

Data for Decision Making

Geological Survey Branch

1996 - 97 Project Inventory

Information Circular 1996-8



BRITISH
COLUMBIA

Ministry of Employment and Investment
Energy and Minerals Division

Ministry of Employment and Investment
GEOLOGICAL SURVEY BRANCH

PROJECT INVENTORY
1996/97

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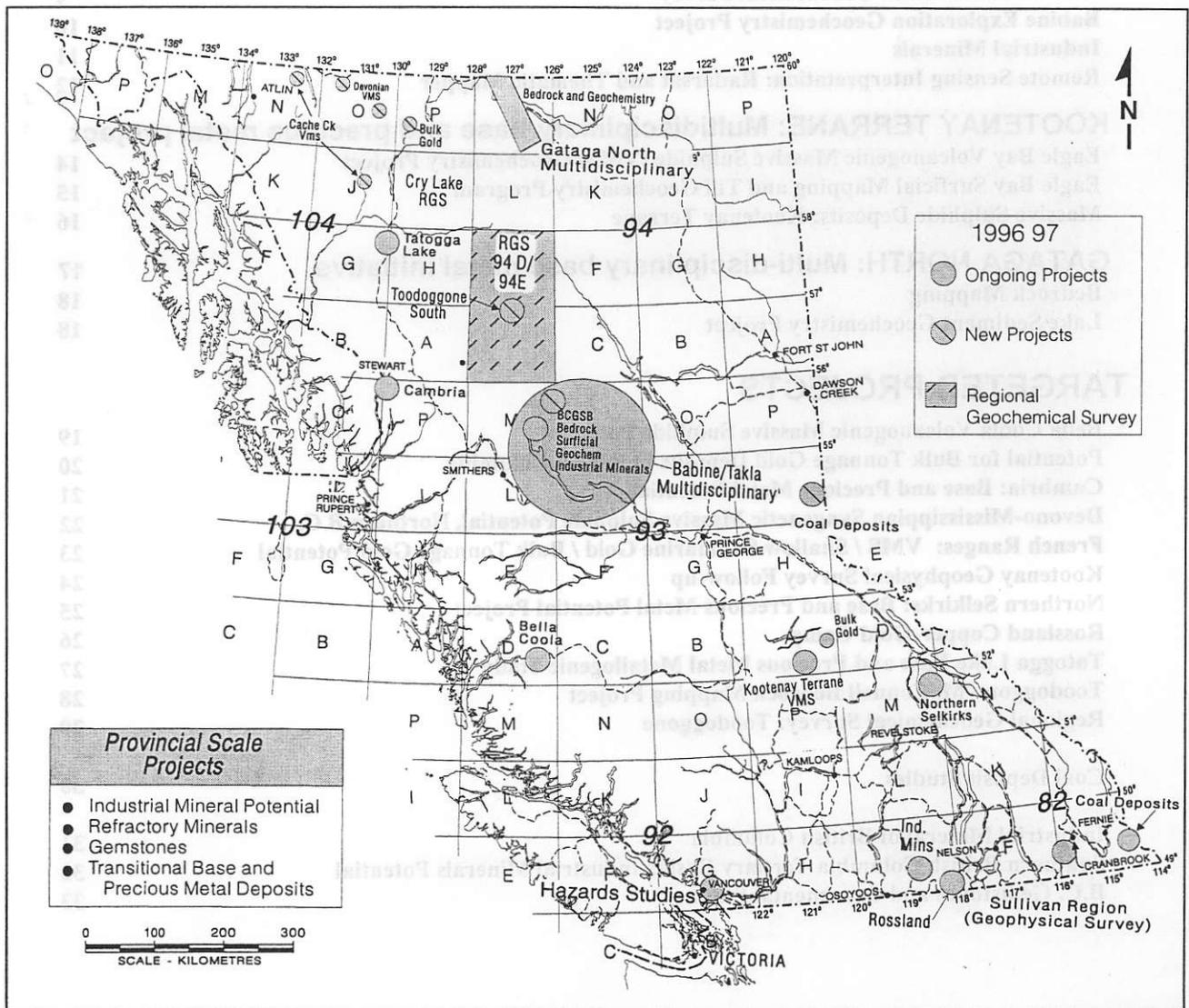
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INTRODUCTION

The Geological Survey Branch (GSB) of the Ministry of Employment and Investment (the "Ministry") is charged with providing the geological inventory required to develop British Columbia's mineral resources, to improve government's stewardship of our mineral endowment, and to help manage and protect Crown lands. This project inventory outlines the mandate of the Geological Survey; and presents descriptions of the 1996-97 work program.

MANDATE

British Columbia's mineral resources are owned by the province. The Ministry of Employment and Investment is responsible for the stewardship of those resources to meet the government's sustainable development goals, including economic development, protection of the environment, and the generation of wealth for British Columbians. The Geological Survey Branch contributes to provincial goals by maintaining the inventory of the province's geology and the mineral resources contained therein. The vitality of this inventory is a direct result of sustained, long term investment by the province over the last hundred years.

The Geological Survey Branch, in partnership with the federal Geological Survey of Canada (GSC) works to maintain and expand British Columbia's geoscience database. We conduct geological surveys and applied research to attract and guide private sector exploration investment. A centrally-funded geological survey ensures that geological data are of high-quality and easily accessible. It also ensures that government receives the expert, objective advice needed to manage Crown lands, its mineral resources base, and to develop sound policy.

The Branch's mandate is to:
Assemble, maintain, and market a comprehensive geoscience database for B.C. to provide a sound base for (1) exploration and development of the province's mineral resources;

(2) planning and resource management decisions by governments; and, (3) public information on geological resources and hazards.

THE BRANCH'S VISION IS:

To provide the geoscience data and expertise required to maximize the province's economic growth and environmental sustainability. We will be a full player in the process of government so that mineral values and natural geological hazards are considered in decision making. We will expand our role in communicating geoscience issues that affect the everyday lives of British Columbians.

Our vision of an expanded use of geoscience data requires that the Branch:

Continues to ensure the B.C. geological database is high-quality, accessible and understandable, employing state-of-the-art data collection and management methods;

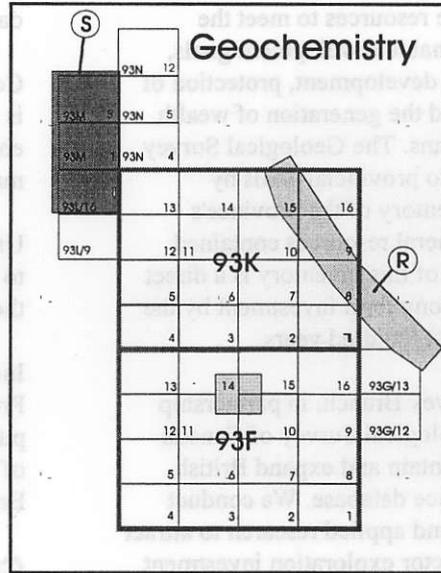
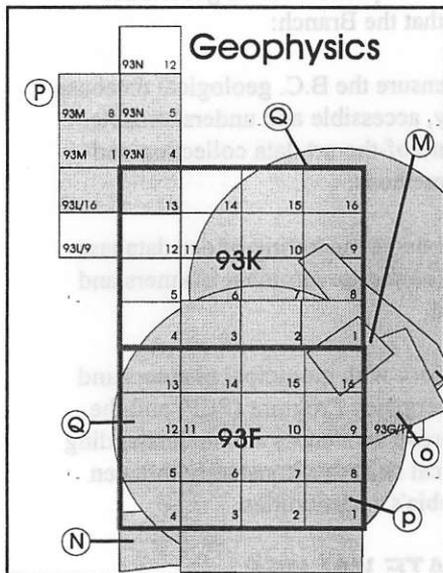
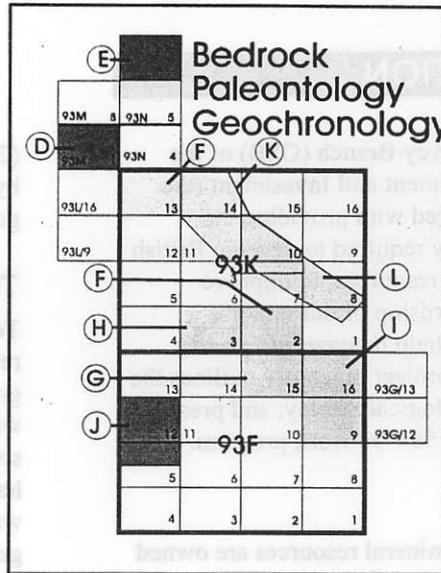
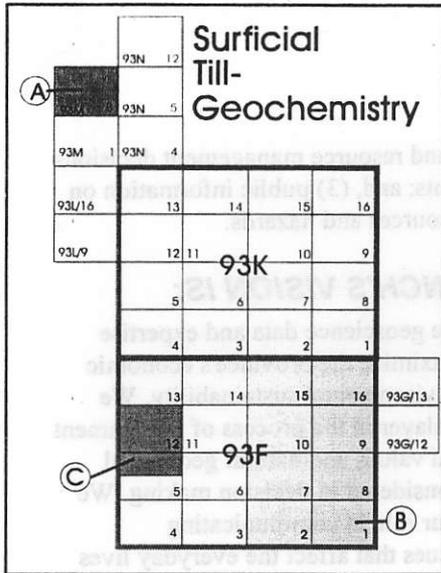
Undertakes strategic marketing of our database to the mineral sector, government planners and the public; and,

Increase our work with municipal planners and Provincial Emergency Program (PEP) and the public, to improve awareness and understanding of the geological risks that constantly threaten British Columbia's communities.

CORPORATE VALUES

As part of the Ministry's Mineral Resources Division, the Geological Survey Branch is part of a team charged with the stewardship and management of British Columbia's minerals. The Branch is committed to providing data and services in support of division, ministry, and government objectives. At the same time, we strive to create a rewarding work environment for staff in the scientific fields of geological surveying, related applied research, and for the Branch's support-services staff.

NECHAKO NATMAP PROJECTS PROPOSED FOR 1996.



- **A** Levson, Stumpf (BCGS, UNB)
- **B** Plouffe (GSC)
- **C** Levson (BCGS)
- **D** MacIntyre et al. (BCGS)
- **E** Schiarizza (BCGS)
- **F** Struik et al. (GSC)
- **G** Anderson (GSC)
- **H** Whalen, Villeneuve (GSC)
- **I** Wetherup et al (UA, GSC)
- **J** Diakow et al. (BCGS, GSC)

- **K** Cordey (Contract to GSC)
- **L** Orchard (GSC)
- **M** Lowe, Best (GSC)
- **N** Lowe, Seeman (GSC)
- **O** Enkin (GSC)
- **P** Grunsky, Massey (BCGS)
- **Q** Cassidy (GSC)
- **R** Dunn et al.(GSC)
- **S** Cook (BCGS)

ACTIVITIES:

INTEGRATED PROGRAMS

NECHAKO NATMAP: A JOINT BCGS-GSC PROJECT

Program Coordinator: Don MacIntyre

Project Team: Bedrock Mapping/Mineral Deposits: Don MacIntyre, Paul Schiarizza, Ian Webster, Tom Schroeter, Bob Lane, Larry Jones; Surficial Mapping: Vic Levson; Industrial Minerals: Dan Hora; Geochemistry: Steve Cook; Remote Sensing/GIS: Eric Grunsky

Project Statement:

The British Columbia Geological Survey Branch, and the Geological Survey of Canada, together with researchers in universities and industry, initiated a new geoscientific program in central British Columbia (93F, 93K, and parts of 93G, 93L, 93M, 93N) in 1995. The Nechako area was assigned a high priority for new mapping by the GSC/BCGSB cooperation committee. Selection of the area was sanctioned by the industry liaison committees of both organizations, and by the local mineral industry. The Nechako NATMAP program addresses the problem of a poor geological database for the central Canadian Cordillera, a situation which has hampered mineral exploration: Specifically the program will examine the role of Tertiary crustal extension and its control on the distribution of mineral deposits such as the former Bell and Granisle mines, located in the Babine lake area. In addition the program will examine the history of Mesozoic compression and the manner of accretion of the tectonic terranes that underlie the area, the geological and geophysical definitions of the terranes, the history of plutonism, the nature of known mineral deposits and their controls, and the character and dispersion history of glacial deposits.

Actions:

The second year of the Nechako NATMAP integrated geoscience program will focus on bedrock mapping and mineral deposits studies in the Babine Porphyry Belt and Sitlika project areas. The bedrock program will consist of four mapping crews, two in each area. Access will be a combination of logging roads and helicopter. Samples will be collected for radiometric dating, fossil identification, assay, whole rock and trace element geochemistry. Data will be collected using a combination of GPS, digital mapping and database systems which will produce data in GIS compatible digital format.

Surficial mapping and till geochemistry surveys will be carried out in conjunction with the bedrock mapping program to identify potential mineral and geochemical anomalies in drift-covered areas. Detailed studies will be conducted to model dispersal of mineralized bedrock, determine the ice-flow history of the area, and help design better exploration methods for tracing anomalies to their bedrock sources.

We will publish reports in Geological Fieldwork and Current Research 1995, publish Open File Maps for Cordilleran Roundup 1996, and present poster displays at Cordilleran Roundup 1996.

Nechako NATMAP - Babine Porphyry Belt - Bedrock Mapping Project

Project Team: Don MacIntyre, Ian Webster

| | | |
|-------------|--------|----------|
| Year 2 of 4 | Budget | \$69,000 |
|-------------|--------|----------|

Project Statement:

The 80 kilometre long Babine Porphyry Belt is located in West Central B.C. at the north end of the Chilcotin Plateau Tertiary extension complex. The Porphyry Belt is centered on the north end of Babine Lake and includes twelve major porphyry copper deposits of Eocene age including the Bell and Granisle past producers. The value of past production is estimated at \$1.13 billion (1986 dollars). The mineral potential of the area was the fourth highest of the 97 tracts evaluated in the Skeena-Nass Mineral Potential project.

In spite of the high mineral potential and obvious economic significance of the area, the most recent geologic mapping in the belt was by Carter in 1973 (B.C. Preliminary Map 12). Until recently, poor bedrock exposure and thick bush limited exploration in the area. Recent, extensive logging, however, provided new access and better bedrock exposure, especially in areas with extensive drift cover. This coupled with renewed interest in porphyry copper deposits as an exploration target and the need for economic diversification in the Smithers area economy make this multi-disciplinary project particularly timely. It is hoped that new bedrock and surficial mapping, interpretations of remote sensing data - aeromagnetic maps, and Radarsat and Thematic Mapper Images, mineral deposit studies plus targeted geochemical and airborne geophysical surveys will stimulate additional exploration in the belt and lead to new discoveries. Drift prospecting and lake geochemistry programs will be especially important in defining new targets in drift covered areas.

