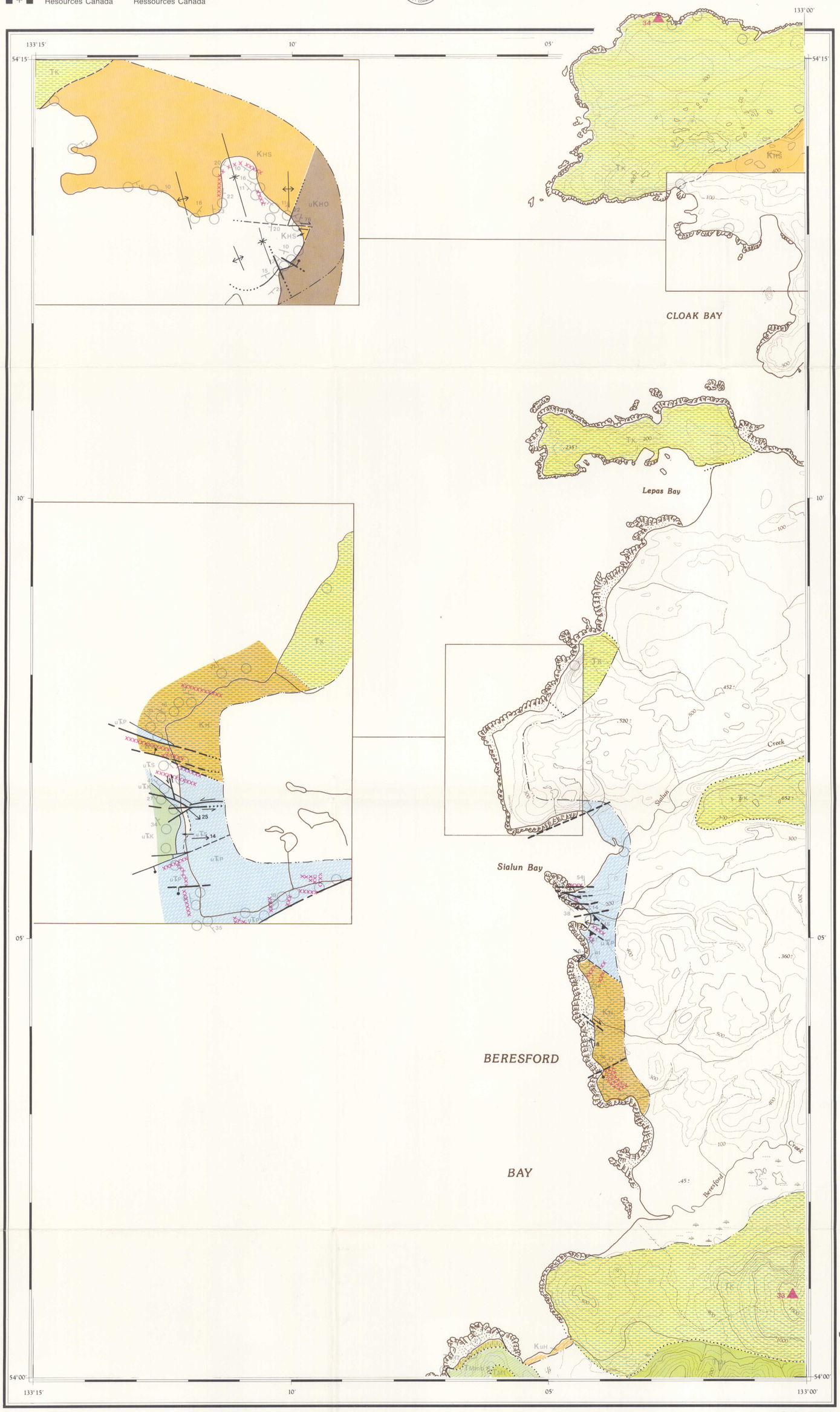
Energy, Mines and Resources Canada / Énergie, Mines et Ressources Canada

GEOLOGICAL SURVEY OF CANADA / COMMISSION GÉOLOGIQUE DU CANADA



LEGEND

Coloured legend blocks indicate map units that appear on this map.

