

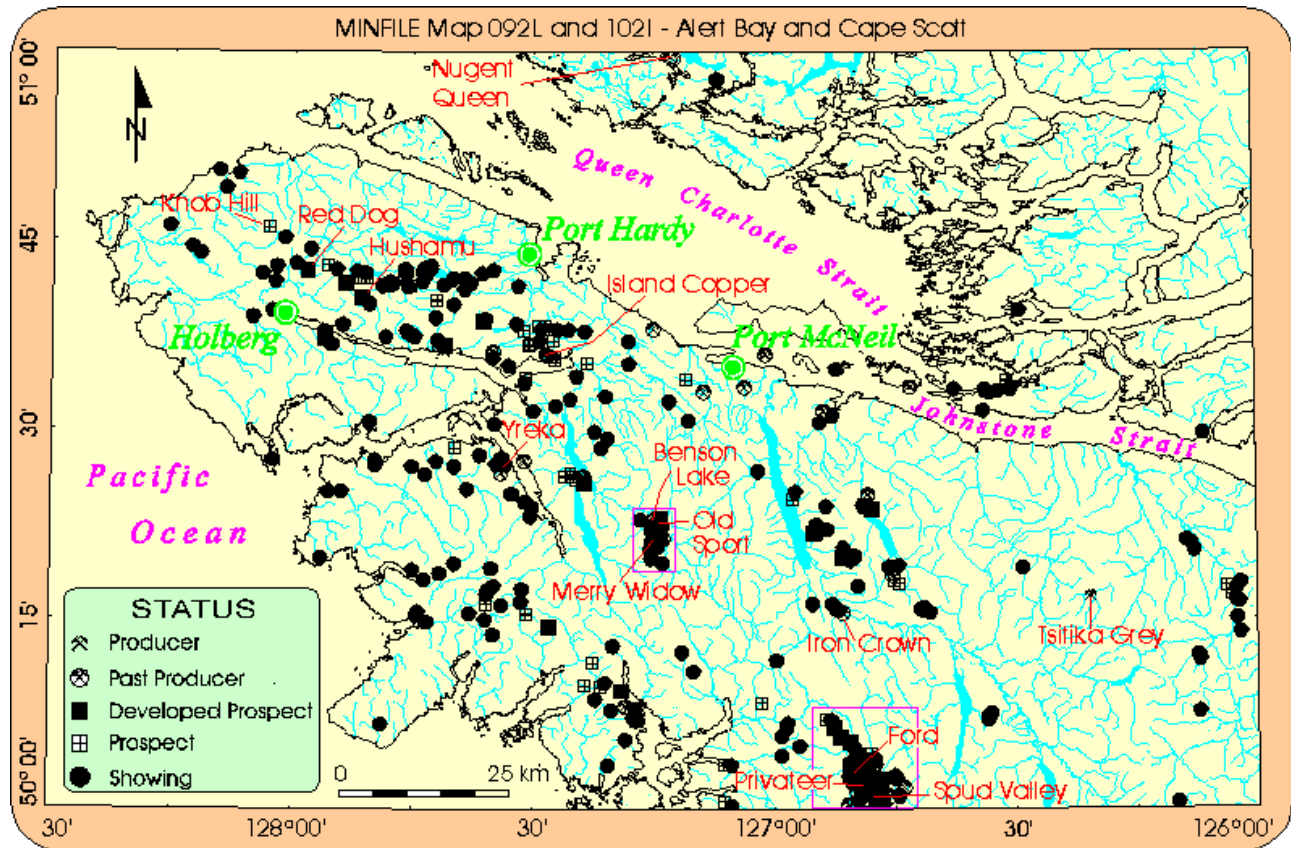


MINFILE NTS 092L, 102I - ALERT BAY, CAPE SCOTT

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The Cape Scott map area (102I) covers the northwest tip of Vancouver Island and the Alert Bay map area (092L) covers the remaining northeastern part of northern Vancouver Island and adjacent parts of the mainland. The area contains 342 recorded mineral occurrences on the Alert Bay portion of the map and a further 14 occurrences in the Cape Scott area.



The mainland area lies within the Coast Crystalline Belt. Mesozoic granodioritic rocks of the Coast Plutonic Complex are overlain by minor Wrangellia Terrane roof pendants and host only a few recorded mineral occurrences.

The Vancouver Island portion of the map lies within the Insular Belt. It is underlain by the Wrangellia Terrane which is comprised of Upper Triassic to Lower Jurassic volcanic and sedimentary rocks of the Vancouver and Bonanza groups that have been intruded by stocks of the Jurassic Island Plutonic Suite (formerly the Island Intrusions) and Tertiary intrusions (previously called the Catface Intrusions) recently divided into the Mount Washington and Tofino intrusive suites.