Actions Planned:

The second year of bedrock mapping and mineral deposit studies will cover the Old Fort Mountain (93M/1) map sheet and parts of the Nakinelerak Lake (93M/8) map sheet. Major deposits and prospects to be examined and mapped in 1996 include Morrison, Hearne Hill, Nak, Wolf, Dorothy, Old Fort and Bell (see map). Samples will be collected for radiometric dating, whole rock geochemistry, assay and microfossil determination where necessary.

A report for Geological Fieldwork and Current Research, 1996, Open File maps for 93L/16 and 93M/1 and a poster display at Cordilleran Roundup 1997. Data will be posted on the World Wide Web and digital copies of field notes made available to clients. A field conference is planned for Smithers in September, 1996, and talks for the CIM District 6 meeting also in September and Cordilleran Tectonics Workshop, February 1997.

The program will involve collaboration with the Geological Survey of Canada.

Nechako NATMAP: Sitlika Bedrock Mapping Project

Project Leader: Paul Schiarizza

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|-------------|--------|---------|
| Year 1 of 3 | Budget | \$81482 |
|-------------|--------|---------|

Project Statement:

The Sitlika bedrock mapping project will concentrate on geoscientific surveys of the Sitlika assemblage east of Takla Lake. Goals of the project include evaluation of the hypothesis that the Sitlika correlates with the Kutcho Formation, which hosts the Kutcho Creek VMS deposit. If it is valid, this correlation has significant geologic and economic implications. Other goals are to update the 46 year-old geologic database for the western Manson River map area through 1:50,000 bedrock mapping and sampling, and to assess the mineral potential of the Sitlika stratigraphy including its potential for hosting volcanogenic massive sulphide deposits.

Results of reconnaissance work in 1995 confirmed that the age of the Sitlika assemblage is very close to that of the Kutcho Formation. Further, although they differ in some ways, Sitlika rocks in the Takla Lake area include a bimodal sequence of volcanic rocks that may have VMS potential.

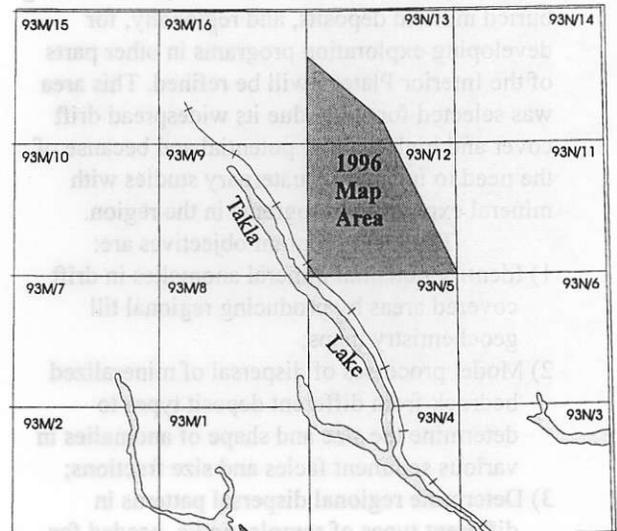
Actions:

The 1996/97 program will follow up from reconnaissance results and attempt to cover an area equivalent to one 1:50 000 scale map-sheet. Work will continue to evaluate the correlation between the Kutcho Formation and Sitlika assemblage. Co-operation with the University of British Columbia's Mineral Deposit Research Unit (MDRU), who are studying the Kutcho Creek deposit, will continue and focus on comparisons with the Sitlika rocks. The project will examine all the known showings in the area covered, and document the internal stratigraphy of the best exposed part of the Sitlika assemblage in the Humphrey Lake (93N/12) map area. The work plan will include follow-up

of known RGS anomalies and collection of additional stream sediment samples. The Sitlika project has good potential for generating exploration activity in an area that has relatively few mineral claims (discovery of a zone of strong hydrothermal alteration last season spurred some staking).

There will be a report produced for Geological Fieldwork and Current Research 1996, and an Open File map for release at Cordilleran Roundup 1997.

This project is a component of the Nechako NATMAP program



Sitlika Project

**Nechako NATMAP Surficial Mapping and Till Geochemistry Project:
Nechako-Babine Region**

Project Leader: Victor M. Levson

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| Year 2 of 3 | Budget | \$118,500 |
|-------------|--------|-----------|

Project Statement:

The objectives of this program are to conduct regional till geochemical sampling in conjunction with surficial geology mapping. The project area will be in the Babine Lake region (93M/8) and will extend south onto 93F/5, 12 to connect with recently mapped sheets in the Nechako Plateau (93F/2, 3, 7). Surficial geology mapping and till geochemistry sampling were completed on two sheets in the Babine area (93L/16, M/1) in 1995/96. The project is interdisciplinary and will be conducted in collaboration with bedrock geology mapping, lake sediment sampling, mineral deposit studies and geophysical studies. Drift exploration models that can be used both locally, for locating buried mineral deposits, and regionally, for developing exploration programs in other parts of the Interior Plateau will be refined. This area was selected for study due its widespread drift cover and high mineral potential and because of the need to integrate Quaternary studies with mineral exploration programs in the region.

The main program objectives are:

- 1) Identify potential mineral anomalies in drift covered areas by producing regional till geochemistry maps;
- 2) Model processes of dispersal of mineralized bedrock from different deposit types to determine the size and shape of anomalies in various sediment facies and size fractions;
- 3) Determine regional dispersal patterns in different types of sample media, needed for appropriate design of exploration programs by conducting till stratigraphy, ice flow history and lithologic studies;
- 4) Identify, for industry, surficial units in which there is a high potential of tracing mineral anomalies to their bedrock source by producing 1:50 000 time-stratigraphic surficial geology maps incorporating local and regional ice flow history data.

Actions:

This is the second year of a four year program and will include several components. Among these are background data compilation in which existing terrain maps from various sources (GSC, MOE) will be analyzed and combined with new airphoto interpretation data to form the basis for the production of a 1:50 000 scale surficial geology map. The fieldwork component will focus mainly on till geochemical sampling and stratigraphic and surficial geology studies designed to define regional Quaternary stratigraphy, the character of drift units and the Pleistocene ice-flow history. This data will help to locate areas with the best potential for buried mineralization, and to understand geochemical dispersion patterns.

These studies will be used to help develop exploration methods applicable throughout the region by determining processes of glacial dispersal, rates of anomaly decay from known mineralized sources and effective sampling procedures and densities.

A paper will be prepared for Geological Fieldwork 1996, and a surficial geology open file map (1:50, 000 scale) will be released at Cordilleran Roundup 1997. An Open File Till Geochemistry Report will follow by the end of March 31, 1997

Collaboration will be extensive with the University of New Brunswick and the Geological Survey of Canada, who will undertake 1:100,000 surficial geology mapping on adjoining sheets.

This project is a component of the Nechako NATMAP program

Nechako NATMAP: Babine Lake Sediment Infill Project

Project Leader: Stephen Cook

Year 1 of 2 Budget \$50,000

Project Statement:

Complementary lake sediment and till geochemistry surveys conducted during the Interior Plateau Project have proven highly effective in drift-covered regions of the Nechako Plateau. In the Babine Porphyry Belt, however, there is little regional lake sediment geochemistry data available to complement the bedrock mapping and till geochemistry surveys conducted in 1995.

The purpose of the Babine Lake Sediment Infill Project is to provide complementary lake sediment and water geochemistry data to accompany ongoing bedrock mapping and till geochemistry surveys in the Babine Porphyry Belt. The survey will be conducted in three 1:50,000 scale map areas (NTS 93L/16, 93M/01, 08) where bedrock mapping has been or will be conducted (1995-1997) as part of the ongoing Nechako NATMAP project. This project will be fully integrated with the ongoing bedrock mapping program. Geochemical mapping will assist the mapping program, as lakes occupying linear depressions may indicate the locations of Eocene faults in the area, and potential sites of epithermal activity.

Exploration in this area has been hindered by a heavy drift cover and lack of bedrock exposure. The 1986 RGS survey of the Smithers map area included only 35 lake sediment sites in map area 93L/16; there is no lake sediment geochemical data available for the rest of the Babine Porphyry Belt to the north. Furthermore, the survey was conducted at a very low site density (~1 site per 20 km²) relative to the anticipated site density of about 1 site per 8 km², and includes a very limited range of elements compared to modern RGS surveys.

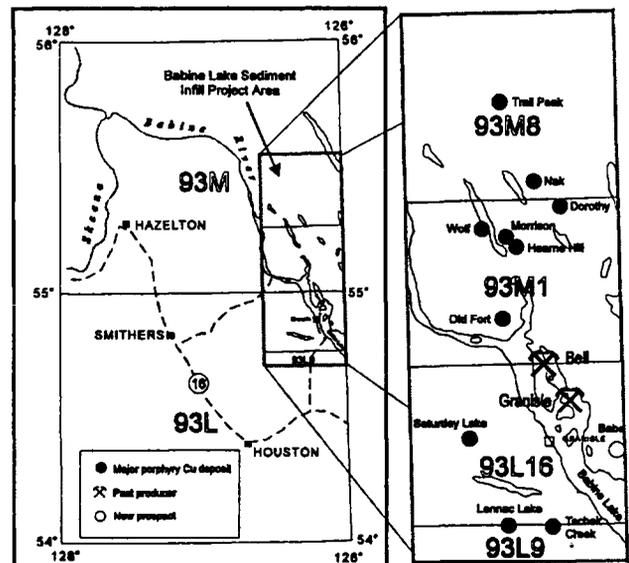
Actions:

A regional lake sediment geochemistry infill survey in NTS map areas 93L/16, 93M/01 and

93M/08 will collect samples from approximately 275 sites.

A presentation will be made at the Smithers field conference in September, 1996. There will also be a paper in Geological Fieldwork 1996, a poster presentation at Cordilleran Roundup 1997, and an Open File geochemical data release in the spring of 1997.

This project is a component of the Nechako NATMAP program.



Nechako NATMAP: Babine Exploration Geochemistry Project

Project Leader Stephen Cook

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|-------------|--------|----------|
| Year L of 1 | Budget | \$50,000 |
|-------------|--------|----------|

Project Statement:

The purpose of the Babine exploration geochemistry project is to determine the most effective geochemical exploration methods for discovering, in till, the dispersed remnants of buried Babine porphyry copper-gold mineralization and associated hydrothermal systems.

The Babine porphyry belt has excellent potential for hosting additional porphyry copper-gold deposits, but geochemical exploration in the region is notoriously difficult due to an extensive drift cover and the widespread distribution of post-glacial lake sediments. Surficial mapping conducted during the first year of the Nechako NATMAP Project has demonstrated the usefulness of glacial till as a geochemical sampling medium, but to interpret subtle anomalies, sedimentological studies of till must be combined with investigations of the geochemical expression of till down-ice from hydrothermal alteration zones associated with known deposits.

As the alteration zones with Babine porphyries are typically more extensive than the mineralized zones themselves, they offer a potentially larger exploration target, provided that the geochemical and mineralogical expressions of the alteration mineralogy can be recognized in till. The porphyry deposits typically have potassic and propylitic alteration zones around a smaller central zone with copper sulphides. They also have extensive pyrite halos with marginal polymetallic veins. The project will investigate geochemical exploration methods and identify those that most reliably reflect the alteration signatures associated with Babine porphyries. Results will be communicated to the exploration industry to increase the likelihood of future mineral deposit discoveries.

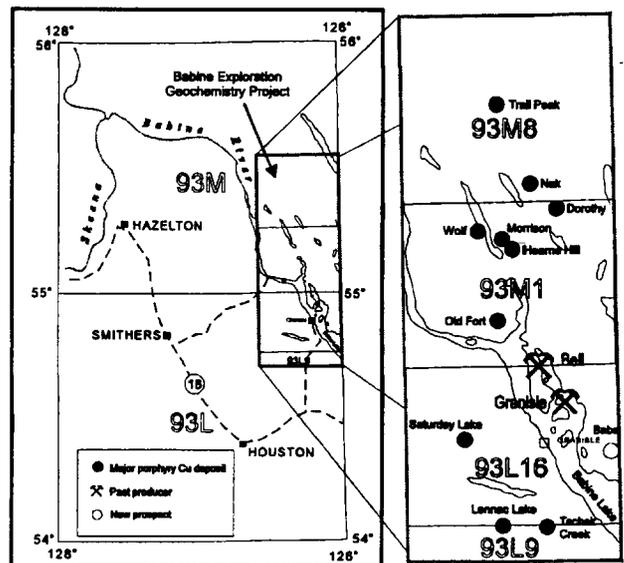
Work Plan for 1996-97 Fiscal Year:

Deposit-scale studies will be conducted at two Babine porphyry deposits (possible choices are the Nak, Bell, Lennac and Babs deposits). The study will identify geochemical dispersal patterns in till, and determine the most effective pathfinder elements associated with Babine deposits. It will also identify, in field and laboratory settings, the most effective methods of identifying the dispersed remnants of hydrothermal alteration signatures in till around these deposits. Laboratory methods will include use of heavy mineral concentrates and magnetic separates.

Data and interpretations will be presented to the exploration community at the Smithers field conference in early fall, 1996, in a paper for Geological Fieldwork 1996, and in an Open File map and poster session at the Cordilleran Roundup in January 1997.

Cooperation in the project is ongoing with Colin Dunn of the Geological Survey of Canada

This project is a component of the Nechako NATMAP Project.



Nechako NATMAP: Industrial Minerals Project

Project Leader **D. Hora**

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|--------------------|---------------|----------------|
| Year 1 of 2 | Budget | \$5,000 |
|--------------------|---------------|----------------|

Project Statement:

The NATMAP area, 93F/93K, has had few studies that considered the industrial minerals potential of the area. The general geologic setting points to several very important opportunities for new mineral deposit types. The main objective is to evaluate potential in the region for unconformity related residual deposits - kaolin, vermiculite; the industrial minerals kaolin, ceramic clays, zeolites, bentonite, and diatomite in Tertiary volcanics and sediments; and the commodities asbestos, chromite and jade in ultramafic rocks of the Cache Creek group.

Actions:

A review of MINFILE industrial mineral occurrences in the project area; will be followed up by field visits and consultations with bedrock and surficial mapping crews to check areas of

interest that they have identified. The field reconnaissance will take about two weeks to cover typical exposures the mappers, and two weeks to cover areas mapped by the Branch during the 1995 field season.

A field trip with the field crews at the beginning of the field season will visit unconformity and typical Tertiary exposures in the Quesnel area so they will know what kinds of features to look out for.

An articles in Geological Fieldwork 1996 will present an assessment and compilation of industrial minerals in the area. There will be a Roundup poster, and possibly a talk at the Smithers regional conference.

This project is a component of the Nechako NATMAP program.

Nechako NATMAP: Evaluation of RADARSAT Application to Geological Interpretation in Drift-Covered Areas

Project Leader: Eric Grunsky

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|-------------|--------|---------|
| Year 1 of 2 | Budget | \$2,500 |
|-------------|--------|---------|

Project Statement:

The main objective of this study is to evaluate the use of Radarsat data to aid bedrock and surficial mapping in the Nechako Plateau to assist in interpretation of geological and structural features in areas of overburden. The interpretations will be based on both satellite and radar imagery, and will be integrated with geological, geochemical, and geophysical information to enhance the geological interpretation of the area

Two additional objectives are to evaluate the usefulness of C-band SAR data at the local and regional scales for integrated geoscience projects, and to attempt to develop a methodology for incorporating SAR data into areas of high relief for a more effective interpretation of geology and associated structure.

