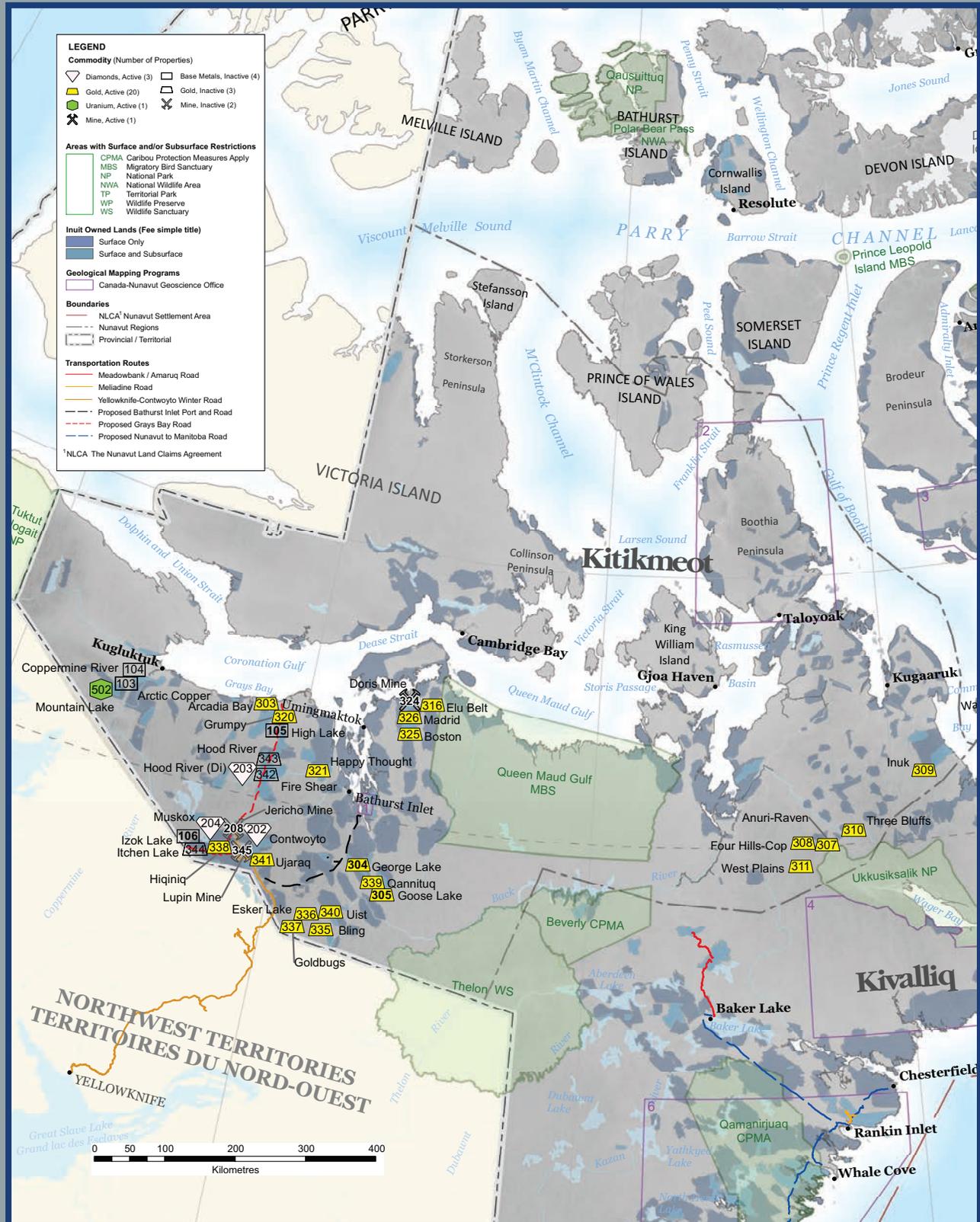


NUNAVUT

MINERAL EXPLORATION, MINING & GEOSCIENCE

KITIKMEOT REGION



Kitikmeot Region Geology

The Kitikmeot region includes some of the oldest rocks in Canada, which make up the northern part of the Canadian Shield. These are metamorphosed, granitic, and volcanic rocks that formed during the Precambrian Eon; the time between when the Earth formed (about 4.5 billion years ago) until the beginning of the Cambrian period (540 million years ago). These rocks have been deformed at various times in the past by mountain-building events and, in places, have been enriched with metallic deposits such as gold, silver, copper, zinc, nickel, or platinum. These folded and faulted rocks are deeply eroded and are exposed, today, across the present landscape of the Kitikmeot mainland. Clues as to where metallic deposits occur can be found by prospecting, with ground and airborne geophysical surveys, or discovered by their association with quartz veins or the rusty weathering of sulphide-rich rocks.

To the north, on Victoria and Prince of Wales Islands, younger sedimentary rocks of the Paleozoic Arctic platform were deposited over the ancient Shield rocks while they were submerged below an ocean basin. These flat-lying or gently-tilted sedimentary rock layers preserve numerous fossils of marine life, including shellfish and corals. The bedrock in the region is often hidden beneath a cover of much younger clay, sand, and gravel deposited by glaciers. This soil-like material, called glacial till, is formed by the grinding down of bedrock by the movement of glaciers and is left behind

as the glaciers melt. In these till deposits, fragments of harder minerals are found, including diamonds, which in some cases can be traced to their place of origin.

Selected Mining and Exploration Highlights

TMAC Resources Inc.'s **Hope Bay** project, located within the 80 km-long Hope Bay greenstone belt, includes one new operating gold mine and two deposits, with a total estimated resource of 6.59 million ounces of gold. The Doris underground mine, located at the northern end of the Hope Bay property, began commercial production in May of 2017, making it the third mine operating in Nunavut and the first in the Kitikmeot since the Jericho diamond mine stopped production in 2008.

