



# British Columbia Coal Industry Overview 2016



Ministry of  
Energy and Mines



Ministry of Energy and Mines, British Columbia Geological Survey  
Information Circular 2017-2



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**Ministry of Energy and Mines  
Mines and Mineral Resources Division  
British Columbia Geological Survey**

**Front Cover:** Drilling at Loop Ridge project, Michel Creek (CanAus Coal Limited) southeastern B.C.  
Photo by Fiona Katay.

**Back Cover:** Mining at Line Creek mine, Elk River coalfield (Teck Coal Limited), southeastern B.C.  
Photo courtesy of Teck.

This publication is available, free of charge, from the British Columbia Geological Survey website:

[www.em.gov.bc.ca/geology](http://www.em.gov.bc.ca/geology)

Victoria  
British Columbia  
Canada

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British Columbia Geological Survey  
Ministry of Energy and Mines



## Introduction

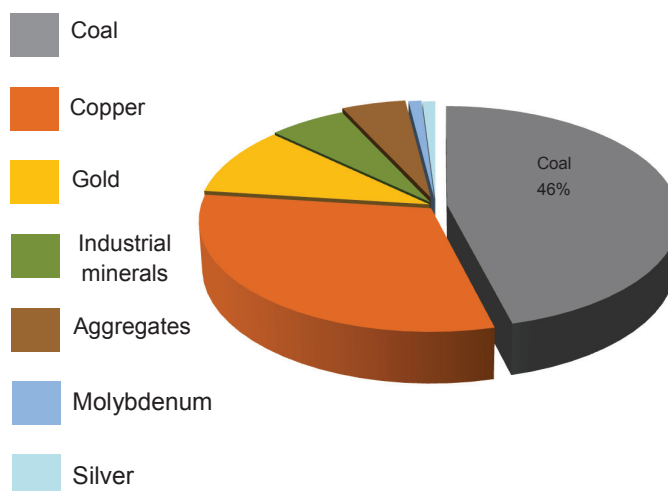
After four years of steady price declines, global coal prices began to rebound in the spring and summer of 2016. Coal production volumes for the province are forecast to be at normal levels, of about 26 million tonnes, after a slight dip in 2015. Coal remains British Columbia's most valuable mined commodity in terms of annual sales (Fig. 1). Coking coal and PCI (pulverized coal injection) products are currently produced from five mines in Kootenay Mountains in the southeastern part of the province. Major markets for British Columbia coal include Asian countries, especially Japan, China, South Korea and India, and countries in South America and Europe.

This pamphlet provides an annual summary of the provincial coal industry. It describes British Columbia's coal regions, industry trends, coal transportation infrastructure, and mining and exploration activities for the past year. It also describes the tenure system, and lists sources of information and contacts. This publication complements more detailed British Columbia Geological Survey annual publications (see **British Columbia Geological Survey Information Sources** below).

## British Columbia coal industry trends and news in 2016

Global coal prices began to rebound in the spring of 2016, after sinking to their lowest levels in five years. Prices bottomed out in the first quarter of 2016 at \$76 per tonne coal for hard coking coal, \$69 for PCI, and below \$50 for thermal coal. By the beginning of the fourth quarter, spot prices had reached over \$300 for hard coking coal, \$151 for PCI, and \$107 for thermal coal (all prices are per tonne, in \$US, estimated, West Coast port price). Prices peaked in mid-November before dropping slightly in December. The price recovery reflects shortages caused by China's attempt to reduce its overcapacity, high-cost mine closures, and weather-related supply route interruptions.

The five Teck Coal Limited operated mines in the Southeast Region (Kootenay) operated continuously in 2016 and their combined production for the year is forecast to come in at normal levels of about 26 million tonnes after dipping to 23.6 million tonnes in 2015. In June, the northeast BC coal assets owned by Walter Canada (including the Willow Creek, Brule and Perry Creek mines) were sold to Conuma Coal Resources Limited, who immediately announced their intent to reopen Brule by the end of 2016, followed by Perry Creek (Wolverine) in 2017. The other two coal mines in northeastern British Columbia, Willow Creek and Trend, remained idle following production suspensions in 2013 and 2014. The Quinsam thermal coal mine on Vancouver Island ceased production in



**Fig. 1.** Forecast production value by mined commodity for British Columbia in 2016. The value of coal production is forecast to be \$3.32 billion this year, representing about 46% of all mineral revenue in the province.

January 2016 and has not re-opened.

The value of coal production for the province is forecast at \$3.32 billion for 2016, an increase of 9% over 2015. This constitutes about 46% of all mineral production value in the province for the year (Fig. 1). Coal exploration expenditures are estimated at \$38.5 million.

As of November 1, 2016, new coal license applications numbered 27 in 2016 for a total of 37,875 hectares (Fig. 3). New coal licenses issued numbered 89, covering 105,071 hectares (Fig. 4). No new leases were issued.

The British Columbia Government created a new coal reserve in 2015 in areas north and south of Hudson's Hope in the Northeast Region to protect caribou habitat. Refund cheques were sent out early in 2016 to companies with terminated applications. Maps showing the location of all coal reserves can be viewed on the Mineral Titles Online website:

