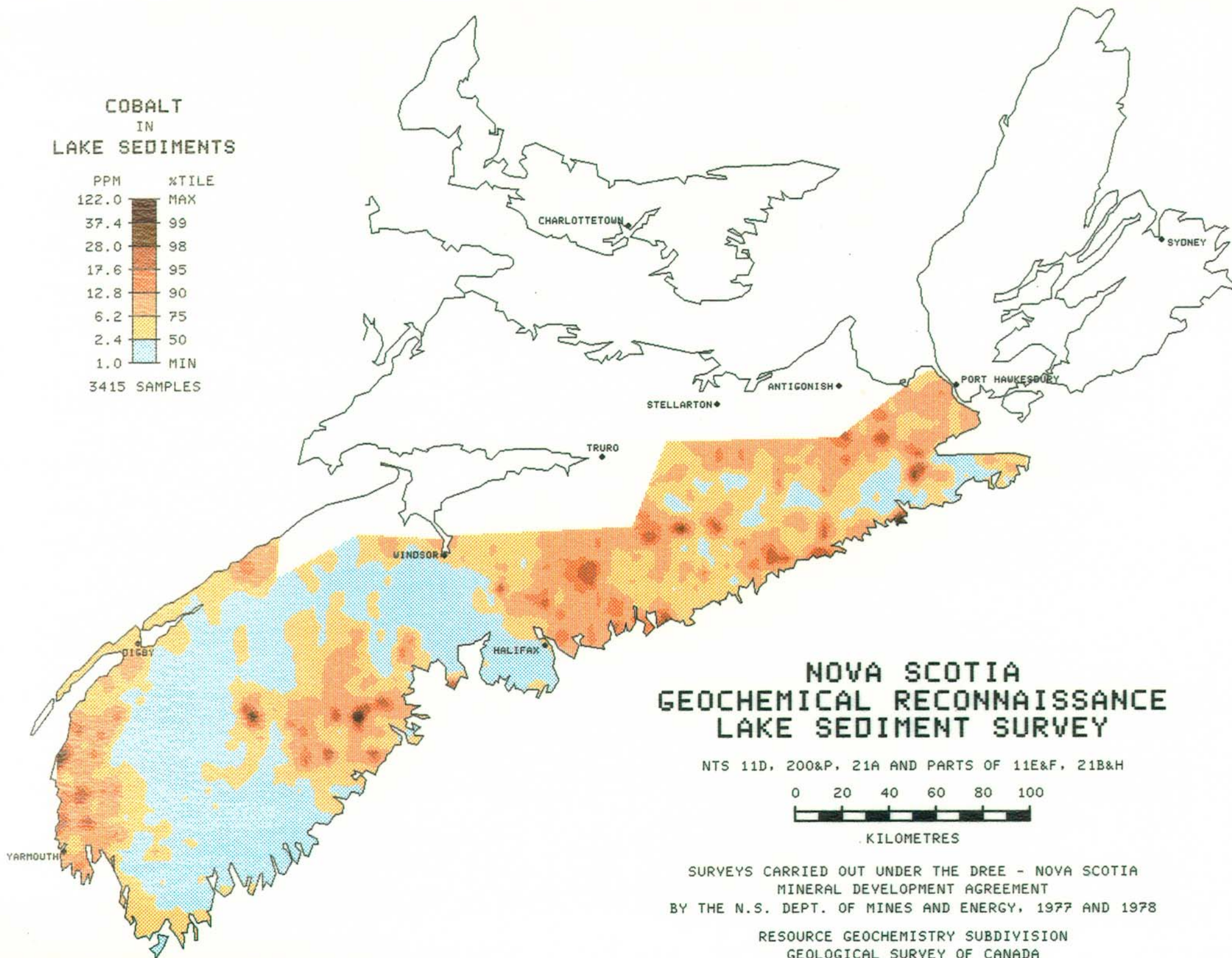
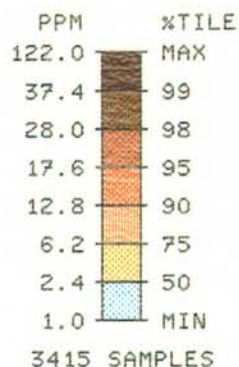


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**COBALT
IN
LAKE SEDIMENTS**



