

Nova Scotia

Minerals Update

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NOVA SCOTIA
Natural Resources

Mineral Resources Branch Rocks at DNR Open House

The Nova Scotia Department of Natural Resources held its second Open House from May 31 to June 2 at the department's regional depot in Shubenacadie. Local school groups and the public took the opportunity to explore hands-on displays and speak with staff. For staff, it was a great opportunity to meet one on one with the public we serve. On Friday, May 31, Grade Six students (see photo below) from schools in central Nova Scotia were the first to visit the Open House. The students looked at examples of the rocks, minerals and fossils of Nova Scotia, tried their hands at panning gold, and examined a working groundwater model. Staff demonstrated the tools used for field work, and how geoscience is embracing digital technology. Each school received a superb collection of Nova Scotia rock and mineral samples, assembled by Fenton Isenor. On Saturday and Sunday approximately 5200 people took the opportunity to view the exhibits and interact with staff.

Reviews from participants and DNR guides rated the hands-on Mineral Resources Branch exhibits highly, and the lessons learned will be used to engage students and the public better in the future. The DNR Open House was a great exercise for the Mineral Resources Branch to work together with members of all branches of the department to bring natural resources into a public forum.

John Calder



Senior Geologist Jeff Poole (seated) entertains and informs visiting students at the DNR Open House, held May 31 to June 2. On Friday, May 31, 300 students, teachers and chaperones visited the Open House in Shubenacadie.

Nova Scotia Mineral Incentive Grants Awarded for 2013

The second year of the Nova Scotia Mineral Incentive Program (NSMIP) was launched this spring (see *Nova Scotia Minerals Update*, v. 30, no. 2). Of the 53 applications received, 16 Prospector Grants and 13 Advanced Project Grants were awarded and the first cheques have now been issued to the successful applicants (see the tables and map below).

Twelve of the successful applications this year also received a grant from NSMIP last year. One project that was funded through a Prospector Grant last year received

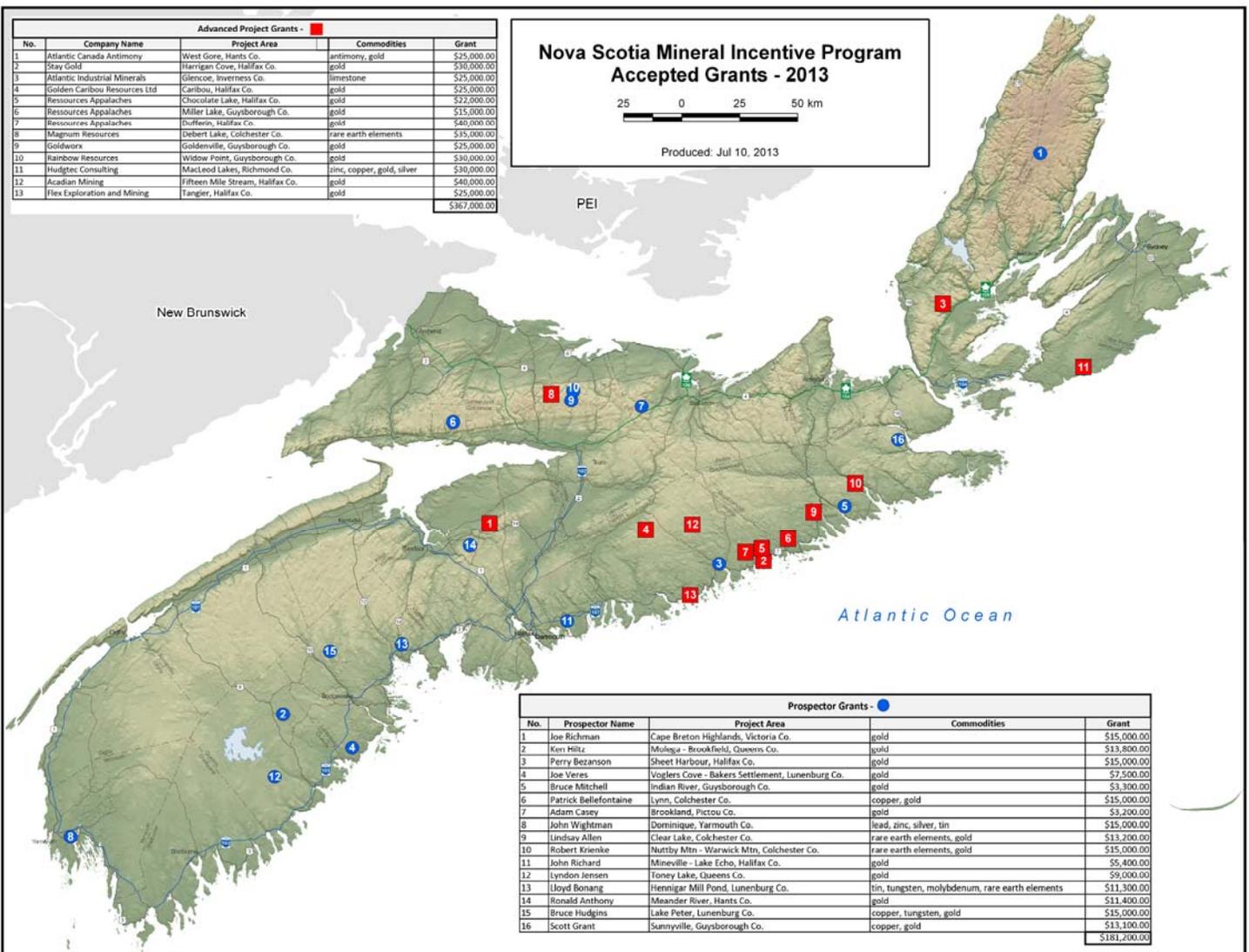
an Advanced Project Grant this year.