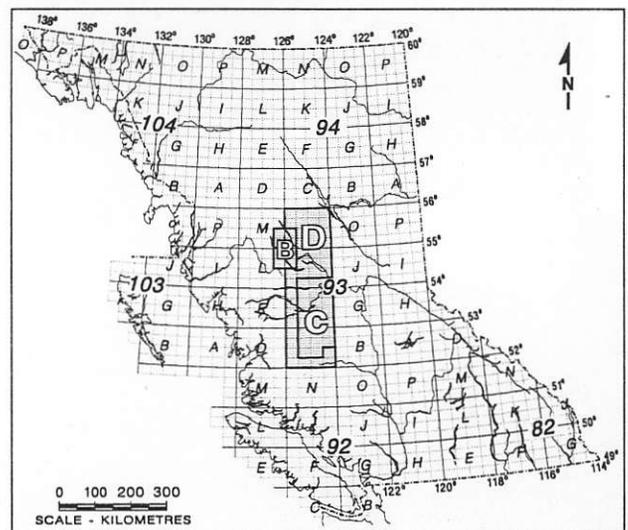
The purpose of applying RADARSAT data image analysis is to enhance the geological interpretation through the delineation of additional structural or crustal features. In addition, Landsat Thematic Mapper satellite imagery will be used to enhance both geological and structural interpretation through the use of band ratioing and other image processing techniques. Expertise gained will be transferred to other GSB staff through informal workshops and demonstrations and contributions to future Branch projects.

Actions:

Once Landsat Thematic Mapper and Radarsat Data have been acquired, we will create digital elevation models for both study areas. Geocoded Radarsat and Landsat images will be integrated with known geology and initial interpretation of the integrated data carried out.

Outputs from the project will include a poster Display of initial results at Cordilleran Roundup 1997, and an informal in-house workshop. The project will contribute to the NATMAP 1996-97 report. A paper will be presented at a suitable remote sensing conference during 1997.

Collaborating agencies in the project are: the Canadian Centre for Remote Sensing, Radarsat Project, Canadian Space Agency; and the Cordilleran Division, Geological Survey of Canada (NATMAP).



INTEGRATED PROJECTS

KOOTENAY TERRANE: Eagle Bay Project: Multidisciplinary Base and Precious Metal Deposit Project

Project Team: S. Sibbick, P. Bobrowsky and T. Höy

Project Statement:

The Kootenay terrane, deposited along the ancestral margin of North America, contains a variety of massive sulphide deposits and significant potential for new discoveries. Kuroko, Besshi and Sedex-type deposits ranging from Cambrian to Devonian in age are located within this terrane. Devonian-Mississippian rocks of the Eagle Bay Formation occur within the terrane and are identical in many respects (age, lithology) to rocks hosting important Kuroko-type volcanogenic massive sulphide deposits (Kudzu, Ze Kayah and Wolverine) recently discovered in the Yukon. The Kootenay Terrane - Eagle Bay program will assess the potential for additional massive sulphide deposits in this terrane, define new exploration targets and develop models to guide exploration in the region.

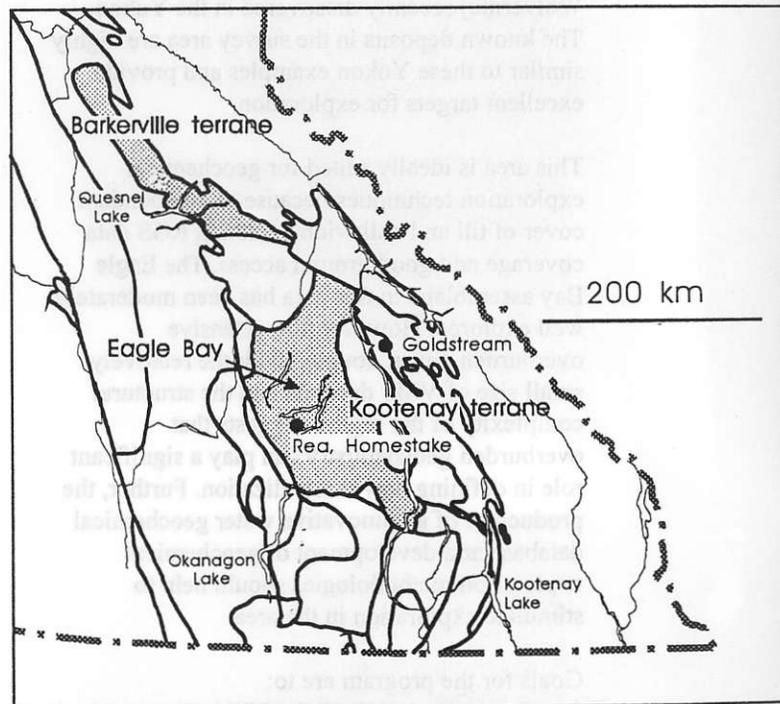
The program objective is to stimulate mineral exploration in the Kootenay terrane by improving the geological database. Metallogenic studies will focus on known deposits in order to provide a geological framework for massive sulphide mineralization in the Kootenay terrane. Surficial geology and geochemical studies will focus on creating regional databases and exploration models for the overburden covered regions of the Eagle Bay formation.

Actions:

New or actively explored massive sulphide deposits and their regional settings will be mapped, a stream water geochemical survey will be conducted in the Eagle Bay study area. Studies will be carried out in the Eagle Bay area to establish the Quaternary geologic history and ice-flow directions to aid determination of down-ice dispersal patterns. Bulk till geochemistry samples will be collected over the three map sheets and a detailed study of down-ice dispersal will be conducted in the vicinity of known VMS mineralization. Ongoing collaboration

between components will ensure integration of the datasets collected.

Results will be brought together in a series of articles for Geological Fieldwork 1996, and poster sessions are planned for Cordilleran Roundup 1997. Open File releases of the geochemical data will be made as soon they are available. Presentations at the Kamloops Exploration Group (KEG) meeting in early 1997 will highlight project results.



Distribution of Kootenay and Barkerville Terranes, and Selected Massive Sulphide Deposits southern British Columbia

Eagle Bay Volcanogenic Massive Sulphide (VMS)-Targeted Geochemistry Project

Project Leader: S. Sibbick and R. Lett

| | | |
|-------------|--------|----------|
| Year 1 of 1 | Budget | \$56,000 |
|-------------|--------|----------|

Project Statement:

The objectives of the Eagle Bay VMS geochemistry program are to create a regional stream water database to identify areas which may host concealed massive sulphide mineralization and to develop exploration parameters and methodologies for VMS till geochemistry surveys.

The project area corresponds to a region defined by bedrock mapping (Schiarizza and Preto MEMPR Paper 1987-2) approximated by NTS map sheets 92M/4, 5 and 12. Devonian-Mississippian age rocks of the Eagle Bay Assemblage occur within the area and are identical in many respects (age, lithology) to significant Kuroko-type volcanogenic massive sulphide deposits (Kudz Ze Kayah and Wolverine) recently discovered in the Yukon. The known deposits in the survey area are highly similar to these Yukon examples and provide excellent targets for exploration.

This area is ideally suited for geochemical exploration techniques because of an abundant cover of till and colluvium, existing RGS data coverage and good ground access. The Eagle Bay assemblage in this area has been moderately well explored. However, the extensive overburden cover, coupled with the relatively small size of VMS deposits and the structural complexity of the region suggests that overburden geochemistry can play a significant role in defining new mineralization. Further, the production of an innovative water geochemical database and development of geochemical exploration methodologies should help to stimulate exploration in the area.

Goals for the program are to:

1. Collect and analyze (by ICP-MS) stream water samples (approximately 300) from the study area
2. Conduct a detailed deposit study to determine the critical exploration parameters

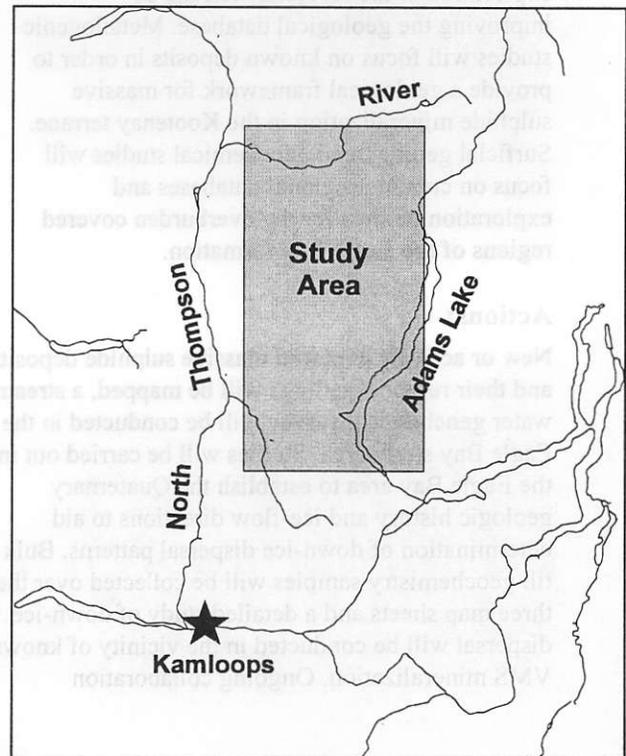
for VMS exploration in overburden covered areas (pathfinders, thresholds, dispersal length, etc.)

3. Produce water geochemistry maps of major and minor elements for the study area.
4. Promote the Eagle Bay Assemblage as a good target for VMS exploration.

Actions:

Fieldwork will consist of collection of waters from streams draining Eagle Bay rocks of the study area, and collection of field data and geochemical samples in the vicinity of known VMS mineralization. Streamwater geochemistry maps will be completed for release at Cordilleran Roundup 1997.

Results will be brought together in an article for Geological Fieldwork 1996. An Open File release and poster session are planned for Cordilleran Roundup 1997. A presentation Kamloops Exploration Group (KEG) meeting in early 1997 will highlight project results.



Eagle Bay Surficial Mapping and Till Geochemistry Program

Project Leader: Peter Bobrowsky

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| Year 1 of 1 | Budget | \$98,000 |
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Project Statement:

The objective of this project is to conduct a regional drift exploration program in the high VMS potential Eagle Bay Assemblage in the Adams Plateau-Clearwater-Vavenby area. The project will involve surficial geology mapping (1:50,000 scale) and moderately high density (approaching 1 per 4 km²) till geochemistry sampling in the drift-covered terrain northeast of Kamloops. The intent of the project is to generate and release basic till geochemistry data within the same fiscal year to stimulate local exploration activity. The region to be sampled corresponds to an area defined during bedrock mapping by Schiarizza and Preto (MEMPR Paper 1987-2). This area approximates NTS map sheets 92M/4,5 and 12 as delimited by the regional mapping. Devono-Mississippian age rocks of the Eagle Bay assemblage occur within the area and are identical in many respects (age, lithology) to significant Kuroko-type volcanogenic massive sulphide deposits (Kudz Ze Kayah and Wolverine) recently discovered in the Yukon. These similarities suggest that the Eagle Bay assemblage has excellent potential for new VMS mineralization. This area is ideally suited for drift exploration because of a well-understood Quaternary geologic history for the region, abundant cover of till and colluvium, only minor amounts of glaciolacustrine and glaciofluvial deposits, clear ice flow patterns to the south and southeast, good indicator lithologies and exceptional access. The area is well-staked by a number of companies eager to move properties, and the production of a moderately high density till geochemistry database should help to stimulate renewed interest in the area.

The objectives of the Eagle Bay Till Geochemistry program are to:

1. conduct surficial geology mapping at 1:50,000 scale of map sheets 92M/4, 5, and 12 to locate suitable landform deposits for till geochemistry sampling;
2. conduct regional 1:50,000 scale till geochemistry sampling to identify anomalous areas for industry follow-up;
3. produce surficial geology maps which show surficial deposits best suited for follow-up exploration;
4. produce of till geochemistry maps of 40+ major and minor elements for all 3 map sheets.

Work Plan for 1996-97 Fiscal Year:

This project is designed as a one year effort comprising field work, data and till sample collection, analysis and publication. Property scale follow-up is recommended for year two based on results of geochemical data. Fieldwork will involve ground truthing preliminary air photographic interpretations to confirm or modify landform polygons for the surficial maps. Ground truthing will also involve the identification of deposits suitable for till geochemistry sampling. Stratigraphic and sedimentologic studies will be conducted where exposures exist to establish the Quaternary geologic history for the region. Ice-flow indicators (pebble fabric, striae, landforms) will be collected and used in defining the methodology for sampling down ice dispersal patterns. Bulk till geochemistry samples (4-10 kg) will be collected over the 3 maps sheets. Samples will be submitted for preparation through contract.

Results will be presented in Open File surficial geology and till geochemistry maps at Cordilleran Roundup 1997. A presentation at KEG 1997 will highlight project results.

Collaboration is underway with the University of Victoria and Simon Fraser University.

Massive Sulphide Deposits: Kootenay Terrane

Project Leader: Trygve Höy

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| Year 1 of 2 | Budget | \$16,000 |
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Project Statement:

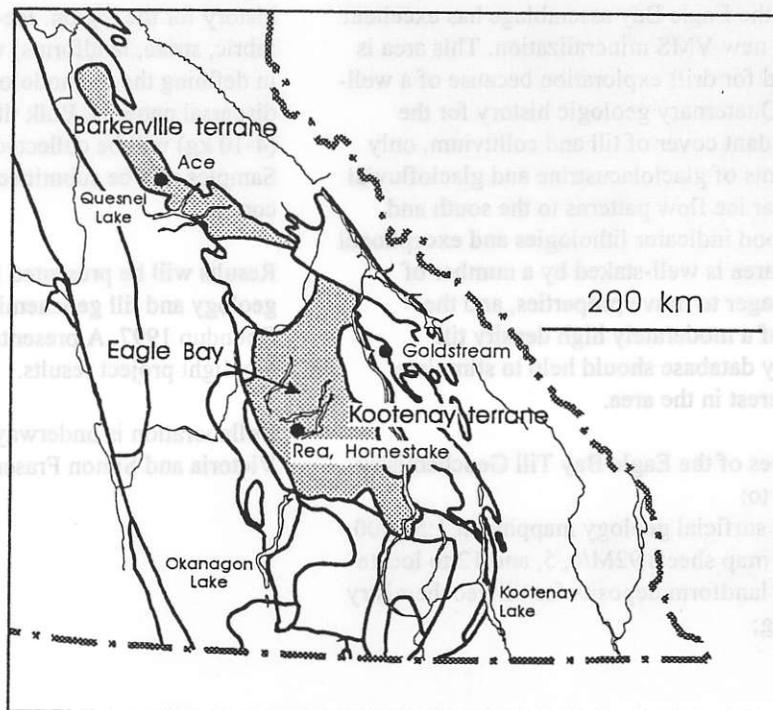
The Kootenay terrane, deposited along the ancestral western margin of North America, contains a variety of massive sulphide deposits. These have been a source of base and precious metals in British Columbia and continue to be an active exploration target. Massive sulphide deposits include polymetallic Cu-Pb-Zn-Ag deposits in Devonian Eagle Bay Formation, as well as SEDEX Pb-Zn-Ag and BESSHI Cu-Zn-Ag deposits in older Cambrian (?) rocks. This project will assess the potential for additional massive sulphide deposits in this terrane, help define prospective belts, describe new deposits and determine their tectono-stratigraphic setting.

