

Nova Scotia

# Minerals Update

Department of Natural Resources, Mineral Resources Branch

Volume 29, no. 2

Spring 2012

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**Natural Resources**

## Government Announces Mineral Incentive Program for Nova Scotia

In the March 29, 2012, Throne Speech, the Government of Nova Scotia announced support for a Mineral Incentive Program. The goal of the program is to increase and promote mineral exploration leading to mineral discoveries and new, producing mines in Nova Scotia. The Mineral Resources Branch of the Department of Natural Resources is currently working with the Mining Association of Nova Scotia and the Nova Scotia Prospectors Association to design the program. Among several initiatives to promote mineral exploration in the province, the program will include Prospector Grants as well as Advanced Project Grants. The Prospector Grants are intended to fund activities by prospectors on grass-roots projects. Advanced Project Grants will be an industry-government cost-shared initiative designed to fund exploration and evaluation activities beyond the grass-roots level.

The program design is well underway and the branch anticipates receiving final approval to proceed later this spring. Applications for the Prospector Grants and for Advanced Project Grants will be available shortly thereafter. The Mineral Resources Branch will evaluate the applications and intends to have funding available for successful applicants in early July 2012.

The program coordinator is George O'Reilly of the Nova Scotia Department of Natural Resources. Mr. O'Reilly can be contacted at 902-424-2517 or [NSMIP@gov.ns.ca](mailto:NSMIP@gov.ns.ca).

*Donald James*



*Activities such as diamond drilling may be eligible for Advanced Project Grants under the Mineral Incentive Program.*

## 80th PDAC Convention is the Biggest and Busiest Ever

From March 4-7, 2012, more than 30,000 people from 125 countries attended the 80th annual Prospectors and Developers Association of Canada (PDAC) International Convention, Trade Show and Investors Exchange, where 1200 exhibits filled the South building of the Metro Toronto Convention Centre. This event has become the world's largest mining show and presents a perfect setting for the province to inform exploration companies and financial institutions about mineral resources and investment opportunities in Nova Scotia. Nova Scotia was one of 63 governments (provincial, federal, international) to exhibit at this year's event.

Representatives from the Mineral Resources Branch included Executive Director Donald James, Director of the Geological Services Division Rob Naylor, Registrar of Mineral and Petroleum Titles John MacNeil, Manager of Geoscience Information Services and Environmental Geology Brian Fisher, Liaison Geologist Diane Webber, Exploration Services Geologist Ron Mills and Mineral Deposits Geologist Trevor MacHattie. The Mineral Resources Branch had excellent visibility both in the booth and in the Atlantic Rock Room, where Nova Scotia, New Brunswick and Newfoundland partnered in the Atlantic Canada pavilion under the theme "Explore the Potential". The branch's newly designed booth (see photo) focused on "Opportunities on the Ground" in Nova Scotia, showcasing Nova Scotia's mineral potential.

The Mineral Resources Branch recognizes that prospecting plays a key role in the discovery and future development of mineral resources and the prosperity of the Nova Scotia mineral sector. To that end the branch provided travel assistance for eleven Nova Scotia prospectors to attend PDAC this year and rented booth space for the prospectors to display their materials. Ron Mills worked closely with the prospectors to prepare posters and display materials before PDAC, and during the conference he provided personal support at the prospectors' booths.



*The Mineral Resources Branch presented a newly designed booth display at PDAC 2012, making use of a (literally) coal-black background. Prospector displays are located just to the right of the branch display.*