Regional mapping (1:50,000) of northern Vancouver Island conducted between 1992 and 1995 in the Quatsino Sound area (sheets 92L/5,6,11,12 and 102I/8,9) has been compiled at a scale 1:100,000 by Nixon et al. (Open File 1997-13). Much of the area is accessible via well-maintained logging roads operated chiefly by Western Forest Products and International Forest Products in the west, and McMillan Bloedel and Canadian Forest Products in the east. The following three paragraphs is the summary of the regional geological setting of the Alert Bay - Cape Scott map-areas as taken from an article by Nixon and Hammack (in prep.).

The geology of Vancouver Island is characterized principally by Upper Paleozoic and lower Mesozoic rocks of the Wrangellia tectonostratigraphic terrane which extends through the Queen Charlotte Islands into southern Alaska. On Vancouver Island, the basement rocks of this accreted terrane comprise Upper (Middle?) Devonian arc-related volcanic and sedimentary sequences of the Sicker Group succeeded by Mississippian to Lower Permian clastic-carbonate strata of the Buttle Lake Group. A sequence of fine-grained clastics containing Middle Triassic (late Ladinian) pelecypods (*Daonella* sp.) and intruded by numerous basaltic sills related to younger Karmutsen volcanism rests with angular unconformity on the older rocks.

The lithologies most distinctive of Wrangellian stratigraphy comprise the Upper Triassic tripartite succession of Karmutsen basalt, Quatsino limestone and Parson Bay carbonate-clastic sequence. These strata are overlain by Lower to Middle Jurassic arc volcanic and volcanoclastic rocks of the Bonanza Group, commonly regarded as effusive equivalents of the Island Plutonic Suite. Geochemical and isotopic studies of Karmutsen tholeiitic flood basalts have interpreted their tectonic setting as either reflecting rifting of the pre-existing Paleozoic arc or plume-related oceanic magmatism. The overlying Quatsino and Parson Bay formations are taken to represent platformal carbonate deposition promoted by post-volcanic foundering and continued subsidence during deposition of deeper water carbonates and interbedded siliciclastic detritus that heralded the encroachment of the Bonanza volcanic arc.

Tectonically disrupted, Upper Jurassic to Upper Cretaceous clastic assemblages rest unconformably on these deformed lower Mesozoic strata. For most of the Tertiary, Vancouver Island north of the Brooks Peninsula shared an extensional history in common with that of the Queen Charlotte Basin, governed by events at the Pacific - North America - Juan de Fuca triple junction. The subdued relief and prominent northeasterly-trending fault lineaments on this part of Vancouver Island are physical reflections of this evolution. Neogene volcanism, in the form of the Alert Bay volcanic belt, has also been linked to this triple junction.

Significant mineral occurrences are found in the Port Hardy porphyry copper area, the Zeballos gold camp and in skarn occurrences at Nimpkish Lake, Zeballos and Benson Lake (Merry Widow camp).