Actions:

Visit, sample and map, where feasible, three or four new or actively explored massive sulphide deposits and their regional setting including (1) Bend at McNaughton Lake (2) Ace near Likely (3) True Blue near Kaslo (4) Cottonbelt north of Revelstoke and possibly others dependent on MINFILE research. Both Ace and Cottonbelt will be actively explored this field season. Spend approximately one week in the field collaborating with surficial geology and geochemical components of this study of Eagle Bay deposits.

Fieldwork or Exploration in B.C. article,
Roundup poster
Talks at district meetings and workshops

Industry involvement: Canquest, J. Leask and Associates, Barker Minerals Ltd.



Distribution of Kootenay and Barkerville Terranes,
and Selected Massive Sulphide Deposits
southern British Columbia

INTEGRATED PROJECTS

GATAGA NORTH: Multidisciplinary Base Metal Initiative

Project Team: (Bedrock Mapping) Filippo Ferri with JoAnne Nelson and Andrew Legun; (Geochemistry) Steve Cook with Wayne Jackaman

Project Statement:

The Gataga belt is known for Sedex deposits, such as Cirque, Driftpile Creek, and more recently Akie that are in strata correlative to those in the Selwyn Basin. The favorable stratigraphy has been traced northward from the Driftpile Creek deposit and is thought to continue to the Yukon border. This multidisciplinary study will concentrate of geoscientific surveys and on refining exploration tools for Sedex base metal deposits in the area. It includes 1:50 000 scale geological mapping northward from the Driftpile Creek sedex property to the Yukon border, studies of the Sedex mineralizing environment and regional

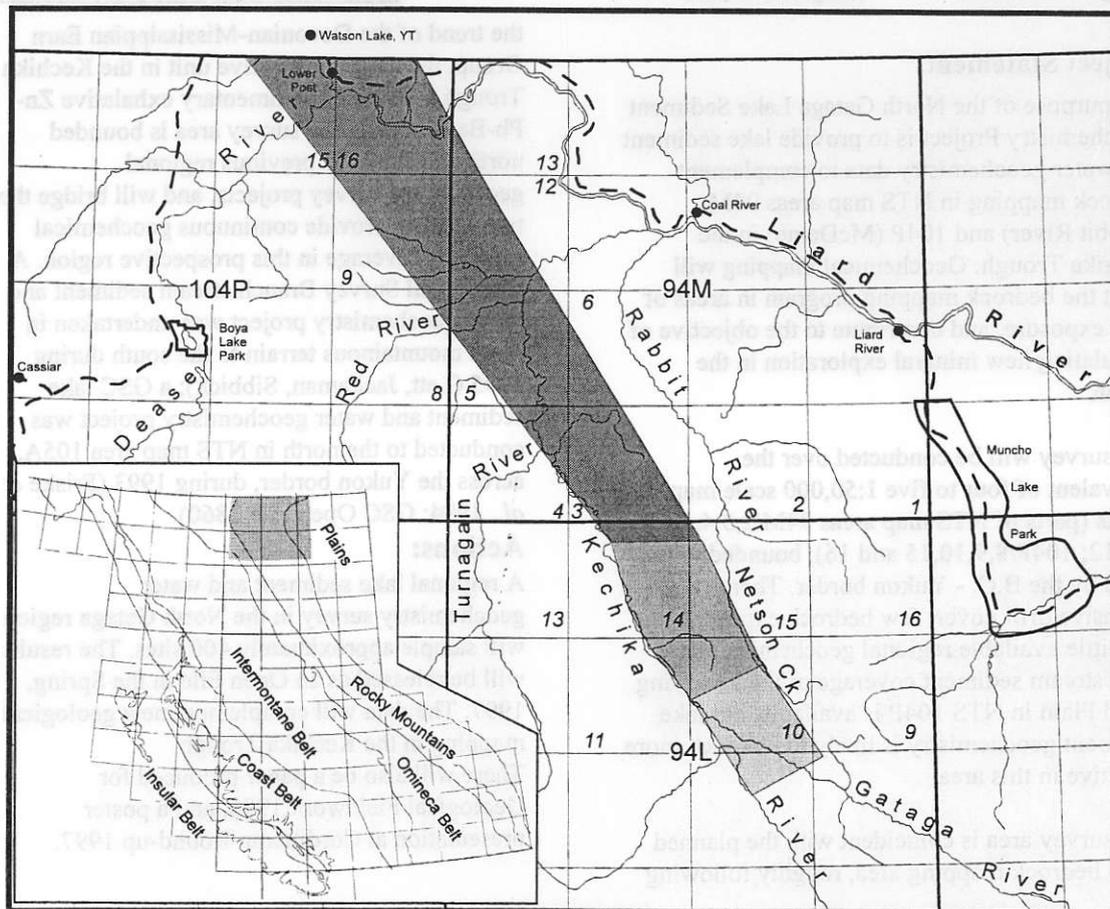
geochemical stream sediment and lake sediment surveys.

This is the final year of fieldwork planned in the project area.

Actions:

The program during 1966-67 will include bedrock mapping and lake sediment and stream geochemical components.

Both components will be reported on in Geological Fieldwork 1996. The bedrock mapping will be published as an Open File at Cordilleran Roundup 1997. The geochemical data will be released in the spring of 1997.



Gataga North Sedex Project: Bedrock Project

Project Team: Filippo Ferri
with JoAnne Nelson and Andrew Legun

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| Year 3 of 3 | Budget | \$220,000 |
|-------------|--------|-----------|

Project Statement:

The stratigraphic interval that hosts the Driftpile Creek deposit is interpreted to continue northward to at least as far as the Yukon border. The intent of the project is to define the location of the Earn Group strata between Terminus Mountain and the Yukon border. The work will be carried out in conjunction with a regional geochemical survey that will seek anomalous metal values.

Actions:

This final year of the program will extend the area of 1:50 000 scale geological mapping northward to the Yukon border, following the belt of favorable stratigraphy defined during mapping in 1994 and 1995.

A report on the mapping will be prepared for Geological Fieldwork 1996, and Open File maps for release at Cordilleran Roundup 1997. Results of the project will be orally presented at various technical meetings. Liason with Chris Barnes of University of Victoria will continue.

Gataga North Sedex Project: Lake Sediment Geochemistry Project

Project Leader: Stephen Cook

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| Year 2 of 2 | Budget | \$65,000 |
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Project Statement:

The purpose of the North Gataga Lake Sediment Geochemistry Project is to provide lake sediment and water geochemistry data to complement bedrock mapping in NTS map areas 94M (Rabbit River) and 104P (McDame) in the Kechika Trough. Geochemical mapping will assist the bedrock mapping program in areas of poor exposure, and contribute to the objective of stimulating new mineral exploration in the region.

The survey will be conducted over the equivalent of four to five 1:50,000 scale map sheets (parts of NTS map areas 94M/2,3,4,5,6 and 12; 104P/8,9,10,15 and 16), bounded to the north by the B.C. - Yukon border. There is extensive drift cover, few bedrock exposures, and little available regional geochemical data. RGS stream sediment coverage of the low-lying Liard Plain in NTS 104P is available, but lake sediment geochemistry is likely to be much more effective in this area.

The survey area is coincident with the planned 1996 bedrock mapping area, roughly following

the trend of the Devonian-Mississippian Earn Group, the most prospective unit in the Kechika Trough for hosting sedimentary exhalative Zn-Pb-Ba deposits. The survey area is bounded north and south by previous regional geochemical survey projects, and will bridge the two areas to provide continuous geochemical mapping coverage in this prospective region. A Geological Survey Branch stream sediment and water geochemistry project was undertaken in more mountainous terrain to the south during 1995 (Lett, Jackaman, Sibbick); a GSC lake sediment and water geochemistry project was conducted to the north in NTS map area 105A, across the Yukon border, during 1993 (Friske *et al.*, 1994: GSC Open File 2860).

Actions:

A regional lake sediment and water geochemistry survey in the North Gataga region will sample approximately 400 sites. The results will be released as an Open File in the Spring, 1997. The data will complement new geological mapping in the Kechika Trough. There will also be a paper produced for Geological Fieldwork 1996, and a poster presentation at Cordilleran Round-up 1997.

TARGETED PROJECTS

Reconnaissance Studies Project - Bella Coola

Project Leader: Gerry Ray

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| Year 1 of 1 | Budget | \$23,000 |
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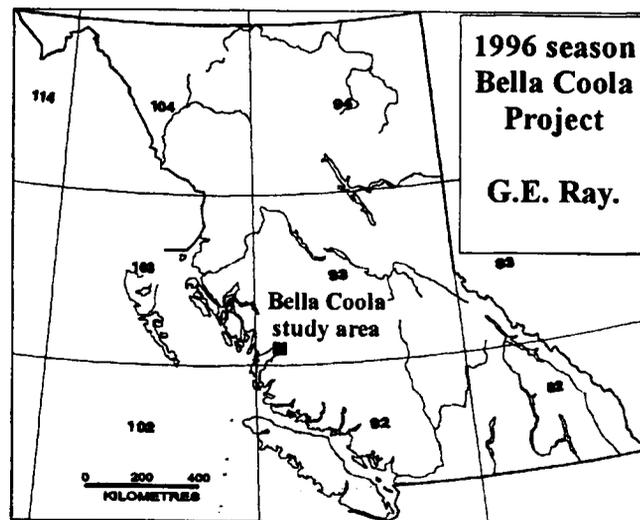
Project Statement:

The project will examine roof pendants in the Coast complex that contain rocks that are correlatives of the Gambier Group. The intent is to understand the geologic setting by studying, sampling and selectively mapping certain parts of the Gambier Group (including the Nifty, Keen and Smitley VMS properties) in the Bella Coola district that may contain poorly understood or intriguing mineral deposit types. The project will provide new geological data and conceptual ideas that will attract exploration interest to the district or equivalent geological belts in B.C.

Actions:

Fieldwork in 1996 will concentrate on mineral property examination, mapping and geochemical and assay studies. Data for all mineral occurrences studied will be added to the Branch mineral deposits database, MINFILE.

A report in Geological Fieldwork 1996 will result, and information will be posted on the Internet. A poster session is planned, and if results warrant, a presentation at Cordilleran Roundup 1997 is a possibility.



Potential of Bulk Tonnage Gold Deposits in British Columbia

Project Leader: Andrejs Panteleyev

Year 1 of 2 | Budget | \$33,000

Project Statement:

With the realization that 1 g/t gold in unoxidized deposits can be economically viable, this project will investigate new opportunities in British Columbia for bulk tonnage gold deposits. Potential occurrences will be investigated, and a geological model (mineral deposit profile) will be developed. The currently active Taurus project, near Cassiar, will provide one well-documented case study. Other exploration targets and distinct possibilities in different geological settings, such as Tertiary volcanic terranes, can be pursued in year 2 of the project.

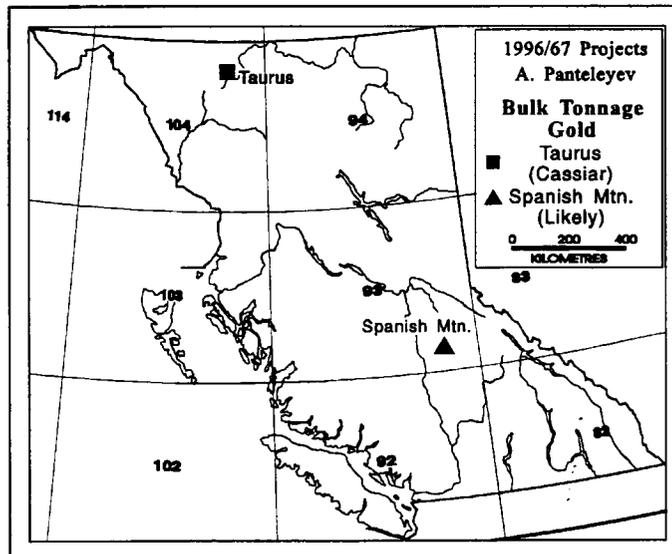
Actions:

Investigate the geological setting, style of mineralization, geochemical expression and age relationships of the Taurus deposit, Cassiar, in order to document the deposit and serve as a

basis for developing a deposit profile. Fieldwork in Cassiar with extensive sampling and examination of diamond drill core will allow a 3-dimensional model to be formulated. Details of ore and alteration mineralogy will be documented, including the distribution of gold. Brief visits to other occurrences, notably Dublin Gulch will provide comparisons with the other Cordilleran examples of bulk minable gold deposits.

A report will be released in Geological Fieldwork 1996, a poster will highlight project results at Cordilleran Roundup 1997, and talks will follow

Collaboration is planned with Cyprus Canada Inc., operators of the Taurus project, and Paul Wojdak, Regional Geologist for the Ministry in Smithers.



Cambria: Base and Precious Metal Potential

Project Leader: Dani Alldrick

Year 2 of 4 | Budget \$140,500

Project Statement:

A mineral-rich belt of volcanic rocks forms the northwestern margin of the Bowser sedimentary basin in central British Columbia. BC Geological Survey has completed geological mapping and mineral deposit studies of most of the western belt between Stewart and Telegraph Creek. The Cambria Project will extend these studies to the remainder of the belt, which lies east and south of Stewart, extending southward as far as Alice Arm and the Anyox pendant (see Project Map).

The project area contains 414 documented metallic mineral occurrences (5% of British Columbia's total mineral inventory) including deposits such as Anyox, Kitsault and Red Mountain. In addition there are many recent discoveries that have yet to be entered into our provincial database, including 8 new occurrences reported by Teuton Resources and dozens located by Lac Minerals. The first two producing mines in the Stewart district (Outsider, Red Cliff), which have never been described, lie within the project area.