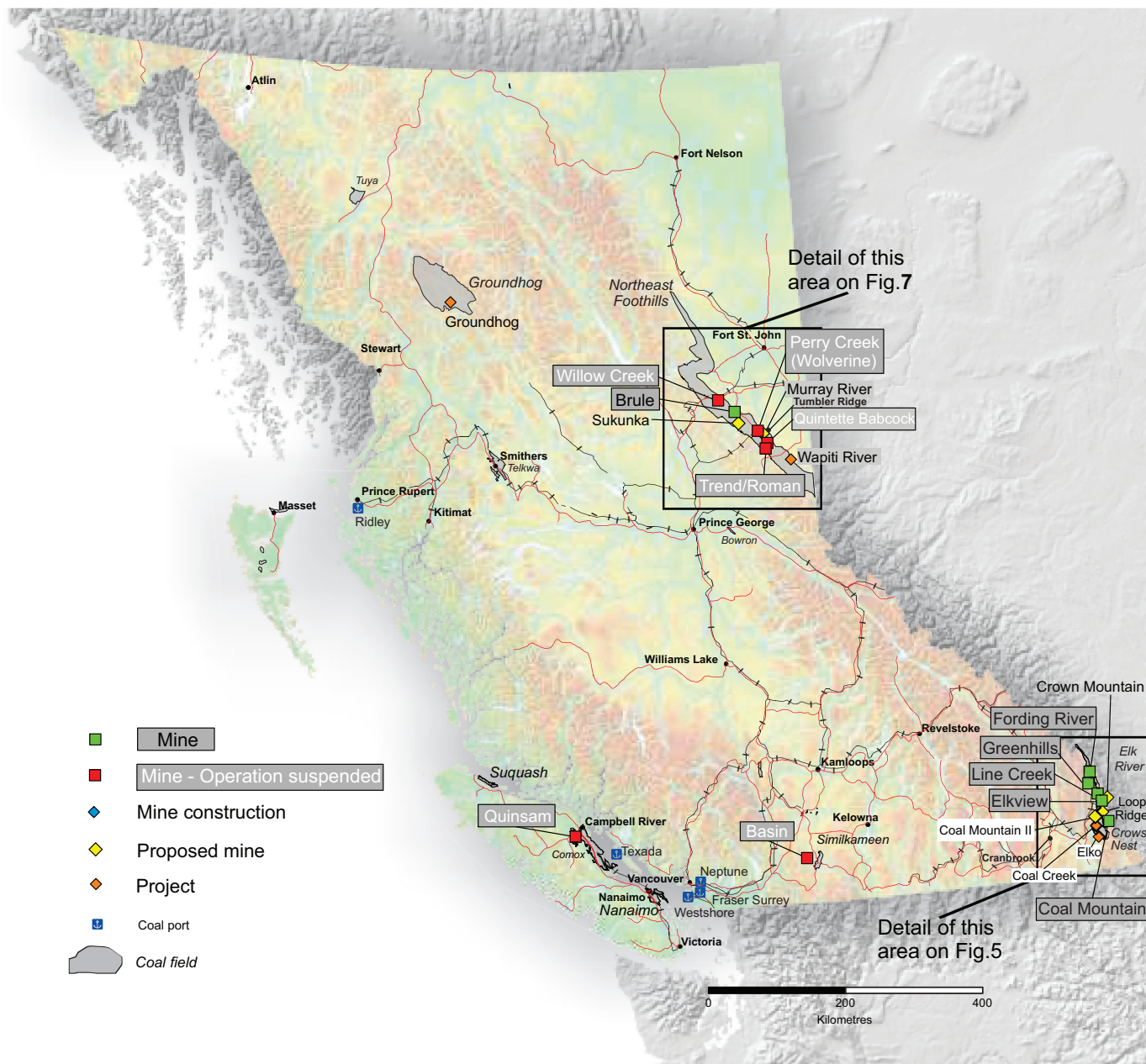
<https://www.mtonline.gov.bc.ca/mtov/home.do>.

The Canadian Government announced in November that the date for phasing out coal-fired electricity generation has been moved ahead by 10 years, to 2030. Because British Columbia has no coal-fired electrical plants, and produces mainly metallurgical coal for export, it is not markedly affected by changes in the domestic thermal coal market.

## Coalfields of British Columbia

The distribution of Upper Jurassic to Tertiary coal coalfields follows the southeast-to-northwest tectonic and physiographic grain of the province (Fig. 2). Currently, most coal mining is in





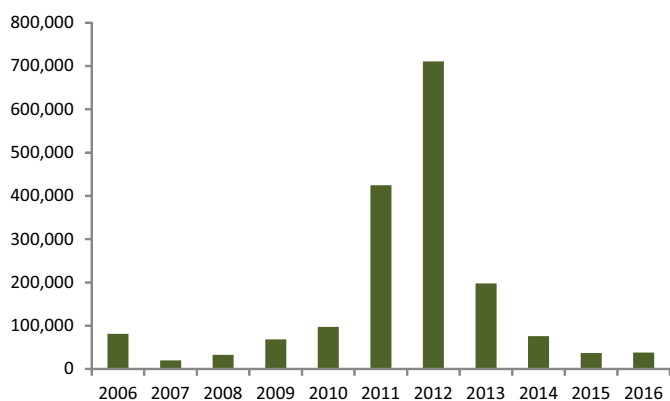
**Fig. 2.** Coal mines and selected coal projects in British Columbia 2016.

the Rocky Mountain belt of eastern British Columbia. Farther west, coalfields are in the interior of the province, and on west coast islands (Vancouver Island and Haida Gwaii).

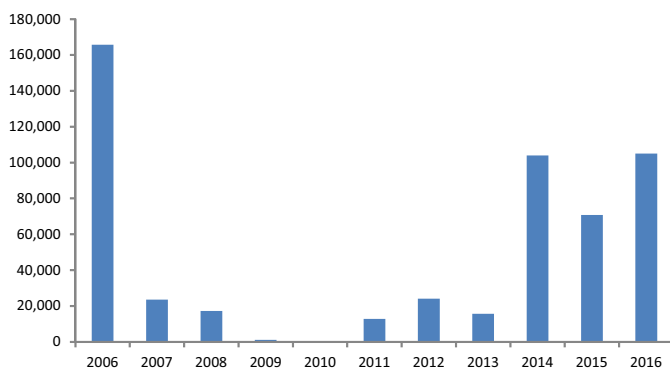
In **southeastern British Columbia**, coal deposits are in the Flathead, Crowsnest and Elk River coalfields, which extend northwest from the Canada-USA border for 175 km along the Rocky Mountains (Figs. 2, 5). Economic coal seams are hosted by the Mist Mountain Formation of the Kootenay Group (Jurassic to Lower Cretaceous; Fig. 6). Most of the known resource is metallurgical coal, ranging mainly from high-volatile A bituminous to low-volatile bituminous. Southeastern British Columbia coals are characterized by low total sulphur

contents. Potentially mineable coal resources are estimated at 8.0 billion tonnes. Provincial legislation enacted in 2011 prohibits subsurface resource exploration and development in the Flathead River watershed (Fig. 5), so the Flathead coalfield and part of the Crowsnest coalfield are excluded from coal mining activity.

The **northeastern British Columbia** deposits are in the Foothills and Plains coalfields. The Foothills coalfield extends for 400 km along the eastern flank of the Rocky Mountains (Figs. 1, 7). The coals are distributed through a stratigraphic interval of over 3000 m, and are hosted by five Lower Cretaceous units, the most important of which are the Gates Formation (Fort St.



**Fig. 3.** New coal license applications 2006 to 2016, in hectares. Value for 2016 is as of November 1, 2016.



**Fig. 4.** Coal licenses issued, 2006 to 2016, in hectares. Value for 2016 is as of November 1, 2016.

John Group), and the Gething Formation (Bullhead Group; Fig. 8). Coal in the Gething and Gates formations are bituminous in rank, ranging from high to low volatile. Metallurgical (coking) coals are predominant, and total sulphur contents are typically low. The Minnes Group (Lower Cretaceous; Fig. 8) hosts coal; however mineable thicknesses and continuity have not been documented, and the Minnes Group coals are not current exploration targets.

