

GEOLOGICAL SURVEY BRANCH

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PRELIMINARY GEOLOGY OF THE QUATSINO - PORT McNEILL AREA, NORTHERN VANCOUVER ISLAND

NTS 92L/12 & 11W

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(SHEET 1 OF 2)

SCALE 1:50 000
Metres 1000 0 1000 2000 3000 4000 Metres

- LAYERED ROCKS**
- UPPER CRETACEOUS**
NANAIMO GROUP EQUIVALENTS (CAMPANIAN)
uKn MEDIUM TO COARSE-GRAINED ARKOSIC TO LITIC WACKE, PEBBLE TO COBBLE CONGLOMERATE, SILTSTONE AND MINOR COAL, LOCALLY FOSSILIFEROUS.
 - LOWER CRETACEOUS**
COAL HARBOUR GROUP (ALBIAN)
KCSn UPPER SANDSTONE FACIES: TROUGH CROSS-LAMINATED LITIC WACKE INTERCALATED WITH SILTSTONE AND MINOR PEBBLE CONGLOMERATE; MINOR COAL.
KCSg LOWER CONGLOMERATE FACIES: MASSIVE CONGLOMERATE WITH MINOR LENSES OF COARSE-GRAINED LITIC WACKE.
 - LONGARM FORMATION EQUIVALENTS (HAUTERVIAN-BARREMIAN)**
KL THINLY BEDDED TO MASSIVE SANDSTONE, SILTSTONE, MUDSTONE AND PEBBLE CONGLOMERATE, LOCALLY CROSS-LAMINATED; MINOR COAL.
 - JURASSIC OR CRETACEOUS**
JKs SEDIMENTARY ROCKS OF UNCERTAIN AFFINITY: MASSIVE TO THINLY BEDDED VOLCANIC CONGLOMERATE, BRECCIA AND CROSS-LAMINATED SANDSTONE, SILTSTONE AND MUDSTONE WITH MINOR COAL, LOCALLY FOSSILIFEROUS.
 - LOWER JURASSIC**
BONANZA GROUP
Jb SUBMARINE TO SUBAERIAL INTERCALATED BASALTIC TO RHYOLITIC LAVAS, PHYROCLASTIC AND MINOR EPICLASTIC ROCKS LOCALLY SUBDIVIDED ACCORDING TO COMPOSITION, LITHOLOGY AND TEXTURE (SEE TABLE OF ABBREVIATIONS AND NOMENCLATURE BELOW).
 - UPPER TRIASSIC TO LOWER JURASSIC**
SILICEOUS SILTSTONE UNIT
TJS UNIMATED INTERBEDDED SEDIMENTARY, VOLCANIC AND/OR EPICLASTIC ROCKS; PREDOMINANTLY THINLY BEDDED SILTSTONE WITH OR WITHOUT INTERBEDDED TUFFS; LOCALLY CALCAREOUS WITH MINOR LIMESTONE NEAR BASE AND RARE CARBONIZED WOOD.
- INTRUSIVE ROCKS**
- EARLY TO MIDDLE JURASSIC**
ISLAND PLUTONIC SUITE
Ji MEDIUM GRAINED, EQUIGRANULAR GRANITOID ROCKS; INCLUDES DIORITE (di), HORNBLENDE DIORITE (hdi), QUARTZ DIORITE (qd), MONZONITE (mz), QUARTZ MONZONITE (qm), HORNBLENDE QUARTZ MONZONITE (hqzm), GRANODIORITE (gd), QUARTZ-HORNBLENDE PORPHYRY (qhp), AND RARE SYENITE AND PLAGIOCLASE AND QUARTZ-FELSIPAR PORPHYRY (qp).

