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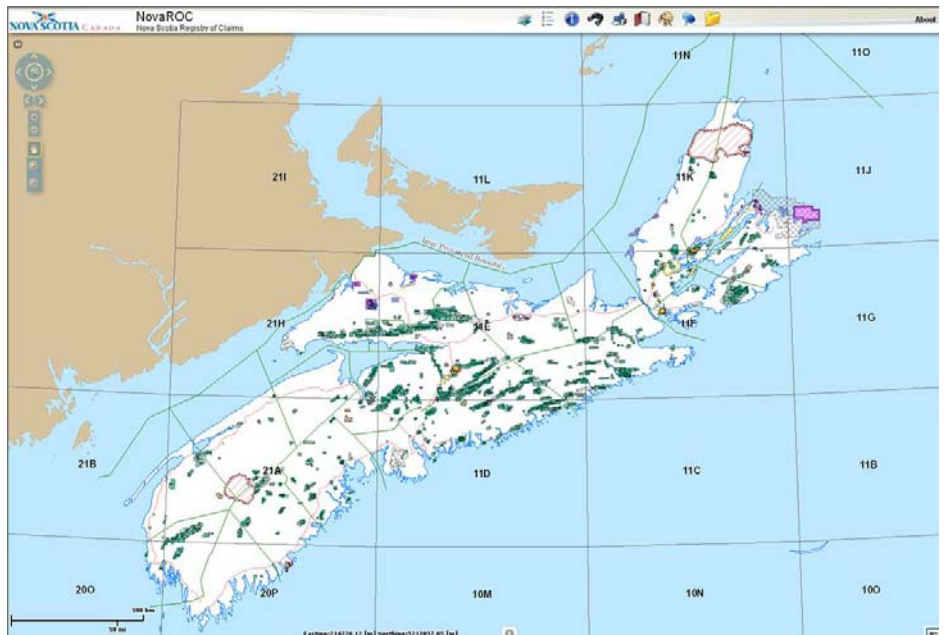


NovaROC: the Nova Scotia Registry of Mineral and Petroleum Titles is Online

NovaROC, the mineral rights online registry system for Nova Scotia, was released in the public domain on August 26. After a great deal of hard work by registry staff, the NovaROC project team, and Pacific GeoTech Systems, the system developer, Nova Scotia's mineral rights information is now online. Anyone now has the ability to acquire and maintain mineral rights from any location, making that aspect of the mineral industry more efficient. Assessment reports and prospector statements can be filed from any computer. Many other jurisdictions already employ an online system for managing mineral tenure, and achieving this standard of service makes Nova Scotia more visible and competitive in attracting investment.

In the past, every operation of the registry was done on paper maps and forms. The transition to the new system has meant a lot of change for everyone concerned, and since NovaROC was released some technical issues have been reported and are being resolved. Clients have been helpful and patient during the transition, providing a lot of input and positive feedback. Online tutorials help to explain each step of the process, and registry staff are working directly with clients as well. Try it for yourself and let us know what you think: <http://www.gov.ns.ca/natr/meb/one/novaroc.asp>.

John MacNeil



Anyone with a computer and an internet service provider now has access to view and print the current locations of mineral tenure in Nova Scotia, as shown above. For clients registered to use NovaROC, the system also allows for the acquisition and maintenance of mineral claims in the province.

Working Group Continues Review of the *Mineral Resources Act*

The Working Group reviewing the *Mineral Resources Act* has now completed an initial review of all 185 sections of the Act and has identified those sections that will likely require the most detailed review. The areas of focus include:

- clarification needed to modernize language and terms;
- movement of some sections from the Act to the Regulations to facilitate future changes;
- access to land;
- changes to statistical report requirements; and
- additional enforcement of existing sections.

The group's focus now is on possible changes to the Regulations.

The Working Group is now making preparations to widen the discussion by seeking input from stakeholders external to government in order to refine and possibly add to this list of issues, and to prioritize the list so that effective action can be taken by government through the appropriate vehicle (guidelines, policy or legislation).

The Working Group is drafting a 'Discussion Document' that will introduce stakeholders to how we see the issues. This document will then be circulated so as to initiate engagement with stakeholders in a productive discussion of the key issues. The goal of these discussions will be to affect positive change in

how mineral resources are identified and developed in Nova Scotia, both today and in the future.

Before the end of 2013, the number of locations throughout the province where stakeholders will be invited to gather for discussions about the *Mineral Resources Act* will be decided.