**NOVA SCOTIA
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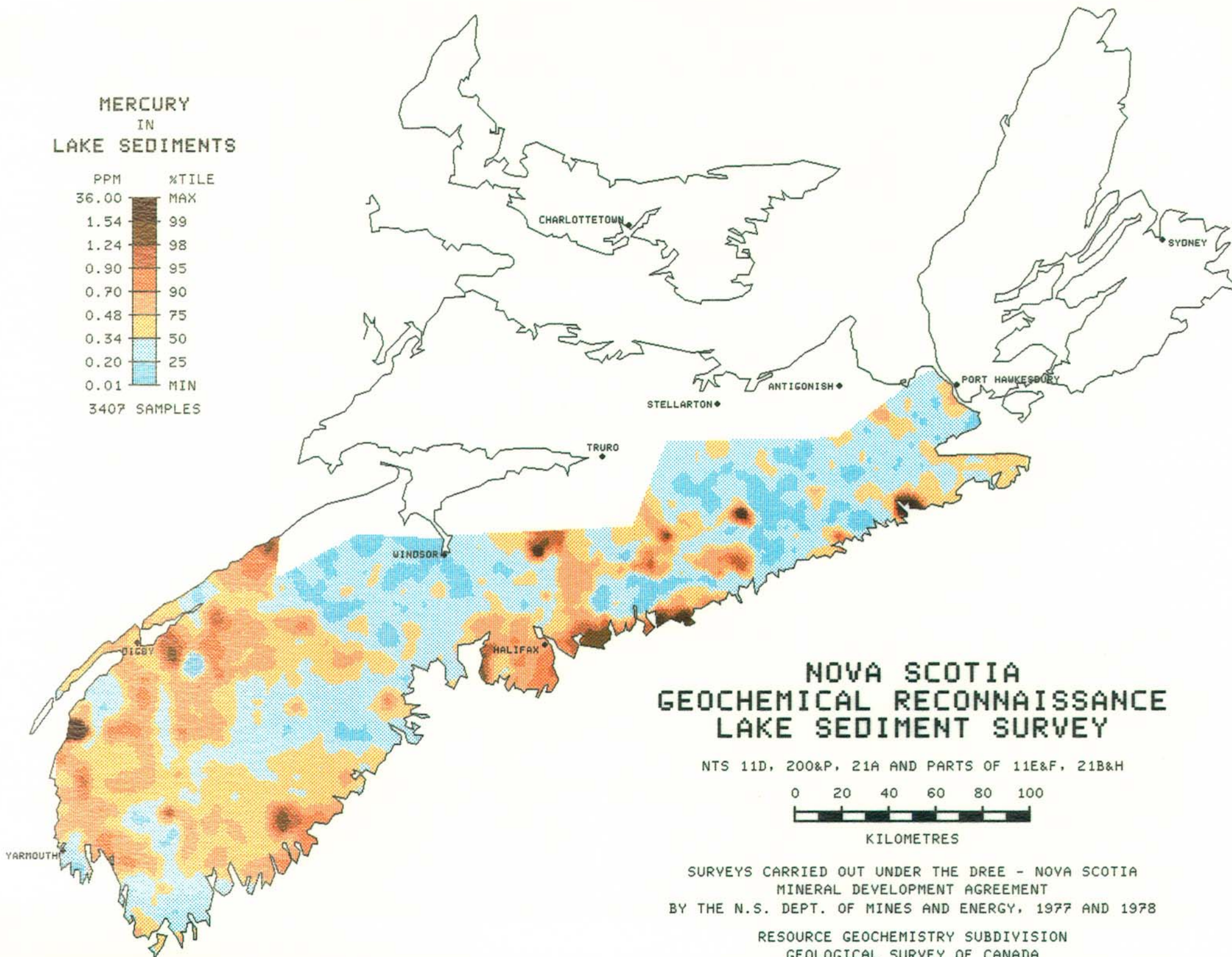
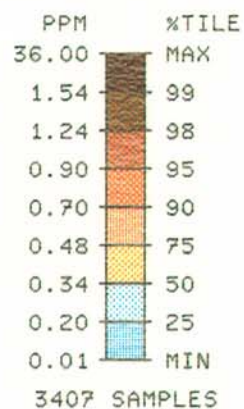


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MERCURY
IN
LAKE SEDIMENTS



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GEOCHEMICAL RECONNAISSANCE
LAKE SEDIMENT SURVEY

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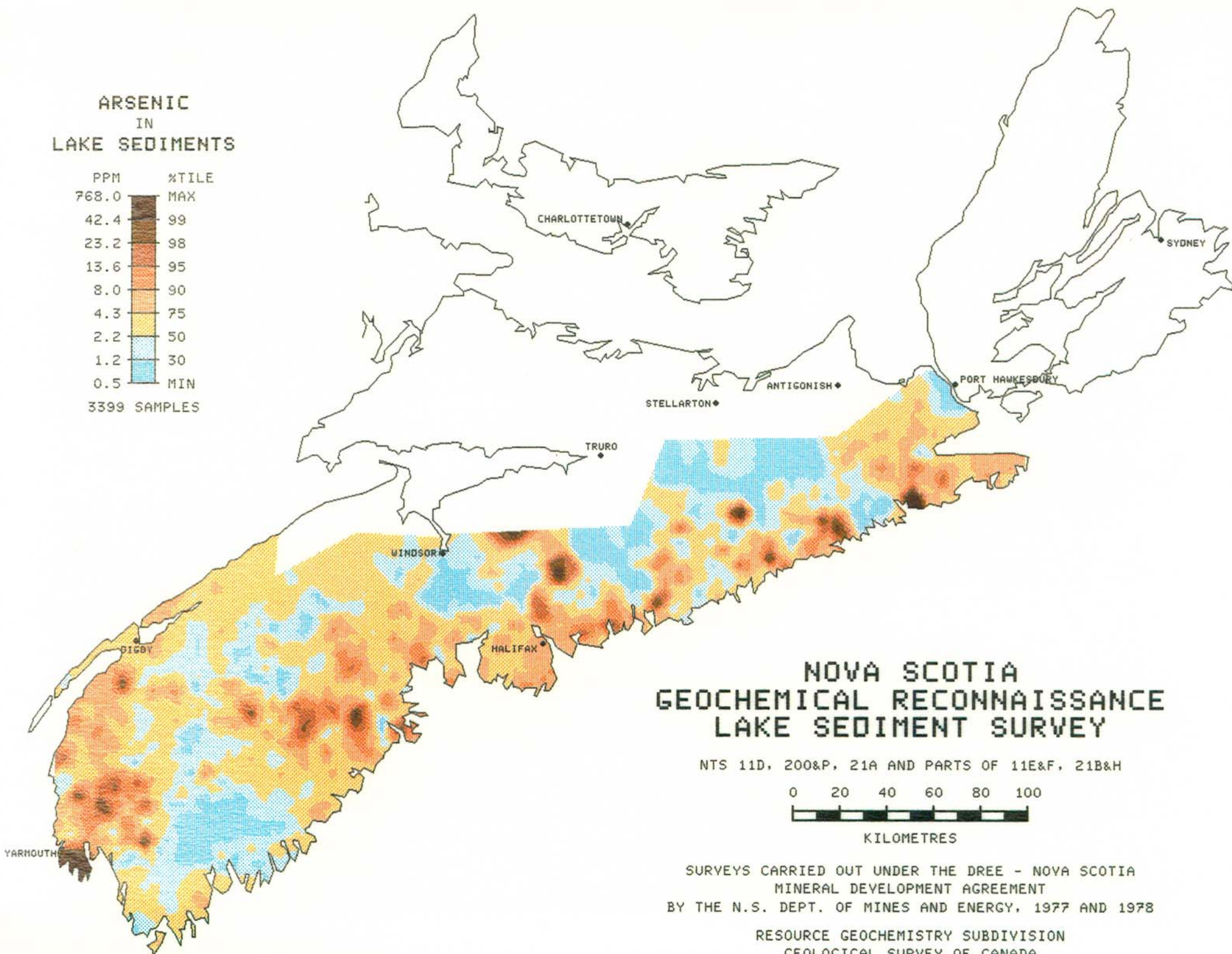
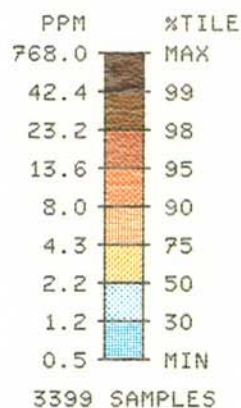