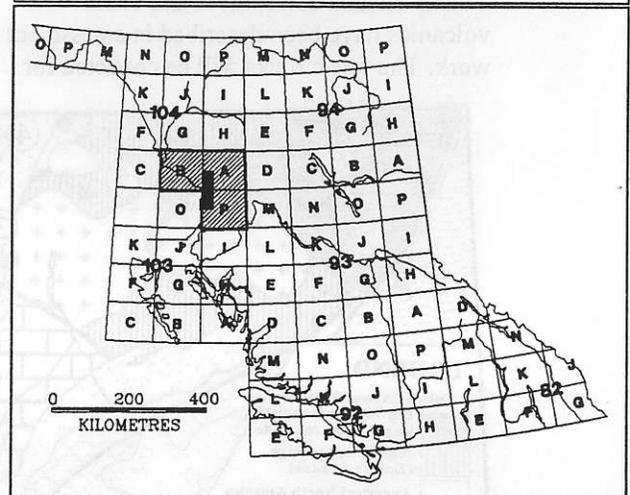
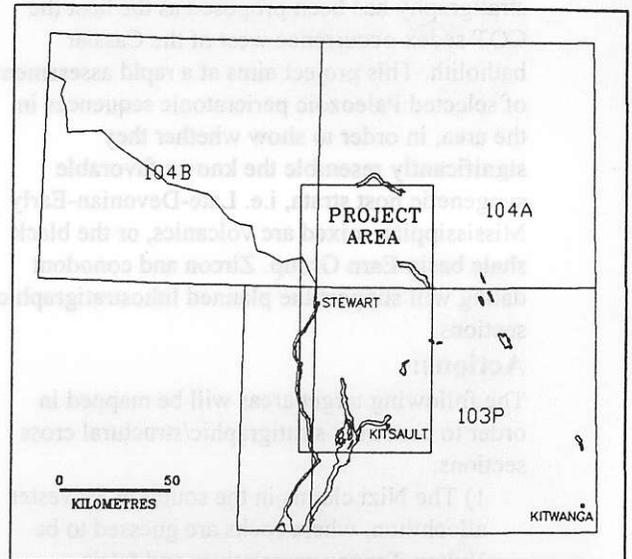
The BCGS Cambria Project will provide mineral deposit studies and detailed geological information which will contribute to and complement a GSC regional mapping survey in the Nass River map sheet (103P).

Actions:

Field work will cover selected areas at 1:10,000 and 1:20,000 scales. This will occupy 75% of the field time. The remainder will be devoted to mineral deposit examination, sampling and documentation.

The Open File 1:100,000 scale map of the geology and mineral occurrences, will be accompanied by a table of mineral occurrence data. Also produced will be an Open File Map (1:50,000 scale geology map of the Anyox Pendant) that will be prepared in collaboration with Carol Evenchick, of the Geological Survey of Canada.

Articles will be written on specific deposits studied, and updates and additions made to the provincial MINFILE database.



Devono-Mississippian syngenetic potential, northern B.C.

Project Leader: JoAnne Nelson

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| Year 1 of 1 | Budget | \$48,000 |
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Project Statement:

Rock packages that host the Kudz Ze Kayah and Wolverine VMS discoveries may have correlatives in the Jennings River map area in northern B.C. Also in western Jennings River area, an analogue for Kechika Trough stratigraphy has been proposed as the host the COT sedex occurrence west of the Cassiar batholith. This project aims at a rapid assessment of selected Paleozoic pericratonic sequences in the area, in order to show whether they significantly resemble the known favorable syngenetic host strata, i.e. Late-Devonian-Early Mississippian mixed arc volcanics, or the black shale basin Earn Group. Zircon and conodont dating will support the planned lithostratigraphic sections.

Actions:

The following target areas will be mapped in order to construct stratigraphic/structural cross sections:

- 1) The Nizi claims in the southern Sylvester allochthon, where rocks are guessed to be Yukon Tanana correlatives and felsic volcanics have been described in assessment work. The felsic rocks will be collected for

zircons and the package sampled for lithochemochemistry and conodonts.

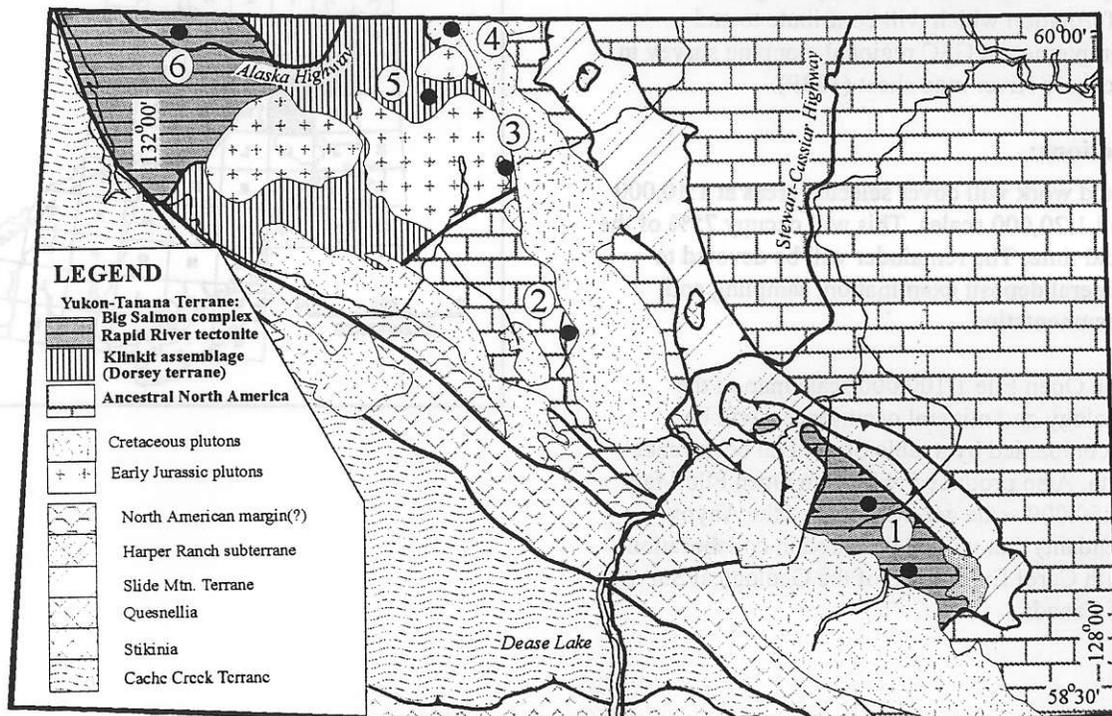
- 2) Basinal-pericratonic stratigraphy on and near the COT claims The Zn-Pb showings will be sampled for lead-isotopic work, and conodonts collected from nearby limy beds to test their Earn Group affinities.

- 3) The Dorsey terrane near the Blue Light showing, where a thin felsic tuff interbedded with intermediate tuffs and Early Mississippian limestones was seen in 1986.

- 4) Selected other areas in the Dorsey terrane farther north and possibly the Big Salmon complex.

Products planned include an article in *Fieldwork and Current*, 1996 article, a talk at Cordillera Roundup 1997 and possibly the Yukon Geoscience Forum and Smithers Rock Talk

Suzanne Paradis, of the Geological Survey of Canada, will be a collaborator, studying Earn-Group correlatives and their enclosed sedex deposits; her work will involve conodont dating by Steve Irwin.



French Ranges: VMS / Shallow Submarine Gold / Bulk Tonnage Gold Potential

Project Leader: Mitchell Mihalynuk

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| Year 1 of 1 | Budget | \$40,000 |
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Project Statement:

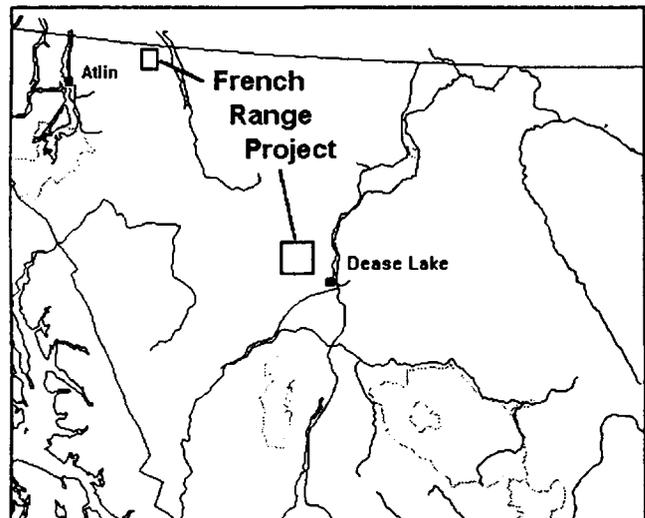
New geochemical and geochronological data from the Kutcho Creek VMS deposit reported by the MDRU cast some doubts on preconceived notions about the age and tectonic affiliation of the deposit and its host rocks. First, the age appears to be Late Permian, not Late Triassic. Second, the rocks are all exceedingly primitive despite the abundantly quartz-phyric rhyolite at the deposit. These data support a close lineage with the Cache Creek terrane, versus Stikinia. Potentially coeval volcanic strata occur in the Dease Lake and Atlin areas where they are known as the French Range Formation. Despite their oceanic setting the volcanics are dominantly mafic pyroclastics that are locally quartz-phyric. They interfinger with shallow-water carbonate that span the Permian, including Upper Permian. Thus, these rocks, previously thought to have low mineral potential, should now be considered seriously as possible host to Kutcho-like VMS deposits. Furthermore, evidence explosive volcanism in such a depositional setting raises the possibility of shallow submarine Au-Ag-base metal deposits (e.g. Ladolam on isle of Lahir (>40 million ounces of gold)).

Mapping at 1:25 000-scale and extensive lithochemical sampling in select areas is proposed to further evaluate the potential of the French Range volcanics and associated strata as hosts for the above-mentioned deposit types. Although the program has a heavy economic lean, any new data which bears on regional structure or tectonic history will directly contribute to the southern SNORCLE transect which runs immediately east of both the Hall Lake and Dease Lake map areas. If the short season is successful, there may be reason to expand the project into a regional 1:50K mapping program in succeeding years.

Actions:

A two mapper team will conduct field studies in the French Ranges west of Dease Lake, and in the Atlin area near Hall Lake. Some of the area near Dease Lake should be accessible from logging roads, the remainder is to be covered by 4 fly camps. The Hall Lake area will be investigated by 2 fly camps. As age control will be critical in establishing a correlation with the Kutcho Creek stratigraphy, Fabrice Cordey will be contracted late in the mapping program to conduct a micropaleontological investigation.

A paper will be prepared for Geological Fieldwork 1996. If results of the fieldwork are positive, a field seminar will be arranged in Dease Lake, and a talk given at Cordilleran Roundup 1997.



Kootenay Geophysical Survey Follow-up

Project Leader **Derek Brown**

Project Statement:

The goal of this joint GSC-British Columbia Geological Survey project is to utilize new geophysical data in the east Kootenays to demonstrate its application to mineral exploration. Selected geophysical anomalies will be examined in the field, their geological setting documented and mineral potential evaluated. In conjunction with this work there would be an effort to concentrate on the Upper Purcell Supergroup strata, thereby promoting a belt of rocks with excellent potential for stratabound Zn-Ba deposits.

The existing aeromagnetic data has led to some success in locating hematite-magnetite breccia zones, locally with associated shear-hosted gold mineralization (David-Lew). It is clear from exploration in Proterozoic Basins in Australia and in the Wernecke Mountains in the Yukon that geophysics can play an important role when combined with sound geology. This project would integrate the new geophysical data with detailed geology.

Actions:

Results of the airborne geophysical survey (magnetics, electromagnetics and radiometrics) flown in 1995 will be released on July 11, 1996 (2 of 3 areas). The Yahk-Creston area (Area 3) will be surveyed this summer and results published in late 1996.

During the follow-up project, interaction is planned with companies active in the area: Cominco Ltd., Quest International Resources Corporation (previously known as Consolidated Ramrod), Active Minerals, and a number of consultants and prospectors.

Northern Selkirks: Base and Precious Metal Potential

Project Leader: Jim Logan

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| Year 4 of 4 | Budget | \$35,000 |
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Project Statement:

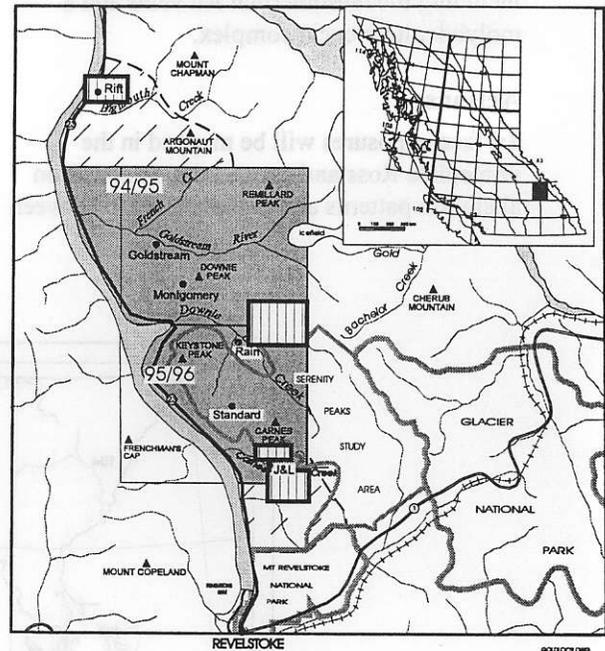
A structural panel of Lardeau Group and older rocks that underlies a 1500 square kilometre area north of Revelstoke hosts a number of volcanogenic massive sulphide (VMS) deposits, including the Goldstream mine. Geological mapping started in 1993 will be extended further to provide information to assist companies and prospectors conduct effective regional exploration. The project includes mineral deposit and lithochemical studies designed to develop new geological and geochemical parameters applicable to the exploration for new (VMS) ore bodies in this area and ultimately provide a geological framework that can be applied in other parts of British Columbia. The focus is on establishing the age and chemical characteristics of mineralization and host lithologies, tracing these regionally, and assessing the mineral potential within this structurally complex area.

Actions:

Mapping will cover the areas around the J&L deposit and the north and south-east corners of 82M/8 map sheet. This will be entirely helicopter supported fly-camping and mapping. It will complete mapping begun in 1995, and link it with 1994 mapping carried out in the Goldstream River area. Stratabound barite and sulphide mineralization discovered in 1995 will be traced southward to the boundary of Mount Revelstoke National Park.

Some time will be spent at the Rift property to determine its stratigraphic-tectonic setting and deposit classification.

A report in Geological Fieldwork 1996 and a 1:50 000 scale Open File Map will be readied for Cordilleran Roundup 1997. There will also be a poster Display at Roundup 1997.



 96/97 mapping areas

Rossland Camp Metallogeny

Project Leader: Trygve Høy

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|-------------|--------|---------|
| Year 1 of 1 | Budget | \$9,000 |
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Project Statement:

This project will study the geology and mineral potential of the Rossland gold-copper camp, the second largest historical lode gold camp in British Columbia. It will assess the potential for additional discoveries, better develop a model for subvolcanic shear-hosted gold veins, a new deposit type in British Columbia, and attempt to relate this deposit type to others within the camp, including the mesothermal Au veins and a molybdenite breccia complex.