Significant deposits of weak coking coal are recognized in the Boulder Creek Formation (Lower Cretaceous) between the Pine and Sukunka rivers. On the Plains, coal seams of the Wapiti Formation (Upper Cretaceous) are lower in rank and have potential for thermal coal mining. Potentially mineable coal resources in northeast B.C. coalfields have been estimated at 4.9 billion tonnes, with considerable potential for growth as exploration continues. The marketability of Gething Formation coals has benefitted from increased use of pulverized coal injection (PCI) products in steel making.

In **northwestern British Columbia**, the Groundhog-Klappan Coalfield (Fig. 2) covers approximately 2300 km<sup>2</sup> and hosts Canada's only significant anthracite deposits. The estimated potential of the greater Groundhog region is more

than 9 billion tonnes of semi-anthracite to meta-anthracite coal. The coal is hosted by Jurassic to Cretaceous deltaic deposits in the Bowser Lake Group. Coal is found in several other smaller Mesozoic basins in the northwestern part of the province, including the Telkwa Coalfield south of Smithers and the Tuya River deposit (Fig. 2).

In the **southern interior** of British Columbia, numerous small Tertiary basins contain coal. Tertiary basin coals in the Similkameen, Merritt, and Hat Creek coalfields range from lignite to high-volatile bituminous, and are generally low in sulphur content.

On **Vancouver Island**, coal in the Nanaimo and Comox coalfields is hosted by several units in the Nanaimo Group (Upper Cretaceous). Coal ranks are generally in the high-volatile bituminous range; ash and sulphur contents vary.

## Coal mining and exploration in 2016

Annual coal production returned to normal levels after dipping slightly in 2015. Teck Coal Limited has forecast production of about 26 million tonnes from their British Columbia mines for 2016. Conuma Coal announced that production at the Brule mine near Chetwynd will restart before the end of 2016, after a 2 year hiatus. Coal mining statistics for 2016 including production rates and reserves, are summarized in Table 1; coal mine locations are shown in Figures 2, 5, and 7. Coal exploration expenditures are estimated at \$38.5 million.

### Southeastern British Columbia Mining

Teck Coal Limited, the world's second-largest exporter of metallurgical coal, operates five large open-pit coal mines in the Elk Valley area (Fig. 5). The mines at **Fording River**, **Greenhills**, **Line Creek**, **Elkview**, and **Coal Mountain** produce more than 90% of Canada's total annual metallurgical coal exports. The main product is metallurgical coal (85%), with some thermal and pulverized coal injection (PCI) coal (15% combined). All five are open-pit, truck and shovel mines. Based on Teck Coal Limited's Q3 2016 report, volumes of clean coal production from southeastern B.C. for 2015 are forecast at approximately 26 million tonnes, up from 23.6 million tonnes in 2015.

The Elk Valley Coalfield includes the **Fording River**, **Greenhills** (Fig. 9) and **Line Creek** operations, where coal beds are preserved in the Alexander Creek and Greenhills synclines. The Crowsnest Coalfield lies in the Fernie Basin, a broad north-trending synclinalorium that hosts the current **Elkview** and **Coal Mountain** operations. Pulverized Coal Injection (PCI) coal is the main product shipped from **Coal Mountain**.

In 2013, the Province of British Columbia issued a Ministerial Order requiring Teck Coal Limited to prepare and Area Based Management Plan for the Elk Valley to remediate water quality effects of past coal mining and to guide future development. The Elk Valley Water Quality Plan addresses the management of contaminants released by mining activities and was approved by the Minister of Environment in 2014. It is

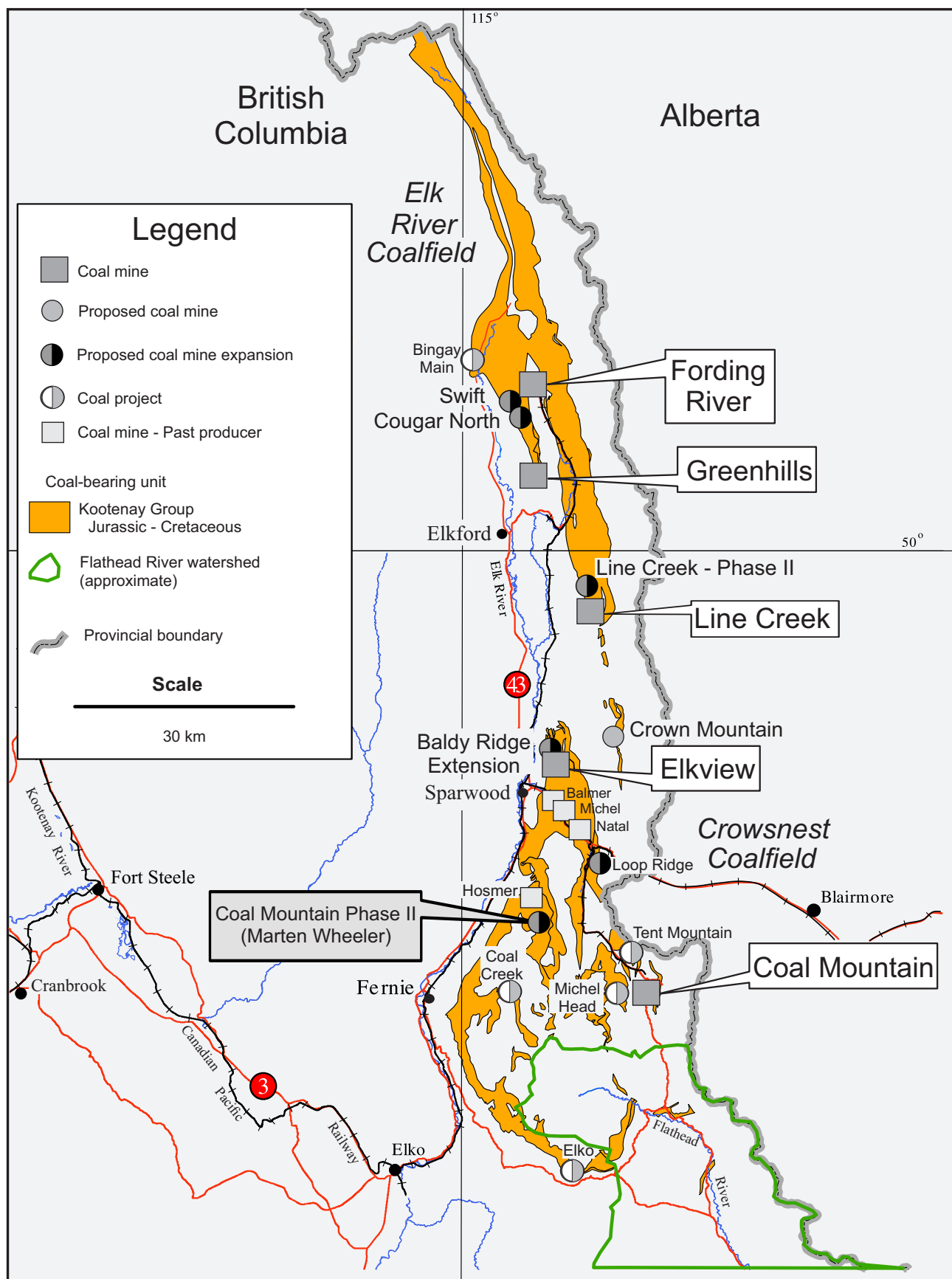


Fig. 5. Coal mines and selected exploration projects, southeastern British Columbia.



