GS-18 Community liaison and a collaborative community-based geological mapping project of the Munroe Lake greenstone belt at Gods Lake, east-central Manitoba (parts of NTS 53L7, 8, 9, 10)

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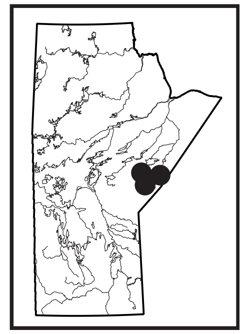

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Summary

The Manitoba Geological Survey's (MGS) community liaison program initiates, develops and conducts relationship-building projects to facilitate geological land-use information exchange with First Nation and other mostly remote communities. In part, the activities of the program fulfill the MGS's mandate to provide meaningful geoscience information to the public.

The aim of the community liaison program is to develop open communication links that allow First Nation Leadership, Elders and people working in land-use management to integrate geological information in their land-use planning process. When mineral-exploration or mineral-extraction activities occur in their traditional land-use areas, informed First Nation communities are in a better position to proactively participate in resolving potential impacts to hunting, fishing, culturally sacred spaces and the environment, and to become involved in the development of economic opportunities derived from the mineral resources sector.

Collaborative geological projects through government or industry initiatives have the potential to benefit all Manitobans when First Nation communities become actively involved in the development of mineral resources. This year, the God's Lake First Nation participated in planning and executing geological mapping of a part of their traditional land, located south of Gods Lake Narrows. The purpose of the project was to jointly map and identify the exposed volcanic and sedimentary rocks that form part of the regionally extensive Munroe Lake greenstone belt, and to determine its geological evolution and mineral potential (i.e., gold). The mapping showed that the supracrustal rocks at the south basin of Gods Lake are variably sulphidic, have extensive gossanous zones, and are magnetite bearing, which may indicate the presence of a discontinuous, thinly layered iron formation.

Introduction

This report provides a two-fold summary of the MGS's 2014 community liaison activities. The first part describes the MGS liaison program, which highlights several steps during the progression of liaison activities, including the development of collaborative projects with First Nation communities in east-central Manitoba and representatives from the Natural Resources Institute (NRI) at the University of Manitoba.

The second part of this report describes the technical results of a community-based geological mapping project conducted with the God's Lake First Nation. This was the first geoscience-based project that has involved a First Nation community as an active mapping collaborator. This partnering arrangement enabled community participants to learn about the geology underlying part of their traditional land-use area, while the mapping adds to the MGS geoscience database.

Part 1: Community liaison program

The MGS community liaison program fulfills part of the MGS's mandate to provide meaningful geoscience information to the public. The main aim of the liaison program is to develop respectful relationship-building projects with Manitoba's remote and First Nation communities to facilitate an open exchange of geological land-use information.

The MGS liaison program began with the Sayisi Dene First Nation in the Tadoule and Ryan lakes area in northern Manitoba in 2009 and 2010 (Murphy, 2009, 2010; Murphy and Carlson, 2009, 2010a, b). In subsequent years, the MGS was requested by First Nations located in the Fishing and Family lakes area to conduct geological mapping and assess the mineral potential of the Horseshoe–Night Owl lakes area within the proposed Pimachiowin Aki World Heritage site. The results of this work can be found in Corkery et al. (2010), Murphy (2011a) and Kremer et al. (2012).

A program entitled 'What on Earth' was developed during liaison discussions with First Nation representatives in 2012 to promote postsecondary education in land-based sciences, including environment, ecology and geology. The MGS presented information on the basic requirements needed for participants to obtain jobs or to develop careers in the mineral-resource sector, and take advantage of economic opportunities related to the mineral-resource sector (Murphy, 2011a, b; 2012).

In 2013, a crucial component was added to the program, which engages Elders and role models within each community to deliver teaching components that acknowledge First Nations' participation in the fur trade, commercial fisheries and mineral industry throughout Manitoba's industrial history (Murphy, 2013).

Liaison to collaboration

Although the liaison program is uniquely designed to meet specific requests of each First Nation, consistency is crucial to the process. Respectful information sharing includes

- presenting job, career and economic-development opportunities that exist in the mineral-resource sector and allowing participants to consider these options when determining their individual path;
- demonstrating how MGS geologists perform geological field mapping (mineral and rock identification, record keeping, rock sampling, safe equipment usage);
- encouraging mutual sharing of community land-use perspectives that promote equal value for indigenous-knowledge holders, community role models and postsecondary educators; and
- involving participants in the creation of a poster that describes the program, displays local geological features and showcases their community interests.