Properties that were presented at the PDAC and available included gold in the Cape Breton Highlands, a drillable IP extension of the Au-Ag + polymetallic Stirling structure in Cape Breton County, and a highly evolved granophile target with gold in Westfield, Queens County, all properties of prospector Joe Richman. Other gold targets included Greenfield, Hants County (Roland Anthony), and Cranberry Head, Yarmouth County (John O'Sullivan). Gold targets in Guysborough County included Moosehead-Moser River, Ecum Secum, Mitchell Bay and Sheet Harbour (Perry Bezanson) and Mooseland, Ferry Lake and Twin Lakes (Scratch Exploration). Others included a polymetallic target with gold in Cape Breton at Benacadie (Steve Farrell); gold and highly evolved granophile polymetallic targets near New Ross and in the southwest Nova tin domain (Scott Grant); as well as another highly evolved polymetallic granophile target at Long Lake, Lunenburg County (Ted MacNaughton); gold at Kemptville,

and tin and related elements with In near Yarmouth at Dominique (John Wightman); a base metal target in Hants County near an existing mine, and gold in an environment with many similarities to the Witwatersrand Basin (Larry Riteman); a new gold discovery made by DNR near Warwick Mountain (Rob Krienke); and large REE targets in the Cobequid Highlands (Lindsay Allen). Prospectors had interest from both major and junior explorers at the conference and subsequently are negotiating or have already closed option deals for their properties.

During PDAC 2012 the Minister of Natural Resources Charlie Parker hosted the very popular Nova Scotia Breakfast for industry representatives. Mr. Parker discussed some of the advanced projects in the province and their potential to increase the value of mineral production and provide jobs in rural communities. The annual PDAC convention continues to grow and provides the best venue to showcase Nova Scotia's mineral resources to a global audience.

*Diane Webber and Ron Mills*

# Meguma Terrane Revisited: Stratigraphy, Metamorphism, Paleontology and Provenance

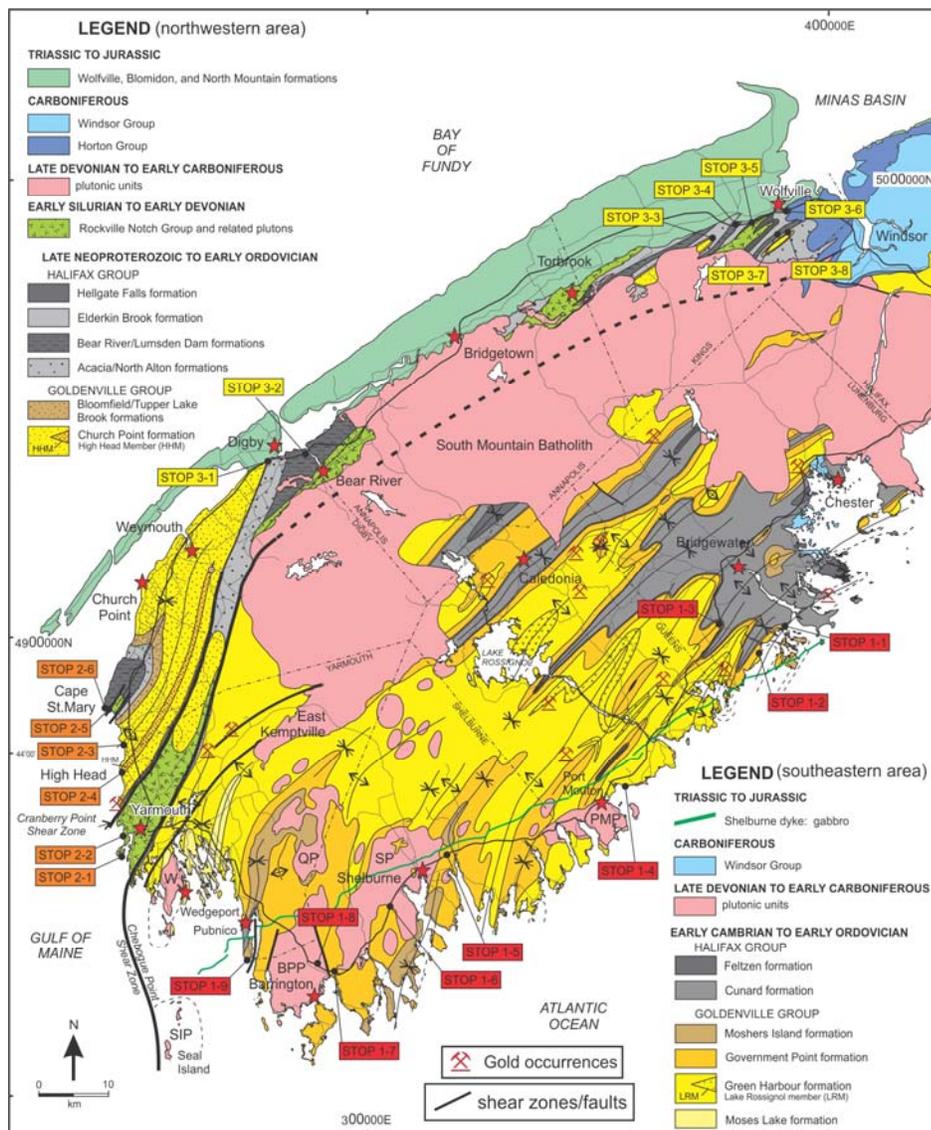
As part of the Geological Association of Canada/Mineralogical Association of Canada Annual Meeting in St. John's, Newfoundland, a post-meeting field trip is scheduled to southwest Nova Scotia. It's a 3-day trip starting Wednesday, May 30, and led by Drs. Chris White (NSDNR) and Sandra Barr (Acadia University).

