

Digital Information Services Activities in 2009

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The Digital Information Services group is responsible for developing and maintaining the Mineral Resources Branch (MRB) Geographic Information System and associated databases, the NovaScan publications and maps database, for supplying digital data and services to clients and staff, and for developing and maintaining the MRB Internet web site. Permanent Digital Information Services staff consist of geologists/GIS specialists Brian Fisher, Jeff Poole, John MacNeil and Jeff McKinnon, Angie Ehler, a GIS specialist/cartographer, and web/desktop publishing technicians Susan Saunders and Barbara MacDonald. John left the group for another job in MRB in June 2009. Barbara retired at the end of August 2009. David Sun, a database specialist, was hired through the Career Starts Internship program to work on a number of MRB databases over a two year term. David finished his internship with the branch at the end of January 2009. Students Amiee Ehler, Chelcy Fougere, Lynette MacInnis and Teaka Broughm were hired to work as GIS assistants during the summer of 2009.

Digital Geoscience Data Products

A collection of digital geology maps, databases and images of Nova Scotia (in DXF, ARC export, ArcView® shapefiles, TIFF, JPEG and MrSID formats in a UTM projection using the NAD83 datum, and in PDF format) has been developed, and is available for viewing or free download from the MRB web site (<http://www.gov.ns.ca/natr/meb/pubs/pubs3.asp>). A licence agreement is issued with all digital data sets. This agreement allows unrestricted use of the data with the understanding that the Nova Scotia Department of Natural Resources (DNR) remains the owner of the data and is not transferring copyright to the user.

GIS Development

Digital Information Services staff worked together with other MRB staff on numerous projects in 2009. This included providing advice and assistance as requested, along with developing databases and maps for the projects outlined below.

Geological Resource Atlas: Section staff continued to work on the Geological Resource Atlas throughout 2009. The majority of the work involved compiling the historical staking information and producing final versions of the 16 maps. Compilation and quality control were completed on the historical staking database, which now contains all staking from 1939-2009. Over 64,000 mineral licences, consisting of over 1.9 million claims, and 365 petroleum and gas licences, consisting of over 1.1 million claims, were compiled. The ArcGIS® models used to produce the final mineral potential maps were re-written to allow for the inclusion of new layers in the model, and for easier updating of the values attached to current layers as required. The mineral potential database was used to perform an initial coarse screen on over 2400 parcels of land from the Colin Stewart Forest Forum to evaluate these lands for conflict with mineral values. The ArcGIS® models used to perform this analysis have proven to be very successful. The first 16 Geological Resource Atlas maps are currently being edited and should be released in 2010. Work began on a new set of layers and a series of maps for Building Stone and Petroleum/Gas Resources.

Port Hawkesbury Mapping Project: This project began as part of the first Targeted Geoscience Initiative (TGI) program. Peter Giles of the Geological Survey of Canada (GSC) mapped NTS

areas 11F/14 and part of 11F/10. He was unable to publish this map through the GSC so the Mineral Resources Branch acquired the data from him and is in the process of producing the databases and map. In 2009 the databases were all converted to ARC® format and the map is currently in the final stages of editing.

Central Meguma Mapping Project: The digital product and four 1:50 000 scale maps for NTS area 11D/13 were completed and published.

Open File Map ME 2000-3, Version 2: The *Bedrock Geology Map of the Wolfville-Windsor Area*, OFM ME 2000-3, was originally released in 2000 but contained a number of errors that needed to be corrected. Over the past couple of years staff have worked on converting the data into ARC® format and producing a new version of the map. In 2009 this work was completed with the release of digital product DP ME 389 and OFM ME 2000-3, version 2.

Radionuclides Map: In 2009 section staff completed work on the map and its associated databases. The map was published as OFM ME 2009-7, *Map Showing Potential for Uranium and Related Radionuclides in Groundwater in Nova Scotia*, and the digital product will be released in early 2010.

Historical Gold Mining Atlas: This atlas, consisting of 64 map sheets, was released in 2009 as OFM ME 2009-1.

North Mountain Mapping Project: Section staff have completed the databases and produced a draft version of five 1:50 000 maps. We are currently waiting on input from the authors.

HRM Surficial Mapping Project: Section staff are working with surficial geologist Dan Utting to complete the databases. Initial draft versions of 11 1:25 000 scale maps have been produced.

