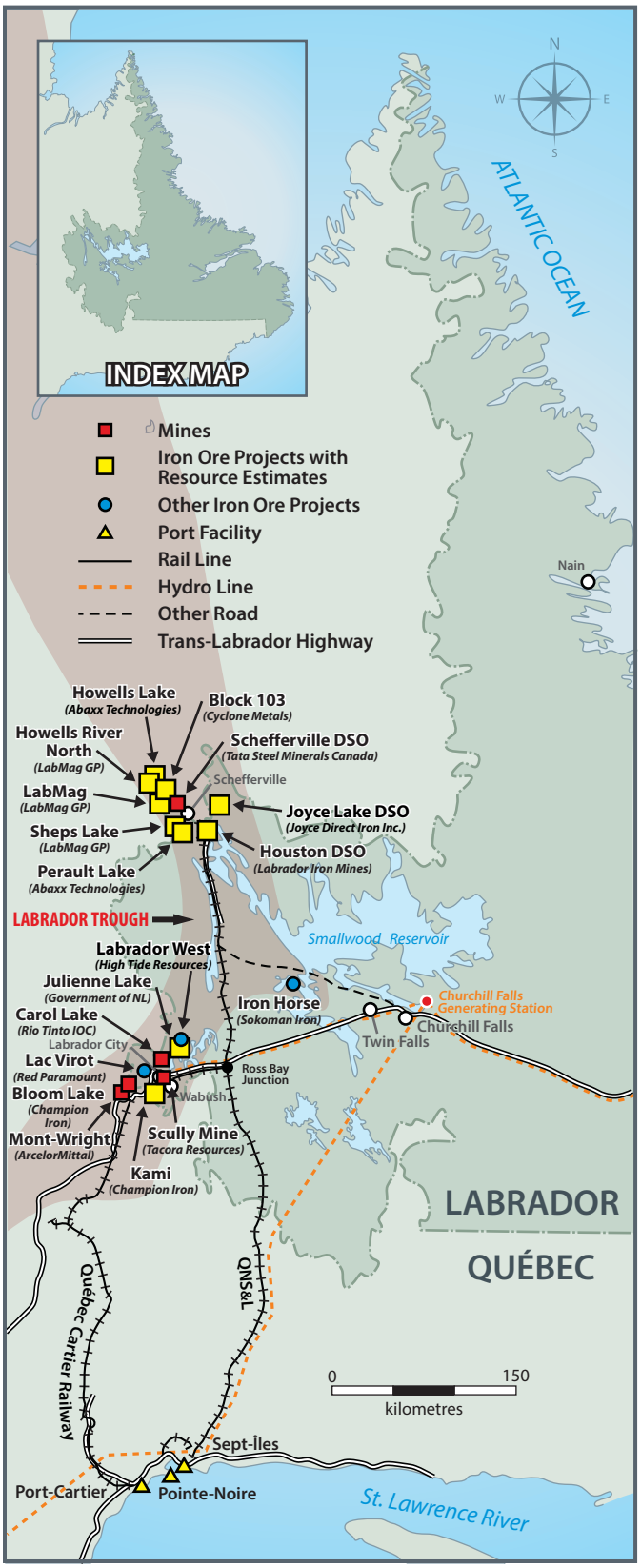
EXPLORE
DISCOVER
DEVELOP

IRON

The Labrador Trough of western Labrador and adjoining Québec is host to world-class deposits of Proterozoic iron ore that have been mined for more than half a century. This 1,100-km-long belt contains several major open pit deposits which together have produced in excess of 2 billion tonnes of iron ore. Existing reserves and resources suggest the region could see production for many decades to come.

The Labrador Trough's high-quality iron ore consistently commands premium prices. Its high iron concentration and low levels of impurities allow steel production with reduced carbon emissions and lower costs.