This field trip highlights our current understanding of the unique geology of the Meguma terrane of southern Nova Scotia, the most easterly (outboard) element of the northern Appalachian orogen. Recent work has changed previous interpretations of the terrane and provided new insights into its provenance and relationship to other peri-Gondwanan terranes, as well as its history of accretion to composite Laurentia in the mid- to late-Paleozoic.

## Field Trip Itinerary

**Day 1** will focus on the stratigraphy and metamorphism of the Goldenville and Halifax groups along the south shore of Nova Scotia east of the Chebogue Point shear zone, as well as some of the granitoid plutons that intruded those units. Stops will include the pyrite-rich Cunard formation of the Halifax Group and underlying manganiferous Mosher's Island, Government Point, and Green Harbour formations of the Goldenville Group at both low and high metamorphic grades, the latter including the spectacular low-pressure/high-temperature andalusite-cordierite-staurolite porphyroblasts in the Shelburne metamorphic culmination.

**On Day 2**, we will look at rocks northwest of the Chebogue Point shear zone, including the Goldenville and Halifax groups and metavolcanic and fossiliferous metasedimentary rocks of the Silurian White Rock Formation of the lowermost Rockville Notch Group. We will view the oldest exposed beds of the Goldenville Group, trace fossils of the High Head Member and the enigmatic contact between the Halifax Group and



Geological map of southwestern Nova Scotia, showing locations of the field trip stops.

White Rock Formation.

During **Day 3**, we will focus on the stratigraphy in the upper part of the Goldenville Group and the overlying Halifax Group in the Bear River and Wolfville areas, looking at typical localities for new formations defined in the Halifax Group in those areas, ages of which are well constrained by acritarch fossils.

For those interested, an optional Day 4, not included in the formal part of the field trip, will consist of stops in

the Trafalgar area to view the manganiferous garnet developed in granitoid rocks of the Trafalgar plutonic suite as a result of interaction with the manganiferous rocks of the Beaverbank formation.

For additional information on registration and associated costs contact Andy Kerr ([andykerr@gov.nl.ca](mailto:andykerr@gov.nl.ca)), who is co-chair for GAC-MAC 2012 Field Trips.

