

LEGEND

MIDDLE PROTEROZOIC

- Diabase and gabbro: near-vertical north-south and east-west trending dykes, and nearly flat lying sheets

HORNBY BAY GROUP

- H2: Coarse grained quartz sandstone and volcanic-tuffaceous sandstone, gneiss and conglomerate, trough and planar cross bedding, white to light pink
- H1: Medium- to fine-grained quartz sandstone and volcanic-tuffaceous sandstone, ripple marked and crossbedded, minor mudstone, siltstone and conglomerate, rusty red

EARLY PROTEROZOIC

GREAT BEAR BATHOLITH (G3m-G3)

- G3m: Coarse grained biotite-hornblende (chlorite-epidote) syenogranite (K), monzonite (M) and granodiorite (G3), Doweil pluton, G3g, G3k, G3p, G3q, G3r, G3s, G3t, G3u, G3v, G3w, G3x, G3y, G3z, G3aa, G3ab, G3ac, G3ad, G3ae, G3af, G3ag, G3ah, G3ai, G3aj, G3ak, G3al, G3am, G3an, G3ao, G3ap, G3aq, G3ar, G3as, G3at, G3au, G3av, G3aw, G3ax, G3ay, G3az, G3aa, G3ab, G3ac, G3ad, G3ae, G3af, G3ag, G3ah, G3ai, G3aj, G3ak, G3al, G3am, G3an, G3ao, G3ap, G3aq, G3ar, G3as, G3at, G3au, G3av, G3aw, G3ax, G3ay, G3az
- G3: Medium grained hornblende-biotite (rarely chlorite) granodiorite (G) and monzonite (M), Fome pluton, G2h, G2i, G2j, G2k, G2l, G2m, G2n, G2o, G2p, G2q, G2r, G2s, G2t, G2u, G2v, G2w, G2x, G2y, G2z, G2aa, G2ab, G2ac, G2ad, G2ae, G2af, G2ag, G2ah, G2ai, G2aj, G2ak, G2al, G2am, G2an, G2ao, G2ap, G2aq, G2ar, G2as, G2at, G2au, G2av, G2aw, G2ax, G2ay, G2az
- G2: Fine- to medium-grained leucocratic monzonite or quartz monzonite near Cameron Bay, age uncertain
- G1: Fine grained altered diorite at Sparkplug Lake, age uncertain

MYSTERY ISLAND INTRUSIVE SUITE: medium grained diorite, quartz monzonite, quartz gneiss and granoblastic metamorphosed shales, wide alteration haloes, comprising an inner bleached and albicized zone, a central zone of actinolite-bearing magnetite, biotite, quartz, and replacement, and an outer zone of chlorite and pyrite goossan, important polymetallic ore veins occur within the alteration haloes; at least one intrusion of this suite is demonstrably contemporaneous with the Labine Group volcanism

MCTAVISH VOLCANIC FIELD (Lp-Lm)

- Lm: MULLIGAN PORPHYRY: intrusive plagioclase-quartz porphyry, forms sills near the Labine Group - Sloan contact
- Lp: DOMEX FORMATION: diorite and rhyolite ash flow tuff sheets, mostly crystalline, massive to extrusive, gneissophytic (potassium) felsic zone near the base

LABINE GROUP (Lp-Lr)