Collaborative practices

The liaison program works to develop collaborative practices during a two-year period to encourage meaningful information sharing. This 'stepping stones' approach during the development of the collaborative practices is important to the success of geology-based projects with remote and First Nation communities. Many Manitoba communities are not located in proximity to a mining camp, nor does mineral exploration occur close by; therefore, most First Nation members have not been exposed to job opportunities, careers and postsecondary education choices available in the mineral-resource sector. Work during the first year of the liaison program provides a basic and open knowledge-sharing environment, followed by a second year that integrates the land-use perspectives of the First Nation.

Collaborative development opportunities

The MGS liaison process evolved in 2014 through the development of several collaborative partnerships with

- S. Thompson from the Natural Resource Institute (NRI), University of Manitoba, and Elders and community role models from Wasagamack First Nation in the Island Lake land-use area. This partnership provided outreach to hundreds of youth in the classroom on mining, natural resources and community economic development in the school at Wasagamack First Nation (Figure GS-18-1a). This liaison work

Figure GS-18-1: *Liaison activities at several locations in east-central Manitoba:* ***a)*** *L.A. Murphy (MGS staff) and S. Thompson (NRI staff) presenting geology to students at George Knott School in Wasagamack, Manitoba; photo provided by Ahmed Oyegunle, Masters student (NRI);* ***b)*** *Gods Lake Narrows geological mapping participants: (standing from left to right) R. Watt, T. Nassie, M. Bee, J. Okemow, N. James, (sitting from left to right) N. Okemow, R. Mason and W. Ho (MGS geology assistant);* ***c)*** *S. Peacey, learning how to use a magnetic pen at Disbrowe School, Disbrowe Island, Red Sucker Lake.*

developed into a three-day geological-ecological-cultural camp located on Linklater Island in Island Lake.
- God's Lake First Nation in the extension of the liaison program (Figure GS-18-1b) to include a remote camp work experience during a community mapping project in the south basin of Gods Lake. Staff from the MGS demonstrated and explained geological mapping techniques including mineral and rock identification, record keeping and sampling methods.
- the 'scientist in the school' program, funded by Frontier School Division, providing geological science and land-use information to students attending Disbrowe School (Figure GS-18-1c).

The liaison program assists the Manitoba Mineral Resources by
- providing and explaining technical information during the consultation process in First Nation communities; and
- presenting geology and liaison as career options at elementary to secondary and postsecondary schools, and at career fairs throughout northern Manitoba in conjunction with the MGS outreach program events that promote the Manitoba Rocks! initiative (Michaels, GS-19, this volume).

Geological-ecological-cultural project in east-central Manitoba

S. Thompson from the NRI collaborated with the MGS to introduce geological land-use information to hundreds of youth, from nursery to Grade 12, at George Knott School in the Wasagamack First Nation. While in the community, the Wasagamack First Nation's Chief and Council members invited our NRI-MGS group to attend formal meetings to discuss the liaison program mandate (MGS), landfill environmental concerns (NRI) and to formally assist in a preliminary draft of the mission and planning statement for the Wasagamack First Nation's ancestral land-use plans. The NRI-MGS group extended the geology-based introduction on mining, natural resources and community economic development into a collaborative geological-ecological-cultural project that included Elders, role models and youth.

As suggested by the title 'geological-ecological-cultural', the work in Wasagamack aimed to integrate diverse information streams equally, from indigenous-knowledge holders to postsecondary science educators and geologists. Throughout the information-sharing process, Elders (a Grandfather and a Grandmother) presented traditional land-based teachings in conjunction with land-based science principles. These intermingled knowledge streams created a transformative learning environment for 30 participants, promoting economic development and encouraging a greater awareness of environmental and geological principles. This took place during three days at a camp located on Linklater Island (Figure GS-18-2).

The MGS's contributions toward the success of the collaborative project included
- creating a 'hands-on' learning experience, demonstrating how MGS geologists perform geological field mapping;
- demonstrating how to use various scales of geological maps by describing the geological map of Manitoba and the detailed geology of the Island Lake area (Figure GS-18-2b); and
- describing how some of the landforms at Wasagamack were formed during glaciation.

Based on our activities during this project, a short film will be made by NRI describing how understanding geological information can empower First Nation communities.