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ARSENIC
IN
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LAKE SEDIMENT SURVEY

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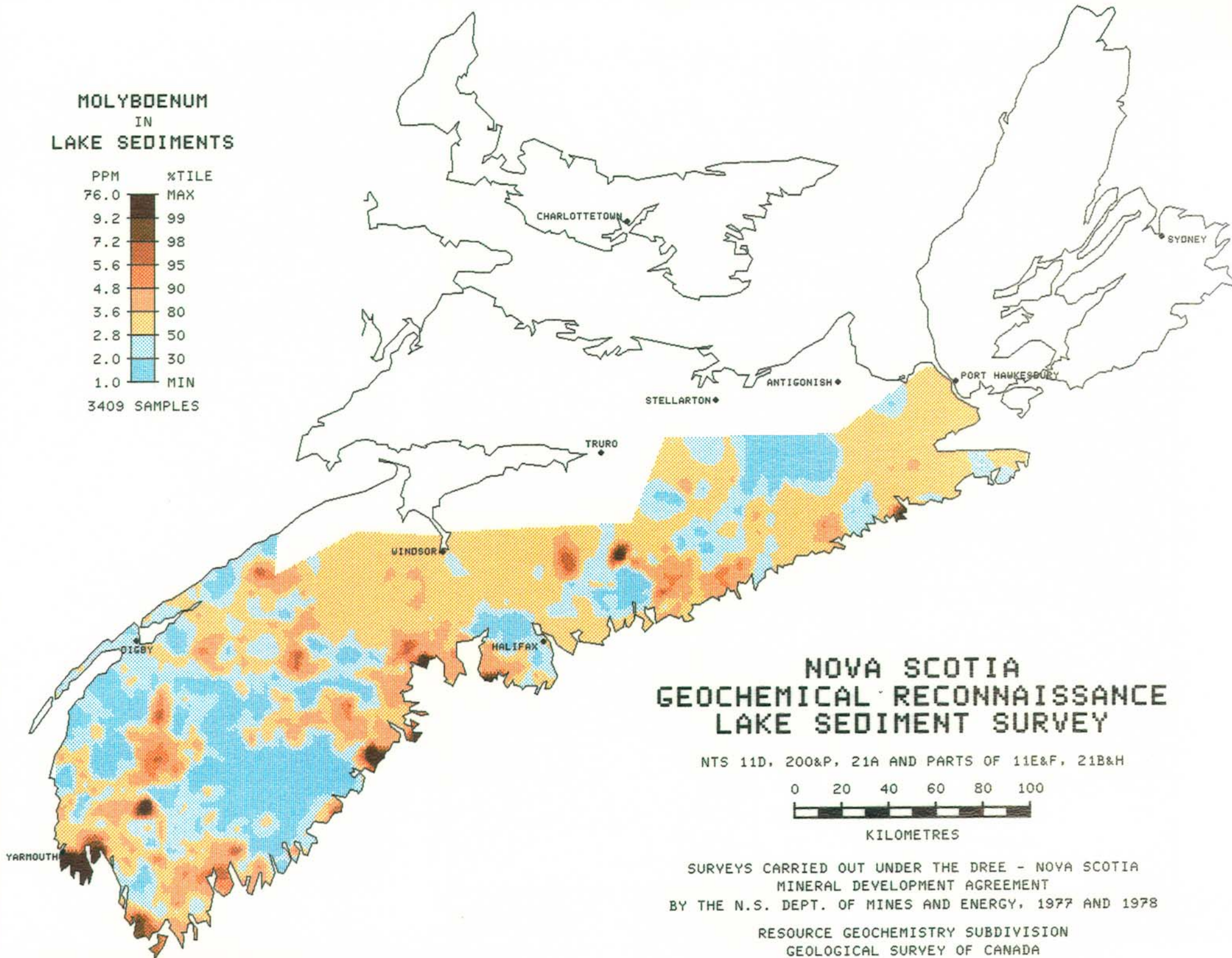
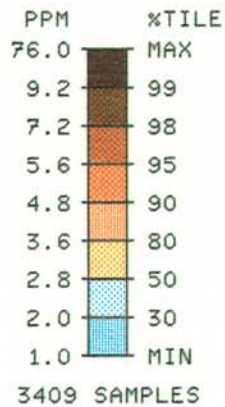