- Lp: Intrusive rhyolite porphyry: biotite-quartz porphyry south of Elizabeth Lake, on Achook Island and Rocher Rouge Island; plagioclase-potassium felsic-quartz porphyry on Cornwall Island
- Lq: Intrusive diorite porphyry: hornblende-plagioclase porphyry on Doghead Peninsula and south of Achook Island
- Lr: FENAK FORMATION: water-laid crystal tuff and devitrified shales; thin ash flow tuff sheets, minor epiclastic sediments, mostly fine grained; includes the following members:
 - Lr1: Diorite flow on Achook Island and Cornwall Island; plagioclase porphyritic; flow-banded basal zone, highly altered
 - Lr2: CORNWALL TUFF: ash flow tuff sheet containing 5-15 per cent crystals of plagioclase, quartz, hornblende and potassium feldspar; reworked to moderately welded, porphyritic intracrystalline facies on Achook Island, Cornwall Island and Stevens Island; outflow facies interbedded with water-laid granitic and andesitic rocks on Doghead Peninsula; conspicuous 4 m thick stratovolcanic tuff (Sd) on Doghead Peninsula and Achook Island
 - Lr3: CAMERON BAY FORMATION: planar and crossbedded, volcanic-tuffaceous and igneous sandstone and siltstone, ripple-laminated siltstone and mudstone with mud cracks; hematitic polymictic conglomerate of mainly volcanic-sedimentary provenance, locally with 80 per cent orthopyroxene clasts; thin beds and areolar remnants of devitrified sandstone; local tuffs and extrusive breccias near volcanic flow-domes; ash-flow tuff units not designated as normal members (Lr); calcion-collapse breccia interbedded with ash flow tuff members; includes the following members:
 - Lr3a: Rhyolite flow on Achook Island; steeply dipping talus; highly altered
 - Lr3b: ROCHER ROUGE TUFF: ash flow tuff sheet of plagioclase and hornblende; very densely welded, abundant fibric fragments near the base
 - Lr3c: ACHOOK ANDESITE: flows and explosion breccias of amphibole, andesite to porphyritic andesite, dominant phenocrysts are plagioclase and hornblende interbedded with several ash flow tuff members; most amphibole and less porphyritic than andesite in the Echo Bay Formation
 - Lr3d: WESTERN CHANNEL TUFF: ash flow tuff sheet containing less than 5 per cent crystals of plagioclase, potassium feldspar, biotite and quartz; moderately to densely welded; red to flesh-coloured
 - Lr3e: DOGHEAD TUFF: ash flow tuff sheet containing up to 35 per cent crystals of plagioclase, hornblende and biotite; densely welded; strongly fibrous phenocryst fragments up to 50 cm in diameter near the base on Doghead Peninsula, and both basal and upper pumice-rich zones on Achook Island; black-red to green, extrusive intracrystalline facies
 - Lr3f: Rhyolite flow on Stevens Island; flow banded; small, sparse phenocrysts of quartz
 - Lr3g: STEVENS TUFF: ash flow tuff sheet characterized by abundant, coarse, partly resorbed phenocrysts of quartz; basal approximately 30 per cent of distinctive quartz porphyritic fibric fragments locally constitute 30 per cent of the tuff on Cornwall Island; Achook Island and Doghead Peninsula; moderately to densely welded
 - Lr3h: Rhyolite flow in Lindley Bay; pink aphanitic flow containing sparse minute phenocrysts of quartz
 - Lr3i: MACKENZIE TUFF: composite ash flow tuff sheet containing less than 10 per cent crystals of plagioclase, quartz and potassium feldspar; red to grey; abundant accretionary lapilli near the top on Mackenzie Island; much interbedded sandstone on Vance Peninsula
 - Lr3j: LINDSLEY TUFF: ash flow tuff sheet containing up to 25 per cent crystals, zoned from mostly quartz near the base to mostly plagioclase near the top; red, moderately to densely welded; probably intracrystalline facies on Achook Island, Stevens Island and Mackenzie Island
 - Lr3k: Rhyolite flow on Mackenzie Island; aphanitic; flow banded and flow folded; abundant silica-lined cavities
 - Lr3l: Unnamed tuff
- Ls: ECHO BAY FORMATION: (Lem-Lef)
 - Ls1: SPARKPLUG LAKE MEMBER: porphyritic andesite flows and breccia distinguished only by their stratigraphic position above the Mackenzie Tuff; includes a small cone and vent complex south of Lindley Bay (Ls1)
 - Ls2: SURPRISE LAKE MEMBER: porphyritic (hornblende-augite-plagioclase) andesite flows and breccias; many flows trachytic; some flows welded to a block and colour; includes thin sedimentary interbeds (Ls2) and minor talus breccia
 - Ls3: COBALT PORPHYRY MEMBER: intrusive hornblende-plagioclase porphyry and microdiorite
 - Ls4: MILE LAKE MEMBER: porphyritic andesite flows interbedded with volcanic sandstone and conglomerate, and andesitic lapilli tuff and talus
- Lt: POINT RADIUM FORMATION: thin bedded, fine grained sandstone and siltstone with at least two carbonate interbeds less than 1 m thick; all exposures lie within alteration haloes of the Mystery Island Intrusive Suite

(Plutonic rock names follow recommendations of Streckeisen, 1976.)