God's Lake First Nation liaison and collaborative community mapping

Although Manitoba has a rich history of mineral exploration and mining, the God's Lake First Nation, like

Figure GS-18-2: *Liaison activities on Linklater Island, Island Lake; photos provided by Ahmed Oyegunle, Masters student, (NRI):* ***a)*** *identifying rock types; and* ***b)*** *learning how to read geological maps.*

most First Nation communities in Manitoba, has not historically been an active participant in mineral exploration and mining development projects. With more frequent visits by geoscientists and exploration companies, the God's Lake First Nation gains a greater awareness of the potential for economic mineral-resource development related to the rocks underlying their traditional land-use area. The community sought to know more about the geology in the Gods Lake area to determine how this land-based knowledge can potentially lead to economic development. As a result, in addition to community-based land-use discussions and liaison work, the community leadership at Gods Lake Narrows agreed to collaborate with the MGS on the development of a remote community mapping project in the south basin of Gods Lake. This is a positive step toward empowerment, through land-based information sharing of geological knowledge with community members. This was the first MGS geological mapping project involving participants of a First Nation community as active collaborators.

This summer's project was initiated during an informal meeting with the God's Lake Chief and Council in November 2013. Since projects in First Nation communities cannot move forward without the support of the Chief and Council, establishing an open and consistent communication with their representatives is important to ensure successful outcomes. To ensure a successful project, MGS staff and a God's Lake representative (K. Peskoonas) communicated regularly, addressing concerns as they arose, and co-ordinated logistics in advance of the MGS arriving in the community. The areal scope and location of the geological mapping project along the south shore between Fathers Fishing Bay and Andrew Bay, including several islands toward the northeastern shore of the south basin of Gods Lake, was determined by the God's Lake First Nation. The remote camp location was jointly selected and community members prepared the area by clearing undergrowth to accommodate tents for up to 10 people (Figure GS-18-3a). As part of their collaboration in the project, the God's Lake First Nation selected and funded community participants and provided living accommodations for MGS staff.

The entire project, from liaison to collaborative mapping with the God's Lake First Nation, spanned 16 days. Although the time spent doing geological mapping was less than four days, community participants actively helped to identify the rocks, assisted in accurate note taking and learned how to use rock sampling equipment safely (Figure GS-18-3b), while gaining a greater understanding of teamwork in a remote field operation. Participants were able to obtain field camp experience on a geological mapping project and the geoscientific data collected add information on the mineralogy and economic potential of part of a small greenstone belt in the western Superior province to Manitoba's geological database.

***Figure GS-18-3:** Field activities during the Gods Lake community mapping program: **a)** participants who set up the remote camp in Gods Lake south basin: (from left to right) T. Nassie, L.A. Murphy (MGS), M. Bee, R. Mason, N. James, L. Bland, and K. Peskoonas (land-use manager); and **b)** M. Bee from Gods Lake Narrows and MGS geology assistant A. Desilets taking geochemistry samples with a rock saw at the south basin of Gods Lake.*

The geological information gathered during this joint mapping project is detailed below.

Part 2: Geological setting and exploration history of Gods Lake

The Gods Lake area is located in the Archean northwestern Superior province. The Superior province developed as a ca. 2.7 Ga mountain range, which rose, deformed, eroded and deposited during the accretion of older (mainly 2.7–3.0 Ga) granitoid cratonic blocks and intervening volcanic and/or sedimentary belts (Beaumont-Smith et al., 2003; Corkery et al., 2003; Percival et al., 2006). The Gods Lake Narrows shear zone coincides regionally with the gold-bearing Stull-Wunnummin fault that forms the boundary between two distinct geological domains that divide Gods Lake, the Oxford-Stull domain in the north basin and the Island Lake domain in the south basin (Figure GS-18-4a; Beaumont-Smith et al., 2003; Anderson et al., 2013). The north basin in the Oxford-Stull domain is