As you read this article there will already have been drills spinning, trenches opened, samples submitted to laboratories, geophysical surveys completed and many boots on the ground due to this year's Mineral Incentive Program. At this early stage there is little information available on how the projects are going, but with 29 active projects there are many interesting sites for DNR geologists to visit during the coming months.

This year's program began nearly three months earlier than last year, which gives the applicants more time to get field work done before winter.

With a general slowdown in the industry at the present time, mainly due to a lack of exploration capital, the Nova Scotia Mineral Incentive Program provides welcome funds to advance the potential of many promising properties. DNR wishes the recipients of NSMIP grants great success this field season.

Mick O'Neill, NSMIP Co-ordinator



Project locations, commodities under exploration and funds granted by the Nova Scotia Mineral Incentive Program in 2013.

Hydrogeologists Work to Protect Rare Plant Species

This summer, staff members from DNR's Mineral Resources Branch are providing hydrogeological expertise for a wetland project on Brier Island, Digby County. The key objective of the project is to protect the Eastern Mountain Avens, an endangered plant found in only two isolated populations globally: the White Mountains of New Hampshire and the coastal peatlands of Brier Island and Digby Neck, Nova Scotia. The species has reportedly undergone population decline in Nova Scotia due to habitat loss and degradation.

The project is taking place at Big Meadow Bog on Brier Island. The Eastern Mountain Avens has persisted in Big Meadow Bog, but observed changes in the peatland's plant community indicate that agricultural ditching that took place in the 1950s will ultimately result in the bog's transition to a non-wetland environment, which may threaten the long-term survivability of the plant. Mineral Resources Branch staff members are working to develop an understanding of the current hydrology

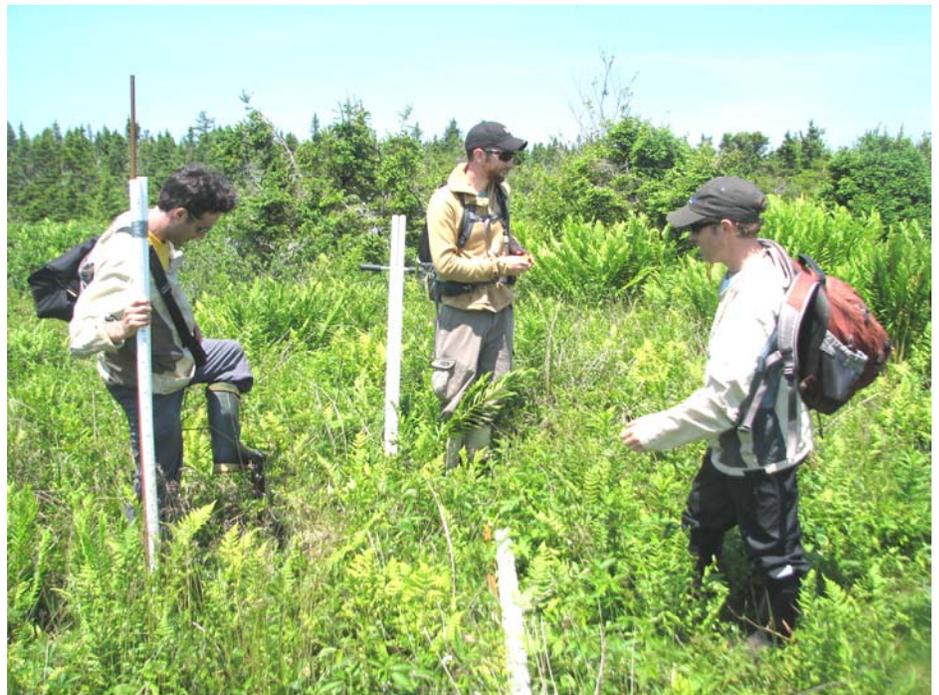
of the bog, with the long-term goal of restoring the hydrology to the wetland conditions that prevailed before the drainage ditch was dug.

