



Ministry of  
Energy, Mines and  
Petroleum Resources



# Exploration and Mining Northwest Region British Columbia



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Director Mineral Development Office  
British Columbia Geological Survey

Minerals North Conference April 26<sup>th</sup>, 2018  
Houston, British Columbia

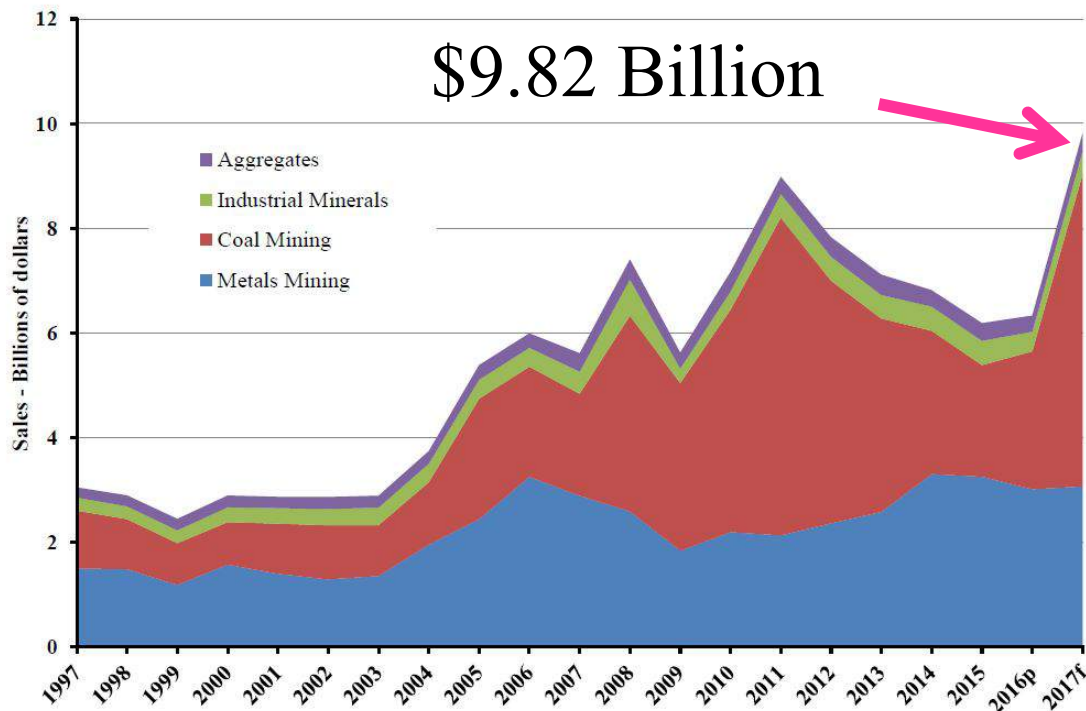


## Outline

- Operating Mines
- Exploration expenditures
- Selected exploration projects update
- Summary



# Mining Production 1997-2017



Increase of \$3.19 Billion vs 2016 preliminary estimate

Increase primarily due to:

- coal price increase
- coal mine restarts

Top three commodities

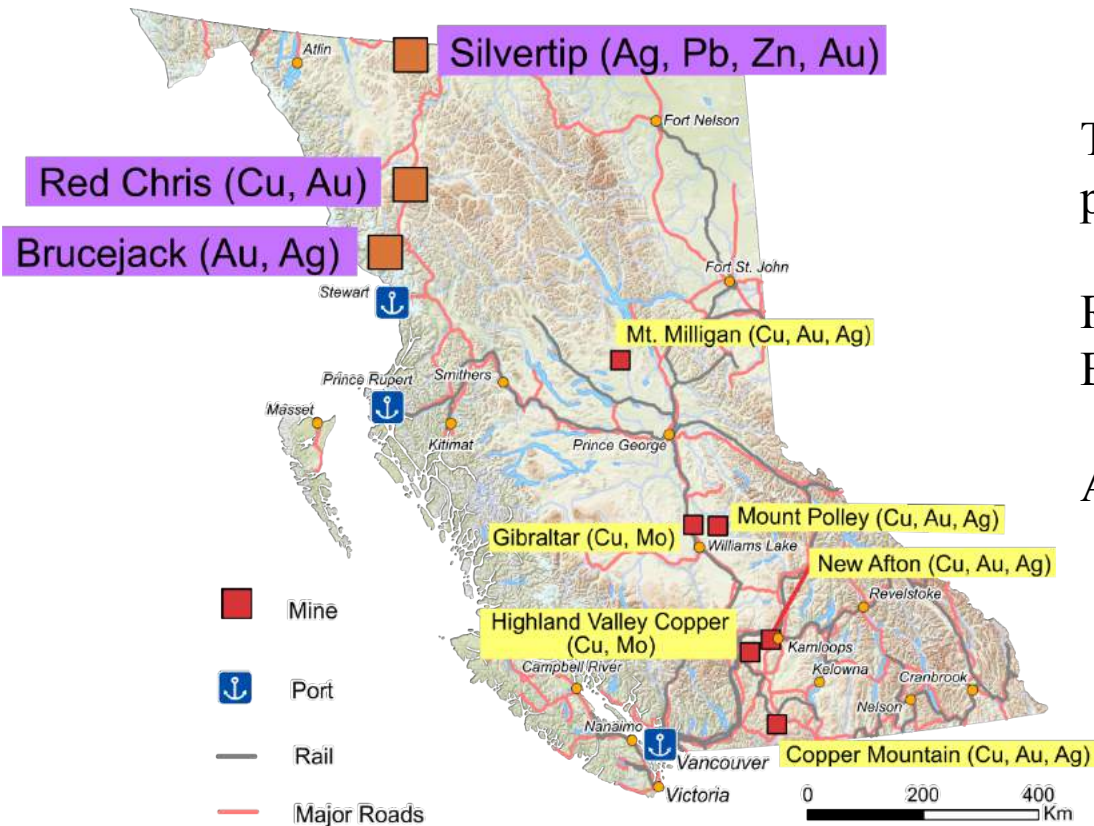
Coal = 61% of production

Copper = 23% of production

Gold = 7% of production

-US\$178 t for hard coking coal, US\$141 for PCI coal (Mid November)

-Mine restarts at Wolverine and Quinsam



The Northwest Region has two of the provinces eight large metal mines:

Red Chris  
Brucejack

And one smaller operation - Silvertip



## Pretium Resources Inc. Declares Commercial Production at Brucejack



British Columbia's newest large metal mine. Commercial production declared July, 2017.

High grade gold reserve, Valley of the Kings, P+P  
15.6 Mt at 16.1 g/t gold, 11.1 g/t silver

Gold pour at Brucejack Mine. Photo courtesy of Pretium Resources Inc.



## Red Chris Mine – Imperial Metals Corporation

### 2017 production

- 74.6 million lbs copper
- 33,416 oz gold
- 133,157 oz silver

Current mine life to 2043

Staff of 370 (over 35% First Nations)



## Silvertip – Coeur Mining Inc.



Silvertip Mine *photo courtesy of Coeur Mining Inc.*

- Mine purchased from JDS Silver Inc. in October 2017 for about \$250 million
- Production commencement announced March 2018
- Mill throughput to ramp up to 750 tpd
- Application for permit amendment to 1000 tpd

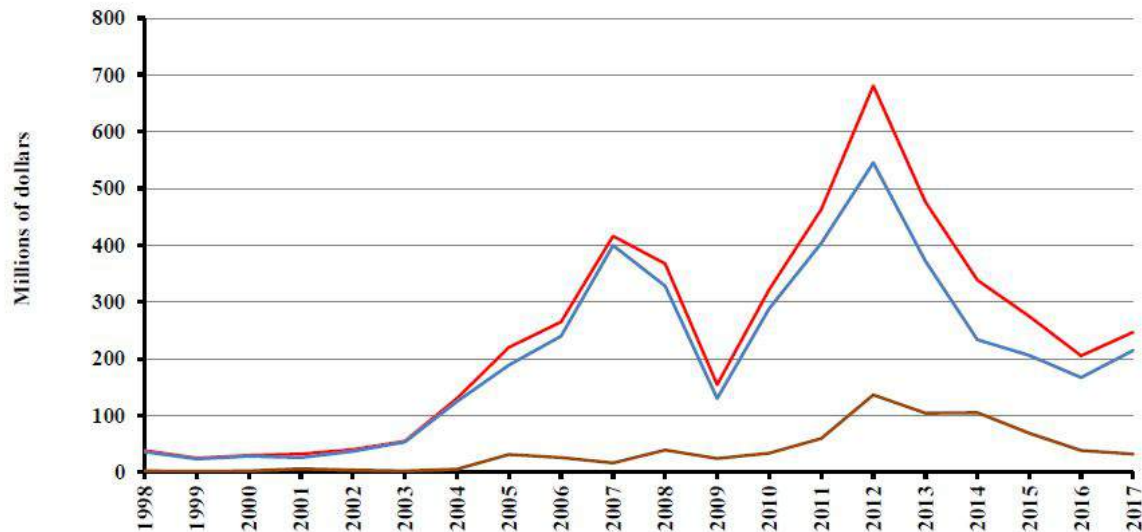
### Indicated Resources

- 2.6 M short tons at
  - 10.26 oz /ton silver
  - 6.74% lead
  - 9.41% zinc



## Provincial Exploration Expenditures

— Total Exploration Expenditures    — Metals & Other Exploration Expenditures    — Coal Exploration Expenditures



