

Exploration and Development Highlights 2018

January, 2019

Pit blast at IOC



Newfoundland and Labrador's minerals sector experienced an exceptional year in 2018 with important advances on both the exploration and development fronts. Headlining these events were major announcements about new capital works projects by two of the province's major mine operators, Iron Ore Company of Canada and Vale Newfoundland and Labrador Limited, as well as positive developments at several other mining projects in both the metals and industrial minerals groups.

On the exploration side, gold dominated the sector with significant progress made in several developing projects in Newfoundland, and continued encouraging results from large reconnaissance exploration programs on the Island and in Labrador. Stronger prices and a positive outlook for base metals, especially zinc, have led to new or renewed interest in Newfoundland's historically productive base metal districts.

New companies, new projects and new joint ventures in the province offer promise for additional exciting results in the near future.

For further information, please send inquiries to minespromotions@gov.nl.ca, and visit the [Investment Page](#) of our website.

OVERVIEW

Gold

Growing awareness of Newfoundland's latent gold potential has been driven by several factors including:

- the location of many new and historic gold occurrences along underexplored major structural corridors;
- new high-grade discoveries of orogenic and epithermal-style gold mineralization and surprising new assay results from known deposits;
- substantial progress at Marathon Gold's Valentine Lake Project, which now boasts a total global resource in excess of 4 M ounces of gold; and
- a large and growing geochemical database available through the province's Geological Survey, which has stimulated claim staking and project generation.

These factors have driven a surge of new investment in major exploration projects, ranging from grass roots to prefeasibility stage, throughout Newfoundland and Labrador.

Base metals

Base metal deposits (Zn, Pb, Cu, +/- Au and Ag) have long formed the backbone of Newfoundland's rich mining history. In particular, the historic, very high-grade Buchans orebodies as well as the Duck Pond and Daniel's Harbour mines provide favorable geological models and the incentive to seek new discoveries of similar type. Advanced exploration programs are in progress on volcanic-hosted massive sulphide (VMS) deposits in central Newfoundland and there is renewed interest in Mississippi Valley-Type (MVT) mineralization on the Great Northern Peninsula. Positive results are emerging in both areas.

Finally, the recent surge in the price of cobalt has caught the attention of investors. About 3,800 new claims were staked in 2018 in areas of Labrador with potential for Ni-Cu-Co mineralization.

Other commodities

Newfoundland and Labrador boasts a wide variety of mineral commodities hosted in a broad spectrum of geological environments. In addition to the metals above, some of the commodities currently being produced or explored for include iron ore, nickel-copper-cobalt, rare earth elements, antimony and uranium. The province also produces, or has produced many industrial mineral products such as fluor spar, gypsum, silica, slate, barite, and high-purity limestone and dolomite. Many prospects with these or other minerals are available for further exploration and development.

Major transactions

- **Matador Mining** (Australia) purchased the Cape Ray Gold Project and initiated a major exploration program, including drilling, to expand resources.
- **Canstar Resources, Adventus Zinc and Altius Minerals** agreed to a consolidation of their lands in the Buchans base metal camp. New financing has enabled Canstar to initiate a robust exploration program including core re-logging and compilation in preparation for drilling in 2019.
- **White Metal Resources** has optioned two properties with new gold showings in central Newfoundland. Due diligence grab samples returned assays of 229.3 and 51.6 g/t Au respectively from the properties.



Development highlights

- **Vale Newfoundland and Labrador Limited** sanctioned underground development at the Voisey's Bay Ni-Cu-Co Mine in northern Labrador. The expansion will extend the life-of-mine by 15 years: first ore is expected in 2021.
- **Iron Ore Company of Canada** began production from the Moss Pit at its iron mine in western Labrador. The new pit will help IOC meet existing annual production capacity, extend the life of operations and reduce operating costs.
- **Tacora Resources Inc.** will re-start the Scully Iron Mine in western Labrador in 2019
- **Anaconda Mining** commenced gold production at the Stog'er Tight Mine, near its Pine Cove Mill on the Baie Verte Peninsula, and continues to explore and develop other prospects in the region.
- **Canada Fluorspar** made its first commercial shipment of high-grade fluor spar ore from the St. Lawrence Mine, on the south coast of Newfoundland.
- **Red Moon Resources** made the first shipment from the recently reactivated Ace Gypsum Mine in western Newfoundland. The company continues to seek new markets for its product.
- **Beaver Brook Antimony Mine** has announced it will be restarting operations early in 2019.