- UPPER TRIASSIC**
VANCOUVER GROUP
PARSON BAY FORMATION
UTPw WESTERN FACIES: LOWER TO UPPER NORIAN, THIN TO MEDIUM BEDDED ARGILLACEOUS LIME MUDSTONE, CALCAREOUS SHALE, SILTSTONE AND MINOR SANDSTONE LOCALLY DOLOMITIC; COMMON BIVALVE FOSSILS (MONOTIS SUBCIRCULARIS).
UTPn NORTHERN FACIES: LOWER TO MIDDLE NORIAN, BIVALVE FOSSILS (HALOBA) COMMON; NARROWLY LENTIC AREA; RECESSIVE WEATHERING; VERY THINLY BEDDED BROWN TO BLACK NON-CALCAREOUS FOSSIL SHALE AND SILTSTONE; RUPERT INLET AREA THIN TO MEDIUM BEDDED SILTSTONE WITH LESSER SHALE; PREDOMINANTLY NON-CALCAREOUS.
- QUATSINO FORMATION**
uto THINLY BEDDED TO MASSIVE LIME MUDSTONE; CHERT NODULES COMMON LOCALLY; RARE QUARTZ BEDS; LOCALLY FOSSILIFEROUS.
- KARLUTSEN FORMATION**
uTk APHYRANTIC TO COARSELY PLAGIOCLASE-PHYRIC, COMMONLY AMYGDALOIDAL SUBAERIAL BASALTIC LAVA FLOWS; MINOR PILLOW BASALT, PILLOW BRECCIA AND HYALOCLASTITE.
uTkP VERY COARSE (5mm-20cm) PLAGIOCLASE-PHYRIC BASALTIC LAVAS NEAR THE TOP OF THE KARLUTSEN FORMATION.
uTkH THIN (<100m) MASSIVE TO THINLY BEDDED AND LAMINATED INTERTIAL TO SUBTIDAL LIME MUDSTONE, OLITIC WACKESTONE AND PACKSTONE LOCALLY CONTAINING MUDSTONE BIRUP CLASTS.

MAP SYMBOLS

- Geological contact (defined, approximate, inferred)
- Fault (defined, inferred)
- Unconformity
- Limit of Mapping
- Antiform
- Synform
- Bedding (facing known; inclined, vertical, overturned)
- Bedding (facing unknown; inclined, vertical, welding in tuff)
- Primary flowage structures in volcanic rocks (inclined, vertical)
- Primary flowage structures in plutonic rocks (inclined, vertical)
- Styolite (bedding parallel, non-parallel)
- Dike (inclined, vertical)
- Minor fault (inclined vertical, with plunge and trend of slickenside striations)
- Plunge and trend of minor fold axes (W, S, E, vergence unknown)
- Field station
- Macrofossil locality
- Microfossil locality
- Lithochemical sample site (assay, whole rock)
- Mineral occurrence
- Regional Geochemical Survey stream sediment sample site

TABLE OF ABBREVIATIONS AND NOMENCLATURE FOR THE BONANZA GROUP

JBx (LD) where X is composition, L, lithology, and D, other descriptors listed below

JB where undivided

Composition: m mafic (basaltic), i intermediate (andesitic), f felsic (phyric-rhyolitic-dacitic)

A compositional range is hyphenated (e.g. m-i), mafic to intermediate and the predominant composition, if known, is in bold type (i.e. mafic); predominantly bimodal sequences are indicated by compound observations (e.g. m-f) where felsic rocks predominate, or where mafic and felsic rocks occur in substantial proportions, or if where relative abundances are not known.

Plagioclase	Pyroclastic	Other**
br breccia	gbr pyroclastic breccia	f lava (includes flow breccias)
cg conglomerate	l-br tuff-breccia	p pillow
sa sandstone	t tuff	pbr pillow breccia
sl siltstone		
sh shale		
ls limestone		
sls silty limestone		

