REVIEW 2016





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DEPARTMENT OF NATURAL RESOURCES

Mines Branch: Directors Report

The Mines Branch is responsible for managing the province's mineral resources to ensure that its contribution to the economic and social well-being of the province is maximized, sustained and enhanced; increasing the body of knowledge on the province's mineral resources; encouraging the orderly exploration and development of these resources; assessing their economic potential and economic contribution to the province; formulating mineral policy and providing advice to government on all mineral-related matters. The branch operates under the departmental vision of Newfoundland and Labrador as a province that realizes the full benefit from the sustainable development of its natural resources.

The mineral sector continues to face weak prices for many commodities; the value of mineral shipments is forecast to decrease by 4.1 percent from 2015. Gold and iron are the only metals whose value of mineral shipments increased this year which reflects the relative strength of gold and IOC's successes in finding efficiencies in increasing production throughput. Employment in the mining sector rose slightly from 2015, primarily due to activity associated with the Voisey's Bay project, including employment at the Long Harbour processing plant and the Voisey's Bay underground mine development.

Gross value of shipments for 2016 is expected to be about \$2.7 billion, compared to \$2.8 billion for 2015. Forecasted 2016 mineral-exploration expenditures reflect the difficulty that the junior mining sector is facing raising funds in today's markets and is forecast to decline to \$20.5 million (from \$47.4 million in 2015).

The Mines Branch has three divisions: the Geological Survey, the Mineral Development Division, and the Mineral Lands Division.

The Geological Survey of Newfoundland and Labrador is responsible for mapping the geological framework of the province to interpret and explain its geological evolution, and to describe, interpret and explain the distribution, nature, quantity and origin of the province's mineral resources.

The Mineral Development Division is responsible for the technical and economic analyses of the mining industry in the province, regulating the industry to ensure the province's mineral resources are prudently mined and that mines are properly rehabilitated at closure. It administers the Mineral Incentive Program providing incentives to the exploration industry, and training and assistance for prospectors. The division provides advice to provincial and federal government agencies that provide financial support or assistance to mining projects.

The Mineral Lands Division is responsible for legislation and regulations governing the administration of the province's mineral and quarry material resources and their exploration and development.

The Geological Survey had an active field program, mounting 10 field programs (3 in Labrador, and 7 on the island). New initiatives included bedrock geological mapping in the Bay d'Espoir area, mineral deposits research on carbonatehosted zinc deposits in western Newfoundland, surficial and till geochemistry in western Labrador, and a marine research survey along the south coast of the island to examine submarine moraine systems. Projects on mapping the Archean Ashuanipi Complex of western Labrador, volcanogenic massive sulphide (VMS) research in central Newfoundland, iron-ore in western Labrador, gold metallogeny in central Newfoundland, bedrock mapping on the Bonavista Peninsula and in western Newfoundland continued. Partnerships with the Geological Survey of Canada continued to improve our geoscience knowledge of the province.

The Mineral Incentive Program provides important financial support to junior exploration companies and prospectors; the program's budget for 2016-17 has been increased to \$1.7 million. The branch has a strong commitment to prospector training, with the annual training course taking place this past September.

The Mineral Lands Division has continued enhanced efforts to ensure compliance with exploration approval conditions via an inspection program, and working with exploration companies to minimize the environmental impact through following best-practices. As an additional aid to minimize impacts, implementation of the Environmental Guidelines for Mineral Exploration document continued in 2016, and is currently in the final stages of review within government. The core-storage facilities remain active and are undergoing operational improvements to enhance the health and safety of employees and industry clients. Efforts to better manage the quarry/aggregate industry continue with changes to administration, development of policies, and providing alternate payment options, with the objective of improving our ability to regulate this important sector.

This year continues to be challenging for the global mining and exploration industry but mining projects continue to progress in the province. The province remains an attractive prospect for future investment, with high mineral potential, large areas that are considered under-explored, a stable legislative and taxation framework, and a population that understands the importance of natural-resource development. Mining will continue to be a major contributor to employment and economic development in the province.

The Mines Branch is undergoing a period of internal transformation as a number of staff retired over the course of the last year. Notable retirees include Dave Liverman (ADM, Mines), Sean O'Brien, Brian O'Brien, Dave Leonard, and Bev Strickland. These people provided many years of dedicated service to the Mines Branch, and their contributions are appreciated. They will be missed but we are fortunate in being able to recruit well-qualified people to fill their positions, and that the high standards that they helped establish will continue.

GEOLOGICAL SURVEY

Three goals of the Departmental Strategic Plan are to enhance the knowledge-base of geoscience data, to identify opportunities for resource development, and to improve the promotion of these opportunities. The 2016-17 programs of the Geological Survey of Newfoundland and Labrador (GSNL) directly address these goals mainly through its field programs, publications, retention of qualified staff, and successful promotional activities. Budget 2016 provided GSNL \$5.2 million.

Almost \$1 million was again allocated to field activities this year. In Labrador, there were three projects: 1) Bedrock geology mapping of the Archean Ashuanipi Complex of western Labrador; 2) continuation of a project to study the iron-ore deposits of western Labrador, focusing on the deposits east of Schefferville on the Labrador-Québec border; and 3) surficial-geology mapping and till-geochemistry sampling of the Woods Lake area (NTS 23I), as part of the GEM2–Hudson-Ungava project of the Geological Survey of Canada.

On the island, seven field projects were conducted: 1) A new bedrock-mapping project in the Bay d'Espoir region mapping the St. Alban's map area; 2) a new mineral deposits project focusing on carbonate-hosted zinc deposits in western Newfoundland; 3) a marine research survey along the south coast of the island that focused on moraine systems at fjord mouths; 4) the continuation of surficial mapping and till geochemistry in central Newfoundland; 5) the continuation of a 1:50 000-scale bedrock mapping project on the Bonavista Peninsula; 6) the continuation of monitoring of coastal zones vulnerable to erosion; and 7) the continuation of the study of gold metallogeny, mostly in central Newfoundland.