Patrick Whiteway

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

Ocean Floor Beneath Their Feet: the Not Since Moses Run

A captive audience gathers to hear the incredible geological story held in the cliffs they will soon run beside. 1600 runners. One of the most spectacular geological landscapes – and seascapes – in Nova Scotia or anywhere else in the world. Event organizers and volunteers who still have a sense of wonder.

These were the ingredients for my opportunity to include a measure of geological experience in an imaginative event held each year at Five Islands: the Not Since Moses Run. The very name tells you something of Dick Lemon, the man who first had the idea for such an event, where runners ply their way along the ocean floor exposed in the window of the world's highest tides. I was overwhelmed by the welcome extended to me in offering a geological perspective to what is already an amazing experience, as runners pass the area's spectacular cliffs. The rocks exposed in these coastal cliffs tell the story of the breakup of Pangea and the mass extinction at the end of the Triassic, one of the five gravest in the history of life.

While the story of earth history in this area clearly impressed the runners, it was the spirit and enthusiasm of the organizers, the runners, and the many volunteers

from the greater Five Islands community that made a lasting impression on me.

John Calder



Runners gather to hear about the area's geological features (author, L and elevated, with megaphone).

From the Mineral Inventory Files

Indian Path and the Association of Scheelite and Gold in Nova Scotia

Many of Nova Scotia's saddle-reef gold deposits, in the metasedimentary, Cambro-Ordovician Meguma Supergroup, also contain appreciable amounts of scheelite (CaWO_4). Two of these deposits were mined with tungsten (W) being the primary commodity and gold (Au) secondary. The Stillwater W Mine at the western end of the Moose River Gold District was the province's largest example; the Indian Path W Mine in Lunenburg County (Fig. 1) was second.

Most of the Meguma Zone Au deposits were discovered during the 1860s, but it was 1893 before scheelite was recognized in Au-bearing quartz veins at the Molega Gold District. Scheelite was then recognized at Moose River and Waverley (1908), 15 Mile Brook, Queens County, and Tangier (1911), Oldham (1914) and Indian Path (1926). Scheelite is also recorded in several other gold districts, but just when it was discovered is not known (e.g. The Ovens, Brookfield, Whiteburn, Stanburne). There are also a few prospects in which scheelite occurs in saddle quartz veins but Au is either absent or present in minor amounts (e.g. Lower Sackville, Fall River, Goffs).

Indian Path was first discovered as a gold deposit when Au-bearing quartz was found there in 1862, just after the discovery of Au nearby at The Ovens in 1861. Indian Path was first considered part of The Ovens Gold District, even though the two deposits are on separate anticlines. The veins at Indian Path weren't worked until 1868 when 10-12 saddle veins, some up to 1.5 m wide, were opened and a 25 ton sample was collected that reportedly returned a good result. Not much mining took place over the next 20 years, however, even though a stamp mill was constructed in 1884. By 1896 all work at the camp had finished with the deepest shaft being about 23 m and a total reported Au production of 53 troy ounces from 331 tons of ore.

The property lay dormant until 1926 when prospectors recognized scheelite-bearing quartz about 460 m east along the anticlinal axis from the old gold camp