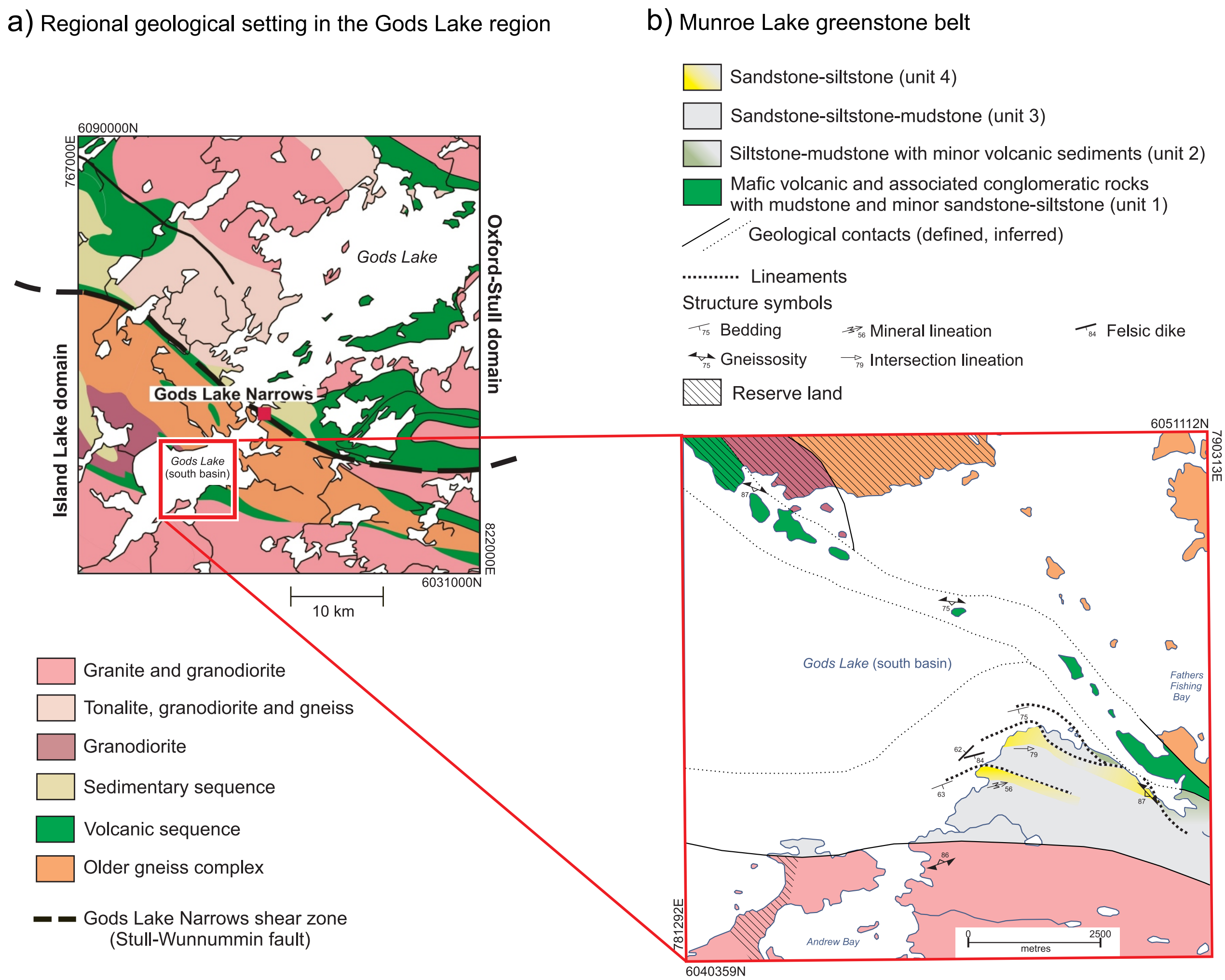

Figure GS-18-4: *Geological setting of the Gods Lake area:* ***a)*** *regional geological setting showing the Oxford-Stull and Island Lake domains, modified from Corkery et al. (1999); and* ***b)*** *geology of the Munroe Lake greenstone belt in the Gods Lake south basin.*

largely composed of tonalite-granodiorite gneiss and the fault-bounded Oxford Lake–Knee Lake greenstone belt, which is a gold-bearing volcano-sedimentary sequence (Corkery et al., 1999, 2000; Lin et al., 2006). The Gods Lake south basin in the Island Lake domain is largely composed of an older felsic gneiss complex, a younger granodiorite and associated gneiss complex and the Munroe Lake greenstone belt, a sulphide-bearing volcano-sedimentary sequence (Figure GS-18-4b).

Geological activity including mineral exploration and mining projects began in the 1930s in the Gods Lake area (Wright, 1931; Dix, 1947; Barry, 1961; Southard, 1977). The Gods Lake gold mine operated on Elk Island from 1935 to 1943, with gold occurrences documented on Jowsey and Elk islands in the north basin (Bamburak, 1990; Mineral Inventory Cards, 2014). Although most of the work undertaken by the MGS concentrated on the evolution and the economic potential of the greenstone belts located north of the Gods Lake Narrows shear zone (Figure GS-18-4a; Corkery et al., 1999, 2000), the Gods Lake area, including the south basin, was remapped in the 1980s as part of the Greenstone project (Gilbert, 1985; Manitoba Energy and Mines, 1987; Marten, 1992).

