QUATERNARY GEOLOGY OF WYNNIATT BAY, VICTORIA ISLAND, NORTHWEST TERRITORIES (78 B)

HOLOCENE NONGLACIAL ENVIRONMENTS

E — **EOLIAN DEPOSITS:** sand and silt; veneer of windblown sediments to the southeast of extensive active fluvial deposits; <1 m thick.

C — **COLLUVIAL DEPOSITS:** silty diamicton to rubbly diamicton; mass wasting material derived from rock and till; mapped only on Storkerson Peninsula; slope deposits included in Tv and R units elsewhere; 1 to 5 m thick;

FLUVIAL DEPOSITS: gravel and silty sand: 1 to 10 m thick.

Fp — **Floodplain and channel deposits:** gravel to silty sand; sediments being deposited at present; >1 m thick.

Ft — **Terrace deposits:** gravel to silty sand; inactive channel sediments; 1 to 10 m thick.

Fd — **Deltaic deposits:** gravel to silty sand; active and inactive (raised) sediments; 1 to 10 m thick.

F — **Fluvial deposits undivided:** gravel to silty sand; channel, terrace, fan and deltaic sediments; 1 to 10 m thick.

MARINE DEPOSITS: bouldery gravel to silt; shoreline, nearshore and offshore deposits, left by the regressing sea; maximum elevation 60-140 m.

Wb — **Raised beach deposits:** bouldery to silty sand over till, rubbly to silty gravel over rock; single ridges shown by symbol; a few cm to several m thick

W — **Emerged neritic deposits:** stony sandy silt; generally reworked from till; in valleys and basins, fine-grained sediment dominates; on open coasts, washed till or rubble may be exposed; marine fines on west shore of Hadley Bay overlie till much thinner than above marine limit above marine limit, probably due to thaw of residual glacial ice; few cm to 2 m thick.

EARLY HOLOCENE - LATE PLEISTOCENE PROGLACIAL ENVIRONMENTS

WG — **GLACIAL MARINE DEPOSITS:** silt or fine sand; massive to finely laminated deposits with scattered dropstones; commonly gullied; deposited adjacent to major glacial meltwater outlets; 1 to 20 m thick.

LG — **GLACIOLACUSTRINE DEPOSITS:** silt or fine sand; deposited in proglacial basins; 1 to 3(?) m thick.

FG — **OUTWASH DEPOSITS:** bouldery to gravelly sand; proglacial floodplains, fans and deltas; marine deltas (shown by a symbol) may include massive to stratified sand or silt beds up to 20 m thick; 1 to 20 m thick.

LATE PLEISTOCENE GLACIAL ENVIRONMENT

G — **ICE CONTACT GLACIOFLUVIAL DEPOSITS:** bouldery gravel to gravelly sand; in ridges, knolls or hummocky complexes deposited in subglacial or englacial environment; 2 to 10+ m thick.

TILL: calcareous loam; 10-50% of volume consists of boulder to granule size clasts of dolomite, minor sandstone, basalt, quartzite; till below the marine limit commonly reworked leaving local concentrations of boulders, gravel, sand or silt, and subdued or erased glacial landforms; thickness 1 to 10+ m.

T^W — **Winter Harbour Till**: stony silt to clay loam; incorporates transported shelly marine sediments; light-toned; largely featureless, except for flowslides on steeper slopes; deposited by the Viscount Melville Sound Ice Shelf as blanket over rock and older till; 1 to 2 m thick, except thicker at margin.

T^H — **'Hadley Bay readvance till'**: stony loam; locally incorporates glacial ice thrust sheets of shelly marine sediments; probably high ice content (glacial?), hence numerous flowslides; prominent frost-fissure troughs; >2 m thick.

T — **'Victoria Island till'**: stony loam, generally masks underlying bedrock except scattered outcrop; commonly shows lineations on airphotos, some fields of spindle drumlins; deposited by continental glacier, possibly at Late Wisconsinan maximum; 1 to 10+ m thick.

T# — **'Prince Albert Peninsula till'**: stony loam, numerous gravel kame deposits; prominent frost-fissure troughs; time of deposition unknown; 1 to 10+ m thick.

Tv — **Till veneer:** stony loam of any of above till units, too thin to mask underlying rock relief and structure; extensive areas of rock, pockets of thick till, rubbly slopes below rock outcrop are included in this unit; generally; <2 m thick over rock.