Total for 2017 \$246.6 million\*

- \$214.8 Metal + other
- \$31.8 – Coal
- Increase of \$41.6 million over 2016. First increase since 2012

\*Ernst & Young LLP 2017 Mineral and Coal Exploration Survey

[ey.com/ca/bcminingsurvey](http://ey.com/ca/bcminingsurvey)





## NW Region Expenditures - \$99 million (up \$15 million from 2016)



### Percentage of Provincial Expenditures

- **Northwest Region 40%**
- South Central Region 25%
- Southeast Region 18%
- North Central Region 13%
- Southwest Region 4%
- Northeast Region 1%



# Selected Exploration Projects

- Advanced projects
- New discoveries and successful drilling programs
- Significant investment and property development news



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# Advanced Projects



## Seabridge Gold Inc. - KSM Project

- The KSM project includes four deposits Kerr, Sulphurets, Mitchell and Iron Cap
- Project has provincial and federal EA certificates
- The project may be the largest undeveloped copper-gold project in the world (by reserves)
- In 2017 Seabridge completed over 10,000 m of drilling in 11 holes at Iron Cap and all holes returned wide zones of significant grade
- Highlights include 858 m of 0.86 g/t gold and 0.51% copper including 113 m of 2.98 g/t gold and 1.56% copper
- Results may result in a revision of the project's mine plan and enhance KSM's projected economics
- Further exploration planned for 2018 and preparation for an all season camp is currently underway
- \$17.2 million private placement announced this month

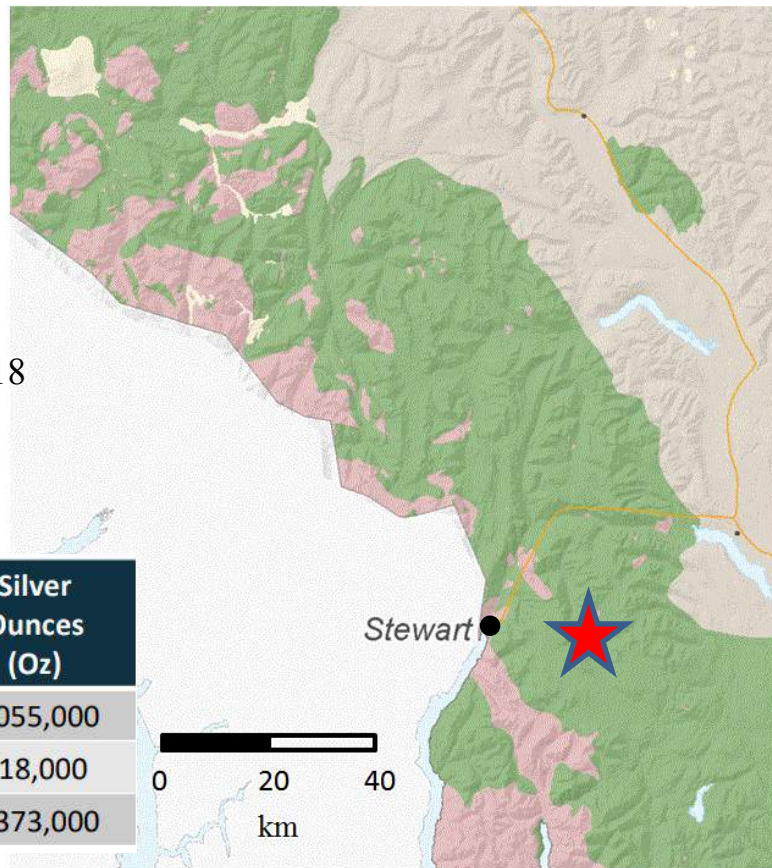




## IDM Mining Ltd. – Red Mountain Project

- High-grade, bulk mineable underground gold-silver deposit
- Positive feasibility study in 2017
- Updated resource estimate planned for Q2 2018
- Continued exploration planned for 2018
- Provincial Environmental Assessment certificate anticipated Q3 2018
- Federal Environmental Impact Statement anticipated Q4 2018
- \$4.3 million dollar placement closed this month

Category	Diluted Tonnes (t)	Au Grade (g/t)	Gold Ounces (Oz)	Ag Grade (g/t)	Silver Ounces (Oz)
Proven	1,308,000	7.82	329,000	25.09	1,055,000
Probable	645,000	6.93	144,000	15.32	318,000
<b>TOTAL</b>	<b>1,953,000</b>	<b>7.53</b>	<b>473,000</b>	<b>21.86</b>	<b>1,373,000</b>





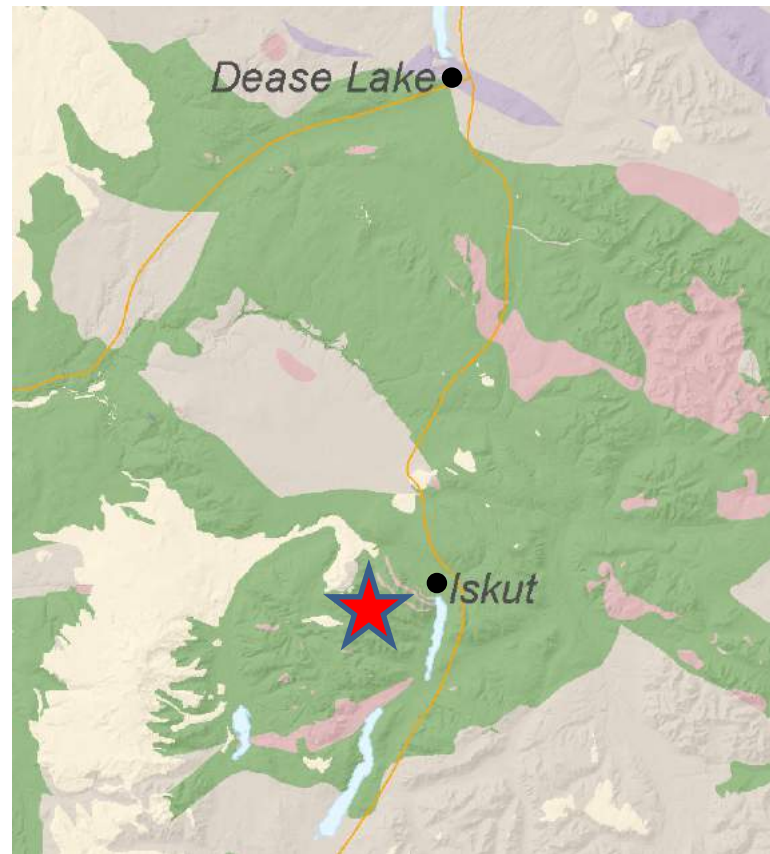
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# New discoveries and exploration highlights

## GT Gold Corp. - Tatogga Project

- Two new grassroots discoveries, Saddle South and Saddle North
- Saddle South is a high grade gold discovery with highlight drilling results including 51.53 g/t gold over 6.95 m and 5.10 g/t gold over 23.66 m
- Saddle North is a porphyry copper-gold-silver discovery with related high grade epithermal veins. The porphyry discovery returned drilling results of 210.3 m of 0.14 g/t gold, 0.28 g/t silver and 0.16% copper. Grades improved downhole and the hole ended in mineralization
- Highlight intersections for the epithermal vein discovery included 13.55 g/t gold over 2.58 m including 61.10 g/t gold and 30.90 g/t silver over 0.61 m
- 18,000 m drilling program to start June 1





## Garibaldi Resources Corp. – E&L Project

- High grade nickel-copper plus cobalt-PGE-gold-silver
- 2017 results include 8.3% nickel and 4.2% copper over 16.75 m
- Helicopter borne VTEM and magnetic surveys carried out this winter to define new targets
- Drilling to continue in 2018
- \$10 million financing announced April 17<sup>th</sup>