Chris White

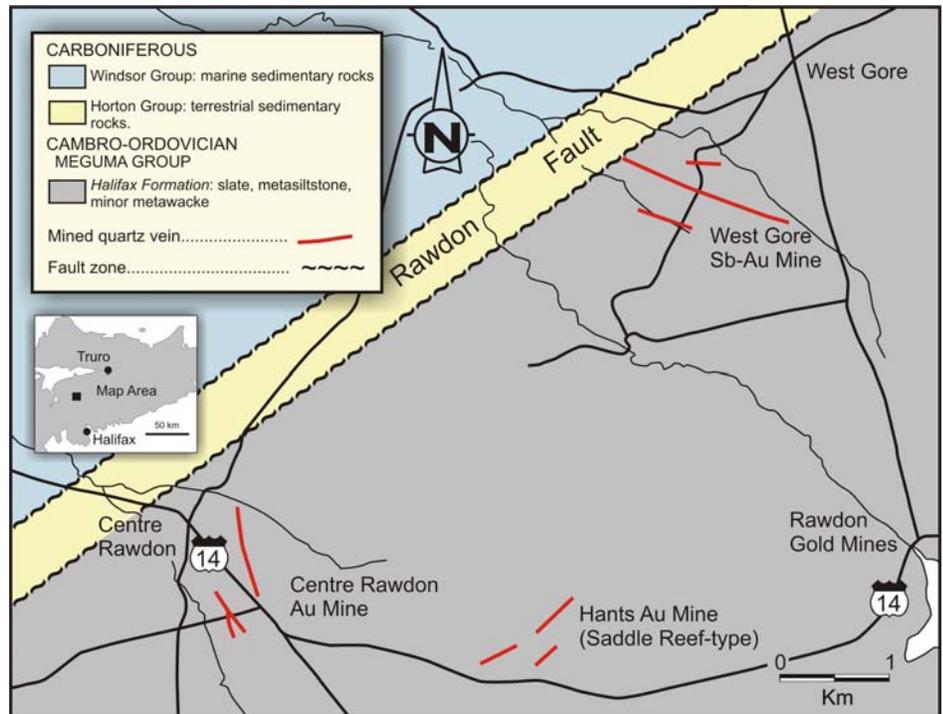
# From the Mineral Inventory Files

## Antimony and Gold at West Gore

I have always been interested in the province's gold deposits that have a different style of mineralization than the typical saddle reef, lode-gold deposits that occupy most of Nova Scotia's gold districts. The deposit at West Gore, Hants County (Fig. 1), is the largest, most lucrative and perhaps the most curious of these atypical examples as: (1) it was a mine of moderate size; (2) antimony (Sb) was the main commodity of interest (the only Sb mine in the province); and (3) gold (Au) was an added-value commodity of lesser content.

Stibnite-rich quartz drift was found by John McDougall on his farm at West Gore in 1880. Prospectors searched in vain for the source of this rich drift for three years until 1883 when a bedding-discordant fissure vein, heavily mineralized with stibnite, was found. Two shafts were sunk and mining began on what was to become known as the Main Zone Vein, a quartz-carbonate vein and breccia zone following a northwest-trending fault zone in Cambro-Ordovician Halifax Formation slate and metasiltstone (Fig. 1). In 1887 a second vein, the Brook or Northup Vein, was found to the southwest of the Main Zone and in 1899 the Flowers Vein was found to the northeast.

Limited mining continued on and off until 1904, with the Sb concentrates shipped to Swansea, Wales. At that time the very important observation was made that there was Au in the Sb ore. This, of course, added value to the ore and production increased over the next three or four years, after which it tailed off somewhat until 1917 when mining stopped more or less for good. It is said, but I have not been able to verify this, that in 1917 a ship carrying concentrate from the mine to Swansea was torpedoed and sunk by a German submarine and this proved to be a fatal economic blow to the mine. Total production from the mine, most from the Main Zone Vein, is estimated to be 4,959 tons of Sb concentrate (3,000 tons of metallic Sb) and 6,995 troy ounces of Au. Between 70 and 80 thousand tons of ore were milled that



**Figure 1.** Geology map of the Rawdon Fault in the Centre Rawdon Hills area, showing its position relative to the West Gore Sb-Au and Centre Rawdon Au mines.

averaged 4.1% Sb and about 0.1 oz. Au/ton.