In July 2013 the first round of field work for this project was completed. The work was carried out by DNR hydrogeologists John Drage and Gavin Kennedy, DNR summer student Ian Borg and Dr. Nick Hill of Fern Hill Institute for Plant Conservation. The work involved installing a series of monitoring wells for collecting information on groundwater level and chemistry. The wells were arranged in three transects across Big Meadow Bog, with each transect consisting of six monitoring wells. The wells were constructed of 25 mm PVC pipe and installed using a hand auger. After the monitoring wells were installed, data collection included the measurement of water levels, pH, temperature, electrical conductivity and redox levels. A datalogger was installed at one location to record continuous,

long-term water level changes. The field data have been compiled to prepare a preliminary analysis of groundwater flow directions and chemistry at the bog.

The Big Meadow Bog project is a multi-disciplinary research effort involving partners from DNR, Nova Scotia Environment, Acadia University, St. Francis Xavier University and the Fern Hill Institute for Plant Conservation. It is being led by Dr. Nick Hill of the Fern Hill Institute and is supported by the Nova Scotia Species at Risk Conservation Fund. The project team is working in close collaboration with DNR Wildlife Division, the Nature Conservancy of Canada, Mersey Tobeatic Research Institute and Environment Canada. Staff of the Mineral Resources Branch are involved in this project to support the Natural Resources Strategy goal to conduct earth science research that helps to understand and protect Nova Scotia's biodiversity.

John Drage and Gavin Kennedy



Above: Gavin Kennedy (L), Ian Borg (C) and John Drage (R) install wells along a transect across Big Meadow Bog on Briar Island. At left: DNR summer student Ian Borg measures the water level in a well. Both photos were taken by Nick Hill.

2014 Could Be A Golden Year for Nova Scotia Miners

Next year could mark the re-start of gold production in Nova Scotia, and it is anticipated that annual production could exceed 100,000 ounces within the next five years. Declining prices have not dampened the enthusiasm of companies, both public and private, to develop the province's long-known gold deposits.

Since 2007, when gold was last produced in the province, the price of the yellow metal has remained consistently above US\$600 per ounce. That strength and the low cost of exploration in Nova Scotia make the province's gold deposits attractive for small and mid-size producers. Gold deposits in the province are not situated in remote, inaccessible areas, and Nova Scotia offers modern infrastructure and power, a streamlined regulatory system, freely accessible public geoscience information and expertise, and a safe working environment. These factors make for a strong potential for developing a profitable gold mine.

Not surprisingly, the project that already has a Mineral Lease and an Environmental Assessment will likely be the first to go into production. That property is Dufferin, located just north of Port Dufferin on the Eastern Shore in Halifax County. Rimouski, Quebec-based Ressources Appalaches has applied to Nova Scotia Environment (NSE) for an Industrial Approval and is planning to hire 60-75 workers and purchase equipment to operate a small underground mine and a 300-tonne per day mill that already exists on the Dufferin property. The company anticipates producing 20,000 oz. of gold per year for the next two years.

Several other Nova Scotia gold properties are being explored under Mineral Licences. In order to bring these into production, a Mineral Lease, Environmental Assessment and an Industrial Approval are required.

Two private companies, Goldworx of Toronto and Flex Mining &

Exploration of Bathurst, N.B., are working to produce gold within the next few years from the Goldenville and Tangier properties, respectively. Goldworx plans to spend \$1.2 million this year on a drilling program and a 10,000-tonne bulk sample at Goldenville. Flex has invested over \$1 million to lay the groundwork to re-open the Tangier mine in Halifax County. The company has applied for a Water Withdrawal Approval from NSE to begin pumping water from the old underground workings.