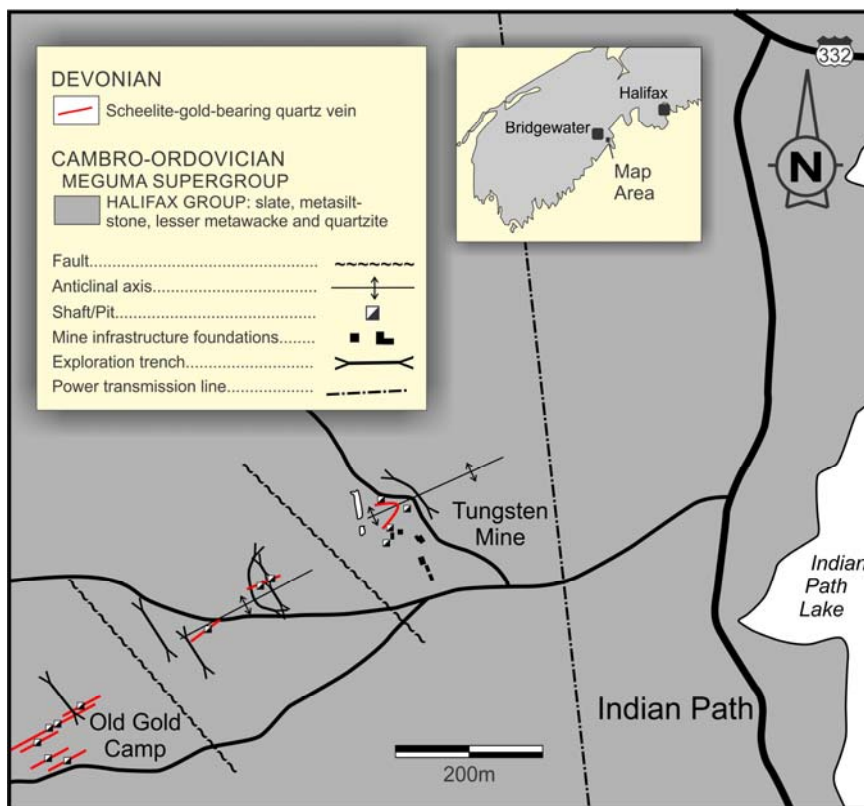


Figure 1. Geology of the Indian Path W-Au mine in southern Lunenburg County.

(Fig. 1). This spurred a second period of exploration activity, but this time the main focus was W. During the 1930s four shafts were sunk in what became known as the Tungsten Mine. Exploration showed that the W enrichment was concentrated primarily in two zones closely associated with the apex of the anticline and this governed much of the underground development.

The advent of World War II brought with it a pressing need for strategic metals like W. As a result, immediate attention was directed to Indian Path, even though it did not have much resource established. A 76 m deep, three-compartment shaft was quickly sunk, considerable underground drilling and development carried out, and a modern processing plant constructed. Mining continued until 1943 when, as the known W zones became depleted and the wartime need for W diminished, the mine was closed. Indian Path

received another period of exploration between 1976 and the early 1990s, but this was mostly aimed at examining its Au potential with W considered a welcome sweetener. A couple of these efforts involved trenching and drilling, and returned promising results, especially in the area of the anticlinal axis between the Tungsten Mine and the old Au camp.

So much remains to be answered about the W potential of this and some of Nova Scotia's other Au districts. Why do some Au districts have so much W while others have nothing? Why, in the districts where W is present in the highest concentrations, is there an apparent separation of the W-rich areas from Au-rich zones? If these and other questions are answered, perhaps we'll have a better understanding of the W potential of these deposits and how to most effectively explore for them.

G. A. O'Reilly

Program for Geology Matters 2013: Day 1

Wednesday, November 13

| | |
|-------------------|---|
| 8:00 am - 3:00 pm | Registration |
| 8:00 am - 9:00 am | Coffee station sponsored by Dexter Construction |
| 9:00 am | Exhibits Open |
| 9:00 am - 9:20 am | Opening Remarks, Deputy Minister Duff Montgomerie, DNR |

New Initiatives

| | |
|---------------------|---|
| 9:20 am - 9:40 am | NovaRoc - John MacNeil, DNR |
| 9:40 am - 10:00 am | TGI-4, Targeted Geoscience Initiative - John Chapman, Natural Resources Canada |
| 10:00 am - 10:20 am | Economic Impact of the Mining Industry, The Updated Gardiner Pinfold Report - TBA, DNR |
| 10:20 am - 10:40 am | Coffee break sponsored by the Mining Association of Nova Scotia (MANS) |
| 10:40 am - 11:00 am | Linking Base Metal and Barite Mineralization in the Windsor-Kennetcook Basin to the Kennetcook Thrust System - Fraser Keppie, DNR |
| 11:00 am - 11:20 am | Exploration Incentives, Professional Development Opportunities and Clearer Regulatory Pathways - Rob Naylor, DNR |
| 11:20 am - 12:00 pm | Panel Discussion - The Mineral Resources Act Review |
| 12:00 pm - 1:30 pm | Luncheon - Mining in a World of Rising Expectations: Guest Speaker Bill Mercer, VP Exploration, Avalon Rare Metals; PDAC Past President and Chair of the PDAC Health and Safety Committee; Sponsored by GoGold |