Office-based research studies included a regional compilation of lake-sediment data from western Labrador and adjacent Québec, in collaboration with the Geological Survey of Canada; data and map compilation for inclusion in Geoscience Online, including bedrock, surficial, mineral occurrence and geophysical data; a synthesis of the geology of eastern Labrador; a synthesis of the geology of parts of northern Labrador; bedrock geology mapping of the Mesoproterozoic Seal Lake Group in Labrador; the regional geology of uranium in the Central Mineral Belt of Labrador; the examination of volcanogenic massive sulphide (VMS) deposits in central Newfoundland; a regional synthesis of the bedrock geology of the Forteau and Hawke Bay formations (Labrador Group) in western Newfoundland; detailed systematic description of Cambrian trilobite fossils within the Forteau and Hawke Bay formations; studying the burial and exhumation history of the province, in collaboration with the Geological Survey of Denmark and Greenland; till geochemistry of parts of the central volcanic belt of Newfoundland; geological mapping of the Buchans–Robert's Arm volcanic belt, central Newfoundland; reprocessing of (private sector) geophysical data; and processing of data from UAV surveys as part of the Coastal Monitoring program. Laboratory geochemical analysis of lake-sediment and water, till and rock samples collected in 2015 continued using the Geological Survey's ICP-ES and ICP-MS analytical equipment. In addition, updates to the Mineral Occurrence Data System were ongoing, and processing of the Geological Survey's paleontology collection at The Rooms continued.

The Geological Survey's geoscience program employed 13 summer field- and office-support students, most of whom are enrolled in Earth Science or Geography programs at Memorial University. As well as assisting the GSNL, this employment with the Survey provides future geoscientists with valuable opportunities to train with our experienced field and office staff.

The GSNL leads the minerals promotional efforts of the Mines Branch. The branch had a strong presence at the traditional venues (Mineral Resources Review in St. John's, Baie Verte Mining Conference, Exploration Roundup in Vancouver, Xplor in Montreal, and the PDAC in Toronto), and again was part of the Canadian delegation at the China Mining meeting in Beijing, and associated meetings in other Chinese cities. Visiting delegations from the China Geological Survey and various Chinese minerals industry groups were also assisted by the Survey.

Staff Changes

There have been several staff changes in the Survey this year. Several members of the Geological Survey retired. Sean O'Brien (Manager of the Geoscience Publications and Information Section), Brian O'Brien (Regional Geology), Dave Leonard and Bev Strickland (Geoscience Publications and Information Section) each had careers spanning over 30 years with the public service, and each made tremendous contributions to the Geological Survey for which they should be duly acknowledged. In addition, Denise Brushett left the Survey to take up a position with the Nova Scotia Geoscience and Mines Branch, and Matt Walsh joined the Survey as a maternity leave replacement for Gillian Roberts.

Joining the Geological Survey are Anne Westhues as Project Geologist in the Regional Geology Section, and Heather Campbell as Project Geologist in the Geochemistry, Geophysics and Terrain Sciences Section. Crispin Pike moved from the Mineral Deposits Section to the Geoscience Publications and Information Section where he took up the Exploration Services Geologist position. Several positions are currently in competition, including 3 Project Geologist positions and a Graphic Artist position, all of which should be filled before Christmas 2016. In addition, Gillian Roberts returned to the Survey following her maternity leave. In an attempt to maintain the corporate knowledge and scientific expertise of our retiring geoscientists, the Geological Survey has implemented an Emeritus Program. This program is open to all retired geoscientists, and I am pleased to report that Andy Kerr (Mineral Deposits) is our first Emeritus Geoscientist following his retirement in 2015.

Linkages and Partnerships

The GSNL benefits through linkages and partnerships with other branches of government (provincial, national and international), with academic institutions and non-governmental organizations, and with national and international geoscience organizations. These are:

- The partnership between the Canadian Institute of Mining, Metallurgy and Petroleum (Newfoundland Branch), and the Mines Branch of the Department of Natural Resources, results in the annual Mineral Resources Review conference. The same partnership and including the Department of Education continues with the preparation and distribution of 'rock kits', a collection of provincial rocks and minerals for use in schools, and
- The Mines Branch is in partnership with the CIM Newfoundland Branch, Mining Industry NL, and PEGNL for the promotion of Mining Week.

The GSNL works closely with:

- The Department of Business, Tourism, Culture and Rural Development to develop the province's geotourism potential, including the Aspiring Geopark proposal on the Bonavista Peninsula, and the Aspiring Cabox Geopark in the Bay of Islands region, as well as continuing work on the province's paleontological and other initiatives such as the successful World Heritage Status bid for Mistaken Point,
- the Department of Environment and Climate Change on groundwater issues, partnering with them on a pilot program analyzing the chemistry of private residential groundwater-sourced drinking water,
- the Department of Environment and Climate Change, and the Office of Climate Change and Energy Efficiency, on geoscience issues related to climate change, particularly coastal erosion,
- Fire and Emergency Services, the departments of Transportation and Works, and Municipal Affairs, and municipal councils on potential geological hazards,
- the Department of Transportation and Works to provide assessments of aggregates used in road construction and asphalt paving,
- the Geological Survey of Canada on multidisciplinary projects as part of the GEM2 and TGI initiatives,

- the Geological Survey of Denmark and Greenland on a project focusing on the geological burial and exhumation history of the continental margin of this province, and
- Ulster University, the Marine Institute of Ireland, Memorial University and the GSNL to examine submarine morainal systems at fjord mouths on the province's south coast.

As well as servicing the exploration and prospecting community, mainly through our Geoscience Publications and Information Section, GSNL partners with Mining Industry NL and the Earth Sciences Department at Memorial University on the Matty Mitchell Prospectors Resource Room. Staff also instruct at prospecting courses organized by the Mineral Development Division, Mines Branch. Several geologists have adjunct appointments in the Earth Sciences and Geography departments at Memorial University, and serve on supervisory committees for graduate students. A consultative relationship has also been established with the Newfoundland and Labrador Research and Development Council (RDC). We also provide direct and indirect support for research projects at Memorial University, and other academic institutions. The GSNL is a strong supporter of the geoscience community in the province, with several staff members holding significant positions in the national and local branches of the Geological Association of Canada, the Canadian Institute of Mining, Metallurgy and Petroleum, and the Atlantic Geoscience Society.

Organizational Structure

The GSNL is organized into five sections under the direction of Martin Batterson. The sections are Geoscience Data Management (Senior Geologist, Larry Nolan), Mineral Deposits (Senior Geologist, John Hinchey), Regional Geology (Senior Geologist, Alana Hinchey), Geochemistry, Geophysics and Terrain Sciences (Senior Geologist, Stephen Amor), and Geoscience Publications and Information (Senior Geologist, vacant). The Geochemistry Laboratory, part of the Geochemistry, Geophysics and Terrain Sciences Section, is under the direction of Chris Finch.