Drift-covered area

Breccia

Geological boundary (defined, approximate)

Bedding, slope (inclined, overturned)

Flow banding (inclined, vertical)

Elastic rotation

Fault (defined, approximate)

Anticline, arrow indicates plunge (defined, approximate)

Syncline (approximate)

Structural dome

Geological compilation and interpretation by R.S. Holdren, 1980. Labine Group mapped by R.S. Holdren, 1971-1978, assisted by G.P. Palmer, 1979-79. Sloan Group and Diabase from Geological Survey of Canada Open File 53, by P.F. Hoffman, 1978. East-west diabase dykes in the Sloan Group from Geological Survey of Canada Map 1514A, by M. Fenak, G.M. Ross (Carleton University) generously provided unpublished information on the Hornby Bay Group. Echo Bay Mines Limited gave permission to publish the west map of Labine Point. The field work was supported by the Department of Indian and Northern Affairs. The generous co-operation of Dr. W.A. Padgug and his staff is gratefully acknowledged.

Geological cartography by P. Corrigan, Geological Survey of Canada

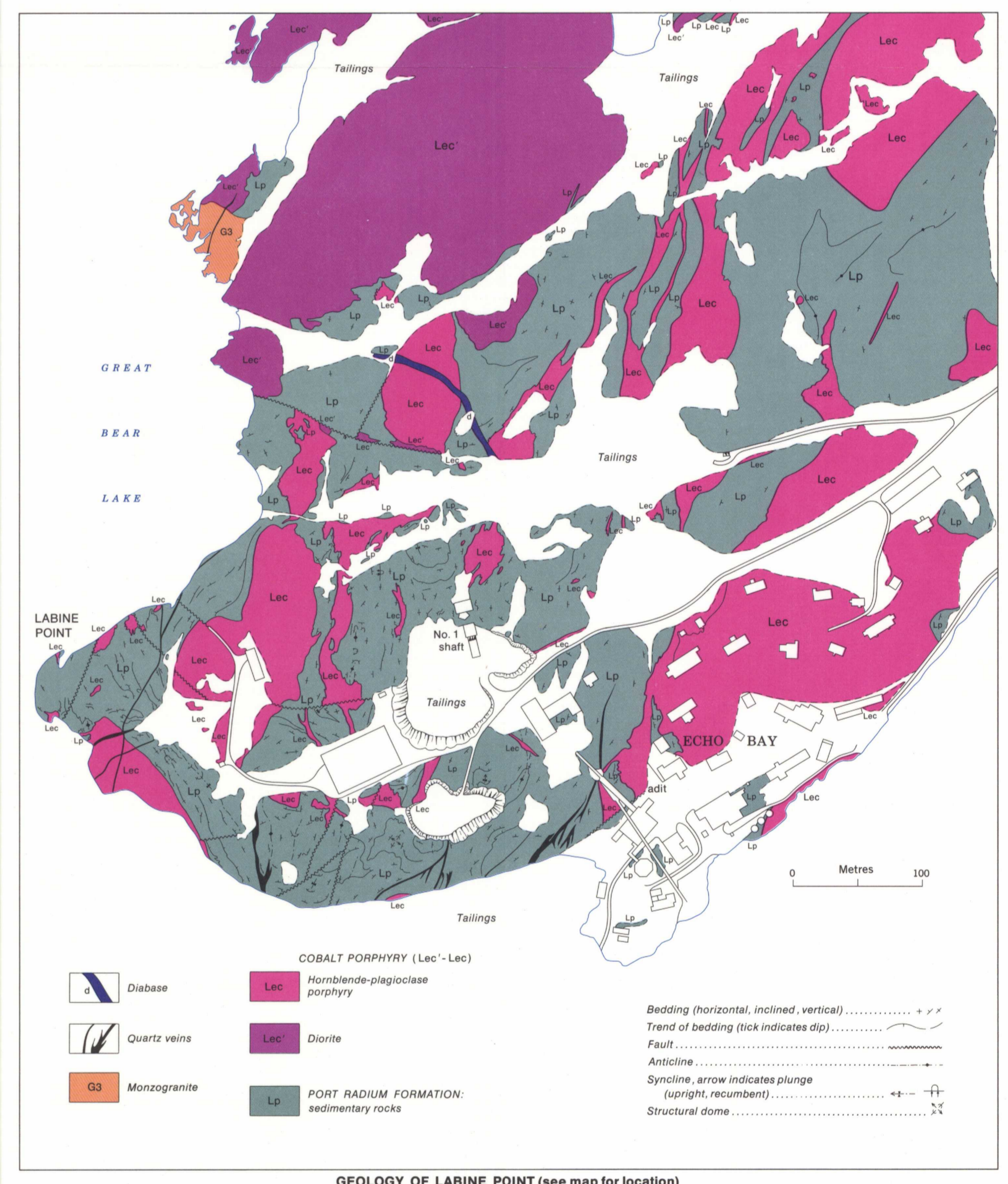
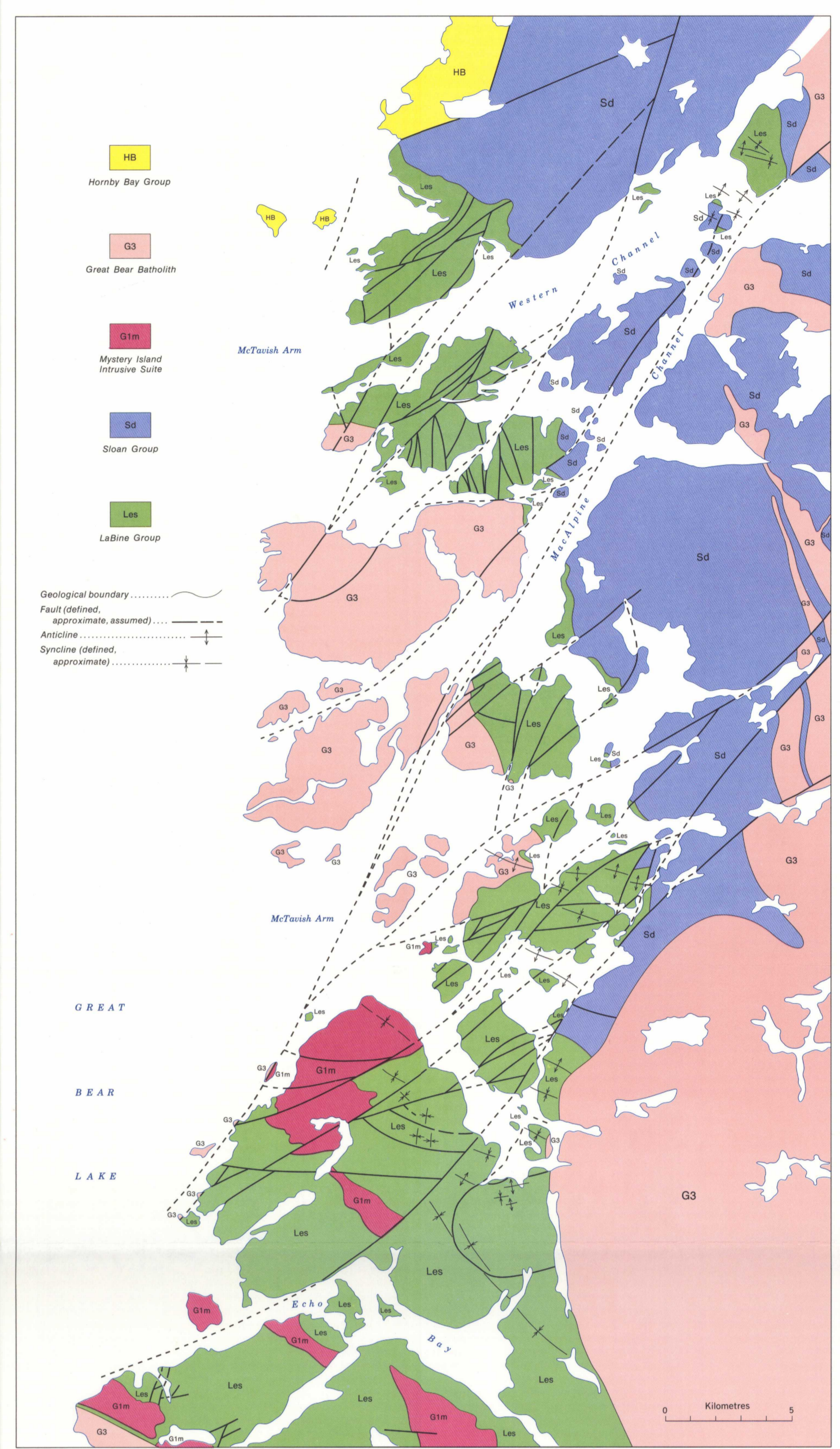
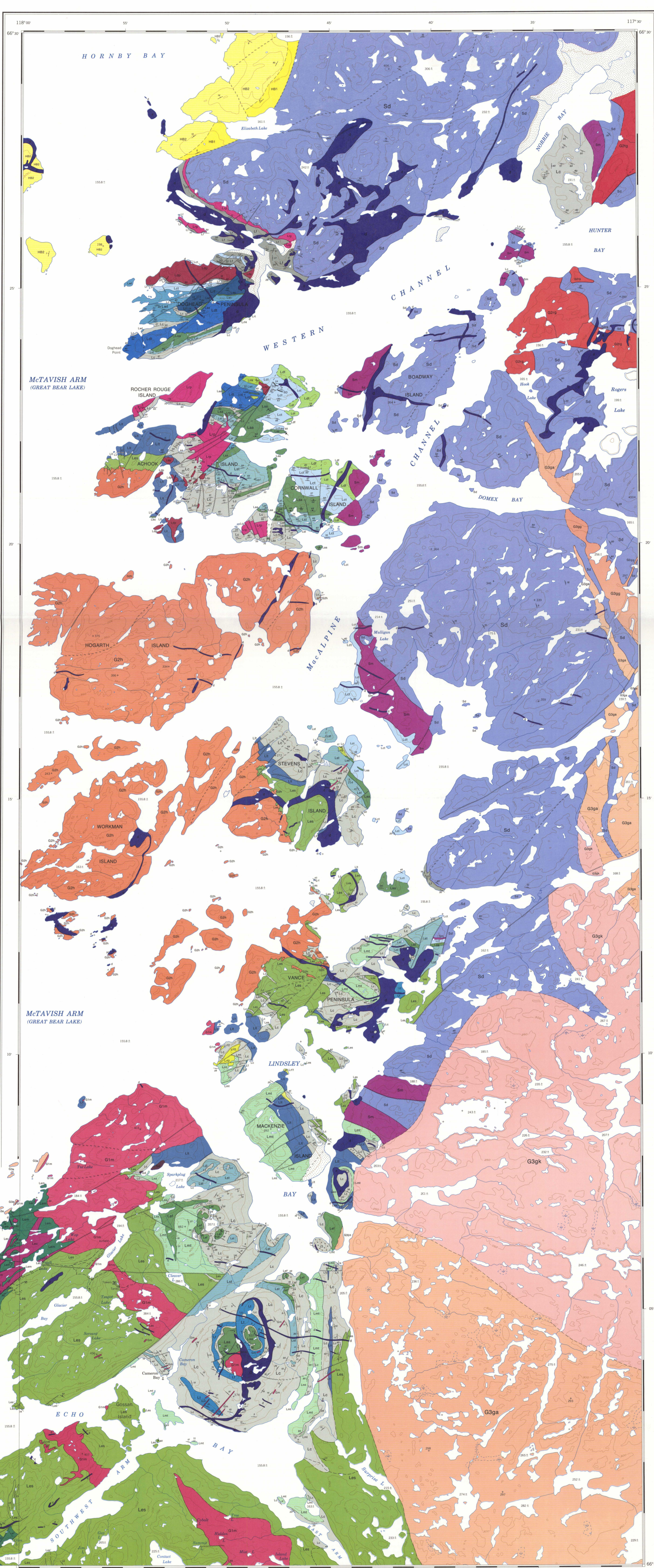
Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Base map cartography, with selected contouring at 50 metre intervals, by the Geological Survey of Canada from maps published at the same scale by the Survey and Mapping Branch in 1977

Copies of the topographical editions of this map may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa, K1A 0E8

Approximate magnetic declination 1982, 38°36.7' East, decreasing 16.9' annually

Elevations in metres above mean sea level



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MAP 1546A

GEOLOGY

ECHO BAY - MacALPINE CHANNEL AREA

DISTRICT OF MACKENZIE

NORTHWEST TERRITORIES

Scale 1:50 000

Universal Transverse Mercator Projection

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ECHO BAY - MacALPINE CHANNEL AREA NORTHWEST TERRITORIES

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