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GEOLOGICAL SURVEY OF CANADA

**MOLYBDENUM
IN
LAKE SEDIMENTS**



**NOVA SCOTIA
GEOCHEMICAL RECONNAISSANCE
LAKE SEDIMENT SURVEY**

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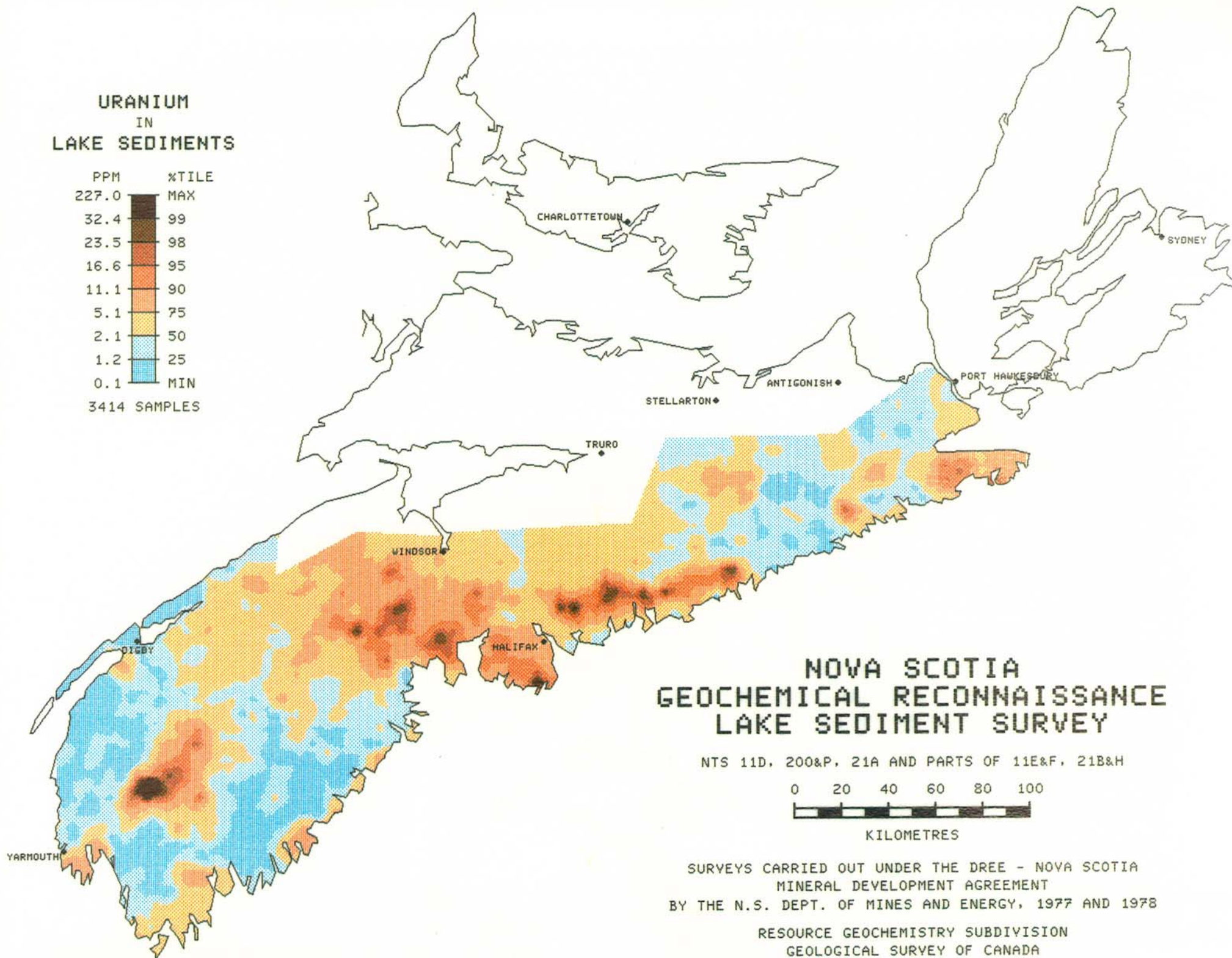
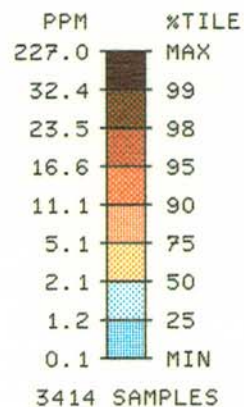