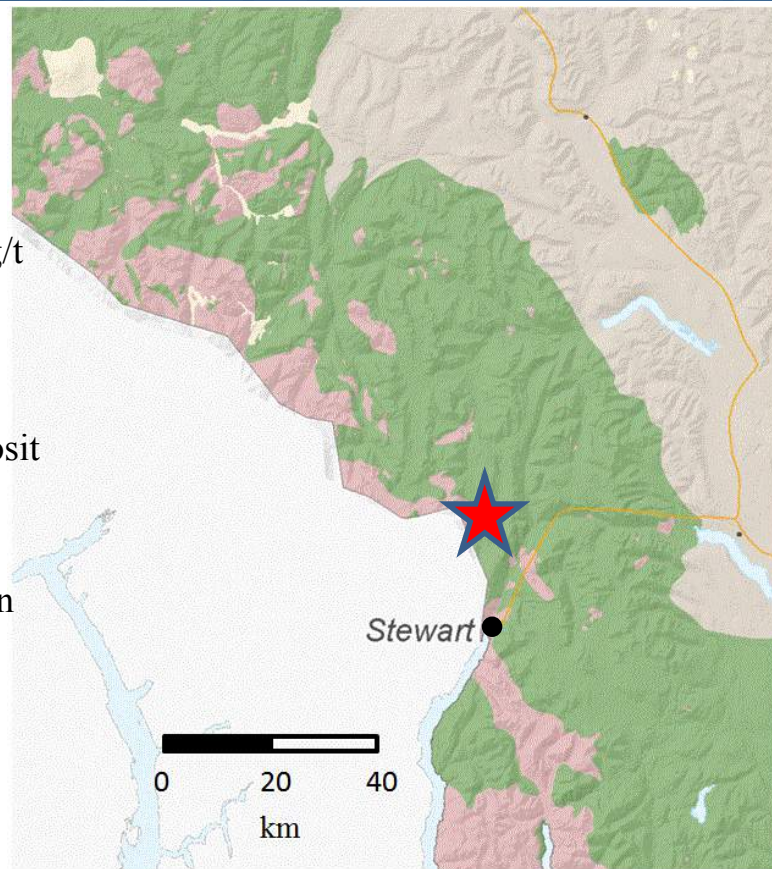






## Ascot Resources Ltd. - Premier-Dilworth Project

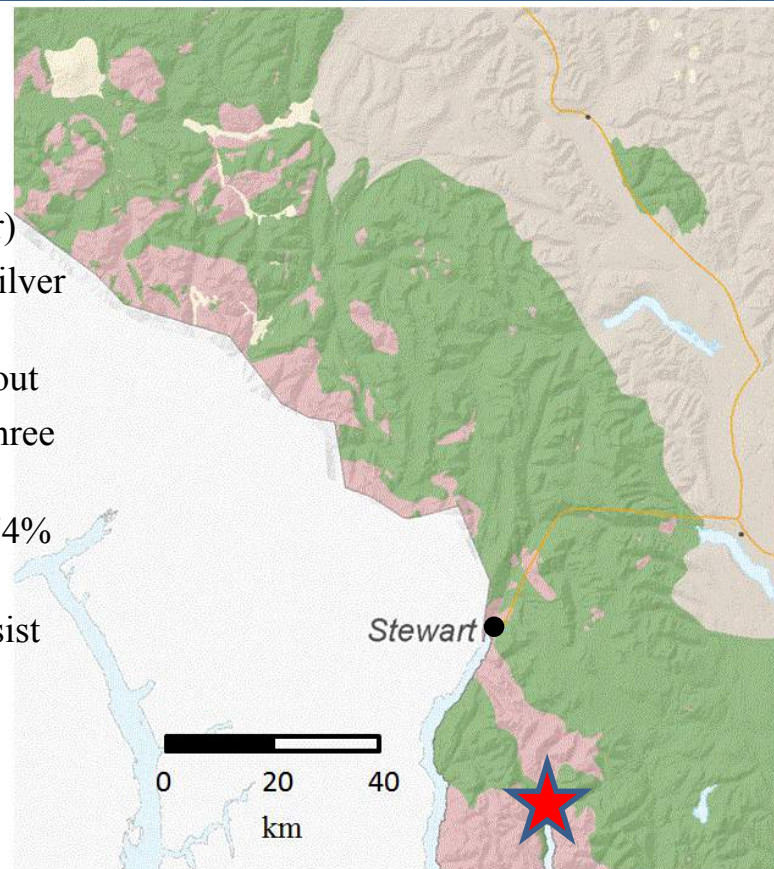
- Premier was a significant past producing precious metal mine
- Ascot carried out a 379 hole 118,800 m drilling program in 2017
- Numerous high-grade intersections were reported, including 36.31 g/t gold over 16.15 m
- Discovered a new high-grade subzone (Ben) of the Northern Lights zone in the Premier mine area
- 43-101 resource study is underway for Premier-Northern lights deposit
- \$6.5 million financing closed March 22<sup>nd</sup>
- In 2018 infill drilling planned for the Big Missouri, Unicorn and Martha Ellen prospects to define new resources (approx. 45,000 m in 200 holes)





## Dolly Varden Silver Corp. – Dolly Varden Project

- Four known deposits (Dolly Varden, Torbrit, North Star and Wolf)
- Historic production in the 1920's and 1950's (> 20 million oz silver)
- Current resources as of August 2015, 3.07 Mt indicated at 322 g/t silver plus inferred at 0.90 Mt at 373 g/t silver
- In 2017 a 45 hole 15,728 m diamond drilling program was carried out
- Four new discoveries were made outside of resource block areas (three are near the past producing Torbrit mine)
- Highlights included 21.37 m (true width) grading 433 g/t silver, 0.74% lead and 0.22% zinc
- For 2018 a \$8.9 million program has been announced that will consist of approximately 25,000 m in 60 to 75 holes
- The program will focus on resource delineation and verification, in particular in the areas of new discoveries made in 2017

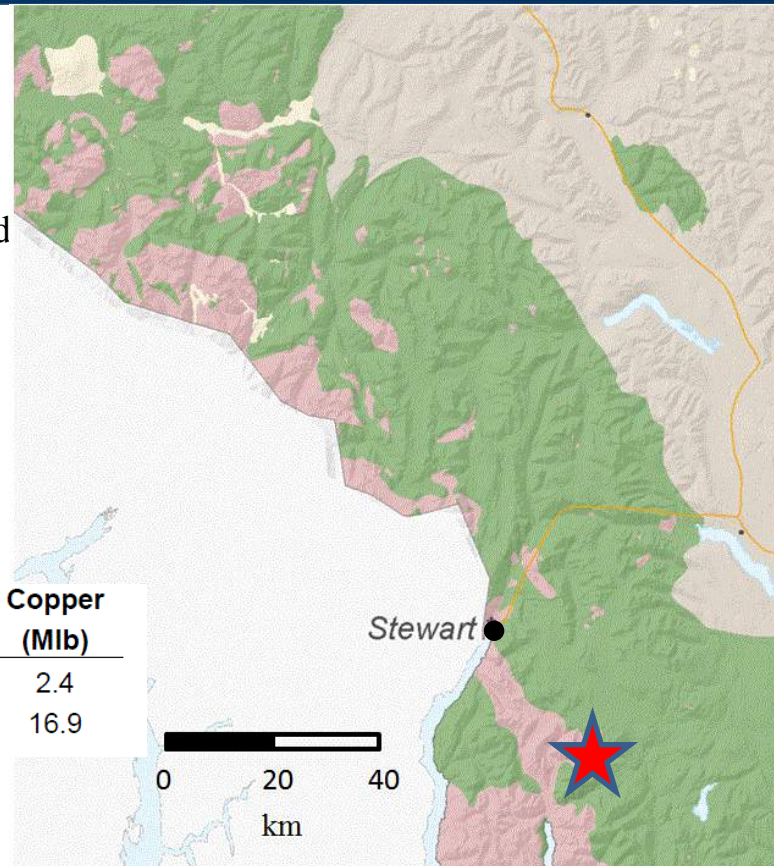




## Auryn Resources Inc. – Homestake Ridge Project

- 2017 drilling program 37 holes, 14,580 m
- Results included 10.0 m of 4.12 g/t gold and 30.0 m of 2.00 g/t gold
- Released a 43-101 technical report with resource statement in September 2017
- Additional drilling planned for 2018
- In March announced closing of US\$9.8 million financing