Other properties where companies may soon make application for approvals are the Goldboro property (Orex Exploration), the Fifteen Mile Stream property (Acadian Mining) and the Mooseland property (NSGold). If the price of gold remains above US\$1,000 per oz., 2014 could be a golden year for Nova Scotia miners.

Patrick Whiteway



Standing in front of the recently de-watered portal of the Dufferin gold mine are (from left to right): Steve Hebert, Chief Administrative Officer; Jean-Claude Morel, Executive VP; Wayne Ellis, Mine Health and Safety Coordinator; and Alain Hupé, President/CEO, Director and co-founder of Ressources Appalaches.

Geology Matters 2013 Booked for November 13 and 14 at the Westin

On November 13 and 14 the Westin Hotel in Halifax will be the site of Geology Matters 2013, where geoscientists of all stripes will gather to discuss the results from this summer's field season. With projects ranging from mineral exploration (see p. 2 and 4) to groundwater mapping (see p. 3) there will be plenty to discuss, including a first look at the results from this summer's activities funded by the Nova Scotia Mineral Incentive Program (see p. 2).

This 37th annual conference, hosted by the Mineral Resources Branch of the Nova Scotia Department of Natural Resources, will be planned in partnership with the Mining Association of Nova Scotia, the Mining Society of Nova Scotia and the Association of Professional Geoscientists of Nova Scotia. The program will include many professional development opportunities, with presentations, special guest speakers, luncheons, a short course, and the annual Minister's Reception and Award Ceremony hosted by the Honourable Charlie Parker, Minister of Natural Resources. DNR staff, prospectors, exploration companies and numerous related associations will showcase new initiatives, exploration activities and results.

Keep an eye on the Geology Matters 2013 page of the Mineral Resources Branch website as information about the conference and online registration forms are posted (<http://www.gov.ns.ca/natr/meb/oh/index.asp>). For further information please contact the department's liaison geologist Diane Webber (phone 902-424-3053 or email webberde@gov.ns.ca).

Diane Webber

NovaROC: the Mineral Rights Online Registry System for Nova Scotia

On July 29, 2013, the Nova Scotia Registry of Mineral and Petroleum Titles began the transition from a paper-based registry system to a new online mineral and petroleum rights registry system called 'NovaROC'. During the transition phase the new system will be in use by registry staff. Clients who come into the registry will have access to electronic maps that are updated in real-time as staff process applications, records and manage tenure. The online system represents a modernization of the registry that brings faster processing of applications, better service delivery, and the ability to analyze data in a timely fashion.

The registry has added two kiosks to access electronic maps. A Map Viewer tutorial and instruction cards will assist clients with the transition to electronic maps from paper-based map sheets. Clients will continue to use paper forms during the transition phase. Registry staff will be happy to explain how the kiosk maps may be used to determine mineral tenure information.

The online system will be available to clients with full self-serve capabilities later this summer. The system will allow clients to: stake a claim anytime, from anywhere over the Web; submit online applications for rights management with worldwide access; reduce time and travel costs; have 24/7 access for rights management; enjoy the convenience of working on their own schedule; provide electronic submission of documents including assessment reports; reduce the time and cost of printing and copying; find out what rights are expiring, what is the balance of work credits, what rights were acquired and where are J. Doe's rights; and enjoy faster processing of applications and automatic compliance with regulations (fewer refunds).

John MacNeil

GEM and Mineral Show Set for August 16-18

Did you know that it takes about 13 hours for the water in the Bay of Fundy to cycle from the mouth of the bay to the head of the bay and back again? Each day 100 billion tonnes of seawater flows out of the bay during one tide cycle, which is more than the combined flow of the world's freshwater rivers! The Bay of Fundy has one of the most dramatic and dynamic coastlines on Earth, full of magnificent land- and sea-scapes.

A perfect excuse for visiting the area is the 48th GEM and Mineral Show in Parrsboro this summer. The event, formerly and still popularly known as the 'Rockhound Roundup', will take place during the weekend of August 16, 17 and 18, and is one of the oldest mineral shows in Canada. Exhibitors will come from Ontario, Quebec, New Brunswick, Nova Scotia and Maine to offer a broad mix of Earth treasures. There will be fine mineral specimens, jewellery, precious stones, fossils and more.