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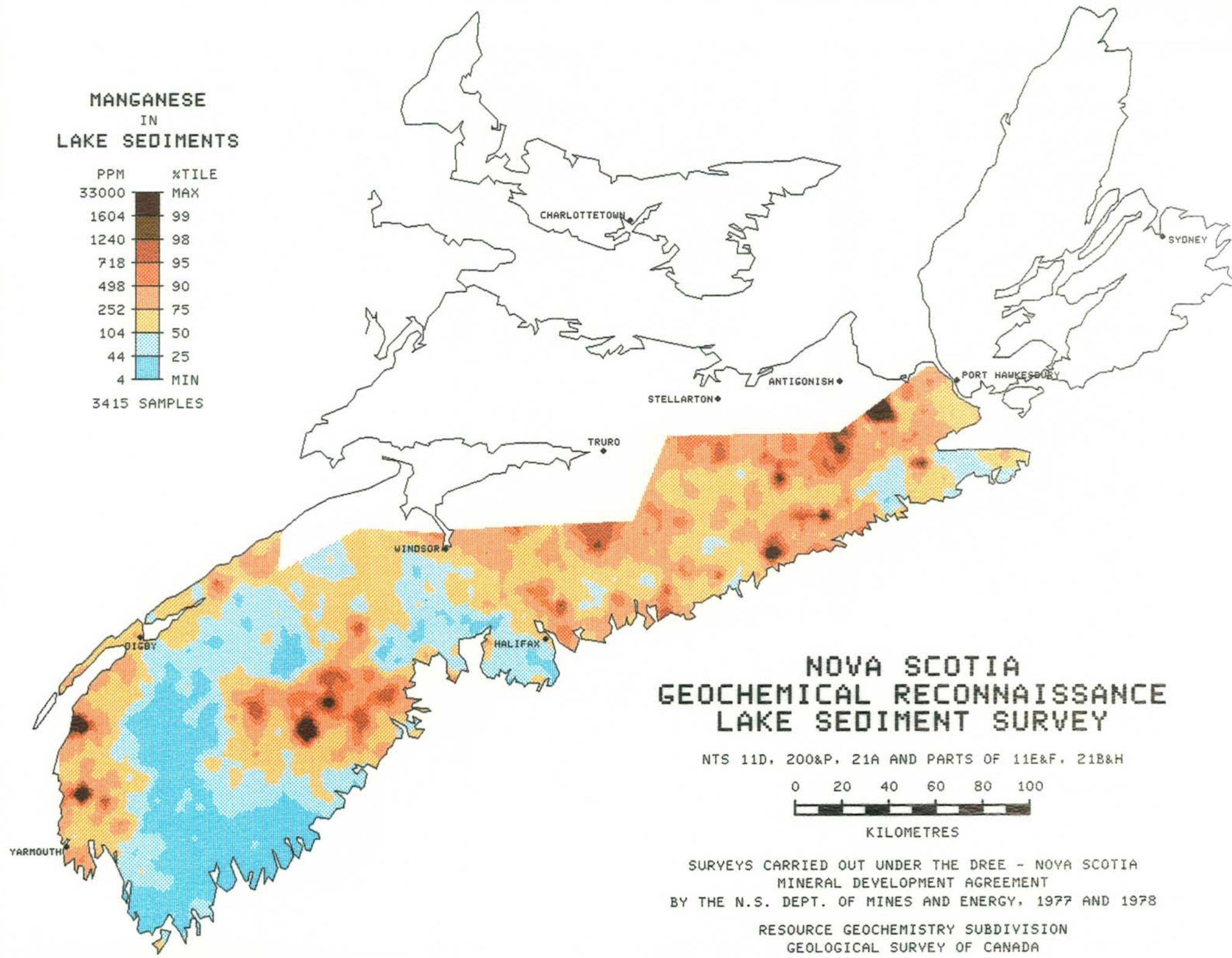
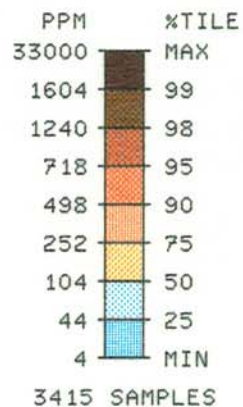
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GEOLOGICAL SURVEY OF CANADA