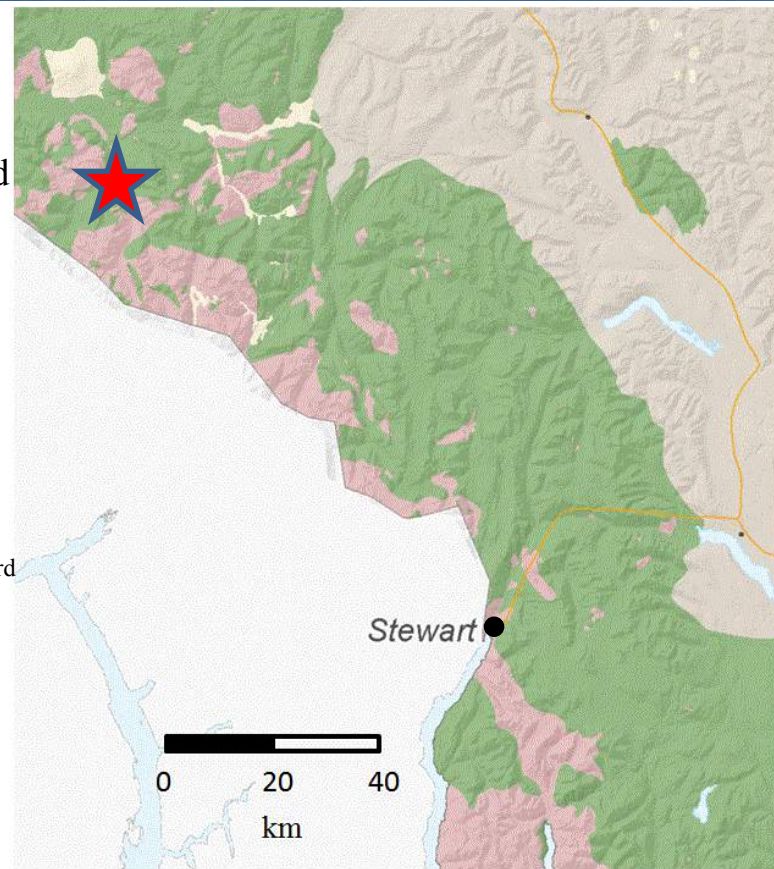
Classification	Tonnage (Mt)	Gold (g/t)	Gold (oz)	Silver (g/t)	Silver (Moz)	Copper (%)	Copper (Mlb)
Indicated	0.624	6.25	125,000	47.9	1.0	0.18	2.4
Inferred	7.245	4.00	932,000	90.9	21.2	0.11	16.9





## Skeena Resources Limited – Snip Project

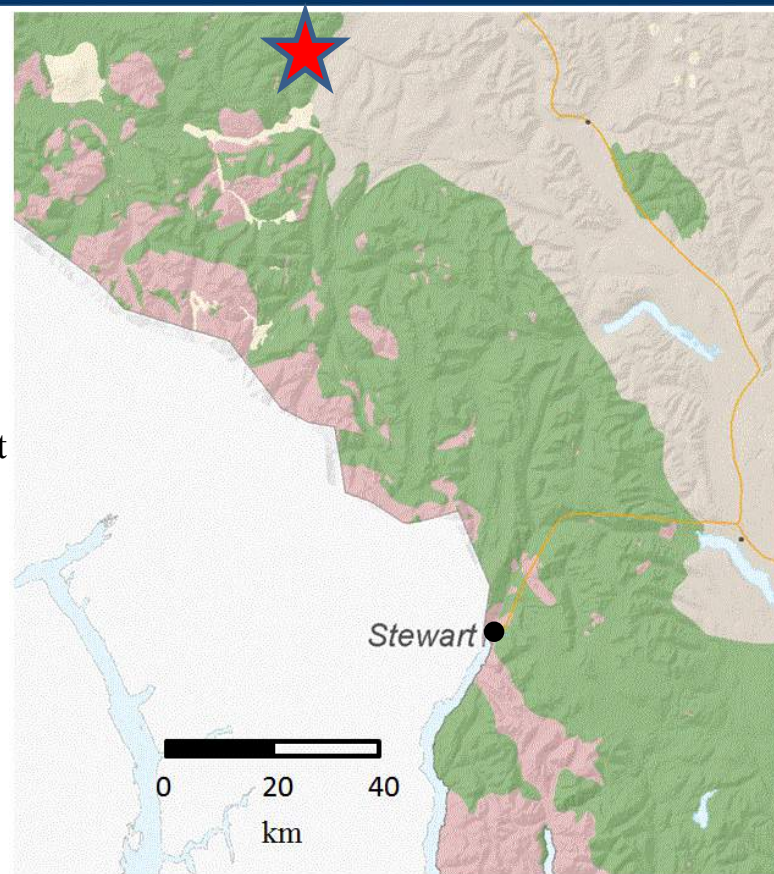
- 100% interest in the past-producing mine acquired from Barrick Gold in July 2017
- Historic production 1991-99 approx., 1 million oz gold at a grade of 27.5 g/t
- In 2017 a 72 hole, 9,000 m underground drilling program carried out
- Highlights included 91.56 g/t gold over 3.82 m
- In March an oversubscribed private placement of \$8.5 million announced
- A 11,000 m underground drilling program was announced on April 3<sup>rd</sup> as underway for 2018
- Initial resource estimate planned for 2018





## Aben Resources Ltd.— Forrest Kerr Gold Project

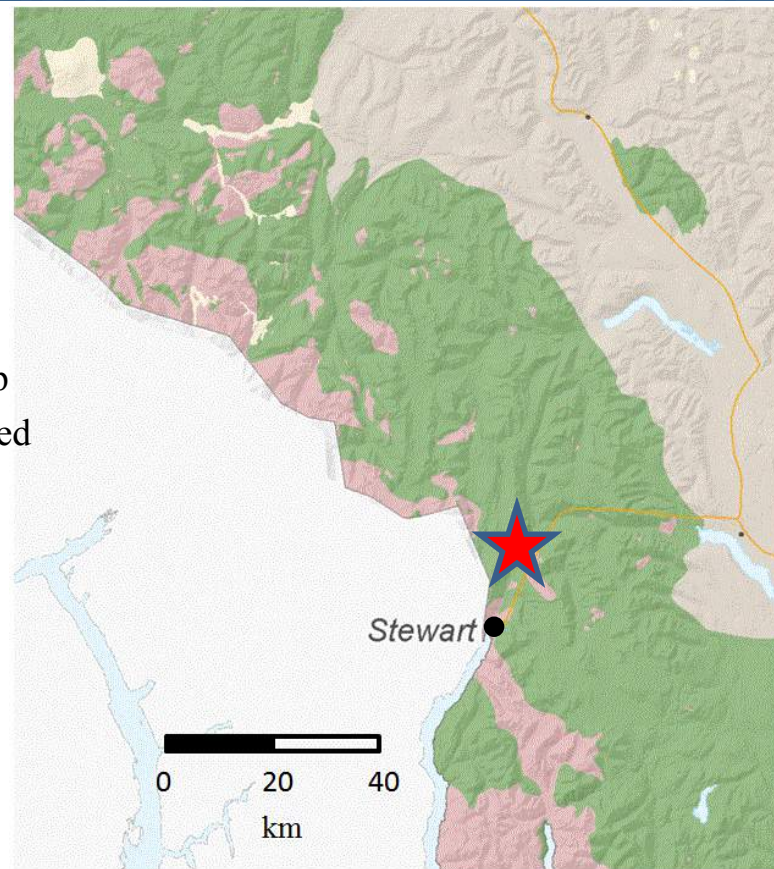
- Historic high grade drill results from the 1990's and 2000's
- Improved infrastructure since then
- New exposures due to glacial retreat
- Large land package, 23,000 hectares
- Nine holes, 2,445 m in 2017
- New boundary zone discovery, results included 21.5 g/t gold, 28.5 g/t silver and 3.1% copper over 6.0 m
- Drilling and geological program planned for 2018
- \$2.32 million placement closed April 23<sup>rd</sup>





## Decade Resources Ltd.– Red Cliff Property

- 65% interest (Mountain Boy Minerals Ltd. 35%)
- Zones include, Redcliff (copper-gold), Montrose (gold), Waterpump (gold)
- 2017 drilling, 51 holes (total meterage not reported)
- Highlight results included 22.87 m of 10.41 g/t gold from Waterpump
- Preliminary resource calculation for Montrose and Waterpump planned for 2018
- Additional drilling planned for 2018