Valentine Lake

Exploration highlights

Advanced projects:

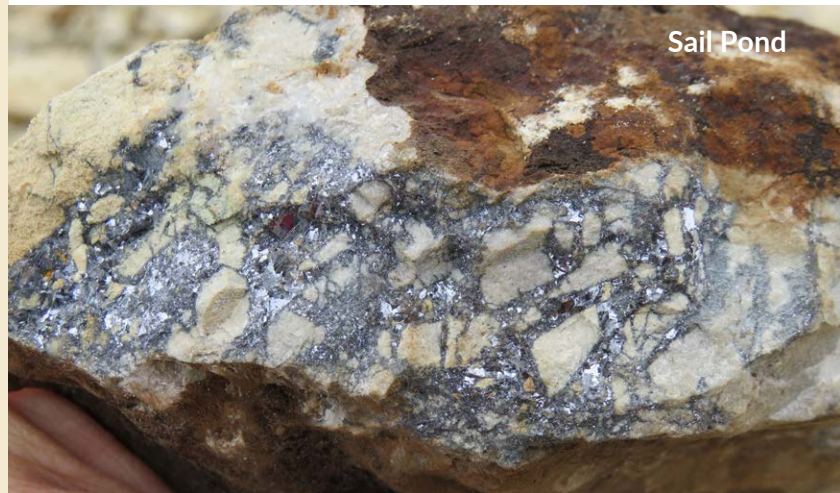
Ongoing work at some of the province's potential new mines has yielded very positive results.

- **Alderon Iron Ore** has released the results of an updated Feasibility Study on the Rose Deposit of the Kami Iron Ore Project. The study demonstrates the strong economics of the project and coupled with sustained demand for high-grade iron ores, has reinvigorated Alderon's project financing efforts.
- **Marathon Gold** reported an updated Preliminary Economic Assessment (PEA) and resource estimate in October 2018 for the Valentine Lake Gold Camp. A 44% increase in recovered gold highlights the PEA, from a resource containing 2.7M ounces (Measured and Indicated) at 1.85 g/t Au and 1.5M ounces (Inferred) at 1.77 g/t Au. A Preliminary Feasibility Study is planned for 2019.
- **Norzinc** reported an updated resource estimate on the Lemarchant VMS Deposit with a 94% increase in the indicated category to 2.42 million tonnes grading 6.15% zinc, 1.60% lead, 0.68% copper, 1.22 g/t gold, 64.0 g/t silver and 23.5% barite. A barite metallurgical study produced a 97.75% barite concentrate in bench scale tests.
- **Buchans Resources** conducted an 8,000 m drilling program in the Buchans area. Highlights include multiple intersections of remnants of the former Lucky Strike high-grade massive sulphide orebody including 8.0m grading 12.88% Zn, 6.81% Pb, 0.69% Cu, 159.9 g/t Ag and 1.25 g/t Au.
- **Search Minerals** continued drilling on the Deep Fox rare earth element prospect in preparation for an initial resource estimate. This could lead to a PEA combining both the Foxtrot and Deep Fox resources, applying Search's proprietary Direct Extraction Process.

New projects and surprising results:

Newfoundland and Labrador is underexplored relative to some of Canada's more mature mining districts: this creates opportunities for unexpected success.

- **Sokoman Iron** announced high-grade intersections of 44.96 g/t Au over 11.90 m and 33.56 g/t Au over 24.90 m in shallow drilling at the Moosehead Project. Approximately 4,000 claims have been staked in the general area since the initial results were announced.
- **Bonavista Resources**, a private company, acquired claims over part of a large-scale epithermal alteration system with gold occurrences in eastern Newfoundland. Company personnel have described outstanding results from channel sampling, including 20 m grading 9.34 g/t Au.
- Intriguing new exploration concepts have emerged with recent discoveries at separate locations on the Great Northern Peninsula viz:
 - **Altius Minerals** has reported grab samples with up to 2,030 g/t Ag, 7.08% Cu, 9.40% Pb and 0.46 g/t Au in a possible epigenetic, sediment-hosted style of mineralization. Altius optioned the property to **New Found Gold** in 2018.
 - **White Metal Resources** has discovered widespread gold mineralization associated with pyritic nodules and stringers in black shale. They reported grab samples from separate zones with up to 5.9 g/t Au and 9.1 g/t Ag.
- **Antler Gold** and **Labrador Gold** continued large-scale regional prospecting and soil sampling programs in central Newfoundland and Labrador respectively. The work has outlined multiple anomalous areas over favourable geology, providing new targets for trenching and drilling.
- **Cartier Iron** intersected a major new alteration zone in drilling at the Big Easy project. One hole intersected 0.11 g/t Au and 2.65 g/t Ag over 180.4 m.