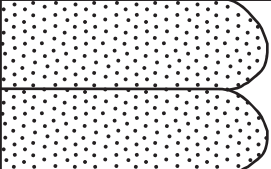
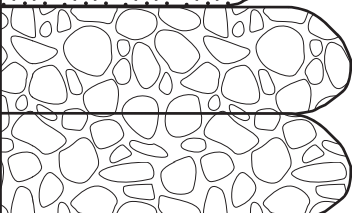
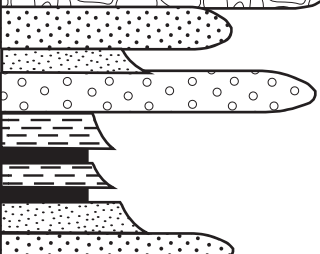
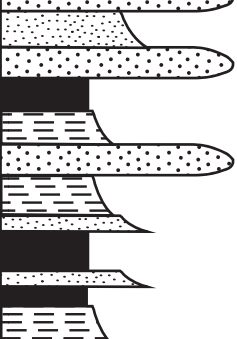
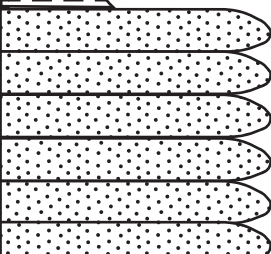
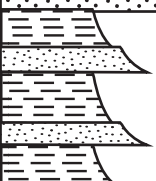
Lower Cretaceous	Blairmore Group		sandstone	
		Cadomin Formation	conglomerate	
Lower Jurassic to Lower Cretaceous	Kootenay Group	Elk Formation	sandstone, siltstone, shale, mudstone, chert-pebble conglomerate; minor coal seams	
		Mist Mountain Formation	sandstone, siltstone, shale, mudstone, thick coal seams	
		Morrissey Formation	medium- to coarse-grained quartz-rich sandstone	
Jurassic		Fernie Formation	shale, siltstone, fine-grained sandstone	

Fig. 6. Coal stratigraphy of southeast British Columbia.

a public policy document to guide regulatory decisions about water quality and mining in the Elk Valley. It considers water diversion and treatment, and establishes water quality targets for selenium, nitrate, sulphate, cadmium, and calcite. [http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/mining-smelt-energy/area-based-man-plan/evwq\\_full\\_plan.pdf](http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/mining-smelt-energy/area-based-man-plan/evwq_full_plan.pdf).

The West Line Creek water-treatment facility completed the commissioning phase in February 2016 and is now operating to reduce selenium and nitrate concentrations. Construction began in 2016 on the second water-treatment facility, at the Fording River operation.

In May 2016, the Ktunaxa Nation Council and Teck Coal Limited formally signed a comprehensive Impact Management and Benefits Agreement (IMBA) that considers the five mines

**Table 1.** Coal mines in British Columbia; production and reserve numbers for 2016.

Mine	Operator	Deposit Type/Commodity	Forecast 2016 Production	Reserves as of Dec.31, 2015 (Proven + Probable)
<b>Brule</b>	Conuma Coal Resources Limited	ULV PCI coal	<100,000 t	16.6 Mt
<b>Coal Mountain</b>	Teck Coal Limited	PCI and thermal coal	2.3 Mt	4.5 Mt PCI
<b>Elkview</b>	Teck Coal Limited	HCC	7.0 Mt	273.2 Mt HCC
<b>Fording River</b>	Teck Coal Limited	HCC and thermal coal	8.2 Mt	*434.9 Mt HCC *5.0 Mt thermal
<b>Greenhills</b>	Teck Coal Limited	HCC, PCI and thermal coal	5.2 Mt	*201.3 Mt HCC *5.0 Mt PCI *2.7 Mt thermal
<b>Line Creek</b>	Teck Coal Limited	HCC, PCI and thermal coal	3.3 Mt	66.6 Mt HCC 11.1 Mt thermal
<b>Quinsam &amp; 7 South</b>	Hillsborough Resources Limited	Thermal coal	Production suspended January 2016	not available
<b>Trend &amp; Roman</b>	Anglo American plc	HCC	0	34.1 Mt HCC
<b>Willow Creek</b>	Conuma Coal Resources Limited	HCC and ULV PCI	0	16.6 Mt
<b>Wolverine (Perry Creek)</b>	Conuma Coal Resources Limited	HCC	0	8.8 Mt
HCC = hard coking coal; PCI = pulverized coal injection; ULV = ultra low volatile. Mt = million tonnes *Reserves numbers at Greenhills and Fording operations have been combined and re-apportioned since last year.				

in the Elk Valley. The IMBA sets out commitments for both parties that will support environmental and cultural stewardship within the Ktunaxa ?amak?is (Ktunaxa Nation Territory). It sets out decision-making, dispute resolution and collaboration processes.

### Exploration

Four of the five Teck Coal Limited operations had expansion projects in the exploration, permitting, or development stage (Table 2) in the southeast part of the Province, and several other companies continued with early and advanced stage exploration projects. An estimated \$28.8 million was spent on coal exploration in 2016 in southeast BC, in large part on mine lease and mine evaluation drilling.

At **Fording River** Operations, the **Swift** project expansion received environmental assessment approval in 2015 and, in 2016, received permit amendments for modifications of the initial phases of mine design. The open-pit project will use the existing Fording mine processing and office facilities and is expected to produce 175 Mt of clean coal over 25 years. It is along strike and directly north of the **Greenhills Cougar North** project; eventually the two will merge and collectively become the **Swift** mine.

At the **Greenhills** Mine, Teck Coal Limited conducted further baseline work and mine planning to prepare the **Cougar Pit Extension (CPX)** project to enter pre-application phase of the Environmental Assessment (EA) process.

At **Line Creek** Operations, the **Burnt Ridge Extension (BRX)** project will connect the current operating area (Phase I) to the Phase II area by extending the current Burnt Ridge South pit to the north. It will add 8.3 Mt of clean coal to the mine reserves. Proven and probable reserves at **Line Creek** are now projected to support mining at planned production rates for a further 23 years.