PRE-QUATERNARY AND QUATERNARY NONGLACIAL AND GLACIAL ENVIRONMENTS

R — **ROCK:** *1* Paleozoic dolomite, minor limestone chert and shale; subhorizontal; north and south of Shaler Mountains (i.e. on western Natkusiak Peninsula and northwest of Glenelg Bay on this sheet). 2 Proterozoic clastic and carbonate sediments, basalt flows, gabbro dykes and sills; underlying Shaler Mountains and west shore of Hadley Bay. Rock fractured to blocks or disaggregated to pitted rubble by glacial and subaerial processes, except, polished intact bedrock locally exposed where streamlined till cover has been recently removed. Rubble worked into discontinuous beaches locally below marine limit.

Geological boundary
Flowslide
Marine shorelines, raised
Beach, prominent
Marine limit (defined, assumed) drawn from 1:50 000 scale maps
Outwash delta and elevation (metres) ... 80
Iceberg scour
Abandoned meltwater channel (*1*.sidehill, *2* ice front, *3*,*4* major outwash channels)
Ice margin, well defined
Esker
Kame, gravel knoll
Minor transverse moraine or crevasse filling
Drumlinoid ridge, flute (length to scale)
Drumlin (length to scale)
Striation(s) measured in field
Ice-streamlined bedrock
Ground observation
Till analysis; numbered sites described in Nixon (1988); remainder unpublished (see inset maps) ... 665
Radiocarbon dated fossil (elevation box shows height of sample and related sea level in metres)..

Age	Material
Lab. no.	Elevation

Field observations by J.G. Fyles, 1959; D.A. Hodgson and J. Bednarski, 1982; D.A. Hodgson, 1983, 1986. Airphoto interpretation at 1:60 000 scale in 1992-93 by D.A. Hodgson. Compiled initially on 1:50 000 scale topographic photomaps (78B/1-16). Data from 1982 till sample sites published in Nixon (1988). Radiocarbon dates published in Hodgson and Vincent (1984) and Hodgson (in press b).

Note
At least four glacial ice flows are recorded on the map sheet: 1. Undated flow, inland, west of Wynniatt Bay (T#); 2. northwest flow over Shaler Mountains to Glenelg Bay (T); 3a. Readvance over west shore of Hadley Bay (T^H);3b. Readvance (concurrent with 3a) onshore from Viscount Melville Sound (T^W). Outwash deltas record sea levels (relative to present) of 180 m during retreat of flow 1; 140-100 m for flow 2 (meltwater continued to enter the map area after the ice front had retreated to the south); 90 m for flow 3a; 120-60 m for flow 3b (higher level probably into proglacial lakes).

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Hodgson, D.A.
in press b: Episodic ice streams and ice shelves during retreat of the northwesternmost sector of the late Wisconsinan Laurentide Ice Sheet over the central Canadian Arctic Archipelago; Boreas.

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1984: A 10,000 yr B.P. extensive ice shelf over Viscount Melville Sound, Arctic Canada; Quaternary Research, v. 22, p. 18-30.

Nixon, M.F.
1988: Till sampling program and presentation of physical and geochemical data from western Victoria Island, Northwest Territories; Geological Survey of Canada, Paper 88-15, 36 p.

Okulitch, A.V.
1991: Geology of the Canadian Archipelago and North Greenland; Figure 2 *in* Geology of the Innuitian Orogen and Arctic Platform of Canada and Greenland, H.P. Trettin (ed.); Geological Survey of Canada, Geology of Canada, no. 3 (also Geological Society of America, The geology of North America, v. E), scale 1:2 000 000.