Director's Office

The Director's office is responsible for the administration of the GSNL, logistical support of office- and field-based programs, and liaison with other divisions in the Mines Branch. The Director represents the GSNL on the Committee of Provincial and Territorial Geologists and the National Geological Surveys Committee. With government's commitment to long-term funding of geoscience, the GSNL is proceeding with further development of its five-year plan for the period 2015–2020, a plan that will be discussed with our Technical Advisory Committee, which consists of representatives of the mineral exploration and environmental industries and academia, prior to its adoption. The Director's office is responsible for the financial operations of the GSNL. Our Administrative Officer position is currently vacant, but when filled, will be responsible for all requisitions, purchasing and payments. Logistical and communications support of field crews are handled by **Gerry Hickey** (Newfoundland) and **Wayne Tuttle** (Labrador). They are also responsible for maintaining all the GSNL field equipment and vehicles. Field-safety training courses, including first aid, ATV, boat and helicopter safety, driver education, and chainsaw training are coordinated by the Administrative Assistant. Gerry Hickey is our certified ATV safety instructor. Wayne Tuttle also carries out quarry inspections in central Labrador.

Safety in the field is a prime concern of the Geological Survey, and every effort is made to eliminate accidents through training and awareness initiatives. The Geological Survey was once again recognized for its safety record by the AMEBC – PDAC "Safe Day Everyday" Award in 2015.

Regional Geology

The Regional Geology Section (Alana Hinchey, Senior Geologist) is responsible for bedrock mapping in the province. Two field projects were carried out in 2016. Tim van Nostrand completed mapping in the northeastern Ashuanipi Complex of western Labrador, and Anne Westhues started a multi-year mapping project in the St. Alban's area, Newfoundland. Andrea Mills, Bruce Ryan, Charlie Gower, Ian Knight and Doug Boyce focused on data compilation, report writing, and office-based studies, and limited fieldwork to investigate specific geological relationships in their respective map areas. Monica Squires provides assistance to the project geologists.

Anne Westhues started a 1:50 000-scale bedrock-mapping project in the St. Alban's map area (NTS 01M/13), Bay d'Espoir. This region includes the boundary between two of



Senior Geologist Alana Hinchey and Project Geologist Anne Westhues discussing an outcrop close to the boundary between the Dunnage and Gander zones.



Anne Westhues examining rocks of the Baie d'Espoir Group in the project area.

Newfoundland's major tectonostratigraphic zones, the Dunnage and Gander zones. Dominant rocks of the former are variably deformed Ordovician clastic sediments and interbedded volcanic rocks of the Baie d'Espoir Group. The latter consists of the Little Passage paragneiss, intruded by the Silurian megacrystic Gaultois granite to diorite, and by biotite–muscovite granite of the Late Silurian to Devonian Northwest Brook Complex. Several mineralized quartz veins within the Baie d'Espoir Group contain visible arsenopyrite, stibnite, galena and/or chalcopyrite. The area also has potential for Au mineralization and continues to be a focus of prospecting and exploration.

Tim van Nostrand completed the third and final field season of 1:50 000-scale bedrock mapping of the northeastern Archean Ashuanipi Complex in western Labrador. This season's mapping included all of NTS map sheets 23J/02 and 23J/03, and part of 23J/04. The rocks consist of older, granulite-facies metasedimentary and tonalitic gneisses and subordinate gabbro to pyroxenite cumulate sills. These units predate extensive migmatitic diatexite, variably deformed granite, syenite and tonalite plutons and granite pegmatite. The region has the potential for hosting gold, base metal, platinum group elements, and radioactive mineralization. Numerous gossan zones containing bornite \pm pyrrhotite \pm arsenopyrite ± chalcopyrite, some with elevated Au, Ag, Cu, Pb, Ni, and Cr occur locally within migmatitic gneiss, foliated granitoid rocks and mafic to ultramafic intrusions. Some pegmatite intrusions have anomalous Th, U and Mo. Limited exploration work has been carried out on these rocks and the overall economic potential for the region remains largely untested.

Andrea Mills continues mapping and compilation of 1:50 000-scale bedrock maps covering the Bonavista Peninsula (NTS map sheets 2C/5, 6 and 11). This project complements previous regional bedrock mapping on the peninsula and will generate an updated regional geological map of the region. The Bonavista Peninsula is underlain by Neoproterozoic siliciclastic rocks of the marine-dominated Connecting Point and Conception groups to the west and east, respectively, and the shallow marine to terrestrial Musgravetown Group in the centre. Studies focused on the lithogeochemistry and petrographic analysis of volcanic and intrusive rocks, and petrographic analysis of selected sedimentary rocks. Petrographic and geochronological work on the glacial diamictite of the Trinity facies (Musgravetown Group) confirms the correlation of this unit with the Gaskiers Formation of the Conception Group on the Avalon Peninsula.

Ian Knight is compiling regional syntheses of the Forteau and Hawke Bay formations, Early to Middle Cambrian sedimentary units of the Labrador Group. Both formations have yielded new faunas that are being studied by palaeontologists Doug Boyce (trilobites), and Christian Skovsted (brachiopods) of the Swedish Museum of Natural History, Stockholm, Sweden. Study of the Fisher Hills Carboniferous succession in the Deer Lake Basin continues with Alana Hinchey obtaining a radiometric date for the mafic volcanic rocks in the succession.

Doug Boyce continued the detailed systematic description of late Early Cambrian (Dyeran) to Middle Cambrian (Delamaran) trilobites from mixed siliciclastic–carbonate facies within the Forteau and Hawke Bay formations (Labrador Group) of western Newfoundland. Biostratigraphically significant, pre-existing genera and species not



An incomplete, spinose highly ornamented Bonnia cranidium.

previously recognized in the province, as well as globally new species, have been identified.

Charles Gower is finalizing his synthesis of the geology of eastern Labrador. Most graduate student research projects, addressing the region in which he has been involved, are now complete and publications have been delivered or are in preparation.

Alana Hinchey continues collaborating with the Geological Survey of Denmark and Greenland (GEUS) on a project with Peter Japsen that focuses on the uplift history of the coastal margins of Newfoundland and Labrador. Other collaborative projects include working with the Department of Business, Tourism, Culture and Rural Development, and with local partners on a variety of geotourism projects, including the Aspiring Discovery Geopark on the Bonavista Peninsula and the Aspiring Cabox Geopark in the Bay of Islands region. She is also involved with several geoheritage projects, such as the Mistaken Point Ambassadors, the Fortune Head Geology Centre, the Geological Treasures Network of Eastern Newfoundland and the Drifting Apart-Northern Peripheries and Arctic Region Project of the European Union. She continues to publish on her research in the Makkovik Province.

Bruce Ryan continues compiling maps and a report covering his and Don James' (Nova Scotia Geoscience and Mines Branch) work in the Nain area, as well as revising some previously published geological maps; through consultations with Nunatsiavut government personnel, adding Inuktitut nomenclature for geographic features to all maps, as appropriate. He has continued to provide geological guidance to Labrador prospectors in specific areas, to several Labrador archaeologists with respect to prehistoric stone artifacts, and to several Canadian and international researchers regarding the early Archean gneisses of northern Labrador.