There will be two short courses on Wednesday afternoon

| | |
|-------------------|---|
| 1:30 pm—4:00 pm | <i>Short Course A - National Instrument 43-101, Craig Waldie, Senior Geologist, Compliance Review, Ontario Securities Commission, Presented by Geoscientists Nova Scotia</i> |
| 1:30 pm - 2:15 pm | <i>Concept of Materiality, NI43-101 Compliance Issues and Pitfalls</i> |
| 2:15 pm - 2:30 pm | Coffee break sponsored by MineTech International Ltd. |
| 2:30 pm - 3:30pm | <i>Technical Reports, Red Flags</i> |
| 3:30 pm - 4:00pm | <i>NI43-101 Question and Answer</i> |
| 2:00 pm—4:00 pm | <i>Short Course B - A Geoscience Career: Getting Discovered, Patrick McAndless, Vice President Exploration, Imperial Metals; Lunenburg Room, Sponsored by Shaw Resources</i> |
| 4:00 pm - 5:00pm | Geoscientists Nova Scotia Members Special Meeting - Atlantic Ballroom |
| 4:00 pm - 5:30 pm | Networking in Commonwealth Ballroom |
| 5:30 pm - 7:30 pm | Reception and Awards Ceremony, Hosted by the Minister of Natural Resources. Sponsored by Conrad Brothers (Gold Sponsor), Orex Exploration, Atlantic Gold (Silver Sponsors), Logan Drilling, Lafarge, Pioneer Coal, BGC Engineering |

Program for Geology Matters 2013: Day 2

Thursday, November 14

| | |
|-------------------|---|
| 8:00 am - 3:00 pm | Registration |
| 8:00 am - 9:00 am | Coffee station sponsored by Acadian Mining |
| 9:00 am | Exhibits Open |
| 9:00 am - 9:20 am | Opening Remarks - Don James, DNR |

Environmental Assessment: sponsored by Conestoga-Rovers & Associates, AMEC Consulting, Stantec Consulting

| | |
|---------------------|---|
| 9:20 am - 9:50 am | Introduction - Speakers TBA, Provincial (DoE) and Federal (CEAA) Regulators |
| 9:50 am - 10:10 am | The Crown's Legal Duty to Consult - Laurent Jonart, Office of Aboriginal Affairs |
| 10:10 am - 10:30 am | Community Consultation, MEKS - Peter Oram, Conestoga-Rovers & Associates |
| 10:30 am - 10:50 am | Coffee break sponsored by National Gypsum (Canada) Limited |
| 10:50 am - 11:10 am | The Importance of Baseline Data Collection: More than Just Counting Things - Janet Blackadar, AMEC |
| 11:10 am - 11:30 am | The Donkin Mine Environmental Assessment - Robert Federico, Stantec Consulting |
| 11:30 am - 12:00 pm | Environmental Assessment Question and Answer |
| 12:00 pm - 1:30 pm | Luncheon - Guest Speaker TBA |

Exploration and Mining

| | |
|-------------------|--|
| 1:30 pm - 1:50 pm | Volcanic Massive Sulphide Deposits: the Stirling Belt - Bob Ryan, DNR |
| 1:50 pm - 2:10 pm | The Dufferin Gold Mine - Alain Hupe, Ressources Appalaches |
| 2:10 pm - 2:30 pm | Company Presentation - Jason Googoo, Membertou Geomatic Solutions |
| 2:30 pm - 2:50 pm | Coffee break sponsored by The Mining Society of Nova Scotia |
| 2:50 pm - 3:10 pm | Epithermal Gold in Northern Nova Scotia - Bob Ryan, DNR |
| 3:10 pm - 3:15 pm | Relocate to poster area, Commonwealth Boardroom |
| 3:15 pm - 3:30 pm | Poster presentation: The Cobequid Highlands: Redefined Geology and Related Economic Potential - Chris White and Trevor MacHattie, DNR |
| 3:30 pm - 5:00 pm | Booths and Poster Displays in Commonwealth Ballroom |
| 5:00 pm | Conference Closes |

Thank you to all of our Corporate Sponsors!

Nova Scotia Hosts National Mining Recorders Committee

From September 24-26, Nova Scotia was host to the annual meeting of the Provincial/Territorial Mining Rights Committee. The committee is an informal group that was established to share information and experiences regarding mining rights administration across Canada. By sharing such information, the committee hopes that each jurisdiction will develop methods for dealing with similar mining rights situations within its own regulatory framework.

This year, representatives from Alberta, Manitoba, Nunavut, Ontario, New Brunswick, Nova Scotia, and Newfoundland and Labrador came to Halifax to discuss issues that included: the challenges of accessibility of land, both private and Crown, for exploration; the trend away from ground staking to map and online staking; legislative changes occurring in different jurisdictions; and trends in the industry.