Newfoundland & Labrador



The towns of Labrador City and Wabush, situated within the Labrador Trough, represent a strategically located provincial gateway supported by a year-round air, road and rail transportation network. The area has a stable, highly skilled and productive workforce with a strong mining tradition.

IRON IN LABRADOR

The adjacent geological map shows the large number of iron showings, prospects and deposits that occur within the region. The largest of the deposits are summarized in the table, overleaf. The opportunities and potential for future mineral development in this region of the Labrador Trough are very significant.

The producing and past-producing deposits are primarily oxide-facies Superior-type iron formation, formed as a chemical sediment in a shallow-marine environment. In the Labrador City mining camp, Proterozoic iron formation was refolded and metamorphosed during the Grenvillian orogeny. The resultant metamorphic grades, higher than seen elsewhere in the Labrador Trough to the north, allow for easier beneficiation due to coarser grain size. The development of major deposits, such as Iron Ore Company of Canada's Carol project, is the result, in part, of hinge-thickening in syncline cores and repetition by folds.

Detailed descriptions of the ores, their origin and their setting are given in Gross, 1972 (GSC Economic Geology Report 22) and reviewed in Neal, 2000 (Exploration and Mining Geology, volume 9) and Conliffe et al., 2012 (Geological Survey, Mineral Commodity Series #7). Another useful summary is that prepared by Hatch and Associates (1980) for the Government of Newfoundland and Labrador.

In general, three types of iron ores are known: high-grade ores (hematite, goethite, limonite) locally with supergene enrichment (Schefferville); weakly metamorphosed magnetite iron formation or taconite (LabMag, KeMag), and metamorphosed coarse-grained (specularite-magnetite) iron formation (Carol Lake-Wabush).

In the southern part of the Labrador Trough, two major iron ore mines lie in close proximity to the Labrador-Québec border: Iron Ore Company of Canada (IOC) and ArcelorMittal Mining Canada. The Scully and Bloom Lake mines are also in operation in this region. The IOC deposits alone have produced in excess of 1.3 billion tonnes of iron ore.

Farther north in the Menihek area, Tata Steel Minerals Canada has several deposits of direct shipping ores (DSO), some of which were explored and previously mined by IOC. Joyce Direct Iron is developing the Joyce Lake DSO project here as well, and Labrador Iron Mines has the Houston project.

Also near Menihek, two very large deposits of magnetite iron ore (taconite) have been outlined: LabMag in Labrador and KeMag in Québec. Other deposits are shown on the map.

In the Labrador City-Wabush area, Champion Iron is developing the Kamistiatusset (Kami) project, while the Government of Newfoundland and Labrador currently controls the rights to the Julienne Lake iron ore deposit.

LEGEND

EARLY MESOPROTEROZOIC

- M_1ga — Olivine gabbro and metamorphic equivalents, including coronitic varieties
- M_1aq — Arkose, quartzite and minor conglomerate

