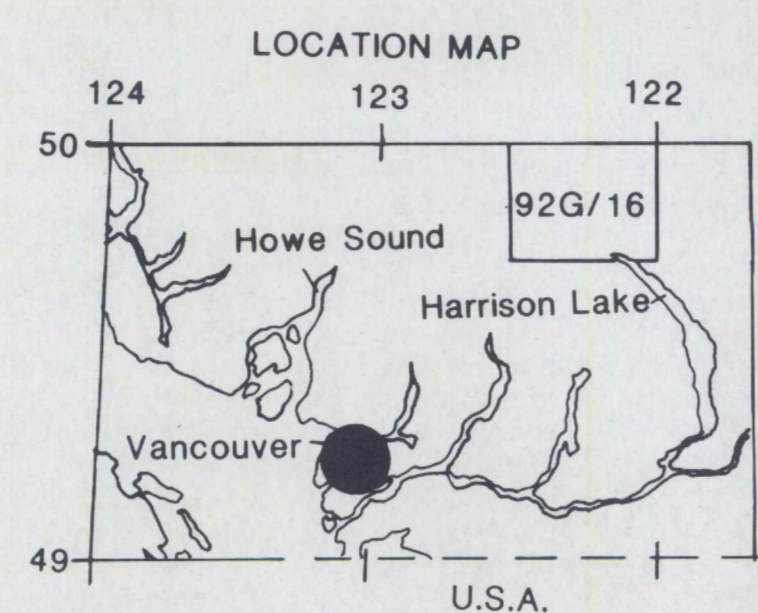


TERTIARY	
Tgd	granodiorite, minor coarse grained granite
LATE CRETACEOUS	
LK	Scuzzy Suite: quartz diorite (qd) and granodiorite (gd)
AGE UNCERTAIN	
gd	granodiorite, minor granite, bgd biotite-rich granodiorite, hgd hornblende-rich granodiorite
Mgn	gneiss, hornblende granodiorite, granite, includes Mt. Breckenridge suite (Mgn _B)
EARLY CRETACEOUS (GAMBIER ASSEMBLAGE)	
Brokenback Hill Formation	
KBHI	lapilli tuff, welded pyroclastic volcanics, breccia, minor rhyolite and pumice
KBHg	volcaniclastic sandstone, feldspathic greywacke, chloritic phyllite, slate
KBHv	andesite, autoclastic breccia and heterolithic volcanic conglomerate, minor pillowed basalt
KBHt	slate, muscovite phyllite, feldspar crystal tuff
Peninsula Formation	
KPa	interbedded arkose, pebbly arkose, and pyritiferous slate
KPc	conglomerate dominated by well rounded volcanic clasts with lesser quartzite and chert as well as minor granitic clasts; local trough cross stratified fluvial deposits as well as fossiliferous marine beach deposits
latest JURASSIC to EARLY CRETACEOUS	
di	coarse grained diorite, migmatite, including Pemberton Diorite Complex
dip	
PALAEZOIC-MESOZOIC	
Mti	volcanic conglomerate (cg), hornblende gneiss, intermediate and acidic metavolcanic flows, crystalline tuff, pelitic and talc sericite schists
Ms	Settler schist: pelitic schist, quartzo-feldspathic gneiss, amphibolitic gneiss, minor quartzite and ultramafic rock
PMc	Cogburn Group: metavolcanic flows, argillite, bedded chert, minor limestone, meta-diorite, gabbro, and ultramafic rock

SYMBOLS	
	steep strike-slip and dip-slip fault
	thrust fault, teeth in hangingwall
	folded early thrust fault, teeth in hangingwall
	geological contact, observed, approximate, assumed
	anticline
	syncline
	bedding, lithologic layering
	pebble or mineral lineation
	foliation
	late foliation
F	fossil
C	coal
Gy	gypsum
Ky	kyanite
	area of overburden

Field stations shown and mapping compiled from J.A. Roddick ^o, and V.W. Hutchison ^o (unpublished field notes), with recent mapping by J.M. Journeay ^o and L. Coontos ^o (Journeay and Coontos, 1989); mapping of Peninsula (KP) and Brokenback Hill (KBH) Formations by J.V.G. Lynch (Lynch, 1990), individual stations not shown because of dense clustering and greater detail. Further 1989 mapping by T. Tyson ^o.

SCALE: 1:50,000



ABSTRACT

The map area is situated along the southeast margin of the Coast Belt, at the northern end of Harrison Lake, and is underlain by rocks of the Cascade Metamorphic Core (CMC), Northwest Cascade System (NVCS), Gambier Assemblage, and Coast Plutonic Complex (CPC). High pressure schist and gneiss of the CMC are a minor component and are represented by the Settler schist (Ms) and Cogburn Group (PMc). NVCS rocks include gneiss correlated to the Mt. Breckenridge gneiss (MgnB), as well as the Twin Island Group (Mti), the later of which is tentatively correlated to Triassic rocks of the Cadwallader Group found to the north of the map.