Most of the development and exploration activities at Hope Bay in 2017 focused on the start-up of production at Doris, advancing the permitting process, and on drilling programs at Boston and at the BTD underground zone at Doris. TMAC obtained Type B Water Licences for Madrid North and South in May and for Boston in July. The company also encountered unexpected problems with gold recovery from its new processing plant, delaying the installation of a second processing plant which had been transported to the mine site during the 2017 sealtiff. The additional personnel needed to address those operational

Number	Project	Operator	Status
	Base Metals		
103	Arctic Copper	Arctic Copper Corp.	Inactive
104	Coppermine River	Kaizen Discovery Inc.	Inactive
105, 106	Izok Corridor (High Lake - 105, Izok Lake - 106)	MiMG Resources Inc.	Inactive
	Diamonds		
202 - 204	Contwoyto-202, Hood River-203, Muskox-204	Crystal Exploration Inc.	Active
208	Jericho Mine	INAC (abandoned by Shear Diamonds Ltd.)	Inactive
	Gold		
303	Arcadia Bay	Transition Metals Corp.	Active
304, 305	Back River (George Lake - 304, Goose Lake - 305)	Sabina Gold & Silver Corp.	Active
307-311	Committee Bay (Anuri-Raven-307, Four Hills-Cop-308, Inuk-309, Three Bluffs-310, West Plains-311)	Auryn Resources Inc.	Active
316	Elu Belt	TMAC Resources Inc.	Active
320, 321	Gumpy-320, Happy Thought-321	Silver Range Resources Inc.	Active
324 325, 326	Hope Bay (Doris North Mine-324, Boston-325, Madrid-326)	TMAC Resources Inc.	Active
335-341	South Kitikmeot Gold (Bling-335, Esker Lake-336, Goldbugs-337, Higiqiq-338, Qannitug-339, Uist-340, Ujaraq-341)	Silver Range Resources Inc.	Active
342	Fire Shear	Transition Metals Corp., Nunavut Resources Corp.	Inactive
343	Hood River	WPC Resources Inc.	Inactive
344	Itchen Lake	Transition Metals Corp.	Inactive
345	Lupin Mine	Mandalay Resources Corporation	Inactive

Please refer to the map on the cover for the location of active and inactive projects in the Kitikmeot region. Bold text signifies a major project.

northeast of the Meadowbank mine, and stretches 300 km northeast covering the Committee Bay greenstone belt. In May 2017, Auryn filed an updated resource estimate for the Three Bluffs deposit located in the central part of the property. The new resource includes 524,000 ounces gold in the indicated category and 720,000 ounces gold in the inferred category, but does not include the results from the company's recent drilling.