At **Elkview** mine, the **Baldy Ridge Extension (BRE)** project received an Environmental Assessment Certificate in 2016 and has begun pre-stripping. The BRE expansion is expected to be brought on stream to maintain production at Elkview at around 6.8 Mt per year. Teck Coal Limited estimates a remaining reserve life for **Elkview** of approximately 41 years.

Jameson Resources Limited worked on an update to a 2014 prefeasibility study at their **Crown Mountain** project. The project entered the pre-application stage of the Canadian Environmental Assessment process in 2014.

CanAus Coal Limited continued work at the **Michel Creek** project, which includes the **Loop Ridge**, **Tent Mountain** and

**Table 2.** Selected coal exploration and development projects in British Columbia 2016.

<b>Property name</b>	<b>Operator name</b>	<b>Status</b>	<b>2016 activity</b>	<b>Region</b>
<b>Baldy Ridge Extension (BRE)</b>	Teck Coal Limited Elkview Operations	EA* certificate received	Pre-stripping	Southeast
<b>Bingay Main</b>	Centermount Coal Limited	Pre-application EA	Drilling, Engineering	Southeast
<b>Coal Creek</b>	Crows Nest Pass Coal Mining Limited	Exploration	Geological modelling Pre-feasibility Environmental baseline	Southeast
<b>Cougar</b>	Teck Coal Limited Greenhills Operations	Preparation for pre-application stage of EA	Environmental baseline	Southeast
<b>Crown Mountain</b>	Jameson Resources Limited	Pre-application EA	Pre-feasibility update	Southeast
<b>Elko</b>	Pacific American Coal Limited	Exploration	Resource modelling	Southeast
<b>Groundhog</b>	Atrum Coal NL	Exploration	Resource modelling, trenching	North Central
<b>Huguenot</b>	Colonial Coal International Corporation	Exploration	Baseline environmental Weather station	Northeast
<b>Line Creek Phase II &amp; Burnt Ridge Extension (BRX)</b>	Teck Coal Limited Line Creek Operations	Approved EA Pre-Application EA	Pre-stripping; Commissioning of water treatment facility	Southeast
<b>Marten-Wheeler (Coal Mountain Phase II)</b>	Teck Coal Limited Coal Mountain	Pre-Application EA	On hold	Southeast
<b>Michel Creek (Loop Ridge)</b>	CanAus Coal Limited	Pre-application EA	Drilling Resource modelling Environmental	Southeast
<b>Murray River</b>	HD Mining International Limited	EA certificate received	Environmental Engineering	Northeast
<b>Panorama North</b>	Atrum Coal NL	Exploration	Drilling	Northwest
<b>Quintette - Babcock</b>	Teck Coal Limited	Mining permit in place	Development on hold	Northeast
<b>Roman Mountain</b>	Anglo American plc (Peace River Coal Inc.)	Mining permit in place	Development on hold	Northeast
<b>Sukunka</b>	Glencore plc	EA Application under review	Engineering Environmental	Northeast
<b>Swift</b>	Teck Coal Limited Fording River Operations	EA certificate received	Environmental Water treatment construction	Southeast
<b>Wapiti River</b>	Canadian Dehua International Mines Group Incorporated	Pre-application (EA)	Resource estimate update	Northeast
<b>*EA Environmental Assessment</b>				



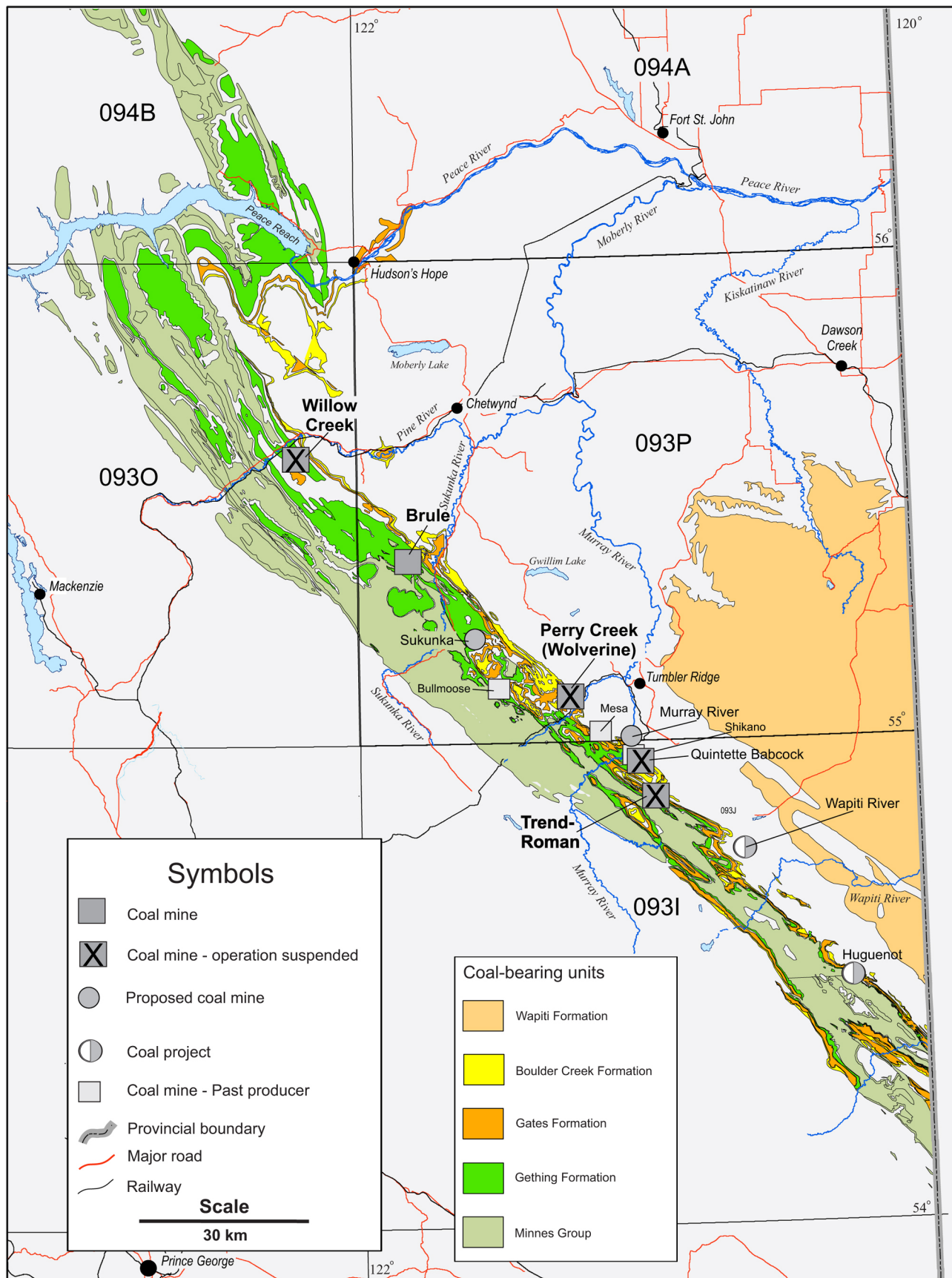


Fig. 7. Coal mines and selected exploration projects, northeastern British Columbia.