QUATERNARY

- **Q** — *Recent alluvium, Pleistocene till, marine drift*

TERTIARY

UPPER OLIGOCENE to LOWER PLIOCENE

- **TS** — *SKONUN FORMATION: sandstone, conglomerate, shale, coal*

UPPER OLIGOCENE to LOWER PLIOCENE

- **TM** — *MASSET FORMATION (mainly Graham Island): dominantly aphyric, mafic to felsic flows and pyroclastic rocks; local epiclastic interbeds. Feldspar is the dominant phenocryst phase; pyroxene is present in mafic rocks but rare in felsic ones; quartz is rarely present; phenocrysts are less than 3 mm in size and constitute less than 40% of the rock volume*

- **TMf** — *Felsic unit undifferentiated: dacite to rhyolite flows, domes and pyroclastics; minor intercalated mafic flows and epiclastic rocks. Felsic rocks contain feldspar phenocrysts with or without quartz, pyroxene and biotite*

  Aphanitic, <5% feldspar phenocrysts (0.5–1 mm)
  - **TMfa** — *Felsic flows and/or domes, minor pyroclastics and breccias. Flows and domes are flowbanded at the mm scale, the matrix is chalky; the base of flows may be vitreous, upper portions of flows contain drusy-quartz-filled vugs*
  - **TMfb** — *Felsic pyroclastics, commonly lithic-rich with conspicuous welding textures*

  15–40% feldspar phenocrysts (0.5–2 mm); contains <1% feldspar phenocrysts about 3 mm in length
  - **TMfc** — *Felsic flows and/or domes; minor pyroclastics and breccias. Flows and domes are flowbanded at the mm scale, the matrix is aphanitic; lithic clasts are common in some flows*
  - **TMfd** — *Felsic pyroclastics, commonly lithic-rich with conspicuous welding textures*

  <10% quartz phenocrysts (0.5–1 mm), plus feldspar phenocrysts
  - **TMfe** — *Felsic flows and/or domes. Chalky, aphanitic matrix, drusy-quartz-filled vugs in upper parts of flows, 0.5–1 mm quartz phenocrysts; <35% 0.5–1 mm feldspar phenocrysts*
  - **TMff** — *Felsic pyroclastics, commonly lithic-rich with distinctive welding textures*

  <10% pyroxene phenocrysts plus feldspar phenocrysts
  - **TMfg** — *Felsic flows and minor pyroclastics with pyroxene (<0.5 mm across) as cores of feldspar and as glomerocrysts; matrix is aphanitic and flowbanded*
  - **TMfh** — *Felsic flows and minor pyroclastics having 5–40% feldspar phenocrysts. Feldspar phenocrysts are slightly rounded to euhedral, 0.5–3 mm in size, with altered cores; pyroxene occurs as 0.5 mm long euhedral laths and as glomerocrysts with feldspar; matrix is dense, black and aphanitic to vitrophyric*

- **TMm** — *Mafic unit undifferentiated: basalt, basaltic andesite and andesite flows; minor felsic flows, pyroclastics and interflow breccias; rare sedimentary intercalations. Mafic flows and breccias contain feldspar phenocrysts with or without pyroxene, rare olivine and biotite.*

  Pale-grey aphanitic
  - **TMma** — *Basalt, basaltic andesite and andesite flows. Flows are aphyric, aphanitic and flowbanded*

  Feldspar phenocrysts, with or without pryoxene
  - **TMmb** — *Basalt, basaltic andesite and andesite flows; may be vesicular and/or amygdaloidal. Matrix is sugary, ophitic to subophitic*

- **TMs** — *Sedimentary rocks undifferentiated: reworked epiclastic rocks and lahars*

  Reworked epiclastics
  - **TMsa** — *Fine to coarse grained sandstone and conglomerate, heterolithic; rare plant fragments and thin coal beds*

  Lahar
  - **TMsb** — *Debris flow deposits of primary volcanic origin, monolithologic and poorly sorted*

EOCENE and OLIGOCENE

- **TV** — *Unnamed volcanic rocks (Moresby Island and southern Graham Island; may contain some MASSET FORMATION): intercalated mafic to felsic lava flows and pyroclastic rocks; local epiclastic interbeds*

- **TK** — *Kano plutonic suite (U–Pb: 27–46 Ma; K–Ar: 24–40 Ma): fine-grained, seriate and locally miarolitic hornblende–biotite quartz monzodiorite, biotite granite, biotite–hornblende quartz diorite, hornblende gabbro; hornblende–biotite–plagioclase porphyry; rare agmatite*