Gambier Assemblage rocks of the Fire Lake area consist of an Early Cretaceous sedimentary-volcanic sequence deposited in an island arc setting, and metamorphosed to greenschist grade or lower. Principal formations outlined on the map correlate to similar rocks occurring along the northwest flank of Harrison Lake to the south. At the base, the Peninsula Formation (KP) is a fining upwards sedimentary sequence with facies progressing from fluvial, to beach, to possibly marine shelf. The overlying Brokenback Hill Formation (KBH) is a complex volcanic succession dominated by subaqueous autoclastic and epiclastic rocks of mostly intermediate composition. Some rhyolite and basalt also occur. Welded pyroclastic deposits and lapilli tuff are found at the top of the formation.

Two distinct phases of thrusting are recorded. The earliest is observed in the Gambier Assemblage, and is characterized by shallow-angle thrusting emplacing the Peninsula Formation onto the Brokenback Hill Formation. Kinematic indicators and fold vergence indicate south to southeast directed thrusting. The second phase shows large amplitude non-cylindrical folds within the Gambier Assemblage, in association with southwest directed brittle-ductile steep angle thrusting emplacing high grade rocks of the NVCS onto low grade rocks of the Gambier Assemblage. Lesser dextral components of shear are also recorded within these faults, and at least two different periods of thrusting within this system are indicated.

The partitioning of these various shortening episodes into orogen-parallel and orogen-normal components is interpreted to represent deformation in association with Late Cretaceous oblique convergence along the continental margin.

Northeast-striking dextral-normal dip-slip faults of Tertiary age characterize the latest phase of deformation. The fault running along Glacier Lake and Snowcap Creek displays equal components (4.5 km) of dextral and normal displacement, with the down-dropped block to the northwest. As well as having strong physiographic expressions, these faults also localize active hot springs.

References:
 Journeay, J.M., and Coontos, L. 1989, Preliminary report on the structural setting along the southeast flank of the Coast Belt, British Columbia; in Current Research, Part E, Geological Survey of Canada, Paper 89-1E, p. 177-187.
 Journeay, J.M. 1990, Structural and tectonic framework of the southern Coast Belt, British Columbia: a progress report; in Current Research, Part E, Geological Survey of Canada, Paper 90-1E.
 Lynch, J.V.G. 1990, Geology of the Fire Lake Group, southeast Coast Mountains, British Columbia; in Current Research, Part E, Geological Survey of Canada, Paper 90-1E.

GEOLOGY OF THE GLACIER LAKE MAP

(92G/16)

by: J.V.G. Lynch

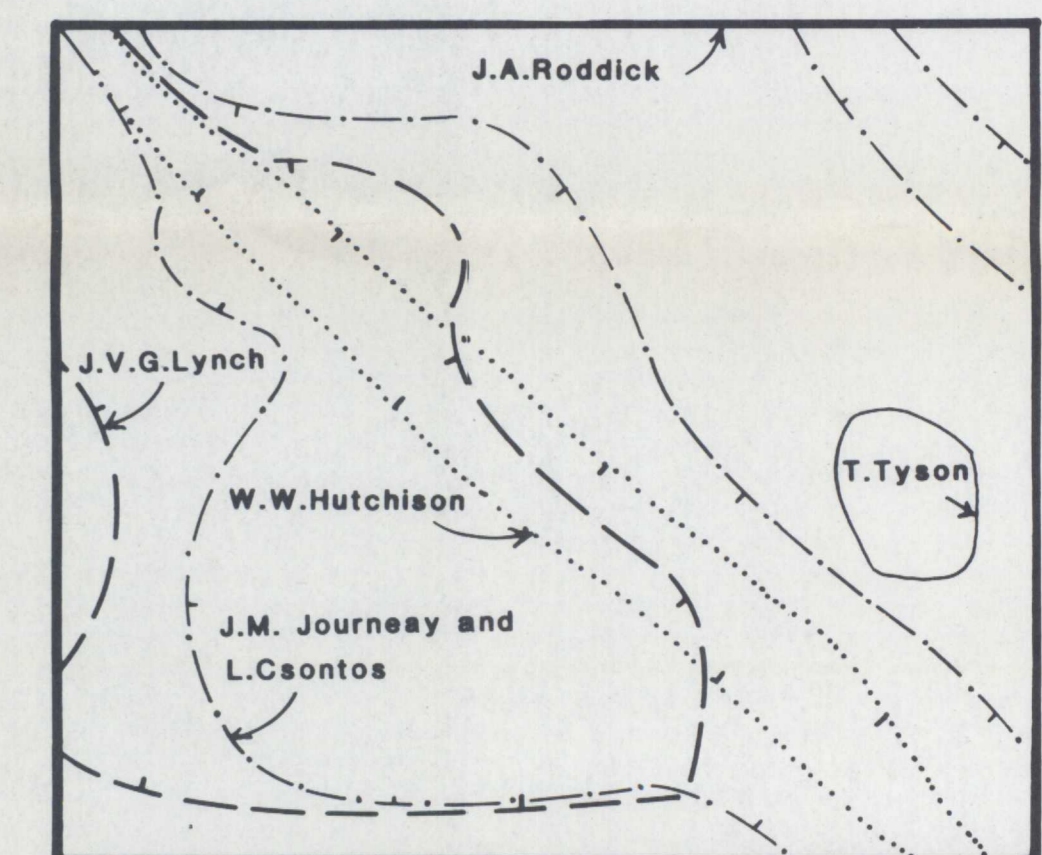


Diagram shows approximate boundaries encompassing areas mapped by various workers, whose information was used in the compilation of this map.

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sheet 1 of 2
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