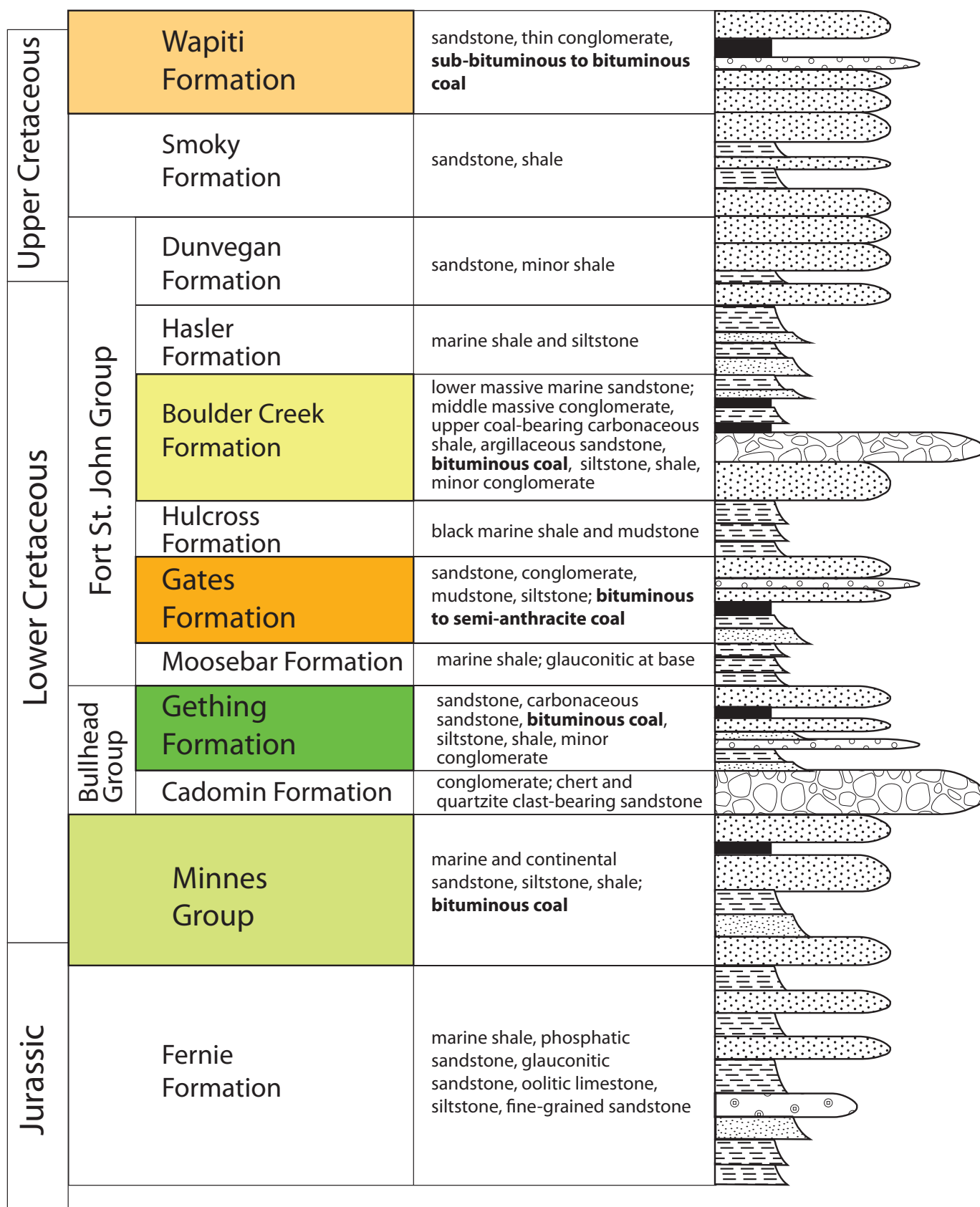


Fig. 8. Coal stratigraphy of northeast British Columbia.



Fig. 9. Sampling at Loop Ridge (CanAus Coal Limited), 2016 drilling.

**Michel Head** prospects. The Loop Ridge project entered the pre-application stage of the British Columbia Environmental Assessment process in late 2015. Drilling in 2016 focussed on **Loop Ridge** and **Michel Head**.

Centermount Coal Limited resumed exploration drilling at their **Bingay Main** project after a pause of several years.

Crows Nest Pass Coal Mining Limited continued environmental baseline studies and water quality surveys at their **Coal Creek** property south of Fernie. Pre-feasibility work and geological modelling studies are continuing.

In 2016, Pacific American Coal Limited conducted mine design studies on their **Elko** coal project property and worked on updating their geological model and resource estimate.

#### Northeastern British Columbia Mining

In October, Conuma Coal Resources Limited prepared to restart the **Brule** PCI mine, south of Chetwynd, with intent to return to full-scale production by December. Production in 2016 will likely be less than 100,000 tonnes, but is expected to reach capacity of about 1 million tonnes next year. The company announced its intention to restart the **Perry Creek (Wolverine)** coking coal mine near Tumbler Ridge in 2017,

provided prices remain high.

Conuma Coal Resources Limited's **Willow Creek**, and Anglo American plc's **Trend** coal mining operations, which were suspended in 2013 to 2014, remained idle throughout 2016 (Fig. 7).

The planned reopening of the Teck Coal Limited's **Quintette** mine at Mount Babcock remains on hold, as does the opening of the new **Roman Mountain** expansion area for the **Trend** mine.

#### Exploration

An estimated \$8.0 million was spent on coal exploration in northeastern B.C. in 2016.

Glencore plc continued engineering and environmental studies to support their **Sukunka** project Environmental Assessment application. An open-pit mining operation with up to 3 million tonnes per year production of metallurgical coal is proposed.

HD Mining International Limited completed the underground bulk coal sample program in December 2015 at the **Murray River** project. Work continued on engineering and environmental studies to support a Mines Act permit application.

Canadian Dehua International Mines Group Incorporated submitted a new NI 43-101 compliant technical report with an updated resource estimate for their **Wapiti River** project.