Monica Squires has spent part of the year continuing to process the substantial paleontology collection housed at The Rooms, Natural History Annex. In addition, her work has refocused to provide vital support to the members of the section, including the integration of digital data for project geologists. She is also coordinating aspects of the uplift project with Peter Japsen of the Geological Survey of Denmark and Greenland.

Retirement

2016 saw the retirement of project geologist Brian O'Brien, who joined the Survey in 1986 and contributed greatly to our understanding of the Appalachian–Caledonian orogeny and the effects of this orogenesis on mineral potential. Brian's most recent work saw the completion of a systematic series of three, 1:25 000 scale bedrock-geology maps that cover the central part of the Buchans–Robert's Arm volcanic belt.

Geochemistry, Geophysics and Terrain Sciences Section

The staff of the Geochemistry, Geophysics and Terrain Sciences Section (Steve Amor, Senior Geologist) concern themselves with a range of geoscience, including till, lakesediment and lake-water geochemical surveys, and the analyses resulting from them; datamining; surficial geological and ice-flow mapping; geophysical surveys, compilations and interpretation; coastal-erosion studies and geological hazard mapping.

Regional Lake-sediment Geochemistry

Steve Amor has been working on the compilation of lakesediment data from western Labrador and the adjacent region of Québec. Samples from the former region have been re-analyzed by the same method as that applied to the latter and this has enabled the two datasets to be combined, and for regional maps to be combined without discontinuity issues. These will be published as a joint open-file release between the GSNL, the Geological Survey of Canada, and SIGÉOM (Québec).

Quaternary Geology

Heather Campbell and Jennifer Organ, assisted by Dave Taylor and Robyn Constantine, carried out surficial mapping and sampling in central Newfoundland, as part of the ongoing regional surficial mapping and sampling program. A helicopter was used to collect samples at 630 sites on 2km centres, and an additional 218 samples were collected from roads and ATV trails, at 1 km spacing.



GSNL geologist Jennifer Organ and student Brant Gaetz examine striations on a bedrock outcrop.

In July, Heather also participated in the GEM2–Hudson-Ungava surficial mapping and sampling project with the Geological Survey of Canada. The objective is to understand ice-flow patterns of the Labrador ice centre, glacial dispersal and the transport and deposition of sediment north of the Smallwood Reservoir. The work focused on glacial mapping and sampling of the southwestern Woods Lake (23I) NTS map area; till samples were taken at 54 sites.

In April, Jennifer and Heather took part in a marine research survey along the south coast of Newfoundland, and focused



Sampling on a glacial landform east of Wade Lake.

on collecting new data on submerged moraine systems at fjord mouths. This Newfoundland Ice Sheet Shelf (NISS) project is a collaboration between Ulster University (UU), the Marine Institute of Ireland (MII), Memorial University of Newfoundland (MUN) and the Geological Survey of Newfoundland and Labrador, and is funded by the MII's 2016 'Ship Time' program.

David Taylor continued to coordinate the integration of digital data with the on-line Geoscience Atlas. One new surficial geology map (Sheffield Lake) is nearing completion bringing the total to 111 surficial maps for the Island of Newfoundland and 38 for Labrador. New striation data are currently being edited and will be added to the striation



Collecting sediment cores with a vibrocorer.

dataset. Updates to the till geochemistry dataset include new data for the Miguels Lake area, and areas south and west of Jeddore Lake, Bay d'Espoir region. Similar updates have been made to the surficial landform dataset. A new initiative, started in 2015 to scan and rectify approximately 2000 1:15 840 scale peatland inventory maps for Newfoundland, continues. Approximately 1500 maps have been scanned and rectified.

Geological Hazards and Climate Change

Melanie Irvine continued to work on the Geological Survey's coastal monitoring program. Cliff and beach areas were surveyed by recording multiple images with the aid of the UAV (drone), providing a level of detail and high-resolution imagery unavailable in previous surveys and allowing rapid data collection. By flying these sites in subsequent years, erosion rates of the cliffs and volumetric changes of beaches will be determined. She has continued to provide advice to stakeholders on issues relating to coastal erosion, flooding, climate change, landscape hazards and land-use planning. She presented a talk on the coastal monitoring activities of the Survey, and led a study tour as part of the COIN Atlantic Climate Change Forum.

Laboratory Services

The Geochemical Laboratory, staffed by Director Chris Finch and chemists **Rey Roldan**, Lisa Walsh and Jennifer Kelly is mandated with the task of performing all analytical requirements of the Geological Survey. A pilot study of water analysis for the town of Torbay initiated by the Department of Environment and Conservation to monitor the quality of well-water in that community was completed last winter. As a result of this study, the program is to be expanded to provide this service to residents of the province. The final approval and roll-out are pending.

Geophysics

Gerry Kilfoil and Robyn Constantine have continued efforts to reprocess geophysical data from surveys flown by the private sector, to yield standardized, high-quality imagery and map products amenable to desktop mapping software. During the past year, the results of several older surveys from archived paper maps and data listings have been digitally captured. An index of airborne surveys, available through the online Geoscience Atlas, has been maintained and updated as data become available. A combined airborne magnetic gradiometer and radiometric survey of the St. Alban's map area was flown in late 2015 by Goldak Airborne Surveys and the resulting data have already been used in support of the Regional Geology Section's fieldwork. The results were processed in early 2016, and were released in April as digital Open File NFLD/3272. As in previous years, geophysical guidance has been provided to prospectors and mineral exploration companies upon request.

Mineral Deposits Section

The Mineral Deposits Section (John Hinchey, Senior Geologist) is responsible for the documentation of metallic and non-metallic mineralization, conducting related research studies, and developing assessments of regional mineral potential. The section also has input in resource issues related to aboriginal land claims, protected areas/land-use discussions, and in the promotion of the province's resources.

Mineral Occurrence Data System (MODS)

The MODS is a detailed database of mineral occurrences that incorporates public-domain information from mineral exploration and Geological Survey research reports. It is managed by **Greg Stapleton**, with the assistance of **Jan Smith**, and is continually updated using available publicdomain information. During 2016, numerous NTS map sheets were updated with an emphasis on the volcanic terrains of central Newfoundland. The MODS is accessible through the survey website and through the Geoscience Atlas. It is a real-time database; new or updated occurrences become available online within 24 hours after input.

Another project activity is land-use planning. Mineral Inventory personnel review provincial government land-use applications and environmental assessment projects, with the aim of minimizing the impact of land development on the province's documented mineral resources and areas of high-mineral potential.