Auryn's 2017 summer exploration program consisted of a ground magnetic survey, till sampling, boulder mapping, and over 30,000 m of rotary air blast drilling. Favourable results from the program were returned from the new Aiviq prospect located 12 km north of the Three Bluffs deposit, and the Aarluk prospect, 17 km north of Aiviq. During drilling on the Inuk prospect, located at the northern end of the property, Auryn discovered gold mineralization which allowed them to extend the length of the mineralized zone by 400 m. The company plans a 10,000 m follow-up drilling program at the Aiviq prospect and at the main Three Bluffs deposit in the spring of 2018.

Silver Range Resources has been assembling a portfolio of early stage exploration targets throughout the Kitikmeot and Kivalliq regions. The company staked seven separate properties in 2016 and 2017, totaling over 60,000 ha and grouped under the name **South Kitikmeot Gold Project**. Limited exploration was conducted on three of these properties, with ground geophysical surveys completed at the Bling and Uist properties, and prospecting and geological mapping of the Cannitug property guided by historical geological and geophysical data.

No work was reported in 2017 on Silver Range's other Kitikmeot projects, Grumpy and Happy Thought, both located in the area of the proposed Grays Bay Road.

Other Geological Programs And Studies

Bedrock mapping of sedimentary basins of Nunavut (Canada Nunavut Geoscience Office (CNGO))

The Kilohigok Basin in the Canadian Shield is formed of sedimentary rock which contains localized uranium mineralization. This type of mineralization is often found in a zone of altered rock called the "Kilohigok paleosol", which is located where the younger sedimentary rock of the Basin contacts Archean-aged basement rock. The aim of the mapping project is to evaluate these uranium occurrences, which have not been studied in detail before, and determine what factors control their distribution in the region. In 2017, the mapping team, led by geologists from Laurentian University, focused on the area surrounding Kathleen Lake, which has some of the best exposures of the Kilohigok paleosol in the region.

Till geochemical and heavy mineral surveys, Boothia Peninsula (CNGO)

New till geochemical and heavy mineral surveys and surficial mapping were conducted over the Boothia Peninsula, in order to help to determine climate change impacts along the coastal areas, to locate indicator minerals for mineral deposits, and to study ice-flow directions throughout the region's recent geological history.

problems resulted in accommodation shortages which cut short the exploration program at the BTD zone to 13,000 meters (m) of drilling instead of the planned 20,000 meters.

In addition to drilling at Doris, TMAAC reactivated the Boston camp and began the first drilling program at the deposit since acquiring the property from Newmont. The goal of the program was to gain a better understanding of where gold mineralization occurs within the deposit, and to identify areas where the existing resource could be increased. Fifteen drill holes were completed, totaling approximately 7,500 meters.

In 2017, Sabina Gold and Silver Corp. continued work to advance its 100 per cent owned **Back River** project towards production. The Back River project, consisting of six properties (Bath, Boot, Boulder, Del, George, and Goose), is located along an 80 km-long trend in the central Kitikmeot and covers an area of approximately 48,600 hectares (ha). The focus of Sabina's exploration work at Back River has been on the Goose and George properties, with most work taking place at Goose. The Lama, Umwelt, and Goose deposits on the Goose property have total mineral reserves of 2.5 million ounces of gold and mineral resources of 7.18 million ounces. The George deposit has total mineral resources of 2.08 million ounces.

In February 2017, the company submitted its Final Environmental Impact Statement addendum to the Nunavut Impact Review Board (NIRB). Following the submission, Sabina completed a short spring exploration program, consisting of five drill holes totaling approximately 2,700 m and a ground electromagnetic survey. The drill program took place on the Goose property and focused on the Vaut zone of the Umwelt deposit, as well as the Lama Extension and Convergence zones. In July 2017, NIRB issued a recommendation to the Minister of Indigenous and Northern Affairs that the project's development could continue. This allowed the company to go ahead with the extended second phase of drilling, which consisted of 17 diamond drill holes totalling almost 10,000 meters. Drilling at Lama resulted in the discovery of a new high-grade mineralized zone and extended the mineralized zone at Umwelt.