The DNR Registry of Mineral and Petroleum Titles was pleased to demonstrate Nova Scotia's new online mineral rights system, NovaROC (see p. 1), to the committee and provided a tour of the largest gypsum mine in the world, National Gypsum's East Milford quarry.

John MacNeil



Members of the Provincial/Territorial Mining Rights Committee pose beside the East Milford gypsum quarry. Nova Scotia's registrar and host of the meeting, John MacNeil, stands third from the right.

July - September 2013 Open Assessment Reports

| Report Number | NTS | Licensee |
|----------------|------------------------|----------------------------------|
| AR ME 2011-062 | 11E/02B | DDV Gold Limited |
| AR ME 2011-063 | 11E/01D | DDV Gold Limited |
| AR ME 2011-065 | 11D/16C | Annapolis Properties Corporation |
| AR ME 2011-066 | 11D/14C | Annapolis Properties Corporation |
| AR ME 2011-067 | 11D/12D | Hilchey, A F |
| AR ME 2011-068 | 11F/14B | Grant, S |
| AR ME 2011-069 | 21A/06A | Hiltz, K R |
| AR ME 2011-070 | 11D/16C | Nycon Resources Incorporated |
| AR ME 2011-071 | 11E/03C; 11E/05A | Maritime Titanium Limited |
| AR ME 2011-072 | 11E/02A | Acadian Mining Corporation |
| AR ME 2011-073 | 11K/07D; 11K/10A, B | Richman, J |
| AR ME 2011-074 | 21A/07C | Hiltz, K R |
| AR ME 2011-075 | 21A/07C | Hiltz, K R |
| AR ME 2011-076 | 11D/15C | MacDonald, R H |
| AR ME 2011-077 | 11D/15D; 11D/16C | Grant, S |
| AR ME 2011-078 | 11D/15D | Bezanson, P T |
| AR ME 2011-079 | 11D/13A | Wickstrom, C |
| AR ME 2011-081 | 11E/02D | Stay Gold Incorporated |
| AR ME 2011-082 | 11F/14B | Grant, S |
| AR ME 2011-083 | 11K/07D; 11K/10A | Richman, J |
| AR ME 2011-084 | 11F/16D | MacLean, L |
| AR ME 2011-085 | 21A/07B | Hiltz, K R |
| AR ME 2011-086 | 21A/07B | Hiltz, K R |
| AR ME 2011-087 | 21A/06A | Hiltz, K R |
| AR ME 2011-097 | 11F/05A | Jewers, R |
| AR ME 2011-101 | 21A/02B; 21A/03A | DDV Gold Limited |
| AR ME 2011-121 | 20O/16A | DDV Gold Limited |
| AR ME 2011-122 | 11E/01B; 11E/02A | DDV Gold Limited |
| AR ME 2011-124 | 11E/03B | Grant, S |
| AR ME 2011-131 | 11E/01C; 11E/08B | Grant, S |
| AR ME 2011-132 | 11E/03A | DDV Gold Limited |
| AR ME 2011-134 | 11E/03B | DDV Gold Limited |
| AR ME 2011-143 | 11F/04B | DDV Gold Limited |
| AR ME 2011-166 | 11F/05A | DDV Gold Limited |
| AR ME 2011-168 | 11F/04B | DDV Gold Limited |
| AR ME 2011-173 | 11F/05B | DDV Gold Limited |

Susan Saunders

DDV's Touquoy Mine Advances

Realizing the potential economic benefits of developing the gold resources of Nova Scotia very much depends on the success of a sizeable development project presently underway in Moose River, Halifax County.

DDV Gold, a wholly-owned subsidiary of Atlantic Gold NL of Australia, anticipates a significant increase in the pace of activity on its shovel-ready Touquoy gold project. Once the company adequately addresses concerns about groundwater monitoring, seepage collection, surface waters, copper management, soil erosion and air quality management, Nova Scotia Environment could approve the company's Industrial Approval (IA) application. The company received an Environmental Assessment approval in February 2008.

Company news releases describe an open pit mine and milling operation that could, over a five-year operating life, extract a total of 422,000 oz. of gold from some 10 million tonnes (t) of ore (grading about 1.48 g gold per tonne). What makes this plan unique for gold mine developments in Nova Scotia is that gold in the deposit is not concentrated enough to justify the high capital and operating costs of an underground mine. An open pit mine developed at a relatively low capital and operating cost, however, makes development of the deposit profitable.