Antimony at West Gore occurs in quartz-carbonate veins, mostly as lenses of stibnite that follow shoots in the fault zones that dip toward the southeast. Native Sb is also present throughout the mine and appeared to be more prevalent with depth, but still remained a minor component of the ore. The Au occurs as native Au but also as aurostibnite, Au-Sb alloys and Au-Sb oxides. Pyrite, arsenopyrite, galena and sphalerite occur in minor amounts. It's generally agreed that the northwest-trending fault structures, which were invaded by metamorphic-derived mineralizing fluids that formed the veins, are conjugate shear structures related to compressional forces along the regional, northeast-trending Rawdon Fault during the waning stages of the Devonian Acadian orogeny. The Rawdon Fault is a major splay that forms the contact of the Meguma Group with Carboniferous sedimentary

rocks immediately north of the mine (Fig. 1).

Why is there only one of these Sb deposits? Perhaps there are more. I think it's not coincidental that another, so-called, atypical Meguma Zone gold deposit is found a few kilometres southwest of the West Gore mine at Centre Rawdon (Fig. 1). That mine's total Au production (6,921 oz.), was from northwest-trending, bedding-discordant, quartz fissure veins that occupy similar structures to those at West Gore. Both mines have a similar spatial association with the Rawdon Fault. Even though no Sb is present at Centre Rawdon, the similar structural setting is hard to ignore and seems more than coincidental. Given the high industry interest in Sb these days, it may be worthwhile to not only have another look at the West Gore property, but also to pay some attention to the potential for Sb-Au deposits associated with the Rawdon Fault in this region of Hants County.

G. A. O'Reilly

## Status of the Registry Modernization Project

The department's Registry of Mineral and Petroleum Titles is responsible for receiving applications for mineral and petroleum rights, and for issuing and registering licences and leases. The registry has used a paper-based system for the issuance, tracking and management of mineral tenure for more than a century. As reported at Geology Matters last fall, modernization of the Registry of Mineral and Petroleum Titles is moving forward, with the objectives of providing more timely access to mineral rights information and enabling clients to acquire and manage mineral rights over the internet.

A contract was awarded in January 2012 to Pacific Geotech Systems Ltd. to develop an online registry system for Nova Scotia. This company has assisted British Columbia, New Brunswick and Manitoba in providing clients with an accessible and efficient tool to acquire and manage mineral rights.

The system will present current (real-time) mineral tenure information via web browser over the internet as a searchable map, accessible to any stakeholder. Through their account, clients will be able to apply for exploration licences and maintain existing rights from any location with internet access.

During the past winter, activities have included current system and data analysis, as well as work on configuration of the new system. Migration of existing data will be a significant task and staff has been working with the system developer to ensure that the transition is as seamless as possible.

As the new system is developed, the registry will work with clients and industry associations in delivering information sessions, seeking input, and answering questions. The planned implementation will start with an internal transition to the new system in early 2013, with the online "go live" to follow as testing is completed.