Base-metal Mineralization

James Conliffe commenced a new project working on carbonate-hosted zinc deposits in western Newfoundland. Fieldwork included visits to the former Newfoundland Zinc mine at Daniels Harbour, as well as to the Round Pond, Twin Ponds, Salmon River and Eddies Cove prospects on the Northern Peninsula, Lead Cove and 20th Brook prospects near Stephenville, and the Hughes Brook prospect near Corner Brook. James conducted limited field mapping



Ordovician sediments on Port au Port Peninsula.



Student geologist, Robert King, hard at work in western Newfoundland.

of these prospects, and collected samples for geochemical analyses. In addition, archived drillcore at the Pasadena corestorage facility was re-logged and sampled. Samples are currently being prepared for laboratory analyses, including whole-rock geochemistry, electron-microprobe and sulphurisotopes. These data form part of a B.Sc. (Hons) project by Robert King at Memorial University; it will be used to develop a genetic model (for these prospects) and to determine the future exploration potential of western Newfoundland. Initial results from this project will be published in 2017 as a *Current Research* article.

John Hinchey continued his research project examining volcanogenic massive sulphide (VMS) deposits, and potential environments for VMS mineralization, in central Newfoundland. Work included petrographic, lithogeochemical, and geochronological studies on samples from the North Steady Pond Formation of the Baie d'Espoir Group, host to the Katie VMS occurrence. The present goal is to document the styles of VMS mineralization, to characterize the host rocks, and to add to the tectonostratigraphic understanding of the area.

Gold Mineralization

Hamish Sandeman continued his project on gold metallogeny and new gold discoveries, mainly in central Newfoundland. Field work included a three-week survey

around the Beaver Brook Antimony mine to further examine regional outcrops and drillcore, and in particular, a number of recent drillholes that have yielded both antimony and precious-metal mineralization. Subsequently, Hamish and his field assistant, Cameron Peddle, investigated the Yellow Fox showing, Clarks Brook East showing and the Hurricane and Commanche zones near the Salmon Pond River, immediately west of Glenwood. Further examinations were conducted on the Whitehouse and Porterville showings in north-central Newfoundland and the rocks of the Bridal Veil and Star Track prospects; the former an epigenetic, polymetallic (Cu-Pb-Ag-Au) prospect, and the latter, a gold-only occurrence in the Gander Zone near Benton. Later in June assistance was provided to Anne Westhues examining rocks of the St. Alban's map area, and included visits to the True Grit, Southeast Brook and Little River 2 showings. The gold- and silver-bearing Viking-Thor-Kramer zones near Pollards Point were visited as part of an industry-academia-government field trip initiated by Anaconda Mining Corporation. The latter part of the summer saw visits to the Wisker Valley area to examine auriferous sulphidic quartz veins that cut rocks of Kings Point Complex and the epigenetic vein systems of the Moreys Pond showing near La Scie. Laboratory work continues to include U-Pb and Ar-Ar geochrononology, petrography, lithogeochemistry, image analysis using SEM/MLA (scanning electron microscopy) methods and electron microprobe analysis. A Current Research article on the Bridal Veil prospect will be published in 2017.

Greg Sparkes conducted limited examination and spectral analysis of diamond drillcore related to low-sulphidation, epithermal-style mineralization of the western Avalon Zone. He also remains involved in supporting activities associated with several ongoing collaborative research projects at Memorial University aimed at investigating the Neoproterozoic epithermal systems of this region.

Iron ore Deposits

Research related to iron-ore deposits in western Labrador continued under the direction of **James Conliffe**, with a short field visit to the Menihek and Schefferville areas in August 2016. Fieldwork was carried out in conjunction with researchers from Curtin University, Western Australia, and included sampling of drillcore to better understand the diagenetic history of iron formations in western Labrador. He is also helping to organize a fieldtrip to western Labrador in August 2017, to be held in conjunction with a session entitled "Iron Ore – Deposit to Global Scale Processes" at the SGA 2017 meeting in Québec City.

The plans for publication of research in 2017 include a comprehensive report on the iron ore deposits of the Labrador City and Wabush area, including a compilation of all company activity since 2000. James is also contributing to a collaborative research project with Memorial University (Labrador



James Conliffe deliberating on his field notes and 'enjoying' a quiet moment.

Institute) on Fe–Ti–V magmatic oxide mineralization in anorthosite suites, which is due for completion in 2017.

Uranium Mineralization

Although no field work was carried out in relation to this project in 2016, **Greg Sparkes** worked on finalizing a comprehensive report summarizing the results of the multi-year project examining the nature and distribution of uranium mineralization within the Central Mineral Belt of Labrador. This report is to be released in November 2016 as an Open File, along with an accompanying release containing the geochemical data collected over the duration of the project. Ongoing studies in relation to this project include collaboration with the Geological Survey of Canada (GSC) Targeted Geoscience Initiative (TGI) Project on uranium mineralization looking at polymetallic metasomatic ore systems.

Geoscience Data Management Section

The Geoscience Data Management Section is responsible for the organization, management, integration and distribution of the geoscience information collected by the Geological Survey. As the size and number of geoscience datasets has grown, it is important that digital techniques are used to manage this information and apply it effectively to mineral exploration. Significant changes in digital information and communications technology over the past decade, are completely transforming the way in which geological surveys throughout the world manage and disseminate their geoscience knowledge. In response to these changes and client needs, the section has focused on database management techniques and internet tools for the consistent and timely delivery of geoscience information to government scientists and industry clients.

The section is headed by Senior Geologist Larry Nolan. Loretta Crisby-Whittle is responsible for the bedrockgeology database for the province. The Geoscience Atlas, online delivery of geoscience information, online data standards and integration are coordinated by **Pauline Honarvar. Gillian Roberts** and **Shawn Duquet** provide support to all projects as well as to various projects in other sections of the Survey.

The digital bedrock geology dataset for the island is complete and available for download from the Geoscience Atlas and work is under way to provide customized legends. The dataset incorporates information from the most detailed bedrock geology maps for the province and applies a series of common legends. Full legends and colour layers are available for download and eventually the user will be able to produce area specific legends. Updates will be made to the bedrock geology map theme layer on the Geoscience Atlas as newly published maps are released. Images of the original published bedrock geology maps for the province are available for download in Portable Document Format (.pdf) from the Survey Website Map Index page. The group is currently collaborating with the Geological Survey of Canada on the Canada 3D map project, which should be available in 2017.