#### Northwestern and North Central British Columbia Exploration

In 2016, Atrum Coal NL received a permit for a 100,000 t bulk sample extraction at its **Groundhog** anthracite project north of Smithers. The company revised its prefeasibility study this year and proposes a staged mining plan, beginning with an underground mine at Groundhog North. The proposed Phase 1 operation would initially produce 880,000 tonnes per year, ramping up to 1.6 million tonnes per year at maximum capacity. Environmental baseline work continues in preparation for entering the Environment Assessment process.

Atrum Coal NL in a Joint Venture with JOGMEC (Japan Oil, Gas and Metals National Corporation) drilled at their Panorama North project, about 20 km west of the Groundhog project.

#### Vancouver Island Mining

Hillsborough Resources Limited ceased production at the **Quinsam** mine in January 2016, an underground room-and-pillar thermal coal operation in the Comox Coalfield. The closure was due to prolonged low prices.

#### Exploration

No new coal exploration was undertaken on Vancouver Island in 2016. The Environmental Assessment process for the proposed Raven mine near Comox was terminated in April 2016 due to inactivity on the file.



## Transportation infrastructure

Coal produced in the Elkview and Crowsnest coalfields in southeastern British Columbia is transported by rail to Westshore Terminals in Delta and Neptune Bulk Terminals in North Vancouver for export (Fig. 2). The coalfields of northeastern British Columbia are connected by rail to the Ridley Island Terminals near Prince Rupert.

The \$275 million upgrade of the Westshore facility continued in 2016. The expansion began in 2014 and is scheduled to be completed in 2018. Neptune Bulk Terminal received the final permit required to expand coal throughput at their North Vancouver facility. Fraser Surrey Docks continues to prepare to receive thermal coal from Wyoming for loading onto ocean-going vessels for export.

## Coal tenure

The Mineral Titles Branch of the British Columbia Ministry of Energy and Mines maintains a website that provides information about Coal Titles regulations and resources for researching and acquiring coal tenures in the province (Table 3). Coal tenure in British Columbia is held in two forms: **coal licence** or **coal lease**. The **coal licence** is the initial stage of coal tenure, and is appropriate for exploration. It is analogous to a mineral claim. Acquisition is initiated by a **coal licence application**; a Free Miner Certificate is not required to acquire a coal licence. Coal licence holders have the exclusive right to explore and develop Crown-owned coal resources as defined in the Coal Act. Production is limited to a 100,000-tonne sample for testing purposes. A **coal lease** is the appropriate tenure to hold when a mineable resource has been proven and the project is ready to switch from exploration to production of coal. Coal licenses and leases will not be issued on **coal land reserves**, which are closed to exploration, development, and production of coal. Spatial data and maps showing active coal tenure,

applications, and coal reserves are available online at the Mineral Titles Online site (Table 3) and on MapPlace (Table 4).

An application for a coal licence is made to the Minister and must be accompanied by: the prescribed application fee; the prescribed rent in respect of location; and a plan and description of the location under Section 11 of the Coal Act. The application fee is \$25 per hectare plus \$7 per hectare first year rental. Coal licenses must be renewed annually by the anniversary date of the tenure acquisition. Annual renewal requirements include remitting annual rental fees and submitting a technical report on all exploration work during the previous year (Table 3).

Before carrying out exploration that involves mechanized ground disturbance, the licence holder must possess a permit under the Mines Act. The application for approval of exploration activities is termed a Notice of Work (NOW). A Notice of Work can be submitted at the same time as the coal license application (Table 3), but work cannot begin until tenure is granted.

A coal lease gives the holder the exclusive right to explore for, develop, and produce a coal resource on the lease location. The tenure holder must first have held a coal licence over the same location. The initial term for a coal lease is 30 years, followed by 15 years upon renewal. All appropriate approvals and authorizations must be in place before commencing work on a coal lease (Table 3).

An environmental assessment is a key component for proposed major mine construction and expansion projects; please visit the Environmental Assessment Office (EAO), an independent agency of the Government of British Columbia (Table 3).

## British Columbia Geological Survey information sources

Founded in 1895, the British Columbia Geological Survey integrates historical data with active research programs and,

**Table 3.** Websites to access coal tenure information.

To access	Click
Coal titles	<a href="http://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/mineral-titles/coal-titles">http://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/mineral-titles/coal-titles</a>
Coal and mineral tenure: Online viewer map and downloadable spatial data	<a href="https://www.mtonline.gov.bc.ca/mtov/home.do">https://www.mtonline.gov.bc.ca/mtov/home.do</a>
Coal licence application and other forms	<a href="http://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/mineral-titles/coal-titles/forms-maps-publications/coal-titles-forms">http://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/mineral-titles/coal-titles/forms-maps-publications/coal-titles-forms</a>
Coal Act and Regulation	<a href="http://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/mineral-titles/coal-titles/legislation">http://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/mineral-titles/coal-titles/legislation</a>
Annual technical report requirements	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/Coal/Pages/Reporting_Information.aspx">http://www.empr.gov.bc.ca/Mining/Geoscience/Coal/Pages/Reporting_Information.aspx</a>
Permitting and Reclamation, and Notice of Work submissions	<a href="http://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/permitting">http://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/permitting</a>
Environmental Assessment Office	<a href="http://www.eao.gov.bc.ca/ea_process.html">http://www.eao.gov.bc.ca/ea_process.html</a>

**Table 4.** Websites to access British Columbia Geological Survey publications, maps and databases, at no charge.

To access	Click
British Columbia Geological Survey publication catalogue	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/Pages/default.aspx">www.empr.gov.bc.ca/ Mining/Geoscience/PublicationsCatalogue/Pages/default.aspx</a>
British Columbia Coal Industry Overview 2016 (this volume)	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/InformationCirculars/Pages/IC2017-2.aspx">www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/InformationCirculars/Pages/IC2017-2.aspx</a>
British Columbia Geological Survey geological fieldwork	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/Fieldwork/Pages/default.aspx">www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/Fieldwork/Pages/default.aspx</a>
British Columbia Geological Survey coal geology page	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/Coal/Pages/default.aspx">www.empr.gov.bc.ca/Mining/Geoscience/Coal/Pages/default.aspx</a>
Provincial Overview of Exploration and Mining in British Columbia, 2016	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/InformationCirculars/Pages/IC2017-1.aspx">http://www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/InformationCirculars/Pages/IC2017-1.aspx</a>
Table of British Columbia coal resources (British Columbia Geological Survey GeoFile 2010-11, by B. Northcote)	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/GeoFiles/Pages/2010-11.aspx">www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/GeoFiles/Pages/2010-11.aspx</a>
British Columbia coal assessment reports and COALFILE	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/Coal/CoalBC/Pages/CoalDataReports.aspx">www.empr.gov.bc.ca/Mining/Geoscience/Coal/CoalBC/Pages/CoalDataReports.aspx</a>
MINFILE	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/MINFILE/Pages/default.aspx">http://www.empr.gov.bc.ca/ Mining/Geoscience/MINFILE/Pages/default.aspx</a>
MapPlace	<a href="http://www.mapplace.ca">www.mapplace.ca</a>

drawing on continuously advancing concepts and technologies in the Earth sciences, thus supports the coal and mineral industries. The British Columbia Geological Survey preserves, archives, and provides free web-based access to over a century's worth of geoscience information (Table 4). Each year in January, the British Columbia Geological Survey releases its Geological Fieldwork volume (a summary of field activities and current research), summaries of exploration and mining at the provincial and regional levels, and the present coal industry overview (Table 4).