Southwest Nova Mapping Project: Section staff are currently working with geologist Chris White to compile all required databases. The new geology maps will require legacy data to be compiled from the South Mountain Batholith project. Ten of the

thirteen maps required for this compilation were completed in 2009.

National Coal Database: The Geological Survey of Canada provided MRB with a MS Access® database containing the Nova Scotia portion of the National Coal database. Work was completed on converting the tables from this database into an ArcGIS® geodatabase format. Section staff are working with geologist John Calder to further review the database and develop metadata for the product.

Valley Aggregate Project: Section staff continued to enter data collected by geologist Garth Prime into the project databases in 2009.

St. Margarets Bay Coastal Mapping Project: Section staff have compiled the databases for four of twelve map areas. One map is currently at the stage of a first draft.

Registry of Mineral and Petroleum Titles Database: The GIS version of the Registry of Mineral and Petroleum Titles database was updated twice in 2009. Two new versions of the *Mineral Rights Disposition Map for the Province of Nova Scotia* (Open File Map ME 2009-6, versions 1 and 2) were released along with two new versions (17 and 18) of the Mineral Rights Database (DP ME 51).

ArcGIS® Migration Project: Section staff continue to take training courses in the ArcGIS® 9.3 software. Staff continue the process of migrating the branch corporate GIS databases to make them more readily assessable in ArcGIS®, and have begun to convert a number of the GIS databases into ArcGIS® geodatabase format. The staff continue to work with others in the branch to help them expand their use of the ArcGIS® software suite.

Scanning Activities

Work continued on the scanning of large format maps and illustrations. In 2009, section staff scanned 869 maps, bringing the total number of scanned maps and illustrations to 4108. 3257 of

these have been made available for free download through NovaScan and from the branch web site at <http://www.gov.ns.ca/natr/meb/download/gallery.asp>.

Scanning of publicly released assessment and property reports continued throughout the year. So far, 3515 publicly released reports back to the end of 1985 have been scanned and their PDFs made available to the public for download through NovaScan and the branch web site at <http://www.gov.ns.ca/natr/meb/pubs/pubs3.asp>. This represents 50% of publicly available reports.

Database Development

David Sun was hired in October 2006 on a two year term through the Career Starts Internship program to work on four databases: abandoned mine openings, mineral occurrences, drillholes and drill core. He has redesigned and converted the databases into SQL Server® databases, developed new data entry applications, and created a public search application to allow the public to query records in the databases using Internet Explorer® or Firefox®. Work is complete on the mineral occurrence database and it has been released for public use (see description below). Work has also been completed on the abandoned mine openings database but it has not been released yet. The drillhole/drill core database is nearly complete and should be available for public use in 2010.

The Mineral Resources Branch maintains an inventory of mineral occurrences in the province. This Mineral Occurrence Database is a computer-based inventory of metallic and industrial mineral occurrences. The Mineral Occurrence Database contains information for 3,000 mineral occurrences. The database is continually being updated with new mineral occurrence entries, as well as additional information added to existing entries. In 2009, the branch released a new online query application for its Mineral Occurrence Database. Clients can search this database online through an Internet browser using a number of attributes and produce a report of the selected mineral occurrences that they are interested in (<http://www.gov.ns.ca/natr/meb/links/modblinks.asp>).

Internet Map Server Applications

The section continues to maintain its three primary public Internet Map Server (IMS) applications. Each of these map services generated thousands of maps in 2009: the Nova Scotia Geoscience Maps, Database and Images applications generated 156,908 maps; the Nova Scotia Groundwater Maps and Databases generated 49,518 maps; and the Mineral Resource Land Use Atlas generated 19,251 maps.

Jeff Poole has been working with staff from the Corporate Information and Technology Office (CITO), GeoNova, DNR Crown Lands and the Department of Environment to develop a shared corporate GIS Server infrastructure, to set up and test a virtual server environment and to transfer some applications to ArcGIS Server® 9.3.1. This work will continue in 2010.

Digital Products and Open File Maps Released in 2009

The following new digital products, open file maps, and updated versions of digital products were released in 2009. A complete list of all digital products can be found at: <http://www.gov.ns.ca/natr/meb/pubs/pubs3.asp>. All digital products can be downloaded for free from the URL listed with the product.