In October, Sabina and the Kitikmeot Inuit Association announced the signing of terms to be used in the development of a future framework agreement. These terms include future land use licences, exploration, commercial leases, net smelter return, annual payments to the Kitikmeot Inuit Association, an initial investment of \$4 million to regional wealth creation initiatives, and an Inuit Impact Benefit Agreement. In December, the Minister announced the acceptance of a positive recommendation from NIRB for the Back River project. The project may now advance to the regulatory and licensing stage, during which the company is expected to receive the necessary permits to commence mine construction.

Following the announcement of a \$35 million investment by Goldcorp Inc. in January 2017, Auryn Resources continued exploring its 390,000 ha **Committee Bay** project. The project, which was acquired from North Country Gold in 2015, is located approximately 180 km

Paleozoic Stratigraphy, Boothia Peninsula (CNGO)

The aim of this new study is to correlate Ordovician-era rocks (485-444 million years old) on the Boothia Peninsula with similarly-aged rocks found in the high Arctic islands. The work will focus on locating and sampling of these rocks in order to provide detailed descriptions of their layers and other geological characteristics. This process, called stratigraphy, will allow more accurate correlations between Boothia rocks and those from the high Arctic. This research will also document the presence and location of any petroleum source rocks.

Nunavut Prospectors Program and Prospector Development

The Government of Nunavut's Economic Development and Transportation department held its Introduction to Prospecting course in Cambridge Bay in 2017. This course introduces participants to basic prospecting skills and provides an introduction to geological concepts. To date, more than 1,200 Nunavummiut have successfully completed the course. Graduates of the course may qualify for financial and technical assistance through the Nunavut Prospectors Program to pursue their own projects, and some find opportunities to work as field assistants on mineral exploration projects. This course is planned to be held in Gjoa Haven in 2018.

Glossary of Terminology

Deposit – a natural accumulation of a metal, gemstone or other valuable mineral substance, which may be economically viable but whose characteristics require more detailed study to be classified as a resource.

Drilling – the extraction of rock or surface material using a rotary drill. Drills can extract cylinder-shaped cores of rock using a synthetic diamond drill bit, or chips of rock using a jackhammer-type drill bit. Geologists study these cores and chips to better understand the underground geological structure of an area and determine the presence or absence of ore minerals.

Exploration – the process of searching for mineral deposits.

Geochemical survey – the chemical analysis in a laboratory of soil, rock, or water from a defined area to identify abnormal concentrations of chemical elements that indicate the presence of metals, petroleum, or gemstones. Also known as geochemical exploration.

Geophysical survey – the collection of information associated with bedrock using sensors that record electric, magnetic, or other kinds of data. The survey can be conducted from the air or the ground and is used by mineral exploration companies to detect physical properties of rocks such as magnetism, gravity or conductivity.

Greenstone belt – a linear zone or “belt” of metamorphosed volcanic rocks that often host deposits of gold and other valuable metals. The characteristic colour comes from several different green minerals that make up the volcanic rocks. Greenstone belts can be tens to hundreds of kilometres in length and are found in multiple places across Nunavut.

Prospecting – the search for outcrops or surface exposures of mineral deposits with economic potential.

Reserve – a published estimate of the amount of naturally occurring metal, gemstone, or other mineral substance in a mineral deposit that can be economically extracted at the time the estimate is published. Classifying a reserve within a deposit indicates that there is strong confidence in the quantity and quality of ore in that deposit. Specific legal criteria exist to classify a deposit as a reserve.

Resource – a published estimate of the amount of naturally occurring metal, gemstone, or other mineral substance in a mineral deposit that could allow for economic extraction of the material in the future. Classifying a resource within a deposit indicates there is moderate confidence in the quantity and quality of ore in that deposit. Specific legal criteria exist to classify a deposit as a resource.



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