- *Dykes (K–Ar: 43.7 Ma): andesite, basalt, some felsic rocks; fine- to medium-grained, aphyric, diabasic texture; rare feldspar and/or hornblende phenocrysts*

- **Tsh** — *Unnamed shale: black fissile shale; sandstone; minor conglomerate and coal*

CRETACEOUS

LOWER and UPPER CRETACEOUS

QUEEN CHARLOTTE GROUP (KH–uKSH)

SANTONIAN

- **uKsh** — *Unnamed shale: black fissile shale; shale with calcareous concretions; rare sandstone*

CONIACIAN and younger

- **uKv** — *Unnamed volcanic unit: feldspar–phyric andesite flows and pyroclastics*

- **uKHo** — *HONNA FORMATION: ◯ conglomerate; ◯ sandstone; ◯ minor shale*

ALBIAN to LOWER TURONIAN

- **KHS** — *HAIDA and SKIDEGATE FORMATIONS undivided: ◯ sandstone; ◯ shale*
- **KS** — *SKIDEGATE FORMATION: ◯ thinly interbedded sandstone and shale; ◯ thick to massive sandstone with interbedded shale*
- **KH** — *HAIDA FORMATION undivided: ◯ sandstone; ◯ shale*
- **KuH** — *UPPER HAIDA FORMATION: shale and concretionary shale*
- **KlH** — *LOWER HAIDA FORMATION: sandstone and concretionary sandstone*

UPPER JURASSIC and LOWER CRETACEOUS

TITHONIAN to APTIAN

- **lKL** — *LONGARM FORMATION: ◯ sandstone; ◯ conglomerate and pebbly sandstone; ◯ shale, concretionary shale, minor sandstone*

JURASSIC

MIDDLE to LATE JURASSIC

- **mJB** — *Burnaby Island plutonic suite (U–Pb: 158–165 Ma; K–Ar: 145–164 Ma): medium-grained, equigranular, intensely veined biotite–hornblende quartz monzodiorite; hornblende–biotite quartz monzonite; (muscovite–) biotite trondhjemite; hornblende gabbro and diorite*
- **mJSC** — *San Christoval plutonic suite (U–Pb: 171–172 Ma; K–Ar: 145–166 Ma): medium-grained, equigranular, mafic inclusion-bearing (biotite–) hornblende quartz diorite, quartz monzodiorite and diorite; unit includes Hunter Point, Kindakun Point and Beresford agmatite complexes; foliated inclusions and prismatic hornblende are characteristic*

MIDDLE JURASSIC

UPPER BATHONIAN and LOWER CALLOVIAN

- **mJM** — **MORESBY GROUP**: *sandstone; conglomerate*

LOWER BAJOCIAN

- **mJY** — **YAKOUN GROUP** *◯ sandstone and minor shale; ◯ breccia; ◯ flows; ◯ conglomerate*

LOWER JURASSIC

- **lJM** — **MAUDE GROUP**: *(lJG – lJP): fissile shale; fine- to medium-grained sandstone; minor limestone*

TOARCIAN and LOWER AALENIAN

- **lJP** — *PHANTOM CREEK FORMATION: fine- to coarse-grained fossiliferous sandstone*

LOWER and MIDDLE TOARCIAN

- **lJW** — *WHITEAVES FORMATION: shale containing septarian and limestone nodules; minor sandstone*

PLIENSBACHIAN and LOWER TOARCIAN

- **lJF** — *FANNIN FORMATION: tuffaceous sandstone; shale containing septarian nodules; siltstone; minor limestone*

UPPER SINEMURIAN and LOWER PLIENSBACHIAN

- **lJG** — *GHOST CREEK FORMATION: shale; siltstone; minor flaggy limestone*

UPPER TRIASSIC and LOWER JURASSIC

- **uTlJK** — **KUNGA GROUP** *(uTs – uTlJs): fine-grained sandstone; limestone*

UPPER NORIAN to SINEMURIAN

- **uTlJS** — *SANDILANDS FORMATION: fine-grained sandstone; limestone; tuffaceous sandstone*