Sail Pond

LEGEND

- Operations
- Major exploration properties
- Lands staked

COMMODITIES

Ni-Cu (PGM) Nickel-Copper

U, REE, V Uranium, Rare earths, Vanadium

Fe Iron Ore

Cu, Pb, Zn Copper, Lead, Zinc

Au, Ag Gold and/or silver

F, Mo, W, Sb Fluorspar, Molybdenum, Tungsten, Antimony

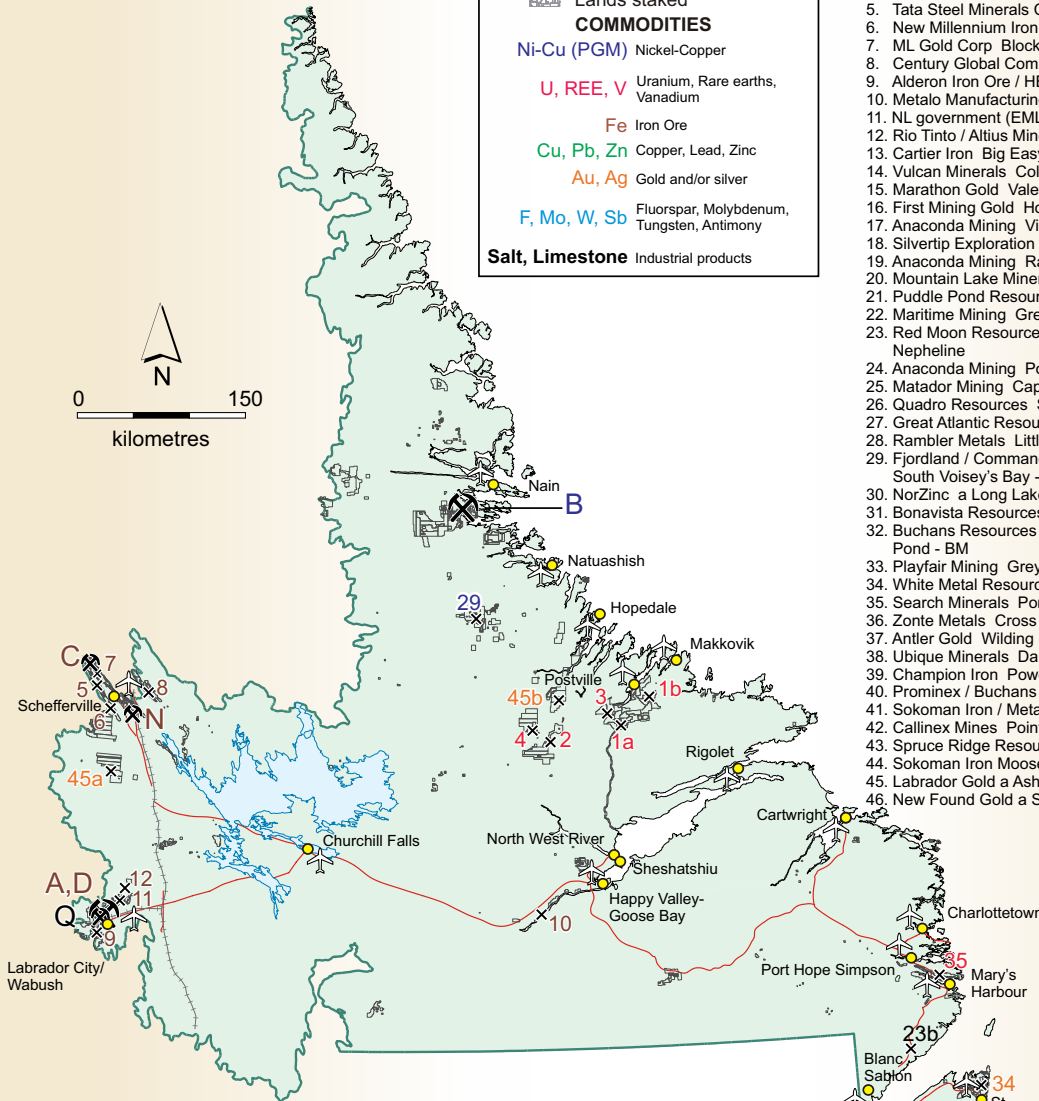
Salt, Limestone Industrial products

Major Exploration Properties

1. Paladin Energy (Aurora Energy) a Michelin, b Jacques Lake - U
2. Lewis Murphy Holdings Moran Lake C Zone - U, V
3. Nu Nova Energy Anna Lake - U
4. Jet Metal Two Time - U
5. Tata Steel Minerals Canada LabMag - Fe
6. New Millennium Iron Perault Lake - Fe
7. ML Gold Corp Block 103 - Fe
8. Century Global Commodities / WISCO Attikamagen - Fe
9. Alderon Iron Ore / HBIS Group Kami - Fe
10. Metalco Manufacturing Churchill River - Fe
11. NL government (EML) Julienne Lake - Fe
12. Rio Tinto / Altius Minerals Labrador Iron Ore (Goethite Bay) - Fe
13. Cartier Iron Big Easy - Au
14. Vulcan Minerals Colchester - Cu, Au
15. Marathon Gold Valentine Lake - Au
16. First Mining Gold Hope Brook - Au
17. Anaconda Mining Viking - Au
18. Silvertip Exploration Brady - Au / R. and L. Quinlan Huxter - Au
19. Anaconda Mining Rattling Brook - Au
20. Mountain Lake Minerals Glover Island - Au
21. Puddle Pond Resources Heritage - Au
22. Maritime Mining Green Bay - Au
23. Red Moon Resources a Captain Cook - K, Na; b Black Bay - Nepheline
24. Anaconda Mining Point Rousse - Au
25. Matador Mining Cape Ray - Au
26. Quadro Resources Staghorn - Au
27. Great Atlantic Resources Golden Promise - Au
28. Rambler Metals Little Deer - Cu
29. Fjordland / Commander Resources / High Power Exploration South Voisey's Bay - Ni
30. NorZinc a Long Lake, b Tulks South, c South Tally Pond - BM
31. Bonavista Resources Burin - Au
32. Buchans Resources a Buchans, b Daniels Pond, c Bobby's Pond - BM
33. Playfair Mining Grey River - W / Starcore Molybrook - Mo
34. White Metal Resources Gunnars Cove - Au
35. Search Minerals Port Hope Simpson - REE