Munroe Lake greenstone belt geology

Regionally, the Munroe Lake greenstone belt spans a discontinuous east-west trend for approximately 120 km. It is truncated by a pluton at Munroe Lake to the west (Gilbert, 1999) and can be roughly traced along strike to the east to the southwestern shore of Sharpe Lake (Beaumont-Smith et al., 2003). The Munroe Lake belt likely formed in an oceanic basin, with sediments derived during the deposition of volcanic intrusions and the erosion of surrounding country rock (Gilbert, 1985; Marten, 1992).

In the south basin of Gods Lake, the Munroe Lake greenstone belt is exposed along a northwest-trending chain of islands between Fathers Fishing Bay and Andrew Bay along the southeastern shore to exposures along the northwestern shore. Plutonic rocks intruded and separated portions of the greenstone belt into predominantly attenuated mafic volcanic rocks including pillow basalt and associated conglomerate on the northwest-trending islands, underlying mostly turbiditic marine sedimentary rocks along the broad peninsula between Fathers Fishing Bay and Andrew Bay (Figure GS-18-4b; Marten, 1992).

The greenstone belt is metamorphosed to mostly amphibolite grade. Field observations and previous work indicate that the mafic volcanic conglomerate is at the base of the greenstone sequence; however, the presence of folded leucosome veins in the turbiditic beds indicates that the belt is deformed and underwent folding. As a result, the sequence is not in true stratigraphic order. Most protoliths and primary features such as bedding are recognizable; therefore, the prefix 'meta' is omitted from the text in this report.

Most volcanic and sedimentary rocks in the study area are very fine grained; therefore, thin-section work is required to identify the mineral composition to supplement the outcrop observations.

The greenstone belt rocks are locally intruded by narrow, less than 0.6 m wide, northwest-trending pegmatite dikes. The centre cores of the dikes are commonly quartz rich and coarse grained. Two quartz-rich dikes, crossing each other on one outcrop, are likely infilled extensional faults (Figures GS-18-4b, -5a).

In the south basin of Gods Lake, the Munroe Lake greenstone belt is mostly composed of layered volcanic and sedimentary units that are metamorphosed and partially melted (leucosome bearing): 1) at its base, discontinuously layered mafic volcanic rocks including attenuated pillow basalt, epidote-bearing cobbles and dacitic pebbles with mudstone and minor sandstone-siltstone; 2) siltstone-mudstone with minor mafic volcanic rocks; 3) and sandstone-siltstone-mudstone; and 4) sandstone-siltstone.

The mafic volcanic rocks are dominantly sulphide-bearing pillow basalt, locally interlayered with mudstone, siltstone and minor sandstone beds (unit 2; Marten, 1992). The presence or lack of mudstone in the alternating units 3 and 4 could be an indication of original sea-level fluctuation (rise and fall).

Deposited throughout the volcano-sedimentary sequence are discrete, boudinaged, coarse-grained quartzo-feldspathic beds. These beds are interpreted as the deposition of more massive arkosic arenite beds within the turbiditic sandstone-siltstone-mudstone sequences. The boudins are commonly symmetric, lenticular and on average approximately 1.5 m wide by 3 m long, oriented along the bedding planes. The boudins in the turbiditic sequence are visual evidence that during accretion the entire greenstone belt has also undergone extensional stretching called attenuation (Goscombe et al., 2004). Boudins form in part due to competency contrast, during