The web-based Geoscience Atlas (http://gis.geosurv.gov.nl.ca/) is continually upgraded, and includes new Detailed Stream Sediment and Water Geochemistry layers (8000 samples in Newfoundland and Labrador) and a help file, the Till Sediment Geochemistry layer (NTS 2D/04, 11 and 12, 1M/13 and 12A/01), and the Detailed Lake Sediment and Lake Water Geochemistry layers (around NTS 23J/16 and SE Labrador) were updated in the Geochemistry Group. Updates were also made to the Striations database (around NTS 12A/14) and the Aggregate database in the Surficial Group, the Index of Geochemical Surveys database in the Indexes Group, the Detailed (and associated) Bedrock Geology polygons database with links to the Geofiles source map and/or report as well as various help files and the Atlas Tutorial. The Geoscience Atlas application was updated so that the Contents Panel now has collapsible groups, a new Print layout, and the Search Results window indicates the number of features found and retains memory of last Map Service (Group) and Results (Layer) viewed.

Geoscience Publications and Information Section

Publications and Cartographic Services

Publications and cartography includes editorial (Chris Pereira and Des Walsh), cartographic/GIS (Kim Morgan, Terry Sears and Neil Stapleton), and desktop publishing and design (Joanne Rooney). They are responsible for report and map preparation and production for the GSNL, and provide cartographic, graphic design and desktop publishing services to other divisions and branches of the department, as needed. In the past year, the section published in excess of 32 maps, final project reports, open file releases, and other documents including the annual *Current Research* volume. It also assisted in production of joint GSNL–GSC open file releases of geophysical data collected under the GEM and TGI-4 programs. Staff provided graphic design and related cartographic support for trade magazines, a wide variety of branch presentations for promotions and investment initiatives at mining trade shows, conferences and symposia, and for the outreach projects. Updates of the Mines Branch area of the website and the web-based release (timed and otherwise) of all GSNL publications are also handled by this group.

Promotion, Geoscience Marketing and Investment Attraction

This group (Carolina Valverde Cardenas and Phil Saunders) has overall responsibility, within the Mines Branch, for a wide array of promotion and investmentattraction initiatives designed to encourage growth in the mining and mineral-exploration sectors. The group provides technical information on current exploration activity, geological context of exploration trends, opportunities for new project generation, and information on Mines Branch programs to support the industry. The group's mineral promotion initiatives in emerging markets also include information on Canadian business culture and best practices within the mining and exploration sectors.

The group organized and delivered promotional initiatives at Mineral Exploration Roundup, PDAC and Xplor as well as at local venues such as Mineral Resources Review. The Mines Branch promotions group continued to use and improve the new Newfoundland and Labrador Pavilion, introduced in 2014, at PDAC and Roundup. At both venues, the promotions group collaborated with Mining Industry NL and assisted Newfoundland and Labrador prospectors and junior company representatives in attendance.



Newfoundland and Labrador pavallion at Round-up, 2016.



China Mining Congress and Expo, Tianjin, 2016.

Throughout the year, staff developed and updated a wide array of technical promotions materials, many of which are also available in Mandarin and French. Web-based promotional initiatives continue to target both traditional and emerging markets. The 'Explore Newfoundland and Labrador' and the 'Asian Investment Initiatives' areas of the website (available in both English and Mandarin) were updated to encourage and facilitate industry participation in this area.

Industry Information and Client Services (Mineral Exploration Consultant)

The Mineral Exploration Consultant's office (**Phil Saunders, Crispin Pike** and **Stephanie Neary**) represents the initial point of contact for most clients of the GSNL, and for the Mines Branch. It provides information and consultation services to a broad client base including companies, prospectors, industry associations, other government departments and agencies (both federal and provincial) and the general public. The office has a close working partnership with the Matty Mitchell Prospectors Resource Room (*see* below) and with Geofiles staff. It collectively handles a large volume of requests for information, help and advice made through office visits, phone calls and emails.

As Mineral Exploration Consultant, Phil Saunders provides independent advice and information to clients relating to



Newfoundland and Labrador pavallion at PDAC, 2016.

mineral exploration. He maintains a key role as industry liaison, tracks exploration trends and activities in support of promotional activities, and provides strategic advice to clients.

The Exploration Services Geologist (Crispin Pike), brings considerable industry experience to the position, especially in the fields of geophysics and nickel exploration. He provides information and advice to prospectors and new companies that are exploring in the province, and also helps prospectors to compile and display their pre-existing data on compilation maps.

Geoscience Documents Collections and Databases

The Geofiles and Library collections, with related metadata, are maintained by staff of the Geoscience Publications and Information Section (Cindy Saunders, Paula Bowdridge and Desiree King).

The Geofiles collection is a growing, digital and hard copy collection of private- and public-sector mineral exploration and geotechnical/geoscientific documents (currently 23 500 + items) relating to the province. Many of these documents are exclusive to this collection.

The Geofiles collection includes over 11 500 non-confidential mineral exploration assessment reports. Almost 98% of these are now available online in .pdf format. The Mines Branch is now receiving and archiving most assessment files in digital-only format. The Geofiles collection also includes Geological Survey (and predecessor organizations) publications dating from 1873 to the present. Metadata for these 5000+ documents (including articles in volumes such as Current Research) are searchable online. About 49% of these documents are also available online as .pdfs.

The Geofiles database also contains records for, and links to, documents that we do not physically hold in our collection.

These are mainly Geological Survey of Canada publications, and Memorial University of Newfoundland M.Sc. and Ph.D. theses that are related to Newfoundland and Labrador. In total, there are over 26 400 records online. These records are searchable at *http://gis.geosurv.gov.nl.ca/minesen/geofiles/*.

During the summer of 2016, a student scanned a quantity of older open-file reports that were not yet online. Government web-use statistics indicate that between October 2015 and October 2016, 289 734 pdfs were downloaded and there were 39 652 Geofiles metadata queries. Geofiles staff provide customized searches of the Geofiles, Library, Pfiles and various in-house databases, and also assist clients (in-house and by phone) doing their own online searching.

Matty Mitchell Prospectors Resource Room

The Matty Mitchell Prospectors Resource Room is a private -public partnership with funding and in-kind support provided by the Mines Branch and Mining Industry NL. The project is overseen by a joint government-industry committee chaired by the Senior Geologist, Publication's and Information Section. Resource Room Geologist, Pat O'Neill, is responsible for the daily operation of the project.

Some positive movements in the mining industry in 2016 were reflected in an increased number of properties optioned or sold by prospectors in Newfoundland and Labrador. Prospectors from all parts of the province continued to avail of the support and mentoring services offered by the Resource Room during 2016. Varying levels of technical support were provided that helped in the discovery, promotion and advancement of their mineral properties.