The GEM and Mineral Show will feature guided geological field trips and interpretive walks, as well as demonstrations of gem cutting, jewellery making and gold panning. The Nova Scotia Metal Arts Guild will present the work of Nova Scotia silver- and gold-smiths. Geologists and mineral collectors from the Nova Scotia Department of Natural Resources, Atlantic GeoScience Society, Nova Scotia Prospectors Association and the Nova Scotia Gem and Mineral Society will be available to identify your mineral treasures.

Admission to the event is \$3 per person (children under 12 admitted free) and exhibit hours are 10 am – 7 pm Friday and Saturday, and 10 am – 5 pm on Sunday. For more information please call the Fundy Geological Museum at 902-254-3814 or visit the museum's web site at <http://museum.gov.ns.ca/fgm>.

Diane Webber

Status Report on Review of the *Mineral Resources Act*

The *Mineral Resources Act* Review Working Group met twice in June (on the 10th and 24th) and once in July (on the 15th). The group was formed to identify the most important issues that impact responsible mineral exploration and development in the province.

Since each stakeholder has a unique perspective on mineral exploration and development, there is no simple solution to identifying which issues matter most. Once the core issues have been identified, the Working Group must then decide how best to engage stakeholders in a productive discussion of the key issues. The goal of these discussions would be to affect positive change in how mineral resources are developed in Nova Scotia, both today and in the future.

Minerals have made an enormous contribution to the economy of Nova Scotia over the past 300 years. In recent years, however, the economic contribution of this natural resource has declined. Nonetheless, significant undeveloped resources remain that could play an important role in our future economy (see p. 4).

The over-arching purpose of the *Mineral Resources Act*, as it was written in 1990, is to “support and promote responsible mineral resource management consistent with sustainable development while recognizing the following goals:

- Providing a framework for efficient and effective mineral rights administration;
- Encouraging, promoting and facilitating mineral exploration, development and production;
- Providing a fair royalty regime; and
- Improving the knowledge of mineral resources in the Province.”

April - June 2013 Open Assessment Reports

Report Number	NTS	Licensee
AR ME 2011-038	11E/03C; 11E/06B	Maritime Titanium Limited
AR ME 2011-039	11K/02A, B	Jensen, L R
AR ME 2011-040	11E/06C	Barrett, A M
AR ME 2011-041	11E/04A, B	DDV Gold Limited
AR ME 2011-042	11K/01B	Silvore Fox Minerals Corporation
AR ME 2011-043	21A/06A	Banks, D V
AR ME 2011-044	11D/15C	NSGold Corporation
AR ME 2011-045	11K/01B	Mt Cameron Minerals Incorporated
AR ME 2011-046	11D/16D	Scratch Exploration and Mining Corporation Limited
AR ME 2011-048	11F/04D	Elk Exploration Limited
AR ME 2011-049	11E/05D; 11E/06C	Allen, L J; Elk Exploration Limited; Ecum Secum Enterprises Limited
AR ME 2011-050	11E/05C	Allen, L J; Elk Exploration Limited
AR ME 2011-051	11E/01D	DDV Gold Limited; DDV Gold
AR ME 2011-052	11E/11B; 11E/12A	Tripple Uranium Resources Incorporated
AR ME 2011-054	11F/01D; 11F/04C	Annapolis Properties Corporation
AR ME 2011-055	11E/02A, D	Acadian Mining Corporation; Annapolis Properties Corporation
AR ME 2011-056	11F/04C, D	Annapolis Properties Corporation
AR ME 2011-057	11E/03A	Scozinc Limited
AR ME 2011-058	11E/02D	Annapolis Properties Corporation
AR ME 2011-060	11D/15A, D; 11D/16B, C	Stay Gold Incorporated
AR ME 2011-061	21A/09B	Elk Exploration Limited

Susan Saunders

Three approaches that could be taken to identify and evaluate the issues associated with responsible mineral development in Nova Scotia have been identified by the Working Group. All three approaches involve both internal discussion and a much wider external discussion of the issues. Factors that separate the three approaches include the width of coverage (pressing issues only, or as many as possible), the involvement (or not) of consultants, the number of locations in the province where stakeholder discussions should be held, and the breadth of stakeholders to be consulted.

The Working Group anticipates that all relevant issues for discussion will be identified by autumn 2013 and that a review of recent changes to mining legislation in other jurisdictions that compete with Nova Scotia for investment dollars will be completed by the autumn as well.