**URANIUM
IN
LAKE SEDIMENTS**



**MANGANESE
IN
LAKE SEDIMENTS**



**NOVA SCOTIA
GEOCHEMICAL RECONNAISSANCE
LAKE SEDIMENT SURVEY**

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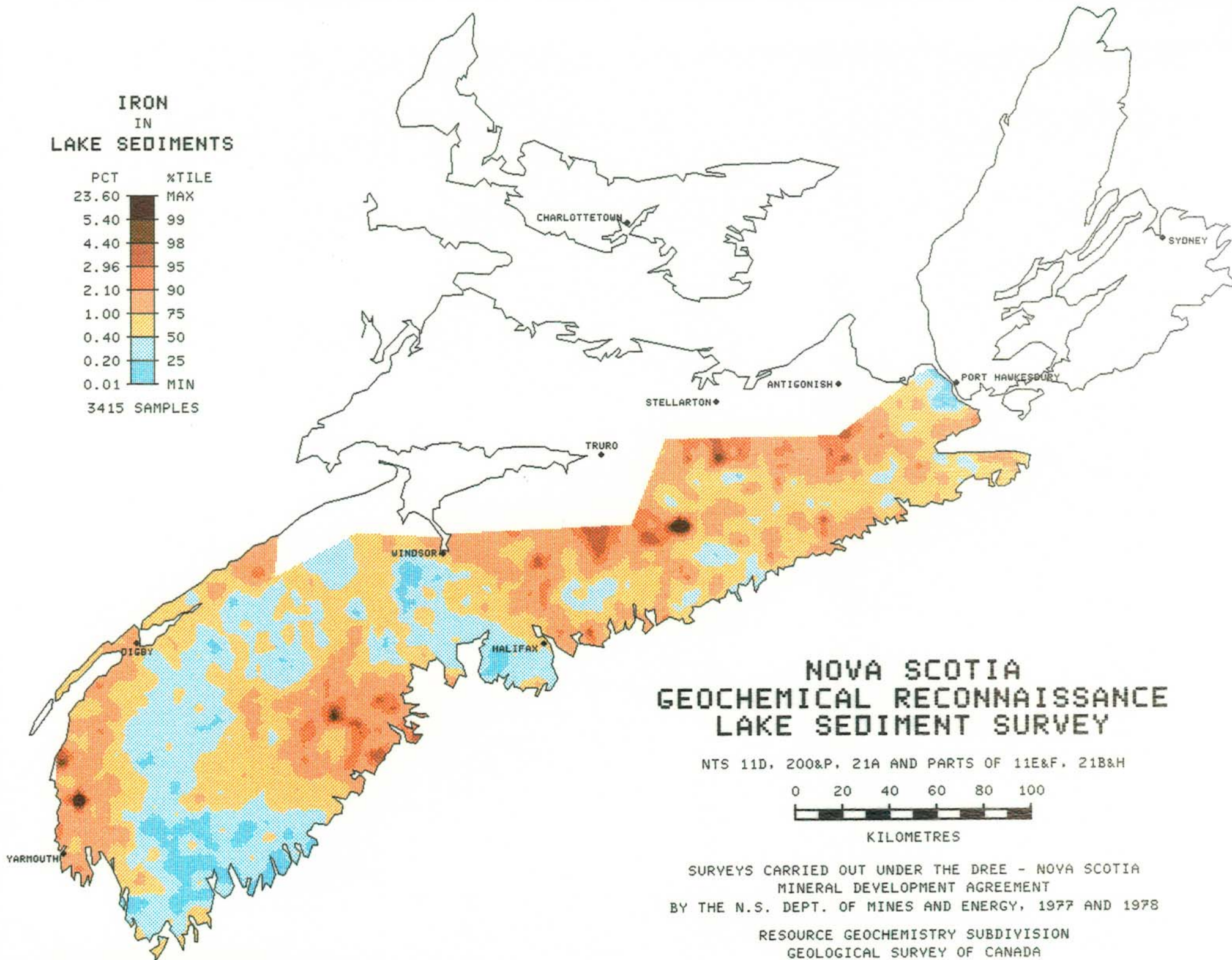
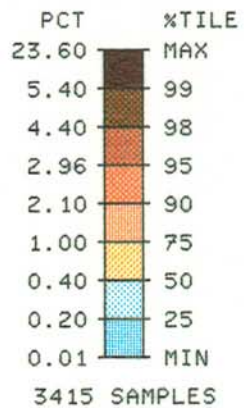


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GEOLOGICAL SURVEY OF CANADA

**IRON
IN
LAKE SEDIMENTS**



**NOVA SCOTIA
GEOCHEMICAL RECONNAISSANCE
LAKE SEDIMENT SURVEY**

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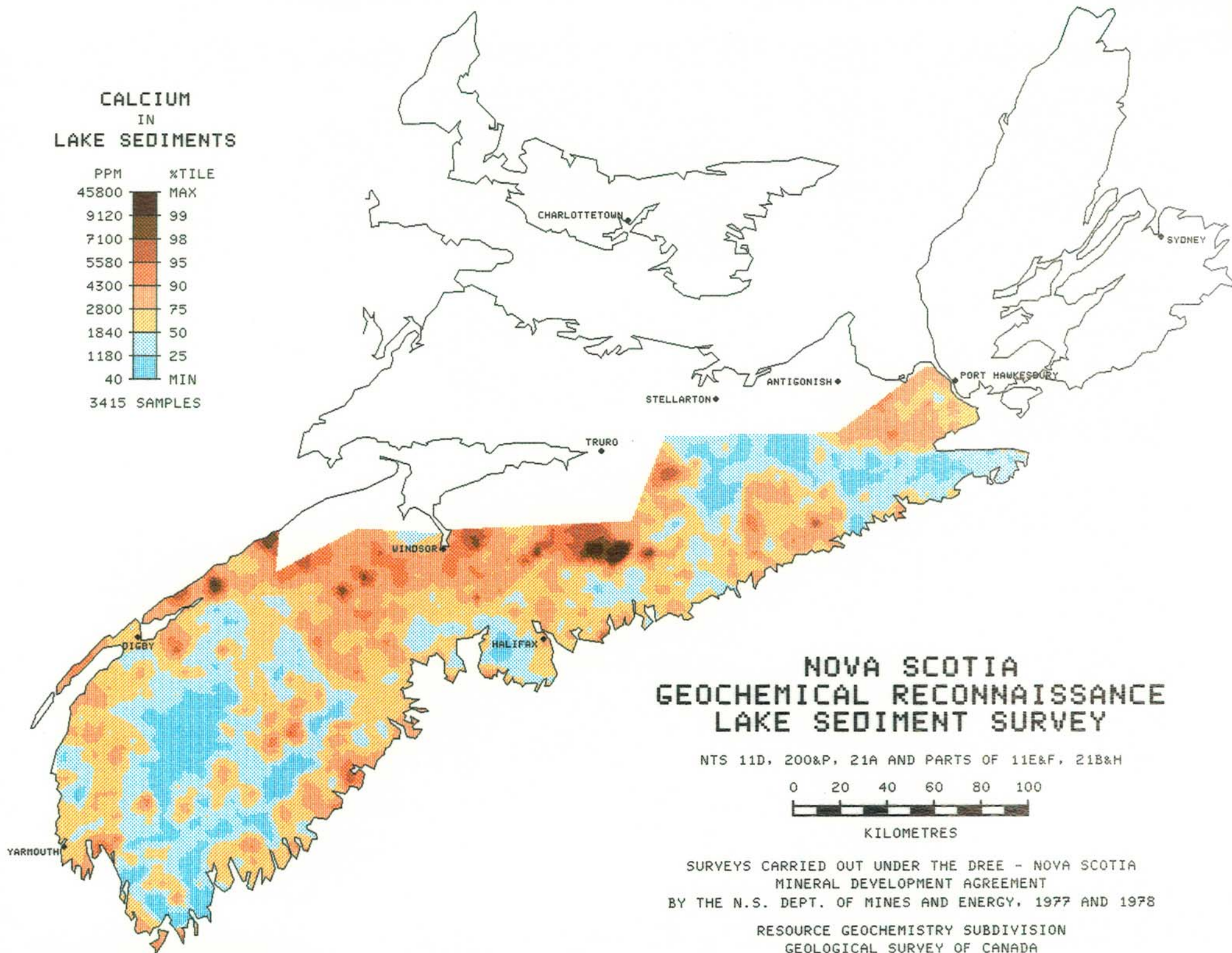
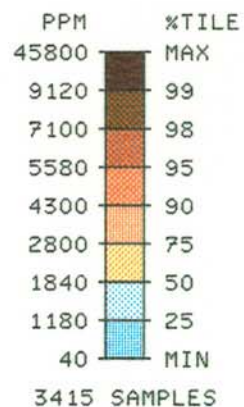