Since 1995, MapPlace has provided open geoscience data and custom map-making tools to aid in discovering coal and mineral potential in British Columbia. Introduced in 2016 and building on its predecessor, MapPlace



2 can be used on either a Mac or a PC, requires no plug-ins, has a simpler, more intuitive interface that is easy to use, accesses third-party base maps

and imagery, and displays province-level data at exceptional speeds. Databases are continuously updated and talk to each other, enabling MapPlace 2 users to conduct queries, generate custom results and efficiently mine geoscience databases such as the: industry and government document archive (Property File); online mineral inventory (MINFILE); mineral assessment report database (ARIS); coal assessment report database (COALFILE); regional geochemistry survey (RGS); Mineral Titles Online (MTO) tenure database; British Columbia Geological Survey publication catalogue, and extensive collections of bedrock and surficial geology maps.

MINFILE is a mineral inventory database that contains geological, location, and economic information on more than 14,600 metallic, industrial mineral, and coal occurrences in British Columbia. COALFILE is the database of coal reports. It contains a collection of almost 1000 assessment reports dating from 1900, many of which were submitted by exploration companies in compliance with the Coal Act. COALFILE contains details of coal exploration reports in a relational

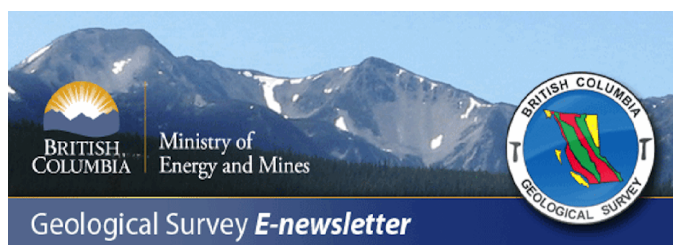
database, including data for about 16,000 boreholes, 550 bulk samples, 5600 maps, and 3600 trenches. A search engine leads clients to a summary page for each coal assessment report.

### **Industry contacts**

The corporate websites of coal exploration and mining groups active in British Columbia are listed in Table 5.

### **Contacts at the Ministry of Energy and Mines and the British Columbia Geological Survey**

Ministry of Energy and Mines and British Columbia Geological Survey personnel (Table 6) are available for consultation. Should you wish to be receive notification of British Columbia Geological Survey publications released throughout the year, please subscribe to our newsletter by emailing [Geological.survey@gov.bc.ca](mailto:Geological.survey@gov.bc.ca)





**Table 5.** Industry contacts.

Coal Association of Canada	<a href="http://www.coal.ca">www.coal.ca</a>
Teck Coal Limited	<a href="http://www.teck.com">www.teck.com</a>
Hillsborough Resources Limited	<a href="http://www.hillsboroughresources.com">www.hillsboroughresources.com</a>
Anglo American Canada plc	<a href="http://www.angloamerican.ca">www.angloamerican.ca</a>
Canadian Kailuan Dehua Mines Co. Ltd.	<a href="http://www.kailuandehua.com">www.kailuandehua.com</a>
Centermount Coal Limited	<a href="http://bingaycoal.com/">http://bingaycoal.com/</a>
Crowsnest Pass Coal Mining Limited	<a href="http://crowsnestpasscoal.com">http://crowsnestpasscoal.com</a>
Colonial Coal International Corporation	<a href="http://www.ccoal.ca">www.ccoal.ca</a>
Glencore Limited	<a href="http://www.sukunkaproject.ca">www.sukunkaproject.ca</a>
Canadian Dehua International Mines Group Incorporated	<a href="http://www.dehua.ca/">http://www.dehua.ca/</a>
Jameson Resources Limited	<a href="http://www.jamesonresources.com.au/">http://www.jamesonresources.com.au/</a>
Pacific American Coal Limited	<a href="http://www.pamcoal.com/">http://www.pamcoal.com/</a>
Atrum Coal NL	<a href="http://atrumcoal.com/">http://atrumcoal.com/</a>
HD Mining International Limited	<a href="http://www.hdminingintl.com/">http://www.hdminingintl.com/</a>

**Table 6.** Contacts at British Columbia Ministry of Energy and Mines.

Gordon Clarke Director, Mineral Development Office British Columbia Geological Survey, Vancouver	604-660-2094 <a href="mailto:gordon.clarke@gov.bc.ca">gordon.clarke@gov.bc.ca</a>
Janet Riddell Coal Geologist British Columbia Geological Survey, Victoria	250-952-0434 <a href="mailto:janet.riddell@gov.bc.ca">janet.riddell@gov.bc.ca</a>
Chris Smith Director, Coal Titles Mineral Titles Branch, Victoria	250-356-0185 <a href="mailto:chris.smith@gov.bc.ca">chris.smith@gov.bc.ca</a>
Jessica Norris Coal Assessment Report Geologist British Columbia Geological Survey, Victoria	250-952-0425 <a href="mailto:jessica.norris@gov.bc.ca">jessica.norris@gov.bc.ca</a>
Fiona Katay Regional Geologist, Southeast Cranbrook	250-416-6010 <a href="mailto:fiona.katay@gov.bc.ca">fiona.katay@gov.bc.ca</a>
Paul Jago Regional Geologist, Northeast and North Central Prince George	250-565-4316 <a href="mailto:paul.jago@gov.bc.ca">paul.jago@gov.bc.ca</a>
Bruce Northcote Regional Geologist, Southwest Vancouver	604-660-2713 <a href="mailto:bruce.northcote@gov.bc.ca">bruce.northcote@gov.bc.ca</a>
Vacant Regional Geologist, Northwest Smithers	
Jim Britton Regional Geologist, South Central Kamloops	250-371-3903 <a href="mailto:jim.britton@gov.bc.ca">jim.britton@gov.bc.ca</a>

British Columbia Geological Survey  
Ministry of Energy and Mines  
[www.em.gov.bc.ca/geology](http://www.em.gov.bc.ca/geology)