*John MacNeil*

## January - March 2012 Open Assessment Reports

Report Number	NTS	Licensee
AR ME 2010-001	11E/03A	Hilchey, A F
AR ME 2010-002	11D/11D	Acadian Mining Corporation
AR ME 2010-003	11E/03B	Scozinc Limited
AR ME 2010-004	21A/08B	Globex Mining Enterprises
AR ME 2010-005	11E/02A	Acadian Mining Corporation
AR ME 2010-007	11K/01C	Barrett, A M
AR ME 2010-008	11D/16D	Bezanson, P T
AR ME 2010-009	11D/16C	Bezanson, P T
AR ME 2010-010	21A/02D	Alpha Uranium Resources
AR ME 2010-011	21A/10A	Hudgtec Consulting Limited
AR ME 2010-012	11D/13D; 11E/04A	Grant, S
AR ME 2010-013	11E/08D	Minotaur Atlantic Exploration Limited
AR ME 2010-014	11E/08C	Minotaur Atlantic Exploration Limited
AR ME 2010-015	21H/07C	Minotaur Atlantic Exploration Limited
AR ME 2010-016	11E/08C; 11E/09A, B	Minotaur Atlantic Exploration Limited
AR ME 2010-017	11D/16C	Oicle, G
AR ME 2010-018	21A/08C	Globex Mining Enterprises
AR ME 2010-019	11F/04D	MacKinnon, R P
AR ME 2010-020	11E/03B	Acadian Mining Corporation
AR ME 2010-021	21A/08B	Gould, S
AR ME 2010-022	21H/08D	Collett, T E
AR ME 2010-023	11F/04D	Annapolis Properties Corporation
AR ME 2010-024	11F/05B	DDV Gold Limited
AR ME 2010-025	11D/16D	Bezanson, P T
AR ME 2010-026	21A/08B	Hilchey, A F
AR ME 2010-027	21A/08B	Globex Mining Enterprises
AR ME 2010-028	11F/11C	MacKinnon, R P
AR ME 2010-029	11E/01B	Scratch Exploration and Mining Corporation Limited
AR ME 2010-030	11D/15A	Annapolis Properties Corporation
AR ME 2010-031	11E/06C	Ecum Secum Enterprises Limited
AR ME 2010-032	21A/07A	Globex Mining Enterprises
AR ME 2010-033	11E/09A, B	Cobequid Gold Corporation Limited
AR ME 2010-034	11F/04D	Acadian Mining Corporation
AR ME 2010-035	11F/04C	Rainbow Resources Limited
AR ME 2010-036	11K/01B	Mt Cameron Minerals Incorporated
AR ME 2010-037	21A/08B	Globex Mining Enterprises
AR ME 2010-038	11F/04D	Grant, S
AR ME 2010-039	11K/03A, D	Acadian Mining Corporation
AR ME 2010-040	11E/03B	Elk Exploration Limited
AR ME 2010-041	21A/06A	Hiltz, K R
AR ME 2010-042	21A/04B	Ayarco Gold Corporation Limited
AR ME 2010-043	11E/01A	DDV Gold Limited
AR ME 2010-044	11E/08B	Shadbolt, D
AR ME 2010-045	11E/02A, B	DDV Gold Limited
AR ME 2010-046	11E/05D	Allen, L J
AR ME 2010-047	11D/16C	MacDonald, W

*Susan Saunders*

# The Joggins Fossil Cliffs: Coal Age Galapagos

Twelve years ago John Calder suggested that the Mineral Resources Branch should work to get a World Heritage Designation for the Joggins Fossil Cliffs. At the time this was a controversial suggestion as it involved activities that fell outside the normal scope of work undertaken by the branch. Largely due to John's passionate advocacy for the project, work proceeded with the full support of former Executive Director (Scott Swinden) and Director (Mike Cherry). After years of meticulous work to prepare the nomination documents, the Joggins Fossil Cliffs were named a UNESCO World Heritage Site in 2008 (see *Nova Scotia Minerals Update* v. 25, no. 3) and the village of Joggins became home to the fabulous new Joggins Fossil Centre. For his vision and leadership on the Joggins Project John received a Premier's Award of Excellence in 2009, was selected as Provincial and Territorial Geologist of the Year for Canada in 2010, and this June will be receiving the Geological Association of Canada Neal Medal for sustained outstanding efforts in sharing earth science with Canadians.

That is not the end of the story, however. John has now captured the story of the Joggins Fossil Cliffs in a new book that has just been published by DNR. The book, entitled *The Joggins Fossil Cliffs: Coal age Galapagos* is a beautifully written and illustrated account of the fossil cliffs and the story that they tell of the Carboniferous world. But this book is not only about geological history, it also introduces us to the incredible people who have been drawn to study the cliffs and the theories and debates, central to the progression of modern science, that their work has engendered.

The official launch for *Coal Age Galapagos* was held in Joggins on Earth Day, April 22<sup>nd</sup>. During the launch John provided a special tour of the cliffs, gave a talk that highlighted how the book was developed, presented 500 copies of the book to the Joggins Fossil Centre and signed copies of the book for the nearly 100 people that attended the launch. A



DNR Geologist John Calder (L) and Minister of Natural Resources Charlie Parker (R) present Premier Darrel Dexter (C) with a copy of *Coal Age Galapagos* at Province House on April 18. Photo by Michael Creagen, Communications Nova Scotia.