LATE PALEOPROTEROZOIC

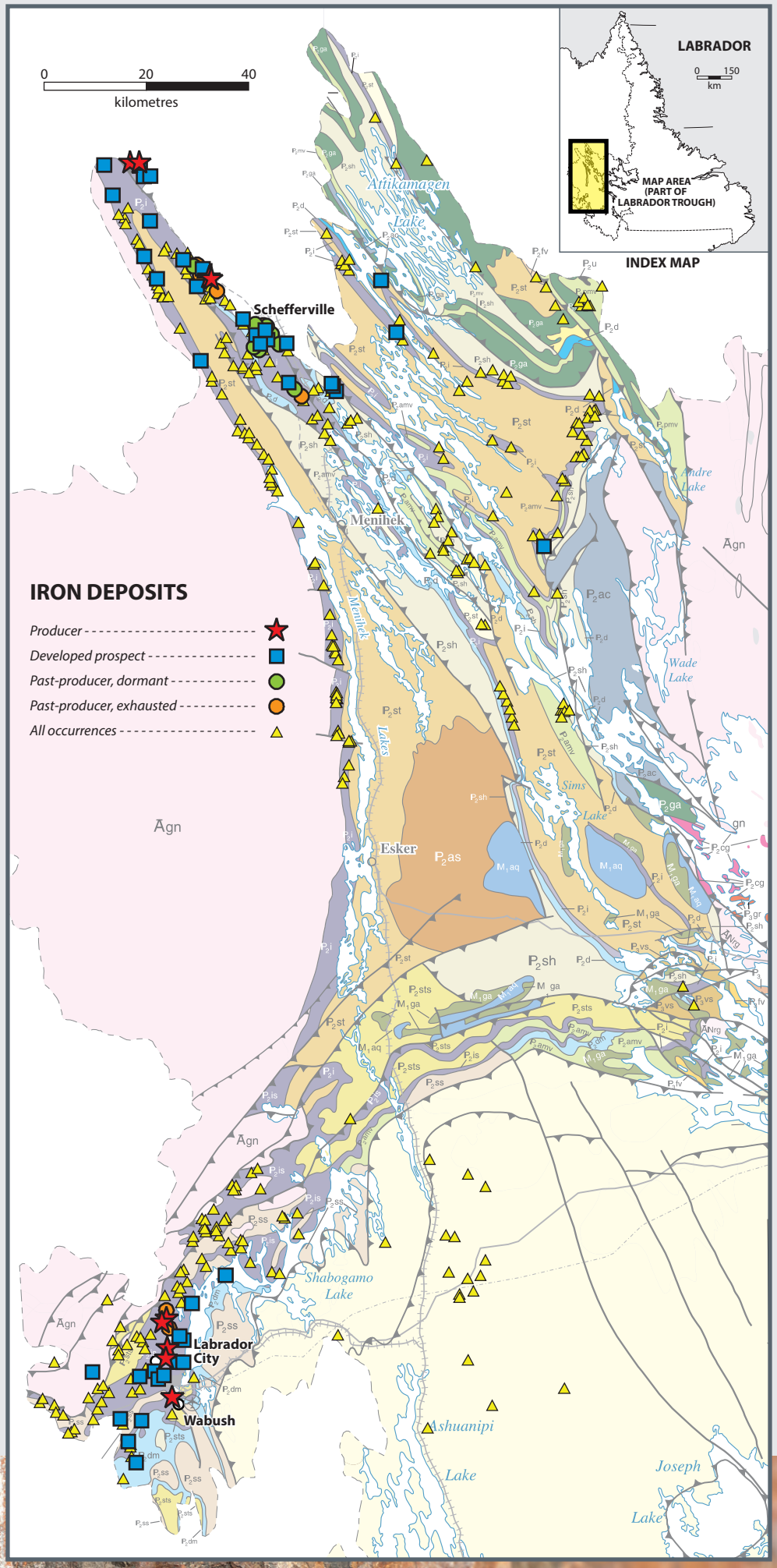
- P_3fv — Rhyolitic to andesitic volcanic rocks including ash-flow tuff and agglomerate
- P_3gr — Granite, quartz monzonite, granodiorite, syenite and minor quartz diorite
- P_3vs — Volcaniclastic sandstone, arkose and conglomerate
- P_3ga — Mafic intrusive suites (gabbronorite, lesser diorite), some metamorphosed at amphibolite to granulite facies
- P_3sgn — Pelitic, migmatitic metasedimentary gneiss and minor psammitic gneiss at amphibolite to granulite facies