Digital Products

DP ME 2, Version 10, 2009. Nova Scotia Mineral Occurrence Database. Digital product compiled by G. A. O'Reilly, G. J. DeMont, B. E. Fisher and J. C. Poole. Available in E00, SHP and DXF/DBF formats. Available as a free download from the MRB website at <http://www.gov.ns.ca/natr/meb/download/dp002.asp>.

DP ME 10, Version 4, 2009. Nova Scotia Abandoned Mine Openings Database. Digital product compiled by E. W. Hennick and B. E. Fisher. Available in E00, SHP and DXF/DBF

formats. Available as a free download from the MRB website at <http://www.gov.ns.ca/natr/meb/download/dp010.asp>.

DP ME 51, Version 17 (May 1, 2009) and Version 18 (October 31, 2009), Nova Scotia Mineral Rights Database. Digital product compiled by B. E. Fisher. Available in E00, SHP and DXF/DBF formats. Available as a free download from the MRB website at <http://www.gov.ns.ca/natr/meb/download/dp051.asp>.

DP ME 147, Version 1, 2009. Digital Geological Data Generated from the Central Meguma Mapping Project, 1995-1999 and 2002-2004, in the Mount Uniacke Area, Halifax and Hants Counties, Nova Scotia, NTS Sheet 11D/13. Digital product compiled by R. J. Horne, R. J. Ryan, M. C. Corey, D. L. Fox, A. L. Ehler, J. S. McKinnon and B. E. Fisher. Available in E00, SHP and DXF/DBF formats. Available as a free download from the MRB website at <http://www.gov.ns.ca/natr/meb/download/dp147.asp>. (The following maps are derived from this digital product: OFM ME 2009-2, OFM ME 2009-3, OFM ME 2009-4 and OFM ME 2009-5.)

DP ME 179, Version 1, 2009, Digital Version of Nova Scotia Department of Natural Resources Map ME 1987-8, Geological Map of Mount Uniacke, NTS 11D/13 (West Half), scale 1:50 000, by M. C. Corey, 1987. Digital product compiled by M. C. Corey, B. E. Fisher, J. S. McKinnon and P. C. Barker. Available in E00, SHP and DXF/DBF formats. Available as a free download from the MRB website at <http://www.gov.ns.ca/natr/meb/download/dp179.asp>.

DP ME 389, Version 1, 2009, Digital Version of Nova Scotia Department of Natural Resources Map ME 2000-3, Version 2, Bedrock Geology Map of the Wolfville-Windsor Area, NTS Sheet 21H/01 and Part of 21A/16, Hants and Kings Counties, Nova Scotia, scale 1:50 000, by R. G. Moore, S. A. Ferguson, R. C. Boehner and C. M. Kennedy, 2009. Digital product compiled by R. G. Moore, S. A. Ferguson, R. C. Boehner, C. M. Kennedy, A. L. Ehler, J. S. McKinnon and B. E. Fisher. Available in E00, SHP and DXF/DBF formats. Available as a free download from the

MRB website at <http://www.gov.ns.ca/natr/meb/download/dp389.asp>.

DP ME 430, Version 1, Enhanced Georeferenced Version of the Nova Scotia Department of Environment's Nova Scotia Well Logs Database (2008). Digital product compiled by G. W. Kennedy, K. G. Garraway and B. E. Fisher. Available in E00, SHP and DXF/DBF formats. Available as a free download from the MRB website at <http://www.gov.ns.ca/natr/meb/download/dp430.asp>.

Open File Maps

OFM ME 2000-3, Version 2, Bedrock Geology Map of the Wolfville-Windsor Area, NTS Sheet 21H/01 and part of 21A/16, Hants and Kings Counties, Nova Scotia, scale 1:50 000, by R. G. Moore, S. A. Ferguson, R. C. Boehner and C. M. Kennedy. Available as a free PDF download from the MRB website at http://www.gov.ns.ca/natr/meb/download/mg/ofm/htm/ofm_2000-003.asp.

OFM ME 2009-1, Historical Gold Mining Areas in Nova Scotia Map Series (64 sheets), scales 1:1000 to 1:10 000, by P. K. Smith and T. A. Goodwin. Available as a free PDF download from the MRB website at http://www.gov.ns.ca/natr/meb/download/mg/ofm/htm/ofm_2009-001.asp.