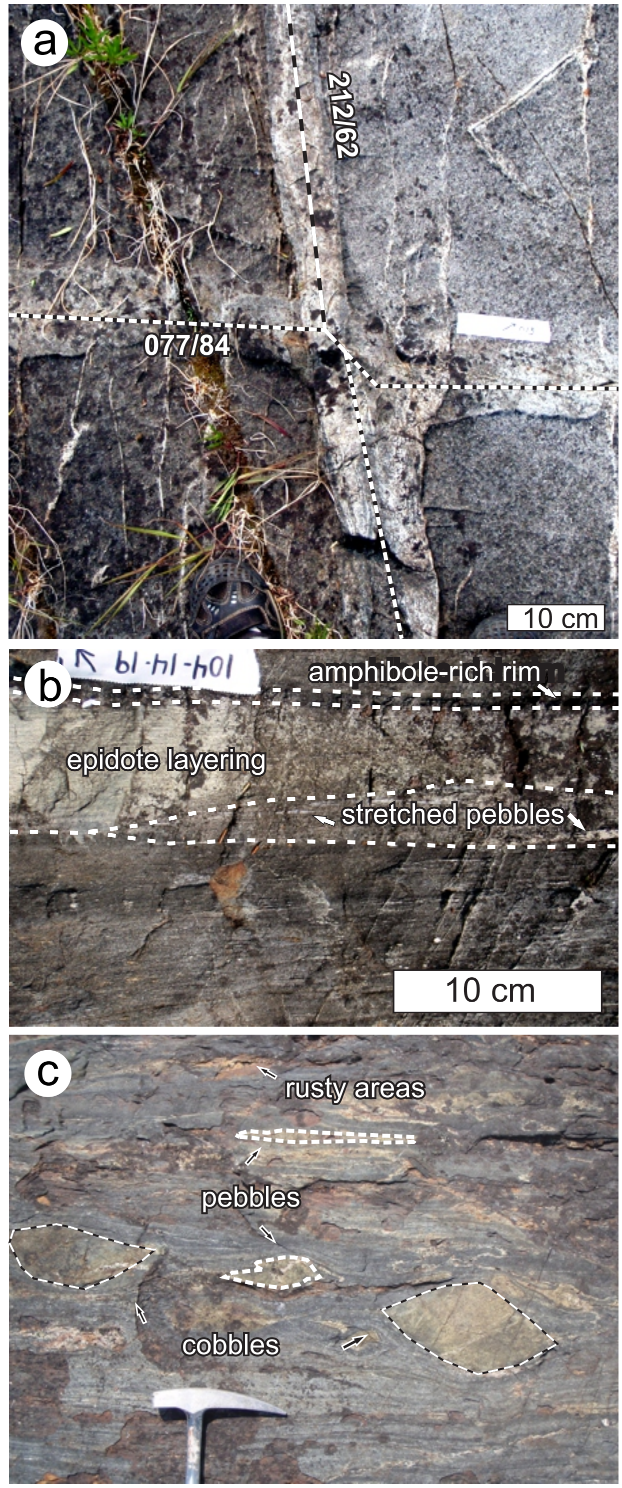

Figure GS-18-5: Structural features and representative rock types in the Gods Lake south basin: ***a)*** *quartz-rich infilled extensional faulting;* ***b)*** *discontinuous epidote layering with an amphibole-rich rim interpreted as attenuated and altered pillow basalt, mafic volcanic rocks; and* ***c)*** *lenticular epidotized cobbles and rusty zones along discontinuous anastomosed mafic volcanic rock and associated conglomerate layers.*

which the surrounding mafic sandstone-siltstone-mudstone beds became more ductile than the more competent, quartz-rich sandstone beds during metamorphism and deformation.

Layered mafic volcanic rocks with mudstone and minor sandstone-siltstone (unit 1)

Discontinuously layered mafic volcanic rocks and associated conglomerate with mudstone and minor sandstone-siltstone underlie a chain of islands in the south basin, following a north-northwest strike from the southern to the northwestern shoreline (Figure GS-18-4). Most mafic volcanic layers range approximately 1–20 cm in width and are more rarely up to 45 cm thick. Layers with epidote and diopside are lime green to pale grey-green, and are commonly enveloped by dark grey-green to black, thin mudstone or amphibole-rich layers (Figure GS-18-5b). Thin mudstone layers are slightly to strongly magnetic. Microscopic work indicates that while some of the mudstone contains foliated biotite, most of the rims along the epidote layers are rich in amphibole, with common finely disseminated pyrite in rusty zones that are irregularly distributed along the interface of the mudstone and epidote-rich layers. Pale grey layers are rich in plagioclase, possibly derived from dacite, while quartz-rich sandstone-siltstone beds appear light grey to medium grey. Localized, sporadic and lenticular epidotized inclusions form pebbles, cobbles and rare, up to 45 cm thick, coarse-grained, quartz-rich, boudinaged layering (Figure GS-18-5c).

Oxidation (rusty zones) occurs throughout the rock but is common along fracture and foliation surfaces.

Siltstone-mudstone with minor mafic volcanic rocks (unit 2)

The siltstone-mudstone with minor mafic volcanic rocks is located west of the mafic volcanic rocks (unit 1) and across Andrew Bay. The entire unit 2 is structurally sheared to fissile with rare, broadly boudinaged layers. Weathered surfaces are dark grey to black with rusty sections along shears, while fresh surfaces are dark grey to medium green. The siltstone beds are up to 10 cm thick and the mudstone beds are thin, less than 0.5 cm and rarely measuring up to 4 cm thick laminae (Figure GS-18-6a). Unit 2 rocks are very fine grained; therefore, mineralogy beyond ~2% magnetite is difficult to ascertain through outcrop observations only. Microscopic work on thin sections indicates that the mudstone layers are made up of hornblende, diopside and biotite with accessory garnet, and interlayered with thin quartz-rich beds.