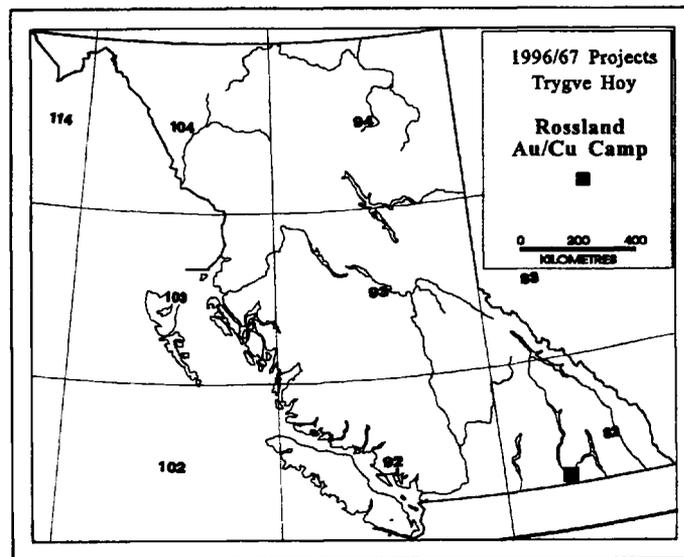
Actions:

Surface exposures will be mapped in the immediate Rossland camp, with emphasis on alteration patterns and the relationship between

the various styles of mineralization. Any available core from recent drilling by Pacific Van Gold Resources will be logged and sampled, and limited underground mapping and sampling undertaken. Unpublished surface mapping, that is available in archives in Rossland, will be compiled.

Products will include a final paper on the Rossland camp and metallogeny of the Rossland Group with a geological/metallogenic map of the area. An Open file map will feature the geology of the Rossland camp. Talks will be given at district meetings and workshops.

Interaction is planned with companies active in the Rossland camp, including: Cominco Ltd., Pacific Van Gold Ltd. and Consolidated Ramrod Gold.



Tatogga Lake Base and Precious Metal Metallogenic Study

Project Leader: Chris Ash

Year 3 of 4 Budget \$123,000

Project Statement:

The project area is situated in north western British Columbia roughly 80 kilometers south of Dease Lake (Figure 1). It involves 1:20 000 scale metallogenic mapping and detailed deposit studies over a belt of Mesozoic island-arc rocks situated along the northwestern margin of the Bowser Basin. The significance of these rocks regionally is they host a variety of arc-related deposits including; porphyries, epithermal, VMS and intrusion related veins. Deposit studies will focus on a number of local porphyry deposits such as the Red Chris, Rose Group and Groat and attempt to constrain stratigraphic and structural setting, age and geochemical character of both host rocks and the mineralizing system(s). Added interest has come from identification of a stratigraphic succession similar to that hosting the metal-rich Eskay Creek deposit.

In a complementary project, Eric Grunsky of the Geological Survey, proposed the project area to Application Development and Research Opportunity (ADRO) of RADARSAT as a test site, and it has been accepted. The purpose is to develop methodology and demonstrate that C-band radar satellite data can be used to interpret structure and identify geological features in variously mountainous terrain. The control provided by 1:20 000 scale geological maps prepared during the Tatogga project. The area has relatively flat plateaus with minimal tree cover incised by relatively steep valleys with more cover, and there are a variety of well developed alteration styles making it an ideal test site. This integrated project presents an excellent opportunity to the Geological Survey Branch to be involved at the forefront of applying high technology applications to mineral exploration.

Actions:

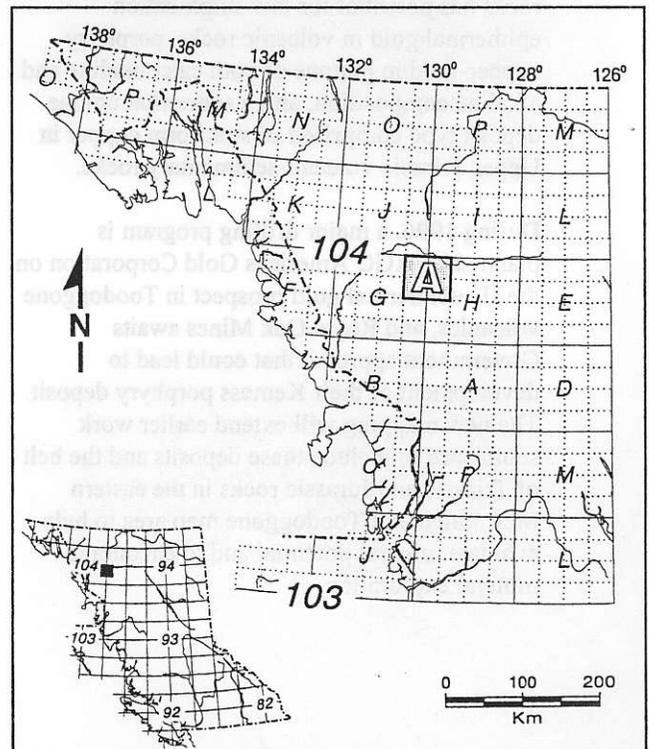
Fieldwork during 1996 will complete mapping of the Tatogga Lake Project area. To do this, areas to be mapped are prioritized as follows: the

southwest sector (Kiniskan 104G/9), with emphasis on establishing the stratigraphy, distribution and mineral potential of Eskay equivalent Hazelton Group rocks identified in 1995; the northwest sector of the map area with specific emphasis on characterizing mineral occurrences, particularly the type and extent of associated alteration

Eric Grunsky will collaborate and spend some time in the project area in order to evaluate the setting and character of mineralization and alteration styles to be studied using radar (RADARSAT) and satellite data.

There will be an article prepared for Geological Fieldwork 1996, an Open File Map completed for release at Cordilleran Roundup, 1997, and a poster session at Roundup.

ADRO participants include: Vern Singroy of the Canadian Space Agency (CSA) - Canadian Center for Remote Sensing; the U.S. National Aeronautics and Space Administration (NASA); and RADARSAT International Inc. (RSI). Cooperation is ongoing with Mineral Deposits Research Unit (MDRU), University of British Columbia with John Thompson, Jozsef Palfy and Richard Friedman.



Toodoggone-McConnell Bedrock Mapping Project

Project Leader: Larry Diakow

Year 1 of 3 Budget \$103,000

Project Statement:

The Toodoggone formation and comagmatic Black Lake plutonic suite represent an important Early Jurassic arc magmatic event that coincides with the synchronous development of an elongated volcano-tectonic depression, endowed with numerous precious metal-bearing occurrences. During the 1980's the Toodoggone mining camp was intensely explored for epithermal gold and silver mineralization, consequently resulting in ore production from the Baker and Lawyers mines. More recent is the general shift of exploration toward copper-gold porphyry targets. The Kemess copper-gold porphyry deposit located in the extreme south of the Toodoggone River map area is hosted by an Early Jurassic calc-alkaline intrusion. It apparently is part of a belt of Early Jurassic intrusions that extends along the eastern Toodoggone and McConnell map areas (94D and E) into the western Mesilinka River map area (94C), where copper-gold porphyries (e.g. Lorraine) have a genetic affinity with alkaline magmatism.

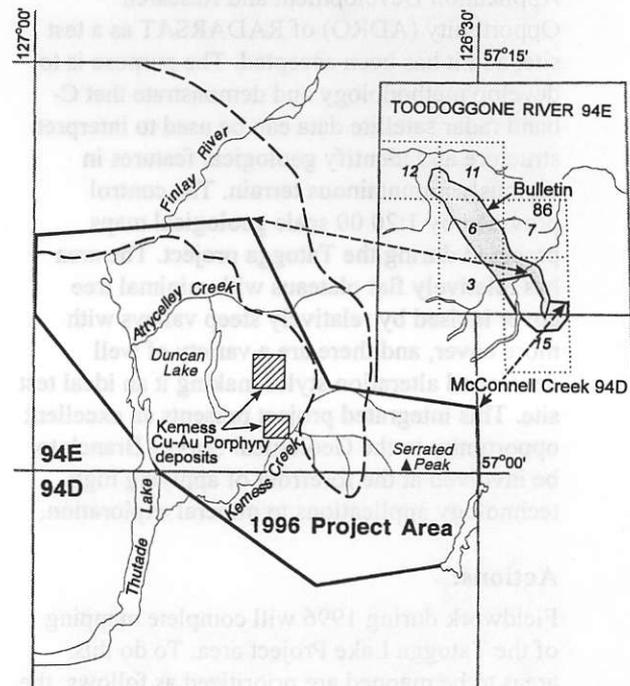
This belt of arc volcanic and related plutonic rocks has potential for low sulphidation epithermal gold in volcanic rocks, porphyry copper-gold in plutons of both calc-alkaline and alkaline composition, and a somewhat unique deposit type comprised of stratiform copper in Upper Triassic volcano-sedimentary rocks.

During 1996, a major drilling program is planned by AGC Americas Gold Corporation on the JD epithermal gold prospect in Toodoggone volcanics, and Royal Oak Mines awaits Government approval that could lead to development of their Kemess porphyry deposit. The new mapping will extend earlier work southward to include these deposits and the belt of Triassic and Jurassic rocks in the eastern McConnell and Toodoggone map area to help evaluate mineral potential and to encourage mineral exploration.

Actions:

The first year of the planned three-year program will consist of 1:50 000-scale bedrock mapping in the vicinity of the Kemess deposit, southern Toodoggone River map area. Eventually expansion of this work southward along the belt of Mesozoic plutonic and volcanic rocks in the will extend to the McConnell Creek map area. This work builds upon previously established Mesozoic stratigraphy for the Toodoggone region and will determine the local setting, specific controls and characteristics of the Kemess deposit, that might serve as a benchmark for comparison to other potential porphyry prospects within the region.

Outputs planned include a paper in Geological Fieldwork 1996, a digital map for the Internet. The map, a poster session at Cordilleran Roundup 1997, and talks to present program results.



Regional Geochemical Surveys

Project Team: Wayne Jackaman, Steve Sibbick

Year 1 of 1 Budget \$395,000

Project Statement:

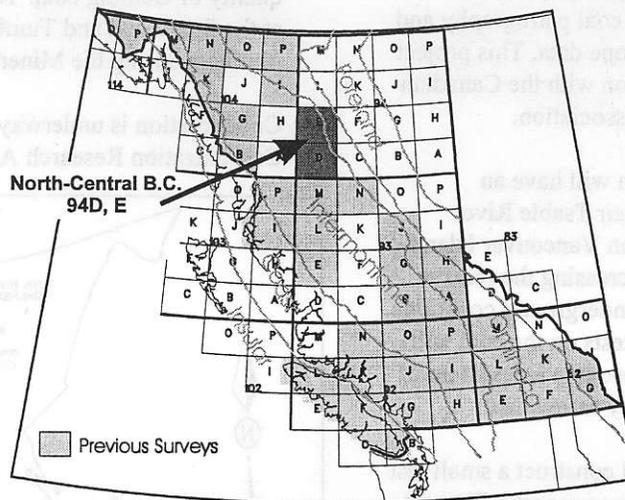
As part of the British Columbia Regional Geochemical Survey (RGS) Program, two reconnaissance-scale stream sediment and water surveys will be conducted in map sheets 94D - McConnell Creek and 94E Toodoggone River. Stream sediment, stream water and field observations will be collected from approximately 1,900 sample sites at a density of 1 site every 8 to 10 square kilometres.

Analytical results and field observations compiled by the B.C. RGS program are used in the development of a high quality geochemical database suitable for mineral exploration, resource assessment, geological mapping and environmental studies. Sample collection, preparation and analysis are closely monitored to

ensure consistency and conformance to national standards.

Actions:

A Request for Proposals (RFP) will allow companies to bid on the sample collection phase of the project. Sampling will be carried out during the summer months and samples prepared and analysed during the winter. A poster session at Cordilleran Roundup 1997 will show the area sampled. An Open File map presenting analytical results will be released in July, 1997. The Open File data packages will include survey details, data listings, summary statistics, data interpretations, sample location maps, geology base maps, plus catchment basin maps for each element. Results are also provided in digital format.



Coal Deposit Studies in British Columbia

Project Leader: Barry Ryan

| | | |
|---------|--------|----------|
| Ongoing | Budget | \$18,500 |
|---------|--------|----------|

Project Statement:

The coal deposit project has three objectives: to maintain a technical coal expertise and up-to-date knowledge of the coal industry; to work on small problem oriented projects; and to disseminate coal science information to people in government, industry and the general public through the coal seminars at Sparwood and Tumbler Ridge and other venues when possible. Activity is typically restricted to active mines or properties. Specific studies will focus on aspects of coal quality affecting coal utilization or geological controls on mining.

Actions:

Phosphorus and oxidation projects that are in progress will be completed in 1996/97; phosphorus has become a serious marketing concern for some southeast BC coals. Work in 1995, published in *Geological Fieldwork 1995*, outlined the distribution of phosphorus and its association with coal macerals. This work will be extended in an attempt to outline geological controls on the amount of phosphorus in a number of seams utilizing coal petrography and scanning electron microscope data. This project may continue in conjunction with the Canadian Carbonization Research Association.

Quinsam Coal Corporation will have an exploration program on their Tsable River project near Cumberland on Vancouver Island. Exploration is aimed at increasing the reserve base of a potential small underground coal mine. CBM canister desorption tests on the coal will provide data for a CBM resource assessment of the area and for mine safety assessment.

Manalta Coal Limited will construct a small test pit in 1 seam, on the Telkwa property. There is very little information available on this seam because most of the drilling has been in the upper seams. Channel samples will be collected

and studied for sulphur distribution using petrographic and scanning electron microscopes.

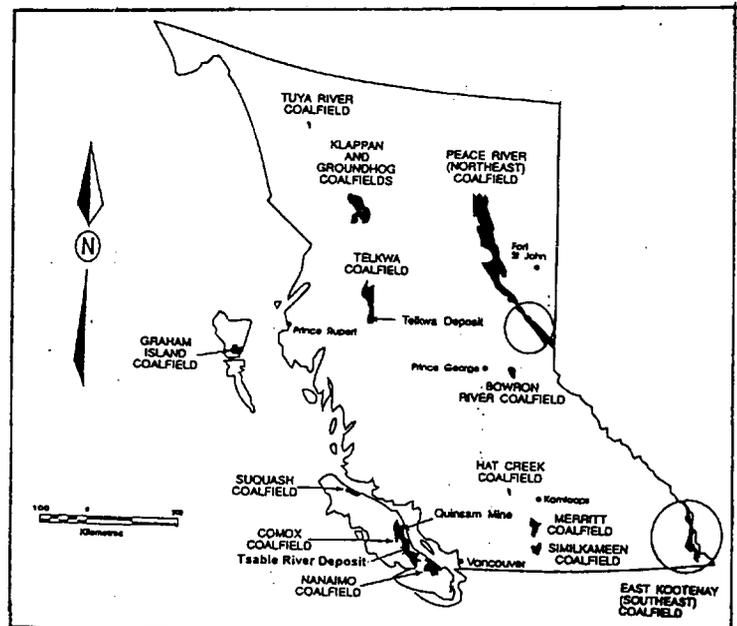
The oxidation study started 1995 will be completed. More samples were collected and it is hoped to establish the procedure for doing the alkali extraction oxidation test in Victoria. Samples will also be analyzed for a number of other properties.