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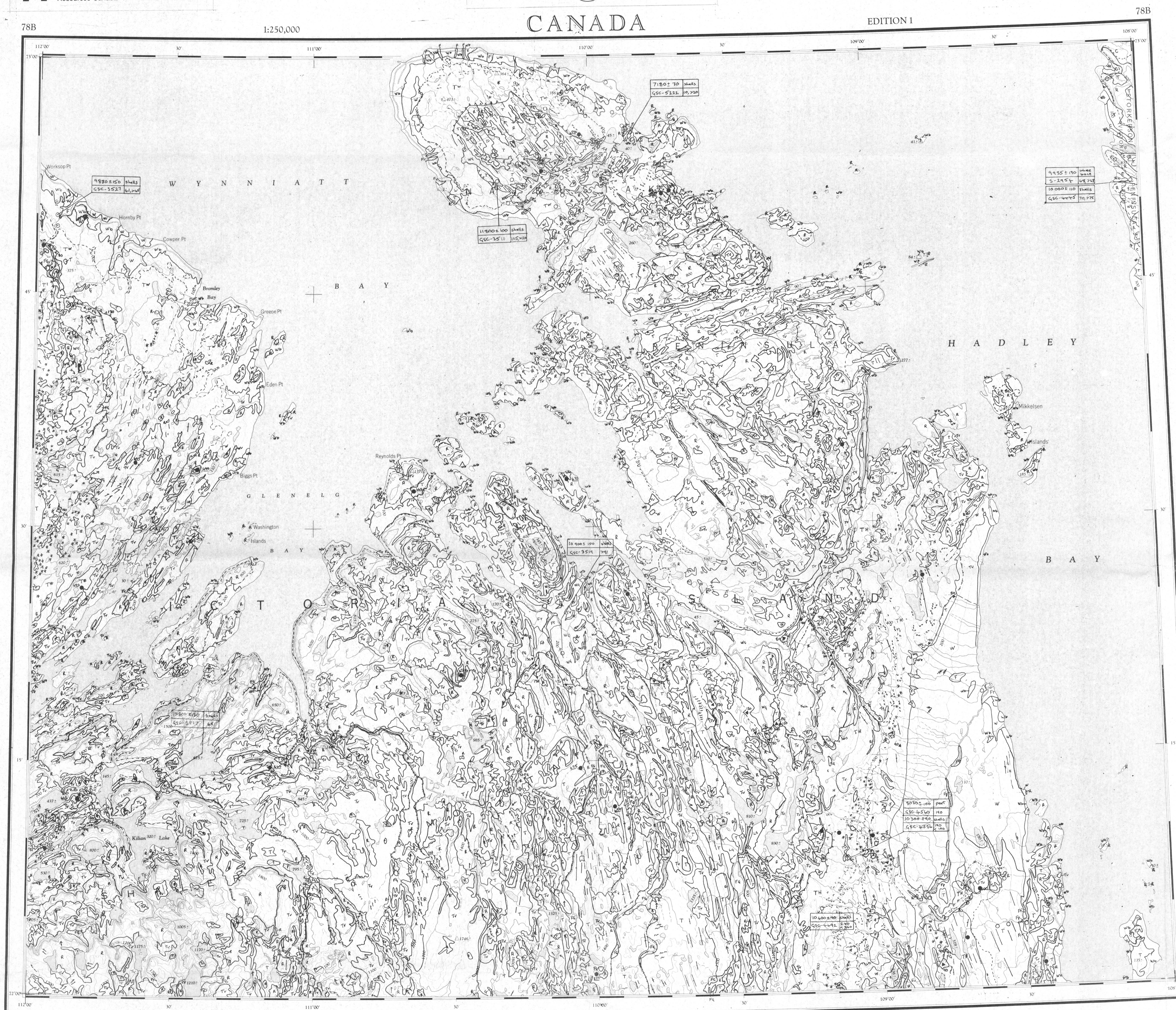
78B 1:250,000 CANADA EDITION 1 78B



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WYNNIATT BAY

DISTRICT OF FRANKLIN

NORTHWEST TERRITORIES

Scale 1:250,000 Échelle

Transverse Mercator Projection
North American Datum 1927
Contour Interval 100 feet
Elevations in feet above Mean Sea Level

Projection transverse de Mercator
Réseau géodésique nord-américain unifié 1927
Équidistance des courbes 100 pieds
Élévations en pieds au-dessus du niveau moyen de la mer

Spot elevation; precise, approximate ... Point coté; précis, approximatif ... 950 950±

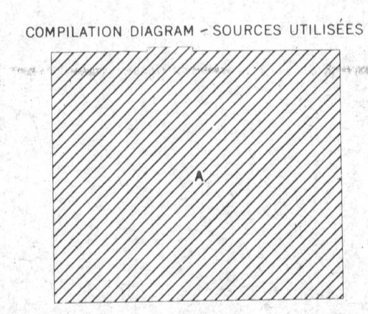
Raised Beaches ... Plages élevées

Intermittent stream.. Cours d'eau intermittent..

Rapids; falls ... Rapides; chute

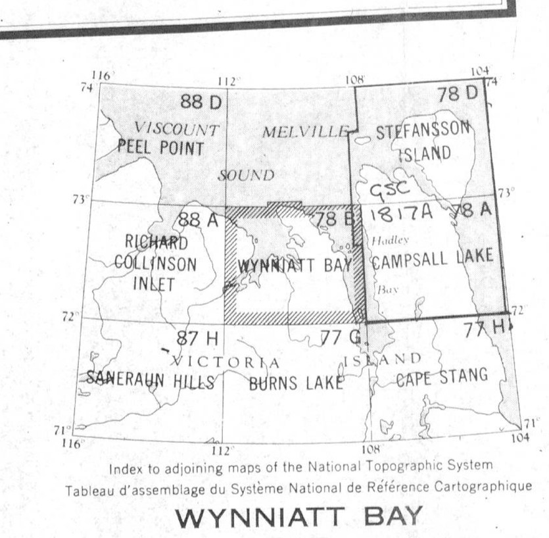
Horizontal control point .... Point géodésique ....