The Resource Room played a major role in assisting prospectors at Mineral Resources Review (St. John's), Mineral Exploration Roundup (Vancouver) and PDAC (Toronto). Informative property posters were compiled to help prospectors promote their properties at these events. A booklet, maps and flash drives containing information on "Properties Available for Option in Newfoundland and Labrador" were updated several times during the year and pdf versions of these properties are available on the Matty Mitchell website. The Resource Room website is updated throughout the year, and articles are added to the new "Educational Tools for Prospectors" section launched earlier.

In 2016, the Resource Room geologist attended the fifth Annual General Meeting of the Newfoundland and Labrador Prospectors Association (NLPA) in Mt. Pearl with a display of promotional material, literature and rock samples and a presentation about the services offered by the Resource Room. The Resource Room continues in its collaboration with the Mineral Incentive Program, whereby prospectors without grants can avail of seed funding to have promising mineralized samples assayed. This service includes rock and mineral identification, and informal discussions about the geology and mineral potential of the particular area of interest. As in previous years, this arrangement has resulted in new mineral discoveries and subsequent claim staking.

MINERAL DEVELOPMENT DIVISION

The Mineral Development Division administers the *Mining Act* and is responsible for the approval of plans for the development, operation and closure of mines; development of mineral policy; monitoring and economic analysis of the mining industry; management of financial incentive programs for exploration; and management of orphaned and abandoned mines. This is the key division for liaison with other federal and provincial government departments on mining matters. **Alex Smith** is the director of the division.

Operations

The division is responsible for administering the *Mining Act*, ensuring that mineral resources are responsibly developed and that end-of-life operations are properly closed and monitored. It is responsible for rehabilitating legacy orphaned and abandoned mines to ensure they do not present safety hazards.

The division encourages the development of the province's mineral resources by providing training and financial assistance to prospectors and junior exploration companies under the Mineral Incentive Program. It monitors provincial, national and world-wide trends in the industry and provides advice to provincial and federal government agencies that provide support or assistance to mining projects.

The division's activities are organized into three sections by major work functions: Engineering Analysis, Mineral Industry Analysis and the Mineral Incentive Program.

Engineering Analysis

The Engineering Analysis Section is responsible for administration of the *Mining Act*. Development plans and rehabilitation and closure plans are submitted and are reviewed for compliance with this legislation. Financial assurance in amounts sufficient to ensure full rehabilitation for each mine site is required from the operators and administered by the Section. The *Mining Act* also requires mine operations to submit an annual report on the past year's operations, and an operational plan for the coming year. Through review of these annual submissions and inspection of mine sites, Engineering Analysis staff ensures that operators are developing projects according to approved development plans, and, at the end of mine life, that projects are properly rehabilitated.

Engineering Analysis manages the orphaned and abandoned mines in the province and continues to monitor conditions at these sites. A 4-year dam safety program was approved in Budget 2016 that will see dams at 6 orphaned and abandoned mines have deficiencies addressed such that a long term, sustainable dam safety and maintenance program can be put in place.

The Engineering Analysis Section has seven staff positions including the manager, four mineral development engineers, a geologist and a financial officer.

Mineral Industry Analysis

The Mineral Industry Analysis Section maintains an ongoing program of research and statistical tracking of provincial and global mineral industries to provide data that directs policy and program development. Global market trends, events, supply/demand, *etc.* are analyzed for their impact on existing, developing and potential mineral projects within Newfoundland and Labrador.

The section compiles a semi-annual forecast of mineral shipments and employment via a direct survey of individual mining operators within the province. Forecasted data and property updates are provided to the Department of Finance as part of the provincial budgetary process. Mineral Industry Analysis works with Finance to provide information and analysis on mining related issues and projects to identify provincial impacts.

The mineral statistics database of shipments and employment is a responsibility of the section. Acquired statistics are reviewed and compared to mineral industry census data obtained by Natural Resources Canada. Through an ongoing process of communication, data gaps and discrepancies are resolved to maximize statistical integrity.

Mineral Industry Analysis provides data and analysis to departmental executive for use in the development of policy and regulation of the provincial mining industry. The section prepares regular reports such as a daily commodity price list and issue specific briefing notes. Mining regulatory filings with provincial and federal departments as well as security exchanges are reviewed and analyzed. This is completed for projects operating provincially as well as those globally that potentially impact local project feasibility and industry policy.

The section liaises with the public providing information on existing mining operations in the province. Semi-annual 'Mining in Newfoundland and Labrador' publications are produced and distributed at conferences and via an email distribution list. These are also published on the department's website along with other industry information maintained by the section. Section staff sit on several industry committees to both collect and disseminate industry information.

The Mineral Analysis Section has five staff positions including the manager, three industry analysts and a clerk typist.

Mineral Incentive Program

The overall budget for the Mineral Incentive Program (MIP) increased to \$1.7 million for 2016-17. The table below summarizes the spending by program from 2014-15 to the present.

Program	2014-15	2015-16	2016-17 (projected)
Prospector Assistance			
Grants approved	62	69	60
Amount	\$265 278	\$251 824	\$316 000
Junior Exploration			
Number of grants	18	13	31
Amount	\$1 388 908	\$959 594	\$1 300 000
Prospector Training			
Course Number	1	0	1

The number of prospecting grant applications this year is on par with 2015-16 and total expenditures by the prospecting community are expected to remain constant. The Mineral Incentive Program continues to support prospector promotion through its annual \$40 000 operational grant to the Matty Mitchell Prospector Resource Room, and grants to Mining Industry NL to fund prospector travel to national conferences.

The annual two-week prospector training course was conducted in Stephenville from September 12-23. The course was very well received and successfully completed by 12 enthusiastic students.

To accommodate increased costs, Junior Exploration Program grants have increased to a maximum of \$150 000 for island-based projects and \$225 000 for Labrador projects. The eligibility period for field work has been changed from governments' fiscal year to the calendar year. This change made winter field work accessible to funding which was historically not the case. Thirty-one letters of intent were received by the July deadline and it is anticipated that the program will be fully subscribed for 2016-17.

Field visits to prospector and junior exploration company work sites will be the focus for the remainder of the autumn. Review of reports from grant recipients and arrangement of final grant payments will take the section through the end of the fiscal year.

The Mineral Incentive Program has three staff positions including a manager, geologist and clerk typist.

Julienne Lake Deposit

The Julienne Lake deposit was made an Exempt Mineral Land (EML - meaning that the mineral rights are reserved for the Crown) in 1975. In 2009, government recognized the potential value of the deposit and initiated a multi-phase exploration program to improve understanding of the deposit and assist in its development. Mineral Development administered this process.

Government issued a request for proposals and subsequently entered negotiations with the Julienne Lake Alliance, which included significant backing by two Chinese partners. The Chinese partners withdrew from the Alliance in 2015.