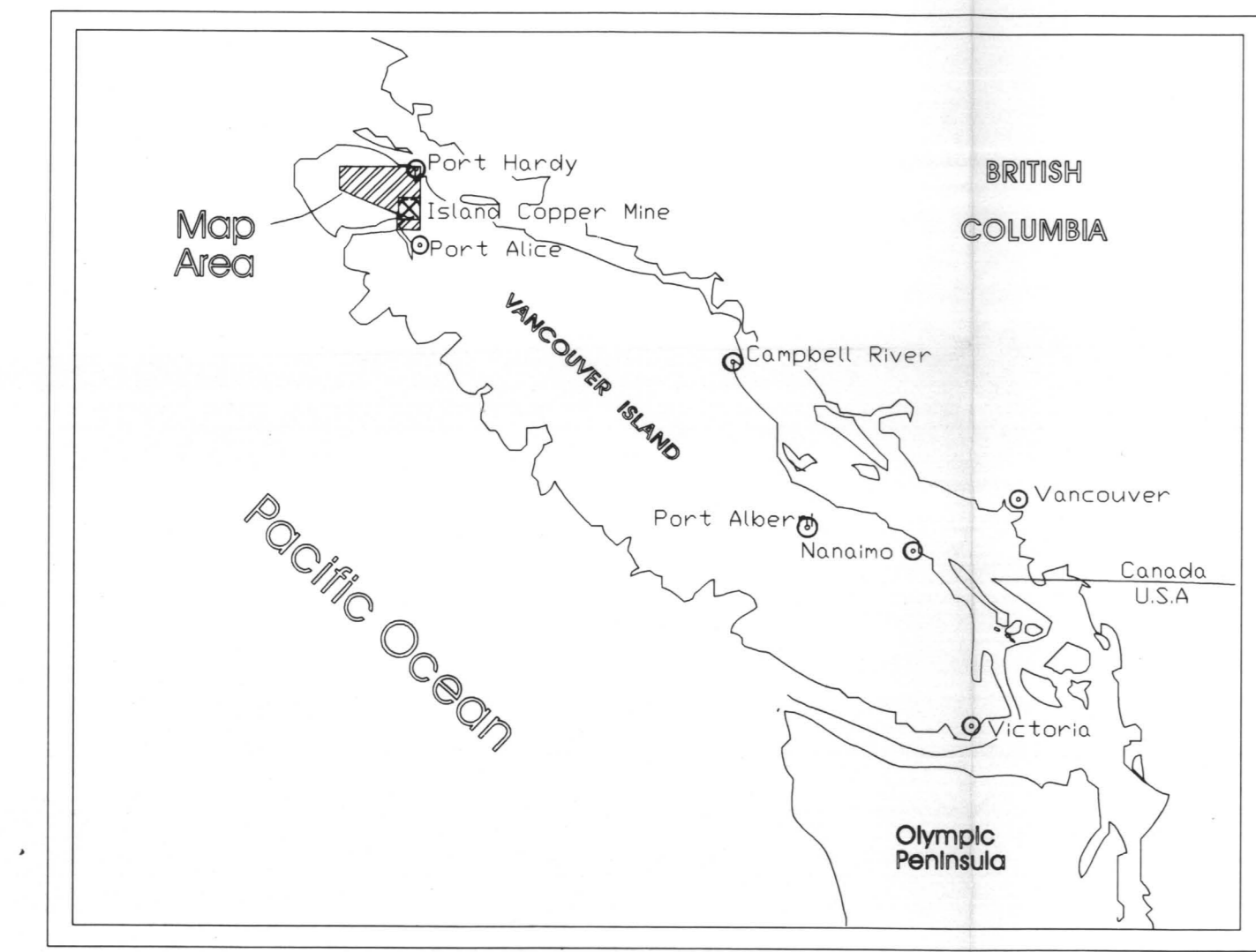
Descriptors:

Prefixes:

- w** welded
- A** hyaloclastite

Suffixes:

- v** vitric
- C** carbonized wood
- f** fossiliferous
- A** agnathitic/fine-grained
- p** porphyritic (<5mm)³
- am** amygdaloid
- S** laminar flowage structures⁴
- (h)** hornblende phyric
- (CPX)** pyroxene phyric



¹ usage of Cass and Wright (1988) *volcanic and/or nonvolcanic constituents
² includes autoclastic and quench-fragmented products
³ porphyritic or epilitic (non-genetic) mixed epilitic/pyroclastic (tuffites)
⁴ maximum phenocryst size includes flow folds