UPPER CARNIAN to MIDDLE NORIAN

- **uTSP** — *PERIL FORMATION and SADLER LIMESTONE undivided: massive, grey, crystalline limestone; grey, medium-bedded limestone*

LOWER to MIDDLE NORIAN

- **uTP** — *PERIL FORMATION: dark grey, medium-bedded limestone*

UPPER CARNIAN and LOWER NORIAN

- **uTS** — *SADLER LIMESTONE: massive, crystalline, grey limestone; lesser secondary chert*

UPPER TRIASSIC

CARNIAN

- **uTK** — *KARMUTSEN FORMATION: basalt flows; breccia; tuff; minor limestone*

Stratigraphic or intrusive contact (defined, approximate, inferred)

Outcrop or outcrop area examined in field

Bedding, tops known (inclined, vertical, overturned)

Fault, steeply dipping to vertical, sense of motion not determined (defined, approximate, inferred)

Fault, extensional (symbol also applied to vertical faults; solid circle indicates downthrown side; defined, approximate, inferred)

Fault, contractional (synonomous with thrust fault; teeth indicate upthrust side; defined, approximate, assumed)

Strike slip fault (arrows give sense of displacement)

Anticline (trace of axial plane; upright; overturned)

Syncline (trace of axial plane; upright; overturned)

Fossil locality, GSC catalogue number C-101101 (F)

Whole-rock chemical analysis locality, reference number (see sheet 2) 55

K–Ar dates, reference number (see sheet 2) 1

NOTE: For chemical analysis and isotopic dates, see GSC Map 7-1990, sheet 2.

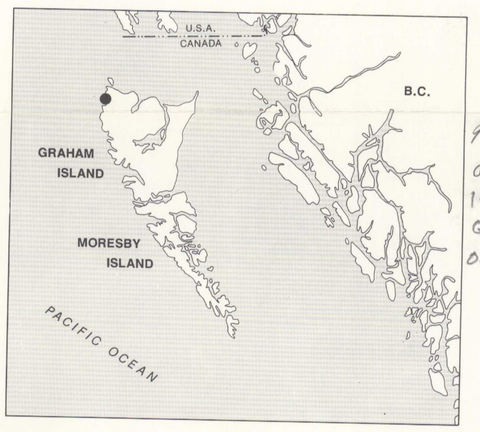
FOSSIL IDENTIFICATIONS:

Radiolaria: E.S. Carter
Conodonts: M.J. Orchard
Pollen and Spores: J.M. White
Foraminifera: B.E.B. Cameron
Triassic Molluscs: E.T. Tozer
Lower Jurassic Molluscs: H.W. Tipper, P.L. Smith
Middle Jurassic Molluscs: T.P. Poulton, R.L. Hall, H.W. Tipper
Upper Jurassic Molluscs: J.A. Jeletzky
Cretaceous Molluscs: J.W. Haggart

Geology by P.D. Lewis, C.J. Hickson and R.A. Anderson, 1987–1988

Compiled by P.D. Lewis and C.J. Hickson, 1988

Cartography by B. Sawyer, G. L'Esperance, R. Franklin and E. Yorath



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3303–33rd Street N.W., Calgary, Alberta T2L 2A7
100 West Pender Street, Vancouver, B.C. V6B 1R8

Published 1990

MAP 9–1990

GEOLOGY

LANGARA ISLAND

(West Half)

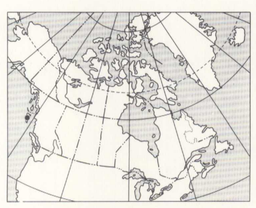
BRITISH COLUMBIA

Scale 1:50 000 - Échelle 1/50 000

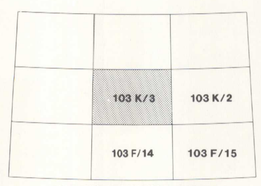
Kilometres 1 0 1 2 3 4 Kilomètres

Universal Transverse Mercator Projection

Projection transverse universelle de Mercator



INDEX MAP—LIEU DE LA CARTE



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SYSTÈME NATIONAL DE RÉFÉRENCE CARTOGRAPHIQUE

Lewis, P.D. and Hickson, C.J.
1990: Geology, Langara Island (West Half), British Columbia; Geological Survey of Canada, Map 9–1990, scale 1:50 000