The division provided support to the government's negotiation team throughout the process with technical advice, market research and economic analysis, however, given the current iron ore market, negotiations are not currently active.

Staffing

Abigail Steel was hired as the Manager of Engineering Analysis, and **Keith Bradbury** was hired as the Manager of the Mineral Industry Analysis in December of 2015.

The Division has a number of vacant positions including one Mineral Development Engineer (Environment) and two Mineral Industry Analyst positions. These positions will be advertised in the near future.

MINERAL LANDS DIVISION

The Mineral Lands Division is responsible for the regulatory functions and information services that facilitate the orderly discovery and development of the province's mineral resources. These include administration and management of mineral rights and quarry rights, permitting of exploration for minerals and quarry materials, retrieval and storage of core from exploration drill sites, and monitoring the types and amount of exploration activity in the province. The division has extensive contact with other departments and levels of government through its involvement in various review processes and application referrals, and represents the Mines Branch on the Interdepartmental Land Use Committee. The Director of the Mineral Lands Division is **Kevin Sheppard.**

Staff Changes

There are no staffing changes to report in the Mineral Lands Division this year. **Trina Adams**, Assessment Report Review Geologist, will be on leave for one year, effective January 18, 2017. A competition for a temporary backfill for this position is planned.

Mineral Rights

The Mineral Rights Section (Justin Lake, Laurie Hennessey, Stephen Hinchey, Trina Adams, Charles Newhook and Brenda Lynch) administers all aspects of the acquisition, maintenance and regulation of mineral rights in the province. Many of these functions are performed through the Mineral Rights Administration System (MIRIAD). MIRIAD provides real-time, online, map-based claim staking, and integrates mineral rights information with the province's geographic information and financial management systems.

Mineral rights are also managed through several hardcopy registries that record transfers, confidential agreements, mineral licenses issued, and mining and surface leases, that together comprise over fifty volumes of documents. These documents are used extensively by the legal community and the exploration and mining industry generally. Work continues on a project to digitize all of these records and make them available to the general public via a web-based application.

The Mineral Rights Section also monitors exploration activity and expenditures in the province. Expenditures are surveyed semi-annually by Natural Resources Canada and the survey results shared with the province. The results are analyzed internally and aggregate results are reported to various branches of government and cited in publications.

The Mineral Rights Section is also responsible for the review of municipal plans and various land-use proposals to ensure that these do not have a negative impact on the mineral and aggregate resource industries of the province.

The development of the Environmental Guidelines for Mineral Exploration document continued in 2016 and is currently in the final stages of review within government. Implementation of this document is anticipated prior to the end of this fiscal year.

Exploration Approvals

All exploration work requires an 'exploration approval'. This involves a referral process whereby certain government and non-government agencies are notified of work intent and scope and are given the opportunity to provide feedback. **Heather Rafuse** administers the exploration approvals process and, to date, there have been 289 applications processed in 2016, compared to a total of 272 by year-end in 2015.

Exploration site inspections are conducted on a full-time basis and companies are advised to be diligent in following



Exploration camp – Michelin property – Central Mineral Belt, Labrador.



Diamond drilling – Viking property – south of Pollard's Point, Newfoundland

all regulations and conditions governing their exploration approvals. Exploration Site Inspector **Matthew Snow** completed on-site inspection of 34 exploration project sites by mid-October with inspections continuing later into the fall.

Quarry Materials Section

The Quarry Materials Section (Gerald Kennedy, Ges Nunn, Andrea Devereaux, Kirby Way, William Oldford, Joanne Janes and Anne Marie Woolridge) is responsible for the administration and enforcement of the *Quarry Materials Act, 1998*, and associated regulations in support of various provincial, municipal, and local infrastructure projects across the province. A quarry inspector is stationed in Pasadena, Grand Falls-Windsor and St. John's, with each inspector having their own geographic area of responsibility to conduct compliance inspections, respond to complaints, and attend stakeholder meetings. Other staff mainly provide in-office administrative support for quarry tenure such as carrying out referrals for quarry permits, quarry leas-



Beginning of rehabilitation of sand quarry near Terra Nova.

es, and quarry materials exploration licence applications, and issuing approvals.

Previous plans for the development of a new Quarry Management System (QMS) are on hold. The Division has implemented several changes to the quarry materials program to lessen administrative workload. Plans are ongoing to implement online payments for quarry-related transactions via the provincial government website. The Quarry Materials Act and Regulations are under review, standard terms and conditions associated with quarry permits and leases are being modified, and a draft policy for the management of quarry materials exploration licences is near completion.

Core-Storage Program

The core-storage program (Glen Penney and Chris Moran) is responsible for six core-storage facilities located in Pasadena, Baie Verte, Buchans, Springdale, St. John's and Goose Bay. Seasonally, the program is supported by four summer students, normally from the geology program at Memorial University. The core-storage areas house more than one million metres of drillcore samples from nearly ten thousand drillholes collected from various exploration projects located within the province. Samples are available for inspection and are used extensively by the mineral exploration industry. Sampling of core is permitted where sufficient core is available to allow removal of some material and with the conditions that all unused material is returned to the core library along with copies of analytical results. The core-storage database is available online via the GeoScience Atlas.



Post rehabilitation.

The core-storage facilities, particularly Buchans have been very active over the last few years and the number of client visits has steadily increased. The program is being reviewed and industry and facility clients will be engaged to participate. To this end, a stakeholder questionnaire has been drafted and planned for distribution in this fiscal year to solicit input. In addition, a review is being carried out of existing policies and business functions in other jurisdictions with similar programs.



Prospectors inspecting drillcore samples at the Drill Core Building in St. John's.



Student measures drill core samples for cataloguing and indexing.

The Department initiated an occupational health and safety review of the facility in Pasadena by officials from Service NL. As a result, some issues were identified with site ergonomics, air quality, and equipment. These have been or continue to be addressed via adjusting safe-work practices, infrastructure/equipment repair, air quality monitoring, and radiation level monitoring. Similar changes will be applied to the other core-storage facilities where necessary.

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Gillian Roberts Mineral Deposits Section John Hinchey Greg Sparkes Hamish Sandeman Greg Stapleton James Conliffe Vacant Jan Smith	Project Geologist Section Head Project Geologist Project Geologist Project Geologist, Mineral Inventory Project Geologist Mineral Inventory Geologist	729-7727 729-7976 729-7290 729-1980 729-6071 729-4014 729-6059	gıllıanroberts@gov.nl.ca johnhinchey@gov.nl.ca gregsparkes@gov.nl.ca hamishsandeman@gov.nl.ca gregstapleton@gov.nl.ca jamesconliffe@gov.nl.ca jansmith@gov.nl.ca
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