Standing higher than the laminated beds are quartz-rich, medium- to coarse-grained leucosome veins, which range from 1 cm up to 30 cm thick and make up ~5% of the outcrop. Most of the veins are composed of recrystallized, subequal quartz and feldspar. Quartzo-feldspathic

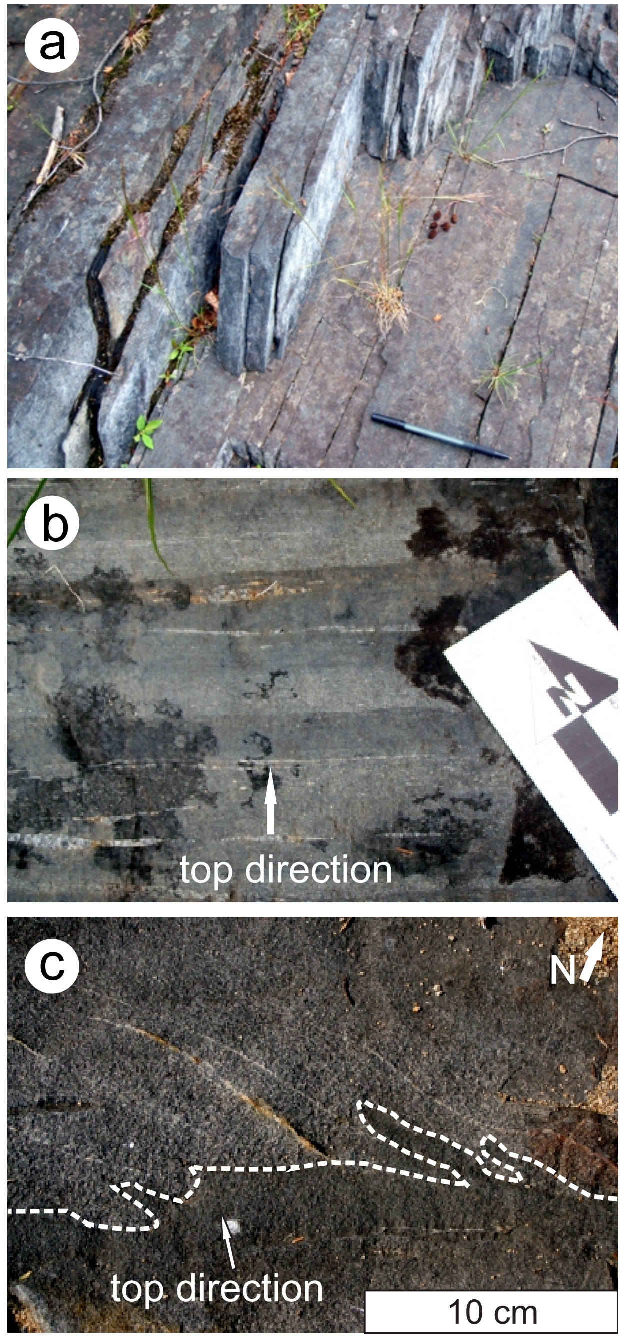

Figure GS-18-6: *Representative rock types:* ***a)*** *siltstone-mudstone with minor mafic volcanic rocks (pen is approximately 15 cm long);* ***b)*** *sandstone-siltstone-mudstone showing rhythmic turbidite beds (scale card is approximately 15 cm long); and* ***c)*** *sandstone-siltstone beds showing flame structures, indicating younging direction.*

pebbles and clasts up to 3.5 cm long and 0.75 cm wide are stretched by a ratio of 3:1, folded and appear rotated clockwise by ~40° from the unit gneissosity.

Sandstone-siltstone-mudstone (unit 3)

The sandstone-siltstone-mudstone alternates with the sandstone-siltstone (unit 4) described below. The cleanest exposures indicate the sandstone-siltstone-mudstone forms part of a turbidite sequence (Figure GS-18-6b), the beds appear rhythmic and repetitive with normal graded bedding suggesting tops are mostly to the northeast (~30°); however, a few outcrops exhibit tops grading to the south, suggesting the beds are structurally folded/overturned. Flame structures, scouring and rare mafic rip-up clasts up to 0.3 cm wide by 4 cm long all indicate a top direction to the north. The weathered and fresh surfaces of the sandstone-siltstone-mudstone sequence are similar: dark to light grey, greenish grey to black and more rarely buff.