The Gething coal quality study has started with collection of data. More sampling is planned in June to coincide with exploration on the Willow Creek property near Chetwynd.

Work with Andrew Legun has started on the presence of and possible uses for amber in low rank BC coals. Samples will be collected from the Tuya River and Hat Creek deposits.

An external paper on phosphorus, with petrographic and SEM results is planned. Internal reports will be completed on the coal oxidation study and *Geological Fieldwork 1996* reports on the Tsable River property and the quality of Gething coal. Talks will be presented at the Sparwood and Tumbler Ridge coal seminars during the Minerals North Conference.

Collaboration is underway with the Canadian Carbonization Research Association.



Industrial Minerals of British Columbia

Project Leader: Dan Hora

Project Statement:

British Columbia's industrial minerals endowment is understudied and underdeveloped. A summary report is proposed to describe the results of research undertaken since 1980. This publication is tentatively titled "Industrial Minerals of British Columbia". It will outline the geological environment and development potential for industrial minerals in the province in the following chapters:

- 1) Introduction
- 2) Tectonic belts as hosts of industrial minerals
- 3) Economics and markets for B.C. industrial minerals
- 4) Industrial minerals in B.C. (descriptions by minerals and commodities)
- 5) Mineral potential initiative, maps, and how to use them for industrial minerals
- 6) Conclusions, perspectives and outlook

As a part of this project, two reports will also be completed - the Quesnel diatomite Open File map and report, and Barite Open File report (maps and figures for already completed manuscript).

Actions:

Several new important prospects will be visited as property examinations.

Two chapters of "Industrial Minerals of British Columbia" will be completed. Property visits and examinations will include two alkaline intrusives in the Rocky Mountains and at least four dimension stone sites. An article for Geological Fieldwork 1996, and two for Exploration in British Columbia are planned. Presentations are planned for Kamloops Exploration Group 1997, the Canadian Institute of Mining and Metallurgy District 6 meeting, and the FORUM on Industrial Minerals. A poster session is planned for Cordilleran Roundup 1997. Open File reports on diatomite and barite will be completed.

Southern British Columbia Tertiary Basins Industrial Minerals Potential

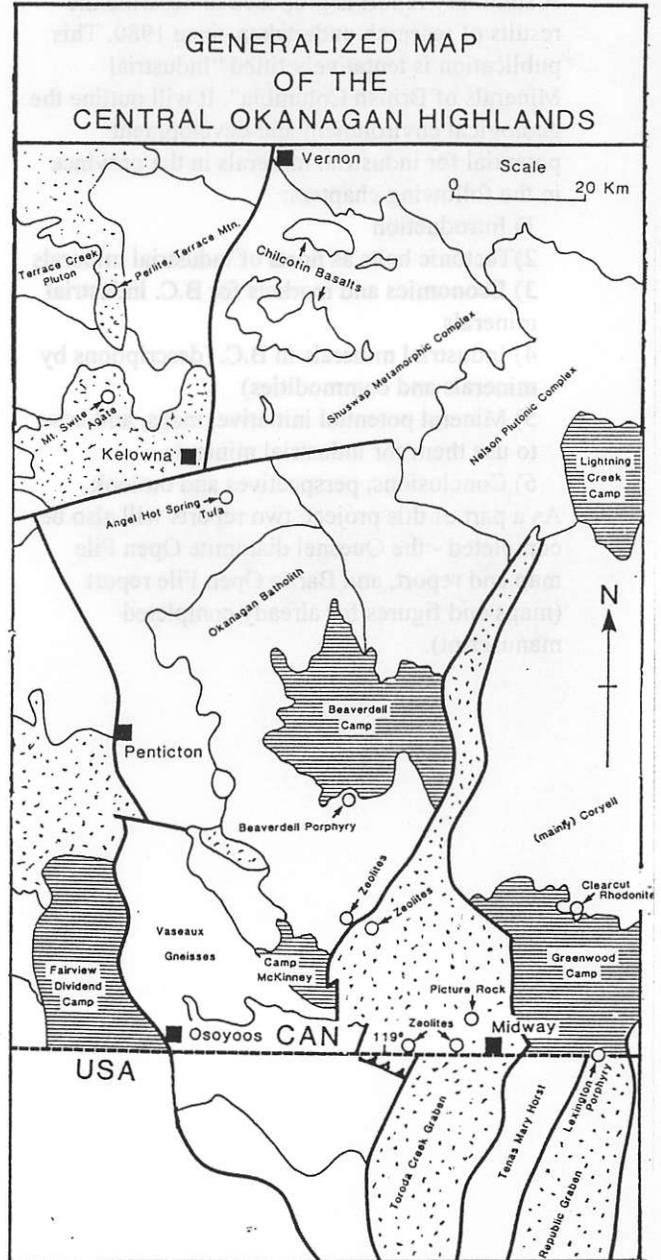
Project Leader: Neil Church

| | | |
|-------------|--------|-----|
| Year 2 of 2 | Budget | \$0 |
|-------------|--------|-----|

Project on hold.

Project Statement:

Tertiary basins and associated deposits focusing on industrial minerals. Southern Quesnel terrane that extends into Washington State suffered Eocene extension affecting the deformed Paleozoic and Mesozoic rocks. Extension resulting from N-S stress was accompanied by high angle normal faults, thrust, listric displacement, alkalic volcanic activity and synvolcanic intrusions accompanied by widespread hydrothermal activity. The major structures are the Okanagan, Toroda and Republic grabens and half grabens and their extensions through the B.C. interior region.



Gemstones & Ornamental Stones In B.C.

Project Leader: George J. Simandl

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|-------------|--------|----------|
| Year 2 of 3 | Budget | \$25,000 |
|-------------|--------|----------|

Project Statement:

Gemstones represent a large potential market for British Columbia. For example the USA gem imports for 1992 were estimated at US\$ 4 840 million. Diamonds represent 86% of these gem imports, however emeralds (US\$ 164.6 million), sapphires (US \$75.1 million), rubies (US\$ 77.8 million) and other gemstones (US\$ 327.7 million) are also important. For the same year US natural gem production was estimated at US\$ 66.2 million.

Deposit models, known occurrences and available geologic information suggest that favorable geological environments exist in British Columbia for precious opal, corundum (sapphire and rubies) and beryl family gemstones (including emerald). Jade, rhodonite, agate, peridot and occurrences of other lower-priced gemstones or ornamental stones are also known in B.C. There are over 140 known gemstone occurrences.

Many gemstones represent viable exploration targets even in remote areas of the province because only small volumes of the highly-priced product are shipped to the market from gemstone operations.

This project provides the first systematic attempt to assess the province's potential for a number of gemstones. It will also update information on selected semi-precious stone occurrences of the province. The information derived from this project will attract a wide audience, including exploration companies, prospectors, rock hounds and the general public. The study of the rhodonite occurrences may also address the possible link to exhalative massive sulphide deposits as byproduct of this work.

Actions:

The work will consist of documentation of several precious opal occurrences and a number of common opal/ agate occurrences in cooperation with Suzanne Paradis of the Geological Survey of Canada, and possibly the University of Victoria, and documentation of two corundum occurrences in B.C. Results of heat-treatment experiments, if positive, will be incorporated. Three rhodonite showings will also be examined, and information on rhodonite occurrences throughout the province compiled. Data will then be synthesized, in collaboration with Branch Geologists JoAnne Nelson and Kirk Hancock, and external participants. Reconnaissance for beryl occurrences will continue.

Papers on rhodonite and precious opal will be prepared for Geological Fieldwork 1996. A poster session of Gemstones is planned for Cordilleran Roundup 1997. Interim reports on corundum are planned with a review paper to be completed for publication in 1997/1998. An oral presentation at CIM or in a short-course is planned. Gemstone - or ornamental stone - related deposit models. will be updated.

Collaboration is underway with the Geological Survey of Canada, planned with the University of Victoria. Interaction with companies will include: Anglo Swiss Industries Inc., Okanagan Opal Inc., potentially Alpine Exploration Co., and Jade West Resources.

Branch Databases: Mineral Occurrence and Assessment Report Files

MINFILE

Project Team: Larry Jones, Dorte Jakobsen, George Owsiaci, Garry Payie, Cindy McPeek, and Laura deGroot

Project Statement:

MINFILE is the Ministry's computerized mineral inventory database of over 11 600 mineral, coal and industrial mineral occurrences in B.C. MINFILE is used extensively by industry and government in areas of exploration planning, resource information, land-use planning, and research. Capture of information in the computer database (coding) is 90% complete, of which 81% is released.

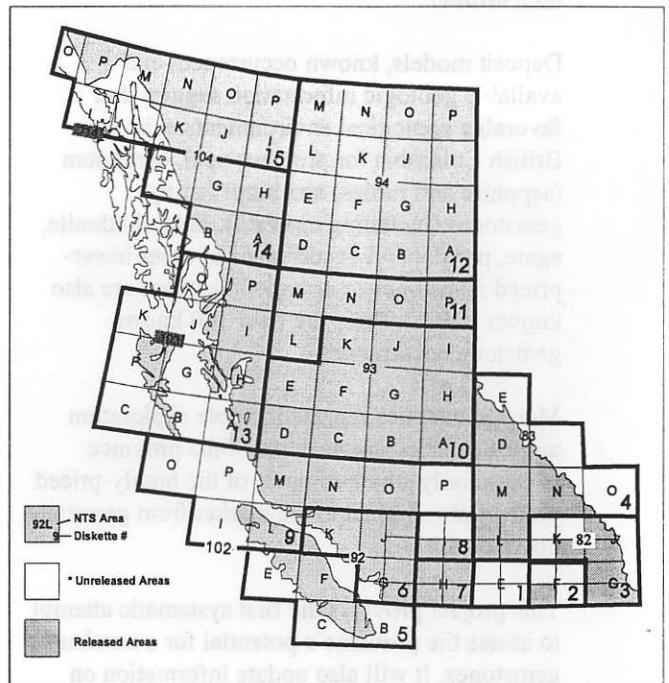
Actions:

Of the approximately 1500 mineral occurrences (includes 30% growth) which remain to be coded, about 750 will be coded and over 800 will be edited/updated in 1996-97. This effort will complete coding for over 93% of B.C.'s mineral occurrences.

Release of 8 map sheets (over 1500 occurrences) is planned. This will result in 90% of the MINFILE database being released.

The MINFILE/pc software will be enhanced as a generic program and distributed as MINFILE/pc, Version 4.5. Support documents will include training notes, manuals and technical documents.

Staff will conduct marketing and promotion through Web page development, Branch display and outreach activities.



Industry Assessment Report project

Project Team: Allan Wilcox, Wade Noble, Laura deGroot, Cindy McPeek (minerals); Alex Matheson (coal) , George Owsicki, Gib McArthur

Project Statement:

Mineral explorationists submit exploration results in Assessment Reports (AR) to maintain their mineral tenures in compliance with the *Mineral Tenure Act* (MTA) and the *Coal Act*. The mineral reports are reviewed for compliance with the MTA Regulations and indexed in the ARIS (Assessment Report Indexing System) database. The library of more than 24 000 reports, on paper and fiche, is available for public viewing and copies are available through a distribution agent. ARIS database products: Index (fiche, paper and diskette) and Index Maps (fiche and paper) are designed to simplify access to the library of original reports, thus making exploration investment decisions and estimations of mineral potential easier.

Actions:

Audit of up to 600 Assessment Reports will occur within 60 days of receipt, and disputes will be followed-up in a timely manner.

An updated ARIS database is produced daily, and the Assessment Report Index and maps will be prepared by December 31, 1996.

Microfilming of reports that are no longer confidential will take place monthly (by contract microfilm company) and fiche duplicates distributed to 25 government offices for client viewing.

The project team will facilitate sales of assessment report copies, fiche and ARIS products through the contract distribution agent, the BC and Yukon Chamber of Mines.

An updated Assessment Report Index map will be prepared for release at Cordilleran Roundup 1997.

Active and inactive Portable Assessment Credit accounts will be maintained and annual statements mailed out by May each year.

The Assessment Report library, which contains more than 24 000 reports, in 25 library sets on fiche will be maintained. Summary Assessment Report statistics are compiled quarterly and annually; analysis on the level of, and trends in exploration are prepared.

Advice is provided on policy and regulatory issues affecting Assessment Reports and the maintenance of mineral titles.

In 1996-97 a pilot project will be run to allow voluntary submission of Assessment Reports in digital, as well as in the current paper format. The pilot will test the feasibility, establish standards, and evaluate the operational and statutory requirements to effect a permanent change.

Libraries of coal Assessment Reports recently microfilmed will be offered for sale on microfiche.

British Columbia Aggregate Inventory Project

Project Team: Peter Bobrowsky, Nick Massey
and Alex Matheson

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| Year 2 of 4 | Budget | \$27,000 |
|-------------|--------|----------|

Project Statement:

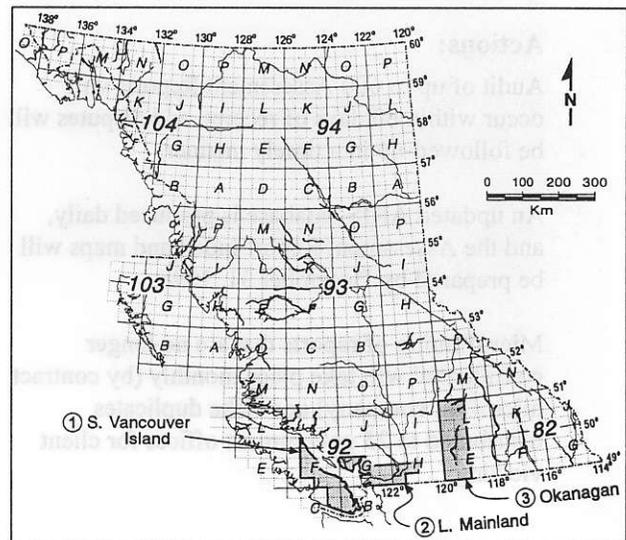
This project will develop a sand and gravel inventory program in the Geological Survey Branch which utilizes the geological expertise of the surficial geology staff to address Ministry and government objectives in aggregate issues. This long term program is intended to provide a current and comprehensive digital data base of aggregate inventory information, the technical expertise required to assist in provincial land-use issues, and also predictive models to determine aggregate reserves related to different landforms.

Actions:

The project will consist of several components. One component is the production of aggregate potential maps for an area of major growth and development in British Columbia, in 1996, the Okanagan area will be covered. These maps follow and build on methodology developed in a pilot study carried out in the Prince George area. Fieldwork will ground-truth critical terrain and pit inventory information. The project emphasizes cooperative work with the Land Management, Policy and Projects Branch to use aggregate potential maps and inventory information for landuse issues. Work will also continue with Ministry of Highways to integrate their public pit inventory data with the private data. Education and dissemination of information continue as important elements of the project. An advisory committee will be established during the fiscal year with members drawn from industry and other government agencies.