COMPILATION DIAGRAM • SOURCES UTILISÉES



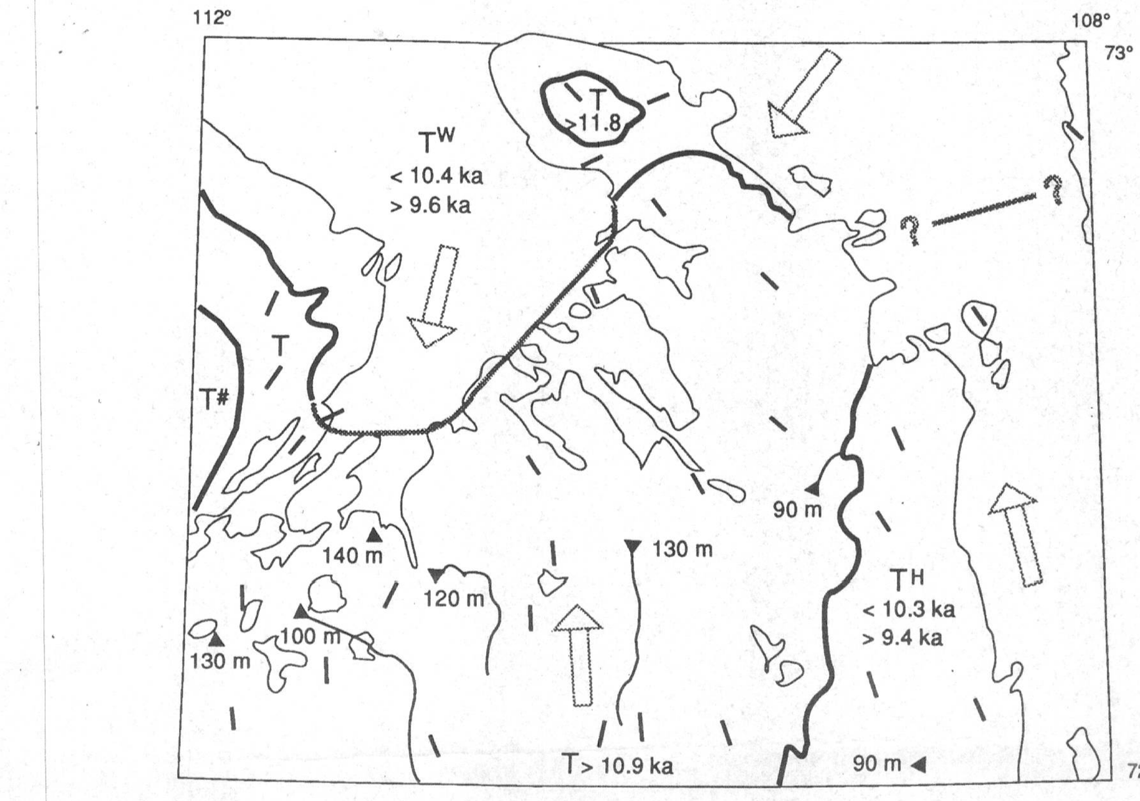
A– Compiled photogrammetrically from 1958 aerial photography.

A– Établie par procédés photogrammétriques à partir de photographies aériennes, de 1958.

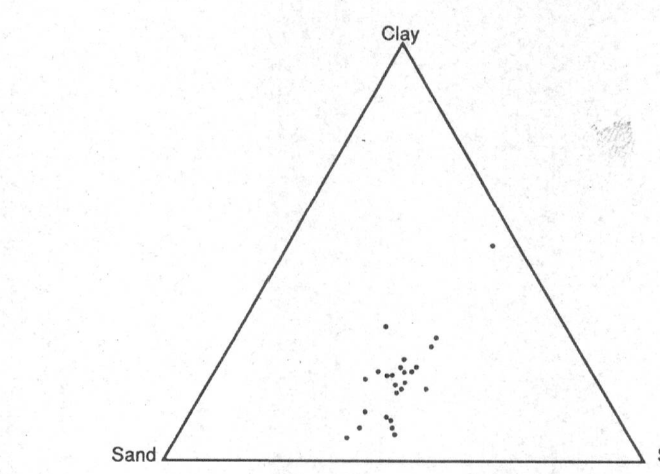


Index to adjoining maps of the National Topographic System
Tableau d'assemblage du Système National de Référence Cartographique