Discrete medium- to coarse-grained, boudinaged arkosic arenite beds are oriented along bedding and gneissosity; they range in width from 7 to 50 cm and make up ~1–15% of the outcrop. The beds are composed of mostly feldspar (~70%) and quartz (~30%) and appear to have been deposited during episodic events as part of the turbidite succession.

In contrast to the arkose described above, medium-grained, quartz-rich sandstone with rare pebbly beds range from 5 to 14 cm in width and grade into the siltstone beds. The sandstone beds display reverse erosion with grains standing higher than the relatively recessive siltstone beds, and are gritty to touch. Most of the sandstone beds are composed of subequal quartz and plagioclase with lesser biotite and amphibole, and rare muscovite. The fine- to medium-grained siltstone beds range from 3 to 7 cm in width and are composed of more biotite and amphibole with lesser quartz and plagioclase.

Mudstone beds appear more laminated than the siltstone and sandstone beds, ranging from 2 to 3 cm, and are very fine grained and slightly magnetic. The mudstone is sheared and schistose in places and recessively eroded. Several thin, fine-grained, greenish layers indicate chlorite and epidote alteration. The mudstone layers are composed of mostly biotite, with lesser amphibole but more plagioclase than quartz.

Sporadic, medium- to coarse-grained, feldspar-quartz leucosome veins and lenticular epidote-bearing pebbles are rotated 45° in the sandstone-siltstone-mudstone. Deformed sandstone clasts make up less than 1% of the exposed rock, are less than 10 cm wide and are stretched by a ratio of 3:1. The veins exhibit a multideformational history, they are locally boudinaged or folded in the same orientation as the foliation plane, and in places the veins are perfectly straight within the boudinaged beds.

Sandstone-siltstone (unit 4)

The sandstone-siltstone outcrops are similar to the previously described sandstone-siltstone-mudstone, but without a significant mudstone presence. The sandstone-siltstone forms continuous beds, weathers light grey to medium green-grey, with light to dark grey on fresh surfaces. Consistent normal sand to silt grading, mudstone rip-up clasts (3 by 3 cm), rare flame structures (Figure GS-18-6c) and scours indicate the sandstone-siltstone beds are part of a turbidite sequence, with a mostly northerly top direction.

Boudinaged, coarse- to very coarse grained arkosic arenite beds form lenticular blocks up to 1.5 m wide by 3 m in length, and overall composes up to 5% of the sandstone-siltstone unit. Within the boudins are coarse-grained, quartz-feldspar–rich leucosome veins usually <3 cm in width, some of which are folded and others are perfectly straight.

In contrast to the above arkose, sandstone beds are mostly medium grained, and although they may range from 3 to 20 cm in width, they are usually approximately 8 cm, and mineralogically contain subequal to more quartz than plagioclase with lesser biotite, and accessory muscovite and magnetite. Sporadic coarse-grained and stretched quartzofeldspathic pebbles up to 2 by 5 cm are found randomly at the sandstone bedding base.

The siltstone beds range in width from 5 to 10 cm and are composed of more biotite, with less amphibole and quartz, with lesser plagioclase; disseminated magnetite varies from accessory to locally up to 20%.

Economic considerations

Manitoba has a rich history of mineral exploration and mining, yet many First Nation communities in Manitoba have not been participants in the historical development of mineral exploration and mining in their traditional land-use areas. When mineral-exploration or mineral-extraction activities occur in their traditional land-use area, proactively informed First Nation communities are able to participate in resolving potential impacts to hunting, fishing, culturally sacred spaces and the environment, and take part in the development of economic opportunities derived from the mineral resources sector.

The MGS community liaison program provides First Nation communities with key geoscientific tools and land-use information necessary to become more involved when mineral-resource opportunities present themselves. Collaborative projects, through government or industry initiatives, have the potential to develop strong communicative relationships; therefore, by working together all Manitobans will benefit.

The section of the Munroe Lake greenstone belt located in the south basin of Gods Lake is a sulphide-bearing volcano-sedimentary sequence with significant rusty zones and variable magnetite. The geological deposition and tectonic environment is similar to that of larger known gold-bearing greenstone belts in the northern Superior province; therefore, the Munroe Lake greenstone belt along its extent could contain tectonically controlled gold mineralization (Knee Lake belt, Corkery et al., 2000; Rice Lake belt, Anderson, 2008). More studies of this sequence could be undertaken to more accurately determine its linear continuity and to identify its potential for gold or base metals in other areas along that extent.

Acknowledgments

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