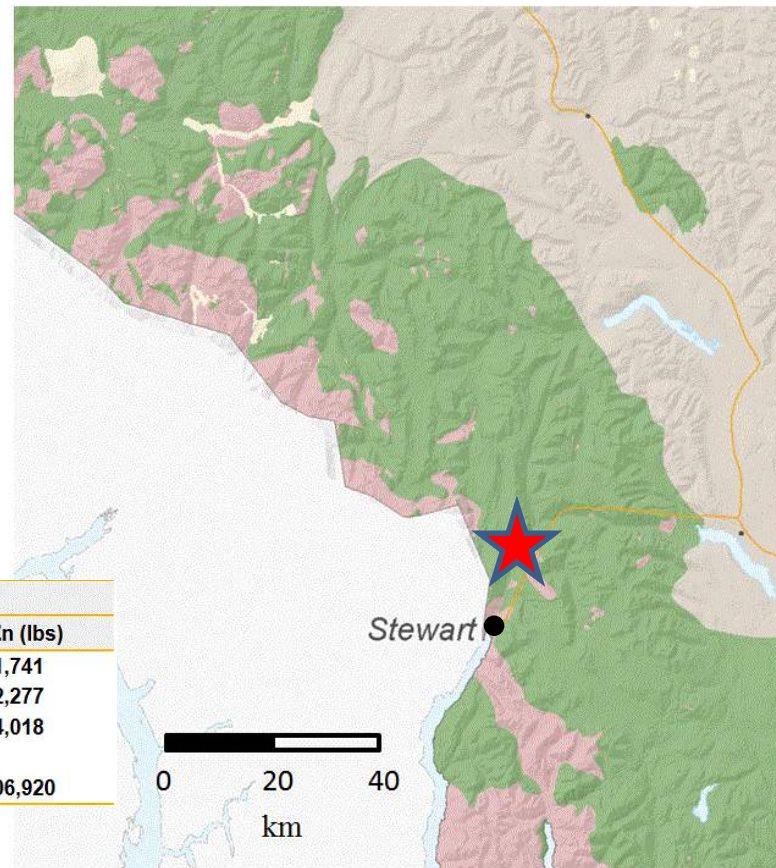


## Jayden Resources Inc.– Silver Coin Project

- 80% interest (20% Mountain Boy Minerals Ltd.)
- In 2017, 2,225 m drilled in 14 holes
- New zone discovered 550 m north of the known deposit
- Highlights included 7.7 m of 8.63 g/t gold and high grade silver intercepts up to 3.0 m of 96.4 g/t
- Additional drilling planned for 2018

SILVER COIN CLASSIFIED RESOURCES April 2011

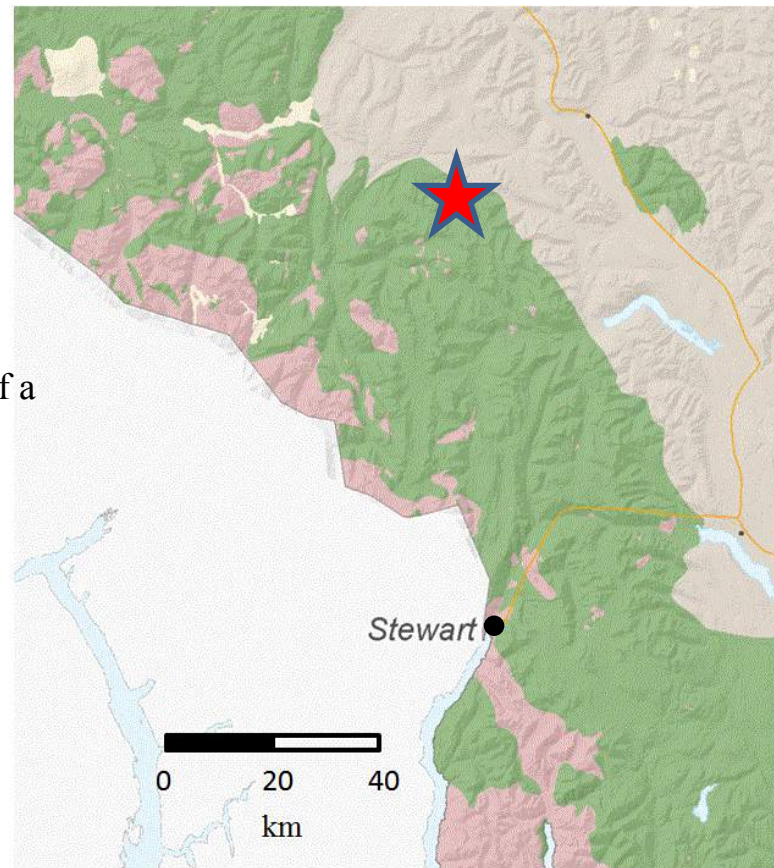
0.3 g/t Au Cut-off	Tonnes	Au (g/t)	Ag (g/t)	Zn (%)	Au (oz)	Ag (oz)	Zn (lbs)
Measured	4,372,225	1.55	6.53	0.26	218,410	918,417	25,531,741
Indicated	19,759,025	0.98	5.57	0.15	624,006	3,537,769	65,642,277
M & I	24,131,250	1.08	5.74	0.17	842,416	4,456,186	91,174,018
Inferred	32,443,840	0.78	6.41	0.18	813,273	6,691,185	128,006,920





## Tudor Gold Corp.– Treaty Creek Property

- 80% interest (20% Teuton Resources Corp.)
- Property contains the Copper Belle gold target
- In 2017 a 27 hole 13,722 m drilling program carried out
- Highlights included 149.1 m grading 1.78 g/t gold
- For 2018, planned work includes additional drilling and the release of a resource calculation for Copper Bell
- Non-brokered private placement of up to \$2 million announced in March