OFM ME 2009-2, Bedrock Geology Map of the Waverley Area, Part of NTS Sheet 11D/13 (Sheet 1 of 4), Halifax County, Nova Scotia, scale 1:25 000, by R. J. Horne, R. J. Ryan, M. C. Corey and D. L. Fox. Available as a free PDF download from the MRB website at http://www.gov.ns.ca/natr/meb/download/mg/ofm/htm/ofm_2009-002.asp. (Digital Product DP ME 147 contains the data used to produce this map).

OFM ME 2009-3, Bedrock Geology Map of the Pockwock Area, Part of NTS Sheet 11D/13 (Sheet 2 of 4), Halifax and Hants Counties, Nova Scotia, scale 1:25 000, by R. J. Horne, R. J. Ryan, M. C. Corey and D. L. Fox. Available as a free PDF download from the MRB website at http://www.gov.ns.ca/natr/meb/download/mg/ofm/htm/ofm_2009-003.asp. (Digital Product DP ME 147 contains the data used to produce this map).

OFM ME 2009-4, Bedrock Geology Map of the Uniacke Area, Part of NTS Sheet 11D/13 (Sheet 3 of 4), Halifax and Hants Counties, Nova Scotia, scale 1:25 000, by R. J. Horne, R. J. Ryan, M. C. Corey and D. L. Fox. Available as a free PDF download from the MRB website at http://www.gov.ns.ca/natr/meb/download/mg/ofm/html/ofm_2009-004.asp. (Digital Product DP ME 147 contains the data used to produce this map).

OFM ME 2009-5, Bedrock Geology Map of the Grand Lake Area, Part of NTS Sheet 11D/13 (Sheet 4 of 4), Halifax and Hants Counties, Nova Scotia, scale 1:25 000, by R. J. Horne, R. J. Ryan, M. C. Corey and D. L. Fox. Available as a free PDF download from the MRB website at http://www.gov.ns.ca/natr/meb/download/mg/ofm/html/ofm_2009-005.asp. (Digital Product DP ME 147 contains the data used to produce this map).

OFM ME 2009-6, Mineral Rights Disposition Map for the Province of Nova Scotia, Version 1 (May 1, 2009) and Version 2 (October 31, 2009), scale 1:500 000, by B. E. Fisher and A. S. Wenning. Available as a free PDF download from the MRB website at http://www.gov.ns.ca/natr/meb/data/mapgallery/ofm/html/ofm_2009-006.asp.

OFM ME 2009-7, Map Showing Potential for Uranium and Related Radionuclides in Groundwater in Nova Scotia, scale 1:1 000 000, by G. A. O'Reilly, T. A. Goodwin and J. M. Drage. Available as a free PDF download from the MRB web site at http://www.gov.ns.ca/natr/meb/download/mg/ofm/html/ofm_2009-007.asp.

NovaScan

NovaScan is the geoscience publications and maps database on Nova Scotia and its offshore regions. As of December 31, 2009, the database contained 15,937 MRB records, consisting of 7,766 mineral

exploration assessment and property reports, 3,876 publications, 1,262 open file reports, 1,758 published and open filed maps and illustrations, 834 theses, 228 contribution series, 188 digital products, and 25 outside publications.

Each month, a list of new publicly released assessment and property reports is generated from NovaScan. This list is distributed to the DNR Library in Halifax, the Core Library in Stellarton, and to the department's three Regional Geologists in Coxheath, Truro and Lunenburg. The original paper copies of these released reports are filed in the Halifax Library and the Core Library in Stellarton monthly, and PDF versions of these released reports are posted to the MRB web site monthly. Quarterly lists of open assessment and property reports are produced and published in the Nova Scotia Minerals Update newsletter. One hundred and ninety eight (198) assessment reports were released in 2009.

In order to provide better service to our staff and clients the branch maintains a public search application that allows the public to query records in the NovaScan database using Internet Explorer® or Firefox®. NovaScan can be searched by Title, Author/Organization, Subject, Area, Map Sheet (NTS), Map Type, Licence Type, Licence Number, Document Type, Document Number, Year and Scale. NovaScan is updated monthly as new geoscience maps, publications, open files, theses, mineral exploration assessment reports and property reports become available. The search interface can be accessed at http://www.gov.ns.ca/natr/meb/pubs/pi_nvscn.asp. In 2009, the following 312 documents were geologically indexed and added to the database: 223 assessment reports, 69 open file maps, 6 contribution series, 4 digital products, 4 outside publications, 3 theses, 2 reports and 1 open file report.