36. Zonte Metals Cross Hills - Au, Cu
37. Antler Gold Wilding Lake - Au
38. Ubique Minerals Daniel's Harbour - Zn
39. Champion Iron Powderhorn - Zn, Cu
40. Prominex / Buchans Resources Tulks Hill - BM
41. Sokoman Iron / Metals Creek Clarks Brook - Au
42. Callinex Mines Point Leamington - Cu, Zn, Au, Ag
43. Spruce Ridge Resources Great Burnt - Cu, Au
44. Sokoman Iron Moosehead - Au
45. Labrador Gold a Ashuanipi, b Hopedale - Au
46. New Found Gold a Sail Pond - Cu, Pb, Ag, Au; b Linear - Au

ABBREVIATIONS

- Au - Gold
- BM - Zinc, Lead, Copper, Silver
- Co - Cobalt
- Cu - Copper
- F - Fluorspar
- Fe - Iron
- K - Potash
- Mo - Molybdenum
- Ni - Nickel
- REE - Rare earth elements
- Sb - Antimony
- Ti - Titanium
- U - Uranium
- V - Vanadium
- W - Tungsten
- Zn - Zinc



SOURCE

Government of Newfoundland and Labrador,
Department of Natural Resources,
December 2018

Detailed Mineral Claims Maps
are available for viewing online at
<http://gis.geosurv.gov.nl.ca/>

Operations Metal Non-metal

- A. Rio Tinto IOC (Carol Project) - Iron, Dolomite
- B. Vale (Voisey's Bay) - Nickel, Copper, Cobalt
- C. Tata Steel Minerals Canada (Schefferville) - Iron
- D. Tacora Resources Inc. (Scully) - Iron
- E. Rambler Metals and Mining PLC (Ming Mine) - Copper, Gold
- F. Anaconda Mining Inc. (Stog'er Tight) - Gold
- G. Atlantic Minerals Limited (Lower Cove) - Limestone, Dolomite
- H. Red Moon Resources (Ace Gypsum) - Gypsum
- I. Trinity Resources Ltd. (Manuels Mine) - Pyrophyllite
- J. Canada Fluorspar (NL) St. Lawrence - Fluorspar
- K. Beaver Brook Antimony Mines Inc. (Beaver Brook) - Antimony
- L. Rambler Metals and Mining PLC (Nugget Pond Mill)
- M. Vale (Long Harbour Nickel Refinery)

Care and maintenance

- N. Labrador Iron Mines Holdings (Schefferville) - Iron

Inactive

- O. Teck Resources Limited (Duck Pond Operations) - Zinc, Copper
- P. Hurley Stateworks Company Inc. (Burgoynes Cove) - Slate
- Q. Shabogamo Mining and Exploration Limited (Roy's Knob) - Silica