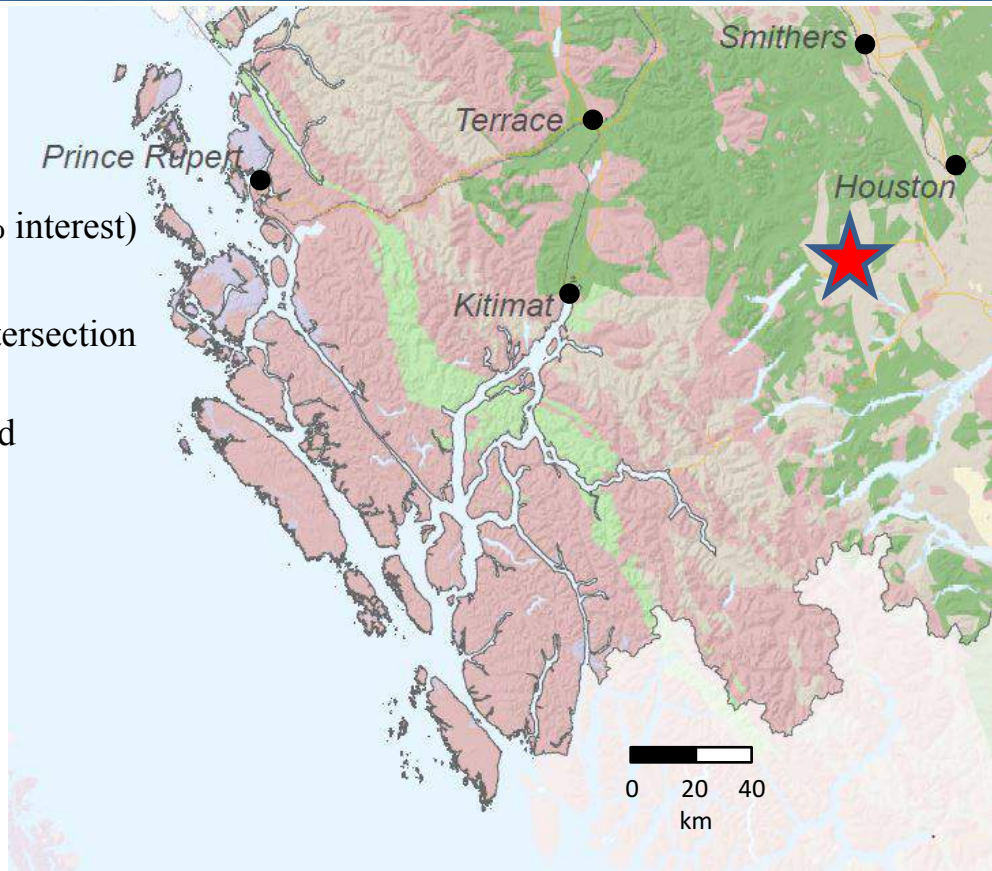






## ML Gold Corporation – Stars Property

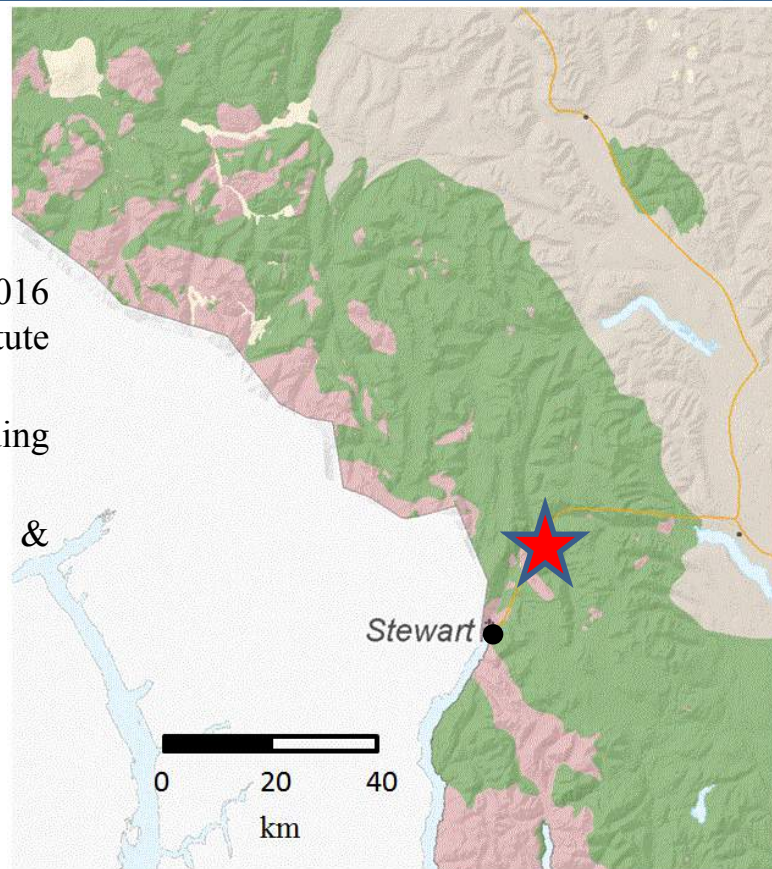
- Porphyry copper-gold-silver-molybdenum project
- Property optioned late last fall (ML can earn up to 80% interest)
- Drilling program started this past January
- A new discovery announced in March with a 204 m intersection of 0.45% copper
- Recent airborne magnetic survey identified covered and untested targets
- Drilling is ongoing





## Mountain Boy Minerals Ltd. – Surprise Creek Project

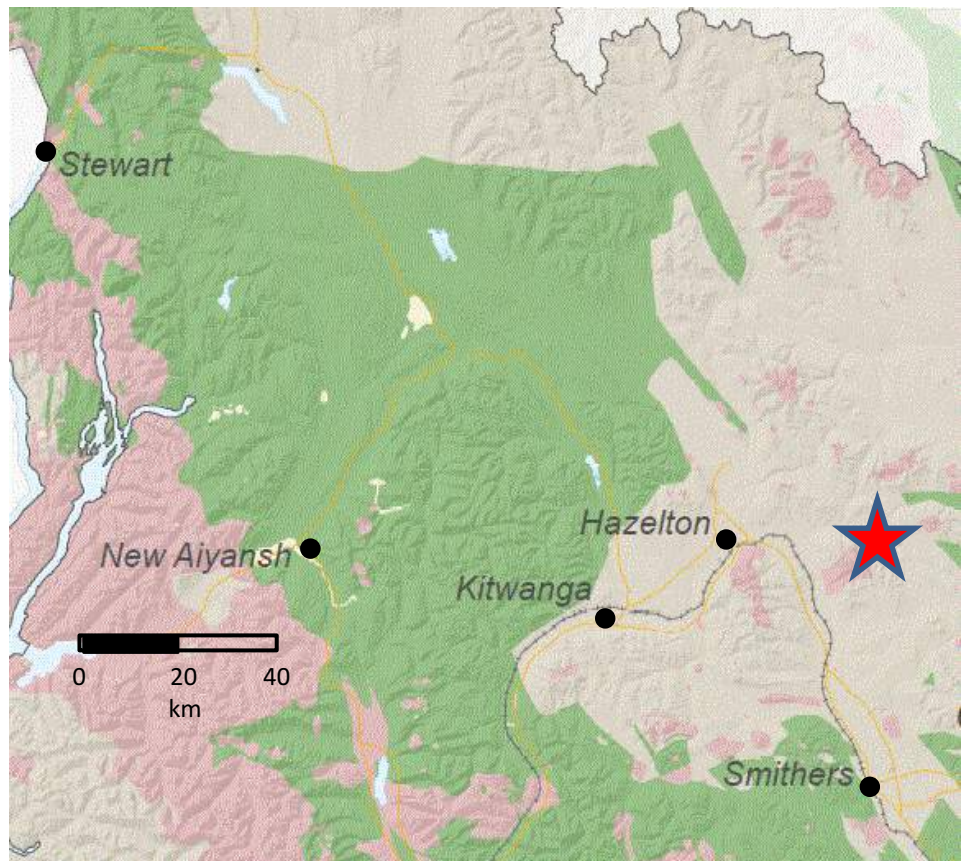
- 50% interest (50% Great Bear Resources Ltd.)
- VMS barite project (Ataman zone)
- Metallurgical testing carried out on core from two holes drilled in 2016 yielded a barite concentrate exceeding American Petroleum Institute (API) standards for oil and gas drilling
- 2017 drilling results, 15 m of 66.8% and 26 m of 41% BaSO<sub>4</sub> including 4.5 m grading 3.27% zinc, 0.71% lead and 22 g/t silver
- Interest resulted in an invite to speak at the Oilfields Minerals & Markets forum Huston, Texas





## Jaxon Mining Inc. – Hazelton Project

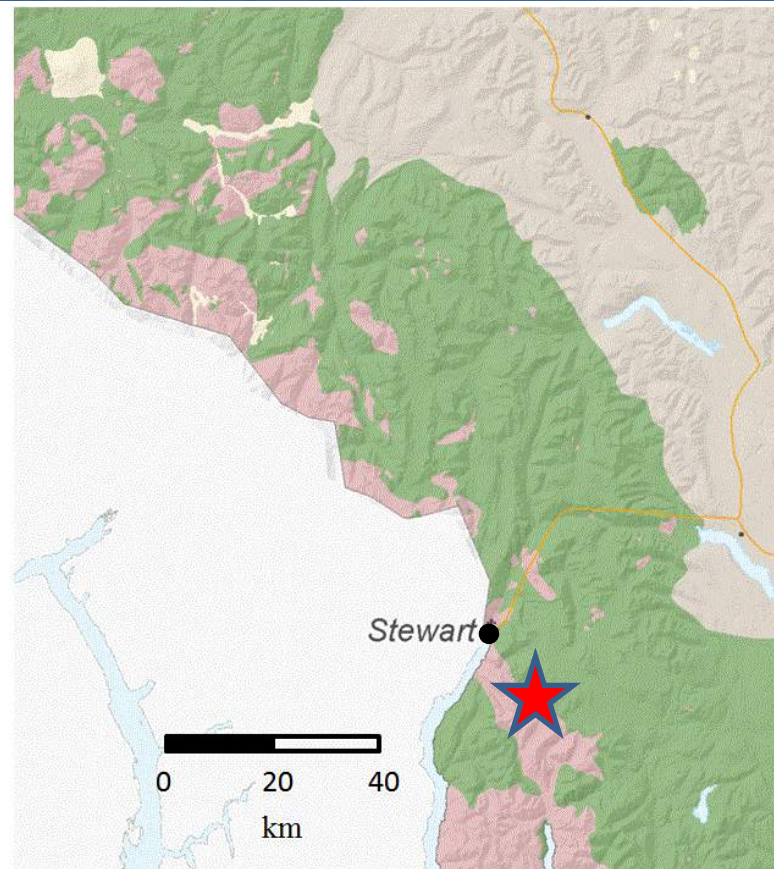
- Project consists of three target areas, Max, West and CRT-RS
- 2017 Max drilling, 2,280 m in 12 holes, 7 of which returned narrow high grade zinc and silver (highlights include 0.2 m of 1,206 g/t silver and 10.8% zinc)
- CRT-RS discovered in 2017, numerous breccia outcrops, 11 of 57 samples returned assays ranging from 10 g/t to 33 g/t gold
- Programs including geophysics and drilling planned for 2018 at Max and CRT-TS