Five Open File aggregate maps of the Prince George area at 1:50 000 scale will be released early in the fiscal year. Digital (ArcView) copies of the maps will be made available on the Internet. Seven other aggregate potential maps of selected project areas will also be made available on the Net by the end of the fiscal year. An article in Geological Fieldwork, a poster session at Cordilleran Roundup 1997, and workshops to explain the use of aggregate potential maps are planned.

Collaboration with Land Management, Policy and Programs Branch will be ongoing.



Earthquake Hazard Mapping in Southwest British Columbia

Project Leader: Victor M. Levson

Year 1 of 2 Budget \$30,000 (CRII)

Project Statement:

The objective of this program is to produce a series of earthquake hazard maps for seismically active areas in southwest B.C. These maps will identify the relative potential for ground disturbance due to earthquake-induced liquefaction, amplification and land sliding. They will be compiled from geologic and geotechnical data that reflect local site conditions; predictions of the timing and magnitude of future earthquake are not required. The project is interdisciplinary and will involve the following components:

- surficial geology mapping at 1:20,000 scale
- compilation and evaluation of geotechnical borehole data
- production of a liquefaction hazard map and accompanying report from the surficial geology and geotechnical databases
- production of an amplification hazard map and accompanying report from the surficial geology and geotechnical databases
- production of a landslide hazard map and accompanying report from topographic, bedrock geology, surficial geology and geotechnical databases
- production of a generalized earthquake hazard map designed for land use and emergency planning purposes and to aid in prioritizing seismic upgrading of public and private facilities.

Critical to the development of seismic hazard mitigation policies and emergency planning procedures is the ability to predict areas that will be most heavily effected in an earthquake. Earthquake hazard maps provide this critical predictive tool.

These maps are a cost-effective way to identify vulnerable public facilities on a regional basis. Although available in other seismically active jurisdictions such as Washington and Oregon States, emergency planners in British Columbia do not have access to regional maps of this type as the province currently has no coordinated earthquake hazard mapping program. This proposal addresses

the need for an earthquake hazard mapping in high seismic risk areas in southwest British Columbia.

Actions:

This is the second year of a four year program and will include the following components: data collection and digital compilation including surficial geology data, topographic and hydrogeologic data, and geotechnical data; field studies, including cone penetration and geotechnical studies, shear wave velocity investigations, and geophysical surveys; production of earthquake hazard maps, including liquefaction susceptibility, ground motion amplification and generalized earthquake hazard maps; and training for planners.

The mapping will be coordinated by staff of the British Columbia Geological Survey Branch and will be completed in co-operation municipal emergency coordinators and planners as well as with Emergency Preparedness Canada and the Provincial Emergency Program. Technical aspects of the project will be completed with collaborating agencies including the Geological Survey of Canada, B.C. Ministry of Transportation and Highways, B.C. Hydro and geotechnical consultants.

Output planned includes a paper in Geological Fieldwork 1996, a 1:20,000 surficial geology open file map, a geotechnical database Open File, and a report with a relative earthquake hazard map.

The project also involves collaboration with the provincial Corporate Resource Inventory Initiative, and the Geological Survey of Canada.

Delivery of Analytical and Lapidary Services

Project Leader: Ray Lett

Project Statement:

The Analytical Sciences Unit provides the Ministry with sample preparation, geochemical analytical, assay, mineral identification, lapidary and photographic services. In 1995-1996 over 2000 samples were submitted for preparation and analysis and a similar volume of samples is anticipated from Geological Survey Branch programs in 1996-1997. Rock, soil, sediment and water sample preparation will be carried out in-house or commercially depending on the number of samples submitted for analysis. All analyses will be carried out commercially.

Actions:

The Analytical Sciences Unit plans to provide the following services in 1996-1997.

- Preparation of roughly 1000 rocks and 2000 soil/sediment samples (jaw crushing, pulverizing sieving) in house and commercially.
- Commercial analysis of prepared samples after insertion of quality control samples (standards/analytical duplicates blanks).
- Liaison for the Assayers Program (options for delivery, examinations).
- Lapidary and photographic services.
- Advice to the Ministry and the public on mineral analytical and assay problems.
- Preparation and characterization of a sediment standard for RGS analysis quality control to update the existing standards inventory.
- Developing new geo-analytical applications (e.g. drift sample preparation, mineral test kits).
- Assessing commercial analytical services (reliability of existing services, options for new services).
- During the year, laboratory and lapidary services will be delivered. In addition, R. Player will be responsible for Branch vehicle maintenance. A replacement RGS standard will be prepared and a mineral test kit developed. Open Files will be published for the results of the 1995 and 1996 Gataga area surveys.

1996-97 Strategic Priorities

Industry Diversification

Strategic Goal: Identify export and development opportunities and new markets for British Columbia's expanding industrial minerals sector.

Background

British Columbia's mineral industry has excellent potential to diversify into industrial minerals to supply provincial and international markets. The province is richly endowed with a variety of industrial minerals, which traditionally have received less attention than either coal or metals. The industrial minerals sector (including construction materials) has grown steadily from a \$5 million industry in 1945 to the present size of over \$350 million.

British Columbia appears well positioned to experience a marked increase in the value of industrial mineral output in the latter part of this decade. The province is competitive in world markets because it enjoys a rich mineral endowment, a superior geological database, a well developed infrastructure in the south, mining expertise, competitive energy prices and a favorable circum-Pacific location. These advantages can be used to aggressively promote the province's industrial minerals to stimulate economic development.

Sulphur, magnesite, gypsum, silica, barite and limestone are among the most important of the eighteen industrial

minerals mined in British Columbia. Companies and prospectors are exploring for granite, marble, white limestone, garnet, white barite, wollastonite, silica, zeolite, kaolin and taic deposits. There is increased interest in the potential for high value gemstones such as diamonds, opals and sapphires.

In 1996, the Ministry of Employment and Investment in partnership with the B.C. and Yukon Chamber of Mines, the Mining Association of B.C. and industry will continue initiatives to stimulate the development of industrial minerals.

Objectives

The main strategic objectives of this initiative are to:

- Increase awareness of the potential for industrial mineral products in British Columbia.
- Develop new export markets for British Columbia's industrial minerals and related products.
- Increase the value-added processing component of the sector.
- Foster local industry by replacing imported industrial minerals and related products with materials produced in British Columbia.

Industrial Minerals Promotion 1996-97

**Project Team: Dan Hora, George Simandl,
Kirk Hancock, David Lefebure, Ron Zeilstra**

Actions:

- Publish and circulate three issues of a newsletter titled "Focus on Industrial Minerals" to an international audience of exploration and mining companies, and investors.
- Produce a directory of companies, consultants and organizations involved in the industrial mineral sector in British Columbia to promote cooperation and to advertise available products and services.
- Attend international trade shows, conferences and technical meetings to promote the province's industrial mineral potential, particularly dimension stone and refractory minerals.
- Promote opportunities for refractory minerals and related value added products
- Publish a guide to dimension stone used on Vancouver buildings.
- Complete an evaluation of possible sources of mineral fillers and coaters for paper making in British Columbia. The British Columbia pulp and paper industry is adapting to changing markets and environmental regulations. Such changes could result in a major shift in consumption of minerals and related chemicals, namely kaolin, precipitated and ground calcium carbonate, titanium dioxide and possibly others.
- Provide instructors for two industrial minerals short courses being organized by industry associations in Nelson and Cranbrook.

Prospector's Assistance 1996/97: Finding New Mineral Deposits

Project Team: Vic Preto, Dorthe Jakobsen, Regional Geologists

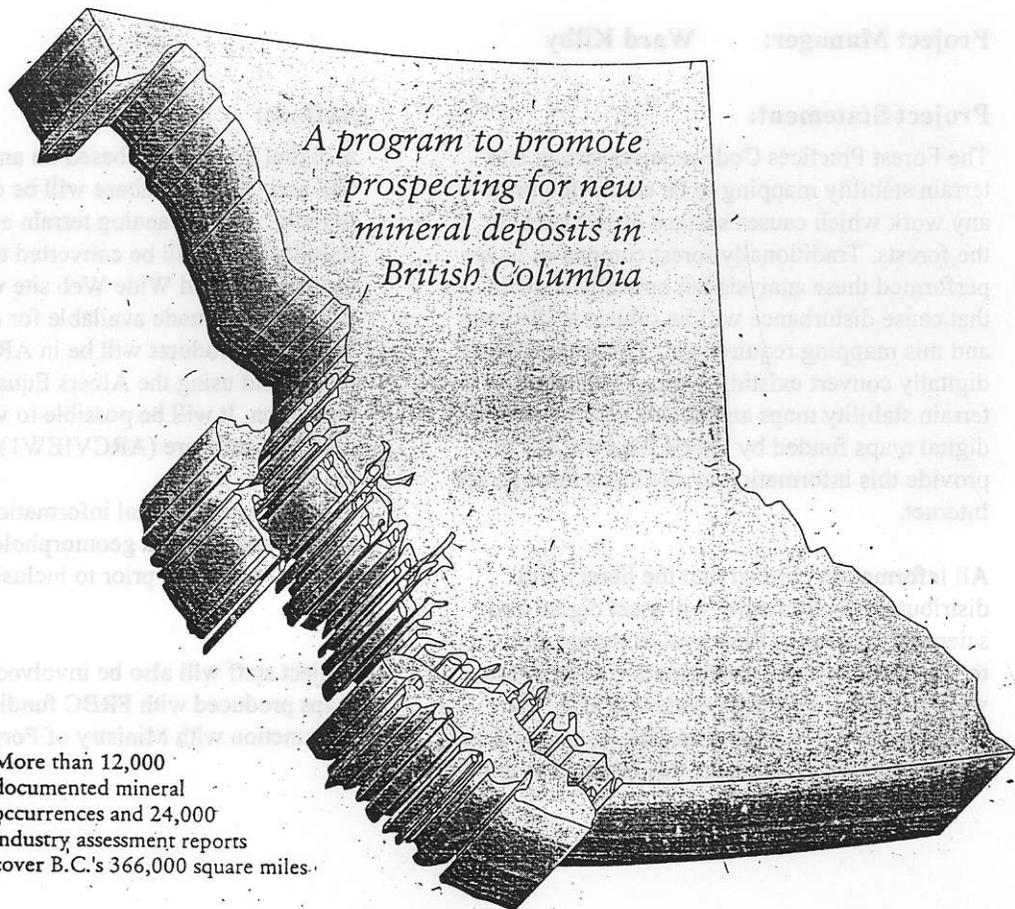
Project Statement:

This grant program for individual prospectors is designed to promote grassroots prospecting for new mineral deposits in British Columbia.

Actions:

Prospector's Assistance provides support grants to individual prospectors. The

amount of the grant is based on planned expenditures by the prospector. The grant is set at 75 percent of eligible expenses, to a maximum of \$10 000 per grantee. A total of \$500 000 is available in 1996/97.



Mineral Potential Project

Project Manager: Ward Kilby

Project Statement:

The Mineral Potential Project conducts mineral resource assessments and compiles regional scale digital geology maps for the province. This information is used in land use and land claims processes. All of British Columbia with the exception of the Queen Charlotte Islands has been completed. The results of the MRAs and the geological compilation are available at no cost on the Internet.

Actions:

The mineral resource assessment and compilation of the regional geology will be completed for the Queen Charlotte Islands this year. The province was assessed by regions over the last four years. This year the formats of the MRA's and digital geology databases for these regions will be standardized to provide seamless databases. Procedures will be established to facilitate updating of the digital geology database.

Terrain and Terrain Stability Digital Map Library Project - Forest Renewal British Columbia

Project Manager: Ward Kilby

Project Statement:

The Forest Practices Code requires terrain and terrain stability mapping to be conducted prior to any work which causes surface disturbance in the forests. Traditionally forest companies have performed these analysis but now all activities that cause disturbance will be subject to the code and this mapping requirement. This project will digitally convert existing analog terrain and terrain stability maps and collect newly produced digital maps funded by Forest Renewal BC to provide this information to all clients through the Internet.

All information entered into the library and distributed electronically will meet digital and scientific standards. Approval of terrain and terrain stability work performed in compliance with the Forest Practices Code will also be a component of this project and the project will be the government contact for this type of mapping.

Actions:

A digital map library based on an ARC/INFO GIS and Oracle database will be developed. Initially, existing analog terrain and terrain stability maps will be converted to digital format. A World Wide Web site will be opened and the maps made available for downloading. The initial products will be in ARC Export (E00) format and using the Albers Equal Area Conic projection. It will be possible to view the maps with free software (ARCVIEW1).

The analog and digital information will be quality-assured by a geomorphologist (P. GEO.) and data specialist prior to inclusion in the library.

Project staff will also be involved in approving maps produced with FRBC funding in conjunction with Ministry of Forests staff.

**EXPLORATION MONITORING/PROMOTION OF B.C.'s MINERAL WEALTH
AND EXPLORATION OPPORTUNITIES**

Project Team: Tom Schroeter, Marjorie Hunter

| | | |
|---------|--------|----------|
| Ongoing | Budget | \$25 000 |
|---------|--------|----------|

Project Statement:

The Vancouver office monitors, analyzes and documents trends and developments in the province. This office is a key communications link between the GSB and the exploration community, other ministries, post-secondary schools, and private sector clients. In partnership with the Regional Geologists it provides services by providing consultation and access to publications, maps, databases and a geoscience research library. This office provides leadership in organizing technical meetings/conferences/field trips and by active membership in various professional organizations.

Actions:

In cooperation with the Regional Geologists prepare an annual summary of mining, development and exploration in British Columbia as text, in poster displays and for talks at the Northwest Mining Association (Spokane), the Cordilleran Roundup (Vancouver), the Prospectors and Developers Association of Canada (Toronto), the Kamloops Exploration Group. This report forms part of the Ministry's publication "Geology, Exploration and Mining in British Columbia".

Four trips during the field season will visit key exploration/development projects.

The office will collect and analyze production and reserves statistics for operating lode metal mines, and update the GOLDFILE.

Monitoring of exploration programs in the province will continue.

The Senior Geologist will act as co-convenor of "Exploration Methods '98 - Pathways To Discovery", sponsored by the British Columbia and Yukon Chamber of Mines and the Society of Economic Geologists(Vancouver; 1998).

The office will continue to take an active role in various exploration-oriented societies, such as the Vancouver Mining Exploration Group (MEG), the Geological society of the Canadian Institute of Mining, Metallurgy and Petroleum, and the British Columbia and Yukon Chamber of Mines.

The office organizes and maintains a research library facility, including access to MEI databases e.g. MINFILE and ARIS. We plan to add Mineral Data B.C. this fiscal year.

Implementation of the preservation of geological material from closing/closed mines, in cooperation with the Regional Geologists is planned..

The office also provides technical assistance and consultation to the Prospectors Assistance Program.