DDV estimates capital costs for a 5000 t-per-day operation will be in the order of \$140 million, which includes \$10 million to reclaim the site. In a July 31, 2013, press release, the company said that "financial structures continue to be developed with major banks and other financiers."

When 10 million t of ore have been mined, the open pit will ultimately be 760 m long, 420 m wide and 135 m deep. Slopes will be 40° in overburden and 50° to 70° in bedrock; benches will be 15 m high. This will necessitate the movement of some 2.6 million t of overburden and 27.5 million t of waste rock.

The fleet of equipment needed to move this amount of material includes: two blasthole drills, two 180 t hydraulic excavators, seven 90 t haulage trucks, one 7 m³ loader, two 50 t dozers, one water

truck for dust suppression and one 200 HP grader. The operation could employ a total of 150 workers.

The company plans to build a mill and tailings management facility on-site. It will use a combination of gravity and carbon-in-leach technology to concentrate the gold prior to it being dissolved in cyanide solution. The gold will then be recovered from solution by electro-winning and will be melted in an

induction furnace. Gold dore bars will be poured on-site for sale, probably to the Royal Canadian Mint. The process should recover about 93% of the gold in the ore. If all goes according to plan, operating costs at Touquoy will be in the order of US\$600 per ounce of gold produced. The price of gold at the time of writing was US\$1,336 per ounce.

Patrick Whiteway

Eldon George and Don Reid Honoured by Atlantic Geoscience Society

At the Nova Scotia Gem and Mineral Show, held at Parrsboro in August, two revered ambassadors for Nova Scotia geology were formally recognized by the geoscientific community for their lifetimes of achievement. Don Reid of Joggins, 91 years young, and 82 year old Eldon George of Parrsboro were both presented with the Laing Ferguson Award of the Atlantic Geoscience Society (AGS). The award was recently reframed by the society to be "*given in recognition of exceptional and altruistic contributions to the Atlantic Geoscience Society and/or to foster public appreciation of Atlantic geoscience over a long period of time.*"

Don was specifically recognized for his role at Joggins, where he and his family ran their fossil museum and tours for many years, and for selflessly bequeathing his lifetime collection of fossils to the Joggins Fossil Centre, where it forms the backbone of the centre's collection and exhibits. Eldon was honoured for his contributions to paleontology, but foremost for the discovery, understanding and celebration of the province's spectacular minerals through founding such events as the Gem and Mineral Show, originally known as the "Rockhound Roundup". These two gentlemen of geology reinforce the important relationship between citizens with deep knowledge of their geological home and the professional geoscientists who benefit from their insight.

John Calder



Eldon George (left) and Don Reid (right) with AGS President Dr. Grant Wach.



Nova Scotia's Exploration & Mining Expo

- Technical Talks
- Booth and Poster Displays
- National Instrument 43-101-Short Course
- The Secret to a Successful Career in Geoscience-Short Course
- Environmental Assessment Session
- New Initiatives for Industry
- Minister's Reception and Industry Awards Ceremony

Register for Geology Matters 2013 at
<http://www.gov.ns.ca/natr/meb/oh/index.asp>



Geologist Fraser Keppie Moves to Department of Energy

On October 7 former DNR Geologist Fraser Keppie began his new job as Geophysicist with the Nova Scotia Department of Energy. Fraser hopes that the new position will allow him to devote more effort to three-dimensional and four-dimensional interpretations of Nova Scotia's onshore Carboniferous basins as well as the offshore Mesozoic basins.

Fraser began work with DNR in April 2010 after completing a post-doctoral fellowship at the California Institute of Technology. Fraser hails from Nova Scotia and his degrees include a B.Sc. from Saint Francis Xavier University, an Advanced GIS Diploma from the College of Geographic Sciences and a Ph.D. from McGill University. Although Fraser is leaving DNR, he is only moving one block north on Hollis Street and many colleagues here are looking forward to collaborating with him in the future, and strengthening the connection between the two departments.

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

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 program on p. 4-5 or contact Diane Webber (webberde@gov.ns.ca).

January 27-30, 2014

Association for Mineral Exploration British Columbia, Mineral Exploration Roundup, Westin Bayshore Hotel, Vancouver, British Columbia. Roundup is the world's premier technical mineral exploration conference. For more information please visit the web site: <http://www.amebc.ca/roundup/overview-2014.aspx>.