## Sunvest Minerals Corp. – Clone Gold Project

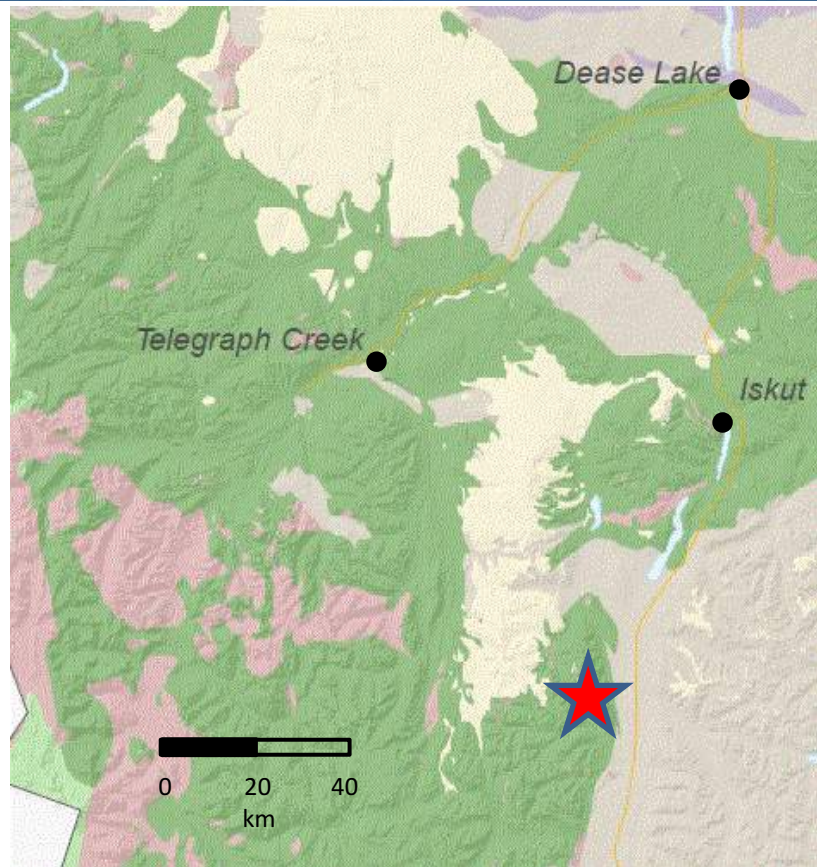
- Results from historic core resampling announced this Feb.
- Highlights include 30.3 g/t gold over 4 m
- 2017 surface chip sampling returned 101 g/t gold over 7.5 m
- Grab samples in a new glacial retreat exposure returned 101 g/t and 93.7 g/t gold
- Drilling program planned for 2018





## Golden Ridge Resources Ltd. – Hank Project

- Epithermal gold-silver-lead-zinc project
- Carried out approx. 9,000 m of drilling in 2017
- Highlight results included 4.13 m of 19.74 g/t gold, 193.9 g/t silver, 0.77% lead, 1.97% zinc and 60.27 m of 2.14 g/t gold, 6.9 g/t silver, 0.11% lead and 0.45% zinc
- For 2018 the completion of approximately 8,000 m of drilling is planned





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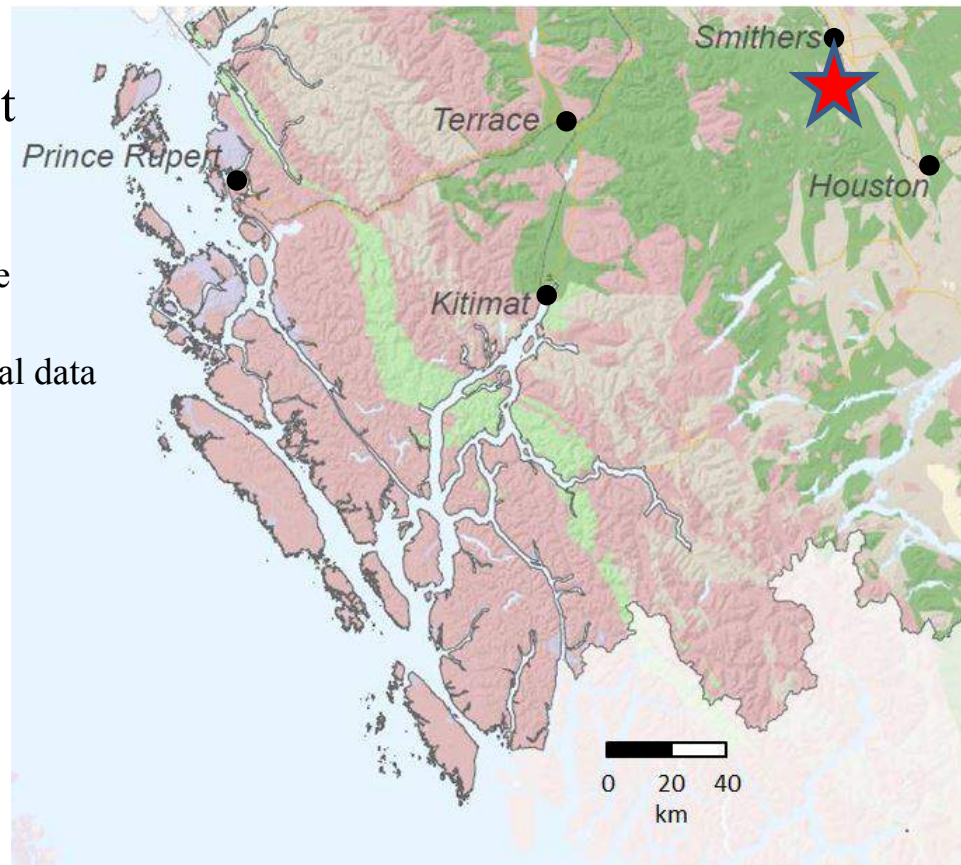


# Investment and Property Development



## Telkwa Coal Limited – Telkwa Coal Project

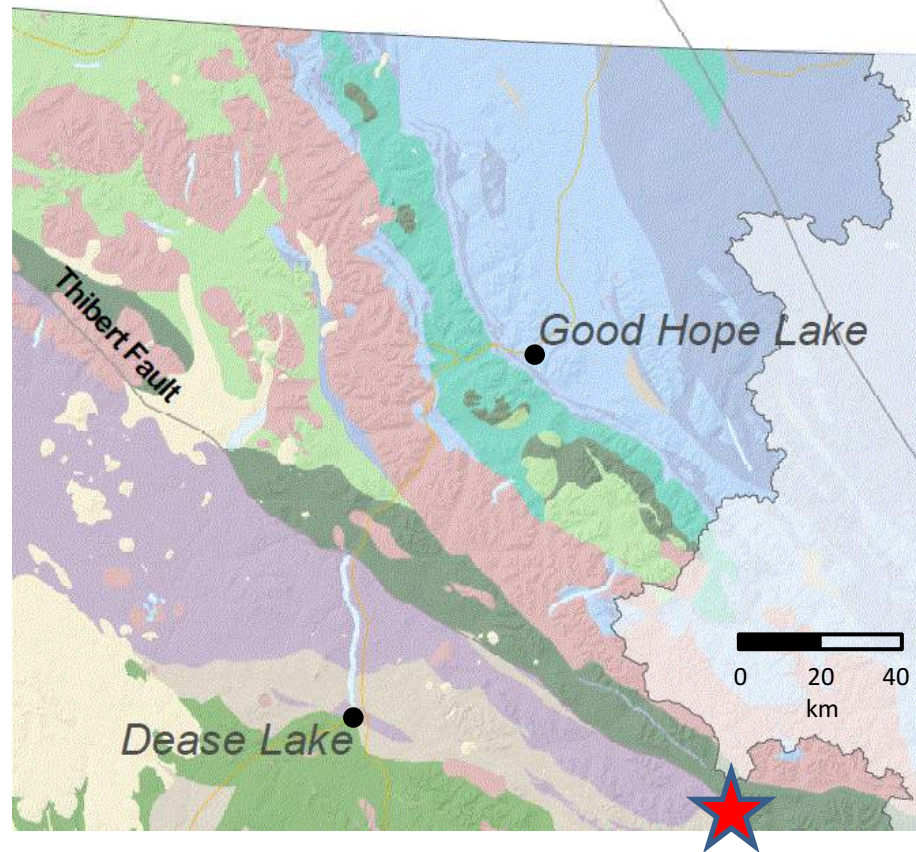
- Telkwa is owned by Allegiance Coal Limited
- Two prefeasibility studies released in 2017
- Initial mining would be at 250,000 tpy, permit filing to be carried out this year
- A drill program to acquire environmental and geotechnical data began in February and was completed in March
- 1,400 kg of coal recovered for coke oven tests
- On March 29<sup>th</sup> announced a \$3.97 Million financing
- For 2018 a full feasibility study to be completed by Q4
- Production target date of Q4 2019





## Kutcho Copper Corp. – Kutcho Project

- In 2017 the copper-zinc-silver-gold project was acquired from Capstone Mining Corp. for \$28.8 million and an updated prefeasibility study with updated resources figures was released
- Probable Reserve of 10.4 Mt at 2.01% Cu with significant by-products (3.19% Zn, 34.61 g/t Ag, 0.37 g/t Au)
- This winter, environmental baseline studies were re-initiated
- Drilling program planned for 2018
- Final investment decision timeline Q1 2020