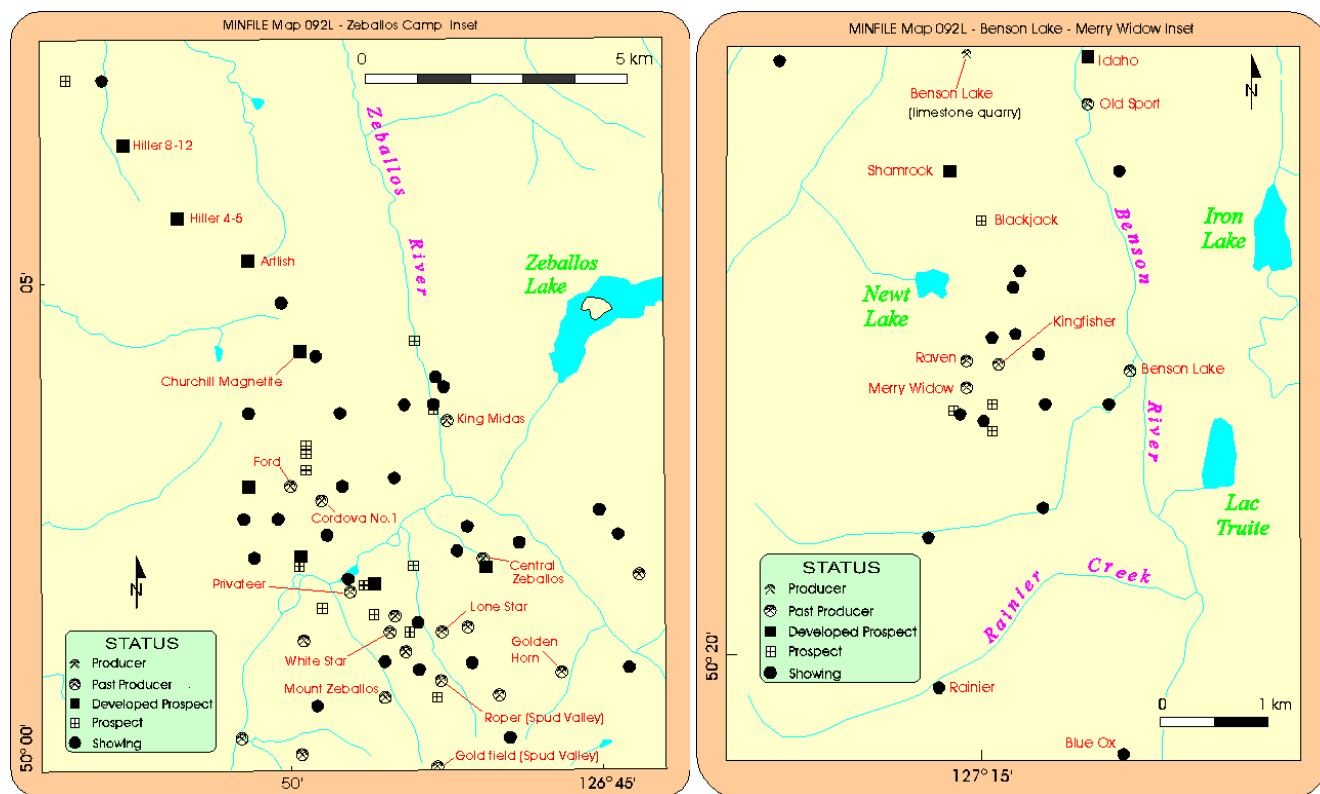
In the Port Hardy area, BHP Minerals closed the **Island Copper** mine (092L 158) in 1995. Over the course of its life, from 1971 to 1995, the mine produced over 1.2 billion kilograms copper, 31.4 million kilograms of molybdenum, 33,591 kilograms of gold, 345,535 kilograms of silver and 27,000 kilograms of rhenium from about 361 million tonnes of ore. To the northwest, the **Hushamu** (092L 240) was drilled as recently as 1994 and presently has a proven and probable reserve of over 173 million tonnes grading 0.27 per cent copper, 0.009 per cent molybdenum and 0.34 gram per tonne gold. To the northwest of the Hushamu, the **Red Dog** (092L 200), contains 25 million tonnes of ore reserves. These porphyry deposits are associated with granodiorite and quartz diorite of the Island Plutonic Suite which has intruded volcanics of the Bonanza Group.

In the Zeballos camp, narrow, rich polymetallic quartz veins carry gold and silver in or near Tertiary intrusions. Most of the camp's production came from the **Privateer** (092L 008) and **Spud Valley** (092L 013, 211) deposits between 1934 and 1951. Production from the camp totals 9465 kilograms of gold and 4119 kilograms of silver from 652,000 tonnes of ore. The mainland portion of the Alert Bay map-area hosts only one significant occurrence - the **Nugent Queen** (092L 178). This polymetallic quartz vein occurrence was mined in the 1940s, producing over 20 thousand grams of gold and 44 thousand grams of silver.

Magnetite skarn and copper skarn occur at the contact between Quatsino limestone and Jurassic granodiorite. The **Ford** (092L 028) deposit at Zeballos produced almost 1.2 billion kilograms of Iron. The **Merry Widow** (092L 044), and associated deposits produced over 1.7 billion kilograms of iron in the 1950s and 1960s. The nearby **Old Sport** (092L 035) mine produced 488 million kilograms of iron, 41 million kilograms of copper and almost 4 million grams of gold and 12 million grams of silver. The **Iron Crown** iron skarn deposit (092L 034) near Nimpkish Lake produced almost 1.3 billion kilograms of iron in the late 1950s and early 1960s.

Other production from the map area has come from gold-silver-copper quartz veins, such as **Yreka** (092L 052) on Neuroutsos Inlet, and from coal, dimension stone and pyrophyllite occurrences.

Limestone is presently quarried at **Benson Lake** (92L 295) by the International Marble and Stone Company. The fine-grained white limestone is crushed and used mainly for white extenders and fillers. Quartz monzonite is produced intermittently at the **Tsitika Grey** (092L 345) occurrence in the southeast portion of the map area. Marketed as split stone, this building stone has been favourably received by masons.



Recent exploration activity continues in the Island Copper Mine area. In the Zeballos gold camp, the Privateer and Spud Valley mines have established considerable reserves. Taywin Resources' option on the Benson Lake past producers is focusing on the copper-gold potential of the area. The same company, and Tournigan Mining, have been active in the Malskope Inlet area.

North of the town of Holberg, the **Knob Hill** prospects (102I 005) remains the most active exploration target in the map area. A 10-hole diamond drilling program on this gold-enriched epithermal deposit occurred in 1996.

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