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GEOLOGICAL SURVEY OF CANADA

**CALCIUM
IN
LAKE SEDIMENTS**



**NOVA SCOTIA
GEOCHEMICAL RECONNAISSANCE
LAKE SEDIMENT SURVEY**

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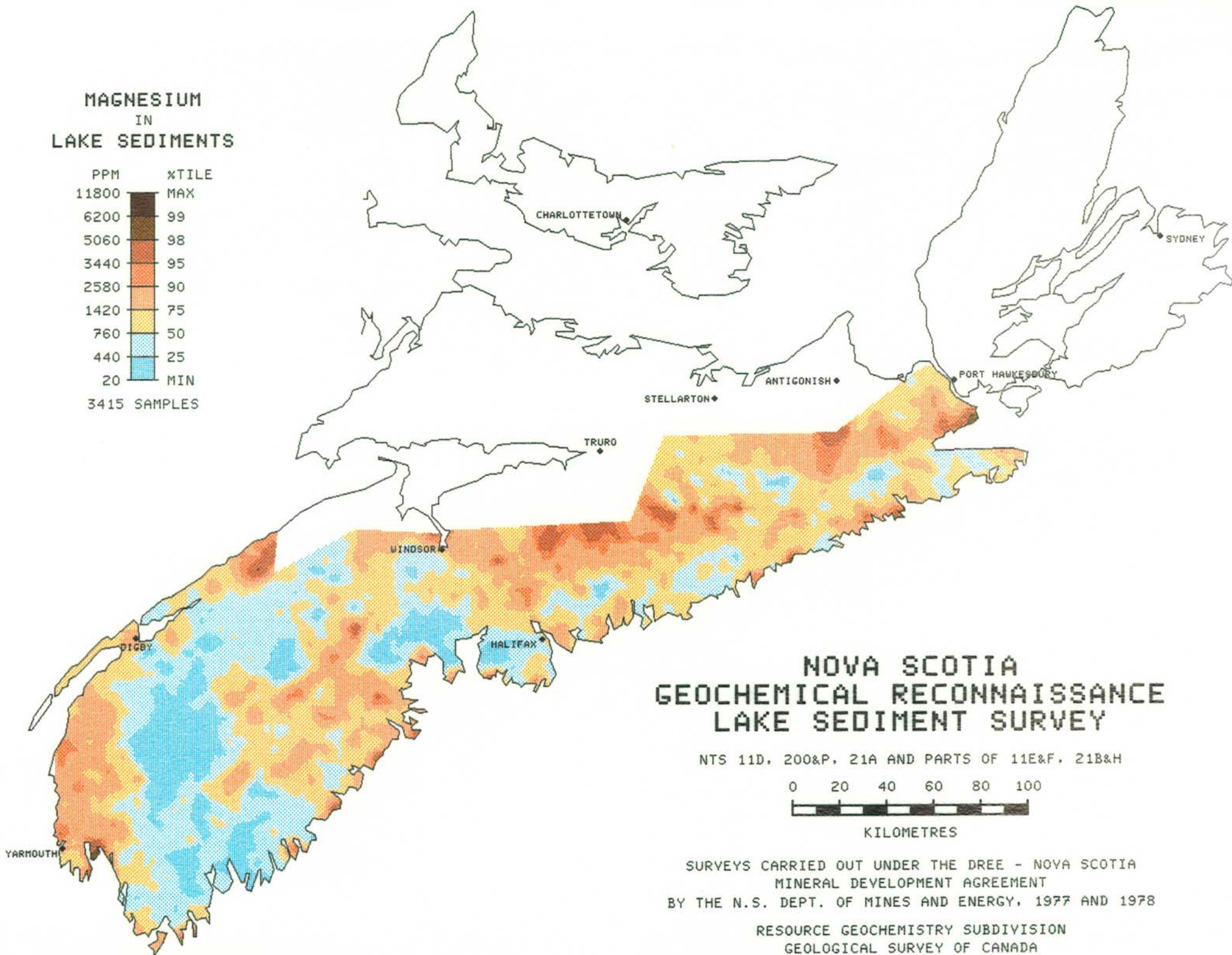
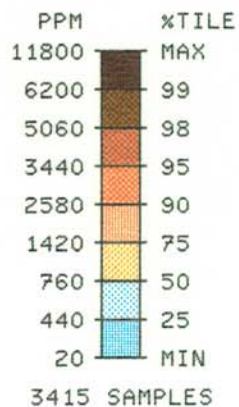