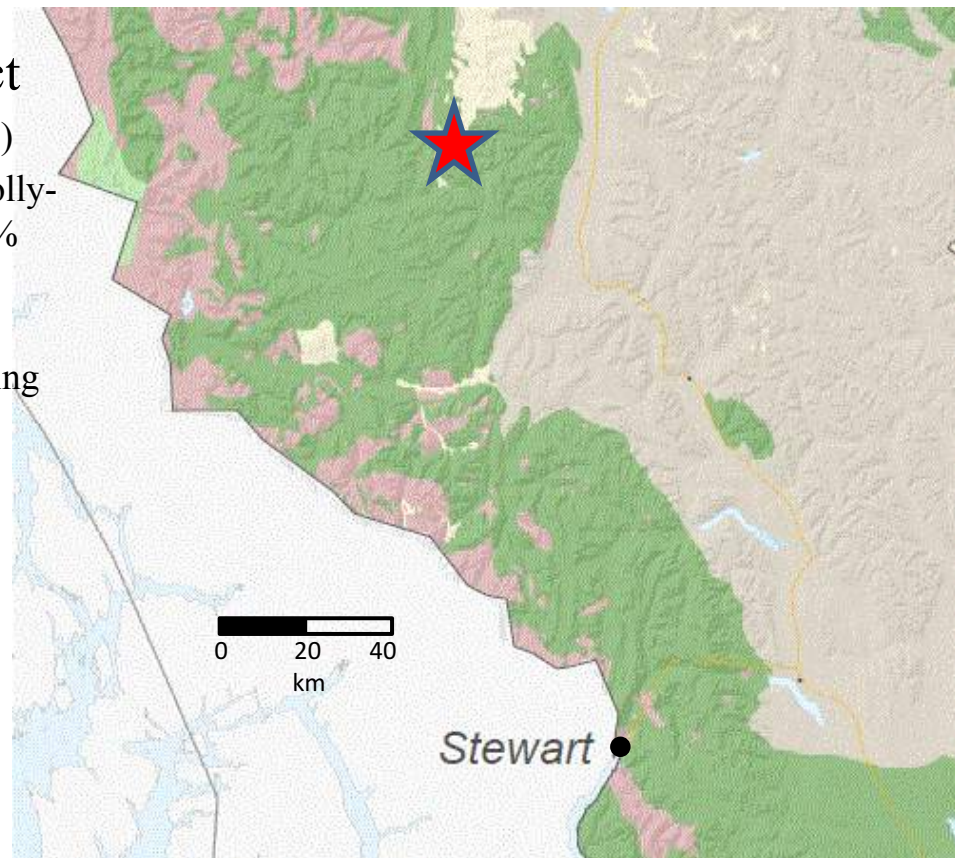






## Evrin Resources Corp. – Ball Creek Project

- Copper-gold-silver±molybdenum project (multiple zones)
- In May 2017 Evrim signed an agreement by which a wholly-owned subsidiary of Antofagasta Plc can earn up to a 70% interest by spending up to US\$31 million or delivering a prefeasibility study
- Last summer a US\$300,000 exploration program consisting of geological mapping and soil sampling was completed

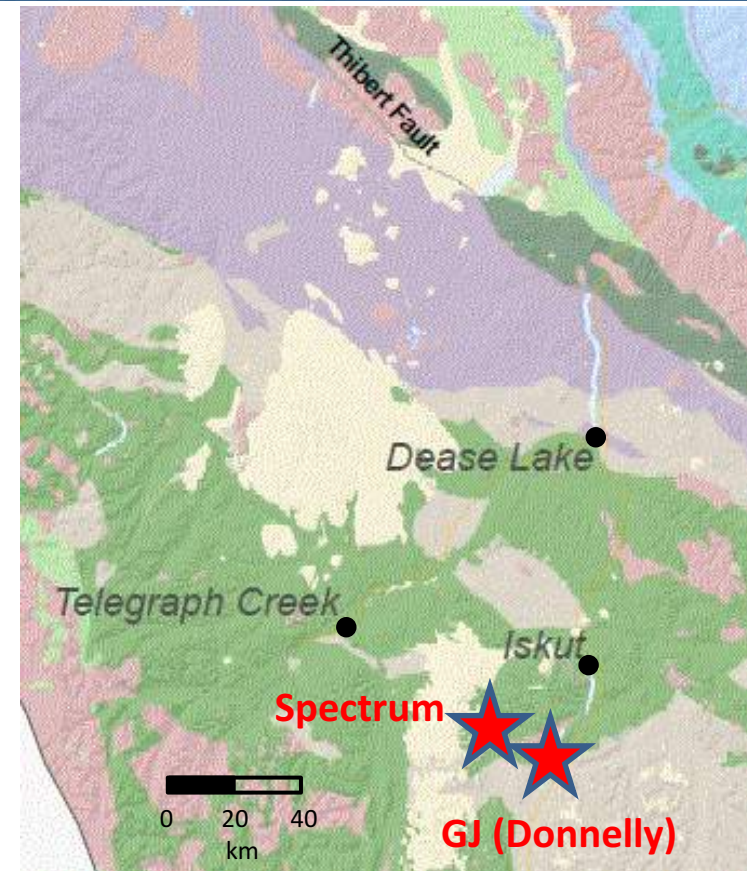




## Skeena Resources Limited – Spectrum-GJ Project

- Project consists of two separate deposits, the Donnelly porphyry copper-gold deposit (at GJ) and the Spectrum Central Zone (Spectrum) porphyry gold-copper deposit
- In May Skeena announced a positive PEA and a mineral resource update
- Low capex (less than US\$200 million), 25 year mine life
- Actively seeking a partner to take the project to the pre-feasibility stage

Category	Million Tonnes	Average Grades			Metal Content		
		Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (Mlb)
<b>Spectrum Central Zone (0.40 g/t AuEq cut-off)</b>							
Indicated	31.2	0.94	2.6	0.10	0.94	2.64	67.7
Inferred	29.8	0.47	1.4	0.12	0.45	1.34	76.4
<b>GJ Donnelly Deposit (0.15% CuEq cut-off)</b>							
Indicated	215.2	0.31	1.9	0.26	2.14	13.03	1,235.4
Inferred	28.3	0.31	1.8	0.14	0.28	1.64	85.1



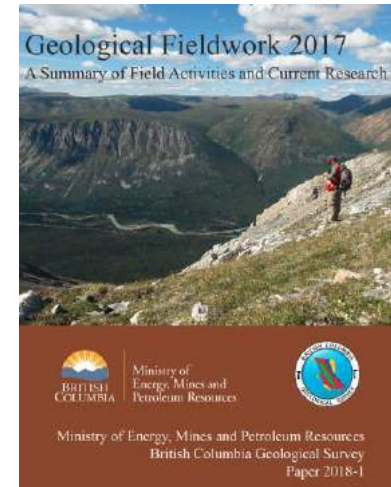
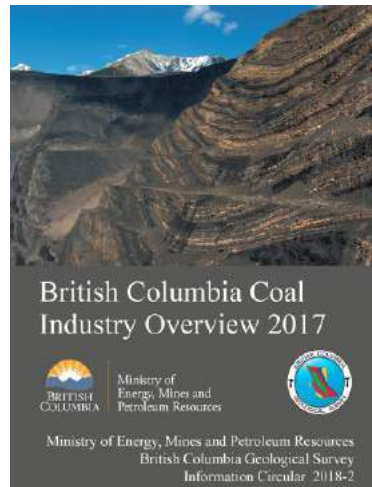
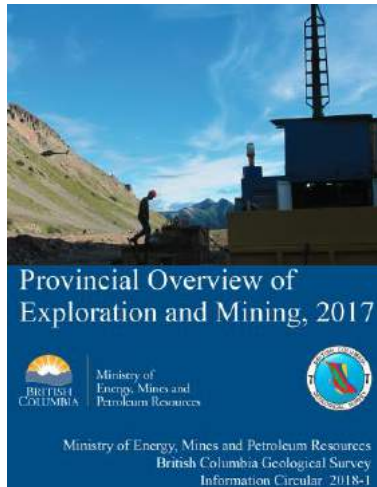


## Summary

- Mine openings and restarts (Brucejack and Silvertip)
- Exploration expenditures increased in 2017 for the first time since 2012
- Exciting new discoveries made in 2017
- Companies able to raise funds for NW region projects
- Outlook for 2018 is optimistic with increased exploration expected



## 2018 publications



Available on-line at [www.gov.bc.ca/mineraldevelopment](http://www.gov.bc.ca/mineraldevelopment)