John signs books for all who ask at the official book launch on Earth Day, April 22, at the Joggins Fossil Centre.

few days prior to the official launch John presented a copy of the book to Premier Dexter and provided copies for every MLA.

*Coal Age Galapagos* is an important achievement that will help attract visitors from around the world to the Joggins Fossil Cliffs. The book

has had a limited first run so it is likely that the book will soon be in short supply. Copies are available for \$17.99 at the Joggins Fossil Centre, Cumberland County, and the Department of Natural Resources Library in Halifax.

*Rob Naylor*

# Mining Association of Nova Scotia Holds Annual General Meeting

The Mining Association of Nova Scotia (MANS) held its Annual General Meeting at the Ramada Inn in Dartmouth on April 12, 2012. The event was well attended by the association membership and board members. Mr. Duff Montgomerie, Deputy Minister of the Nova Scotia Department of Natural Resources, opened the afternoon event on behalf of Minister Charlie Parker and spoke about the vibrancy of the mining industry and the great work that MANS had accomplished over the course of the last year. The success of the association was also recapped with reports and presentations from the President, Executive Director, Treasurer and committee chairs.

Guest speakers Don James, Executive Director of DNR's Mineral Resources Branch, and Darlene Fenton, Executive Director with the Nova Scotia Department of Environment, also provided congratulations on a successful year and updates from their departments. At the close of the meeting the MANS President's Award, in recognition of an outstanding contribution and continued support of the mining industry the province and the association, was awarded to Kim Conrad of Conrad Brothers.

The following members were elected to the MANS Board of Directors and Executive Committee:

## Board of Directors

Pat Mills - President  
 Scarth MacDonnell -VP  
 Rob Krienke  
 Paul White  
 John Wightman  
 Byron MacMillan  
 Gavin Isenor  
 Laurie Vaughan  
 Ian Palmetier  
 Rick Ratcliffe  
 Gillian Roy  
 Gordon Dickie  
 Keith Phinney  
 Rick Horne  
 Matt Ferguson  
 Jeff Sullivan  
 Rick MacInnis  
 Scott Hoeg

## Executive Committee

Pat Mills  
 Gavin Isenor  
 Scarth MacDonnell  
 Paul White  
 Laurie Vaughan

*Linda L. Deschenes*  
 Executive Director  
 Mining Association of Nova Scotia (MANS)

## Special Note

### E-mail Notification

If you would like to receive an e-mail notice (with hot links) when new maps, digital products and publications are released, or when a new issue of the *Nova Scotia Minerals Update* is released, please send your e-mail address to [minerals@gov.ns.ca](mailto:minerals@gov.ns.ca).

## Dates to Remember

### May 27-29, 2012

Geological Association of Canada-Mineralogical Association of Canada Joint Annual Meeting, Delta Hotel and Conference Centre, St. John's, NL. For more information please visit the web site <http://stjohns2012.ca/>.

### June 6-8, 2012

Mining Society of Nova Scotia, 125th Annual General Meeting, Keltic Lodge, Resort and Spa, Ingonish Beach, NS. For more information please visit the website: <http://www.miningsocietyns.ca/>.

### August 17-19, 2012

Nova Scotia Gem and Mineral Show, Lions' Recreation Centre, Western Ave., Parrsboro, NS. For more information please visit the website: <http://museum.gov.ns.ca/fgm/en/home/whattoseedo/gemmineralshow/default.aspx>.

### October 29 and 30, 2012

Geology Matters 2012, the Westin Nova Scotian Hotel, Halifax, NS. For more information please contact conference co-ordinator Diane Webber at 902-424-3053 or by e-mail [webberde@gov.ns.ca](mailto:webberde@gov.ns.ca). You may also find information of Geology Matters on the Mineral resources Branch website: <http://www.gov.ns.ca/natr/meb/oh/index.asp>.