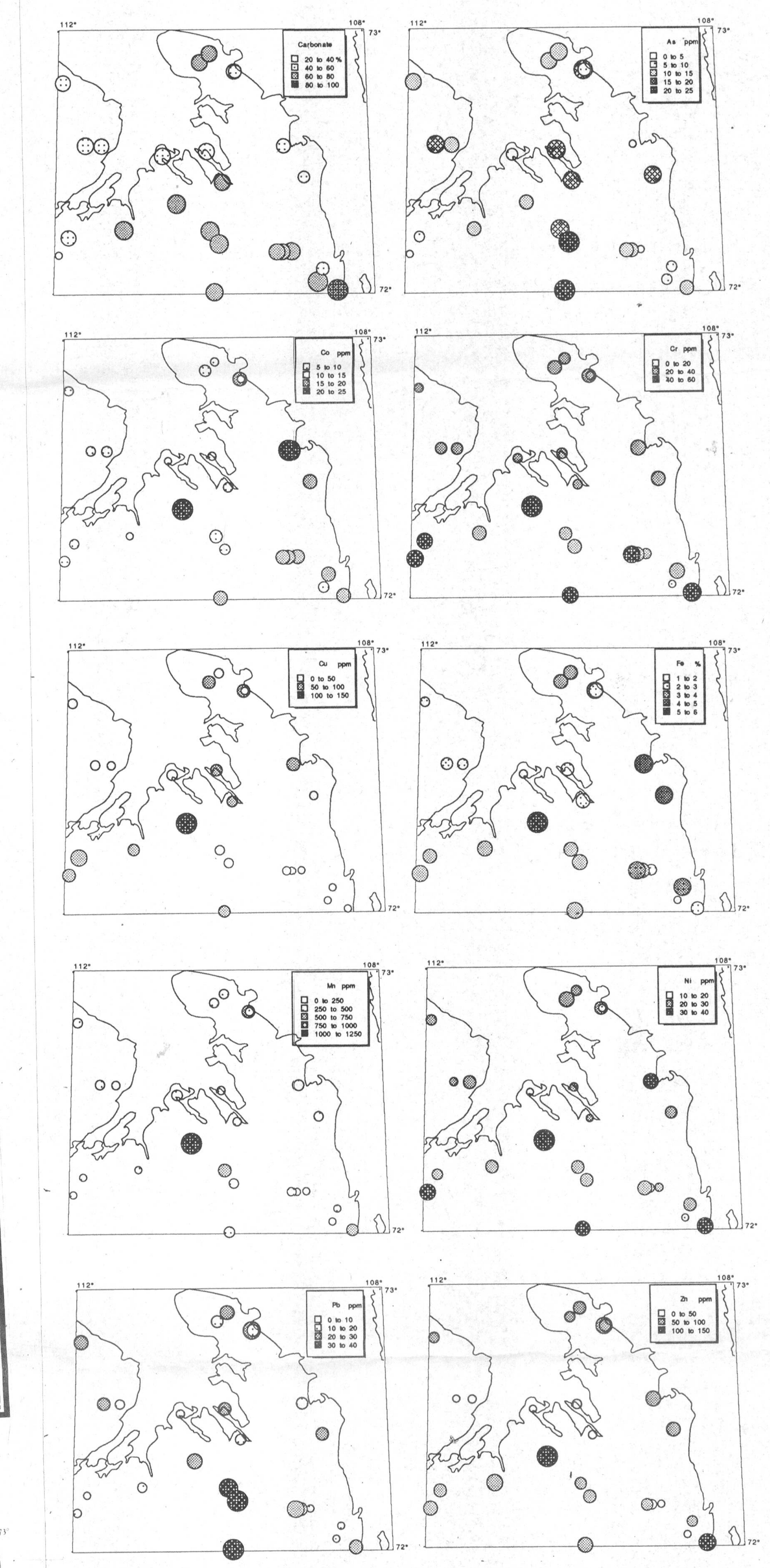
WYNNIATT BAY
78 B
EDITION 1



Till sheet ages, ice flow directions, outwash deltas



Till composition (TW, TH, T, T#, Tv)



Till geochemistry

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