MIDDLE PALEOPROTEROZOIC

- P_2fv — Rhyolite, ash-flow tuff, breccia and hypabyssal rhyolite intrusions; volcaniclastic siltstone and sandstone; minor basalt
- P_2cg — Orthopyroxene-bearing tonalite to granite plutons
- P_2pmv — Pillow basalt, basaltic pyroclastic rocks; minor siltstone and greywacke
- P_2amv — Alkalic basalt flows, pyroclastic rocks and local peralkaline felsic volcanic rocks; minor ultramafic rocks
- P_2u — Ultramafic sills
- P_2ga — Gabbro and leucogabbro sills
- P_2as — Arkosic siltstone and sandstone, locally dolomitic
- P_2st / P_2sts — P_2st - Siltstone - shale - greywacke sequences of deep water, turbiditic origin; P_2sts - Schistose equivalent rocks
- P_2i / is — P_2i - Cherty ironstone and underlying quartxite; $P_2$is - Schistose to gneissic equivalent rocks
- P_2d/dm — P_2d - Dolomite and chert breccia; P_2dm - Equivalent dolomitic marble
- P_2mv — Massive to pillowed basalt flows
- P_2sh / P_2ss — P_2sh - Shale and sandstone of shallow- to deep-water origin; P_2ss - Equivalent pelitic schist
- P_2ac — Arkose and conglomerate

ARCHEAN

- Ā gn — Tonalitic orthogneiss and lesser metasedimentary gneiss



Owner/Optionee/Contact	Project	Resource
CURRENT PRODUCERS		
Labrador		
Rio Tinto IOC	Carol Lake	Reserves: 1,144 Mt @ 38.3% Fe Resources: 786 Mt measured and indicated @ 39% Fe
Tata Steel Minerals Canada Ltd.	Schefferville DSO	85.1 Mt measured and indicated @ 59.2% Fe
Tacora Resources Inc.	Scully Mine	Reserves: 478.9 Mt @ 34.89% Fe and 2.62% Mn Resources: 723.6 Mt measured and indicated @ 34.7 % Fe
Québec		
ArcelorMittal Mining Canada G.P.	Mont-Wright	Total resource >1,000 Mt @ 30% Fe
Champion Iron Limited	Bloom Lake	807 Mt @ 29% Fe (reserve) and 879 Mt (resource) @ 29.5% Fe
ADVANCED PROJECTS WITH RESOURCE ESTIMATES		
Champion Iron Limited	Kamistiatusset (Kami)	(Rose Central) 544.4 Mt measured and indicated @ 28.9% Fe (Rose North) 548.8 Mt measured and indicated @ 30.4% Fe (Mills Lake) 181.3 Mt measured and indicated @ 29.8% Fe
Joyce Direct Iron Inc.	Joyce Lake DSO	17.4 Mt proven and probable @ 59.94% Fe 24 Mt measured and indicated @ 58.63% Fe
Cyclone Metals Ltd.	Block 103	7,200 Mt inferred @ 29.2% Fe
LabMag GP Inc.	LabMag	3,932 Mt proven and probable @ 29.7% Fe; 1,063 Mt measured and indicated @ 29.6% Fe
	Howells River North	1,129 Mt indicated @ 30.87% Fe; 2,576 Mt inferred @ 29.77% Fe
	Sheps Lake	2,039 Mt indicated @ 32.54% Fe; 310 Mt inferred @32.16% Fe
Abaxx Technologies Inc.	Howells Lake	6,502 Mt indicated @ 30.31% Fe; 734 Mt inferred @ 30.07% Fe
	Perault Lake	2,031 Mt indicated @ 28.77% Fe; 695 Mt inferred @ 28.73% Fe
Labrador Iron Mines Holdings Ltd.	Houston DSO	17.9 Mt measured and indicated @ 62.7% Fe; 9.7 Mt inferred @ 55.5% Fe
Government of Newfoundland and Labrador (Exempt Mineral Land)	Julienne Lake	867 Mt measured and indicated @ 33.7% Fe; 299 Mt inferred @ 34.1% Fe
Red Paramount Iron Ltd.	Lac Virot	527.1 Mt inferred @ 23.23% Fe
High Tide Resources Corp.	Labrador West	654.9 Mt inferred @ 28.84% Fe