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RESOURCE GEOCHEMISTRY SUBDIVISION
GEOLOGICAL SURVEY OF CANADA

**MAGNESIUM
IN
LAKE SEDIMENTS**



**NOVA SCOTIA
GEOCHEMICAL RECONNAISSANCE
LAKE SEDIMENT SURVEY**

NTS 11D, 200&P, 21A AND PARTS OF 11E&F, 21B&H

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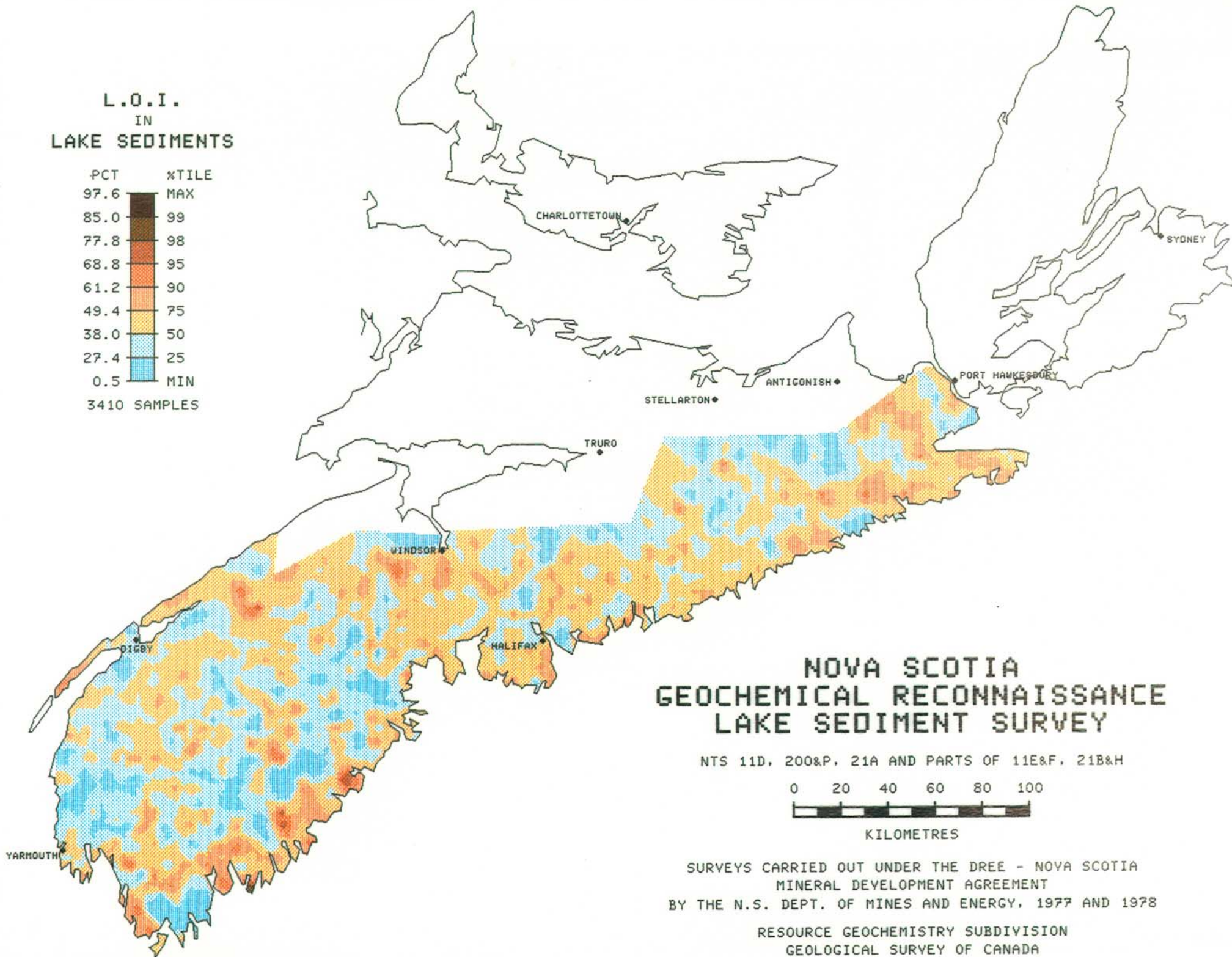
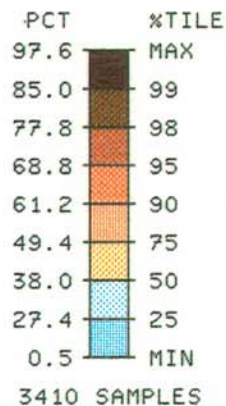


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RESOURCE GEOCHEMISTRY SUBDIVISION
GEOLOGICAL SURVEY OF CANADA

L.O.I.
IN
LAKE SEDIMENTS



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LAKE SEDIMENT SURVEY

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