Patrick Whiteway

Note: This is the third in a series of articles published in the *Nova Scotia Minerals Update* to keep readers informed about the review of Nova Scotia's *Mineral Resources Act*.

John and Paul Join George in Retirement

In June, John McMullin and Paul McCulloch retired from DNR, joining colleague George O'Reilly who preceded them by a few weeks (see *Minerals Update*, v. 30, no. 2). They may not be The Beatles, but their retirements represent a tremendous loss of expertise and leadership to us.

John McMullin graduated from the University of Edinburgh with his degree in geology in 1968 and emigrated to Canada right away to work in the mineral exploration industry. He worked in the private sector for many years, ending with Great Horne Mining Co., which was headquartered in New Glasgow. In 1982 he was hired by the former Nova Scotia Department of Mines and Energy to be the department's first exploration-monitoring geologist, located in Stellarton. As the department's Core Library was developed in the Stellarton Industrial Park, with the help of federal-provincial mineral development agreements in the 1980s, John took over the operations of the Core Library and by 1985 Paul McCulloch had become the exploration-monitoring geologist.

In 1986 the department released a series of gold compilation maps of the Meguma Terrane, at a scale of 1:100 000, with John McMullin as the lead author. These became the best and most popular base maps available for many prospectors and explorationists looking for gold in Nova Scotia. John held the position of Core Library Supervisor until his retirement last month. Most of us can't imagine the Core Library without John, who had a hand in every aspect of its expansion, maintenance and operation. During his many years in the Stellarton area John served as a volunteer with the local Boy Scouts and youth soccer organizations.

Paul McCulloch obtained his B.Sc. in 1971 and M.Sc. in 1973, both from Acadia University. Paul worked for private sector exploration companies after graduation, including St. Josephs Exploration, Shell Canada Resources and BP Bluestack. As mentioned above, Paul joined the former Nova Scotia Department of Mines and Energy in December 1984 as the department's exploration-monitoring geologist. The monitoring process includes regular visits to company offices and exploration sites, liaison with industry personnel, and reviewing current assessment reports and other material submitted by industry. Exploration monitoring provides a direct liaison with industry, through which the department is able to maintain an awareness of current exploration activities throughout Nova Scotia. Paul's work included applying the standards set out in the *Mineral Resources Act* and *Regulations* for the submission of assessment reports and prospector reports required to maintain mineral exploration claims. In this capacity, Paul's composure and common sense were great assets. As a member of the of the Mineral Resources Branch for many years he has also been an integral part of the core operations of the branch, and a highly valued colleague.

Paul has meticulously planned for his retirement, and is already abroad visiting family in Europe. One of Paul's keenest extra-curricular activities has been participation in a group of enthusiasts who like to re-create the living, sporting and fighting conditions typical of medieval times. He has become a skilled archer, among other things. Paul is looking forward to increasing his role in this activity, one that he shares with his wife Edna, who also retired at the same time as Paul.

Filling the shoes of the branch's three recent retirees will be a difficult job. They have each essentially defined the positions they occupied by virtue of hard work, leadership and persistence. Nonetheless, the Mineral Resources Branch will attempt to find individuals from a new generation of geoscientists who will, in their own way, re-define these positions.

Norman Lyttle, John MacNeil and Doug MacDonald

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.

Dates to Remember

August 16-18, 2013

Nova Scotia Gem and Mineral Show and Sale, Lion's Recreation Centre, Western Ave., Parrsboro, NS. For more information see the article on p. 5, call the Fundy Geological Museum (902-254-3814) or visit the web site: <http://museum.gov.ns.ca/fgm>.

October 24-26, 2013

Atlantic Universities Geological Conference 2013, St. Francis Xavier University, Antigonish, NS.

October 31-November 2, 2013

Newfoundland and Labrador Mineral Resources Review 2013, Delta St. John's Hotel, St. John's, NL. For more information please visit the web site: <http://www.nr.gov.nl.ca/nr/mines/mineral.html>.

November 3-5, 2013

Exploration, Mining and Petroleum New Brunswick, Delta Hotel, Fredericton, NB. For more information please visit the web site: http://www2.gnb.ca/content/gnb/en/departments/energy/conference/Conf_home.html.

November 13 and 14, 2013

Geology Matters 2013 conference, Westin Hotel, Halifax, NS. For more information please see the article on p. 5 or contact Diane Webber (webberde@gov.ns.ca).