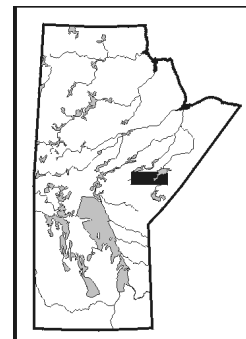


**GS-17 OPERATION SUPERIOR: MULTIMEDIA GEOCHEMICAL SURVEYS IN THE
KNIFE LAKE, WEBBER LAKE, GOOSE LAKE AND ECHIMAMISH RIVER
GREENSTONE BELTS, NORTHERN SUPERIOR PROVINCE, MANITOBA (NTS 53L AND 53K)**

by M.A.F. Fedikow and E. Nielsen



Fedikow, M.A.F. and Nielsen, E. 1998: Operation Superior: multimedia geochemical surveys in the Knife Lake, Webber Lake, Goose Lake and Echimamish River greenstone belts, northern Superior Province, Manitoba (NTS 53L and 53K); in Manitoba Energy and Mines, Geological Services, Report of Activities, 1998, p. 75-77.

SUMMARY

During the months of June, July and August, 1998 rock, till, b-horizon, humus and vegetation samples were collected for multi-element geochemical analysis from 208 sites within greenstone belts exposed in the Knife Lake, Webber Lake, Goose Lake and Aswapiswanan Lake areas. In addition, 182 bulk samples of till were collected for kimberlite indicator mineral identification and analysis. The geochemical and mineralogical analysis of these samples will continue to build a multi-element - multimedia geochemical database that was initiated in 1996 and continued in 1997 (Fedikow et al., 1996, 1997a, b) to assist mineral resource assessment in the northern Superior Province of Manitoba.

1998 SURVEY

Year three of a five year, helicopter and fixed-wing assisted, belt scale (1 km sample spacing), multimedia geochemical survey in northeastern Manitoba was concentrated in the recently burned Knife Lake - Chataway Lake areas, the Goose Lake greenstone belt, a greenstone belt in the southwest Webber Lake area and in the Aswapiswanan Lake area of the Echimamish River belt (Fig. GS-17-1).

The Aswapiswanan Lake area represents the eastern extension of the greenstone belt that hosts an extensive alteration and mineralized zone described by Fedikow et al. (1997a, b). This extensive area occurs south and east of Max Lake where intense forest fires have exposed bare outcrop ridges that consist of locally sulphidized oxide facies (chert-magnetite) iron formation, garnet-rich rusty-weathered felsic volcaniclastic rocks, and silicified, epidotized and strongly rusty-weathered, pillow basalts with associated cross-cutting garnet-chlorite veins and interlayered, strongly rusty-weathered, felsic volcaniclastic rocks. These rocks are exposed over an area of approximately 10 km X 2 km and the zone can be extended eastward under vegetation cover for an additional several kilometres based on aeromagnetic signatures. Monomineralic solid sulphide pyrite layers are exposed in outcrop in this area. This altered and mineralized zone is characterized by high contrast multimedia (all sample types) geochemical signatures including b-horizon soil enzyme leach responses. Work in the Aswapiswanan Lake area and further west, during this years sampling program, identified solidified, epidotized and rusty-weathered pillow basalts similar to those described above.

The results for the 1996 multimedia geochemical survey including those for the Max Lake area have been released as open file reports OF97-1 and OF97-2 (Fedikow et al., 1997a, b). A preliminary description of the 1997 program is given in Fedikow and Nielsen (1997c). Results of the 1997 field survey were released in September of 1998 (Fedikow et al., 1998).

The distribution of sampling sites for the 1998 survey is given in Figure GS-17-2. Some difficulties were encountered in locating helicopter landing sites in the Chataway Lake and Goose Lake areas and as such sample spacing is less dense in these areas. Samples are currently undergoing preparation for geochemical analysis.







ACKNOWLEDGEMENTS

We greatly acknowledge the considerable skills of Messrs. M. Brown and R. Fournier, Provincial Helicopters Ltd. (Lac du Bonnet) in safely accessing sample sites for the 1998 season. Eddie and Stella Cull, Red Sucker Lake Air Services Ltd. and Rob McMillan, airport manager at Red Sucker Lake are thanked for logistical support throughout the 1998 season. Steve Newton and Melissa Lewandoski provided able and enthusiastic assistance during the sampling program.

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TARGET AREAS FOR MULTI-MEDIA GEOCHEMICAL SAMPLING

-  1998 Multi-media geochemical surveys
-  1997 Multi-media geochemical surveys
-  1996 Multi-media geochemical surveys
-  Limits of greenstone, gabbro/sediment belts
-  Proposed survey boundary
-  Faults

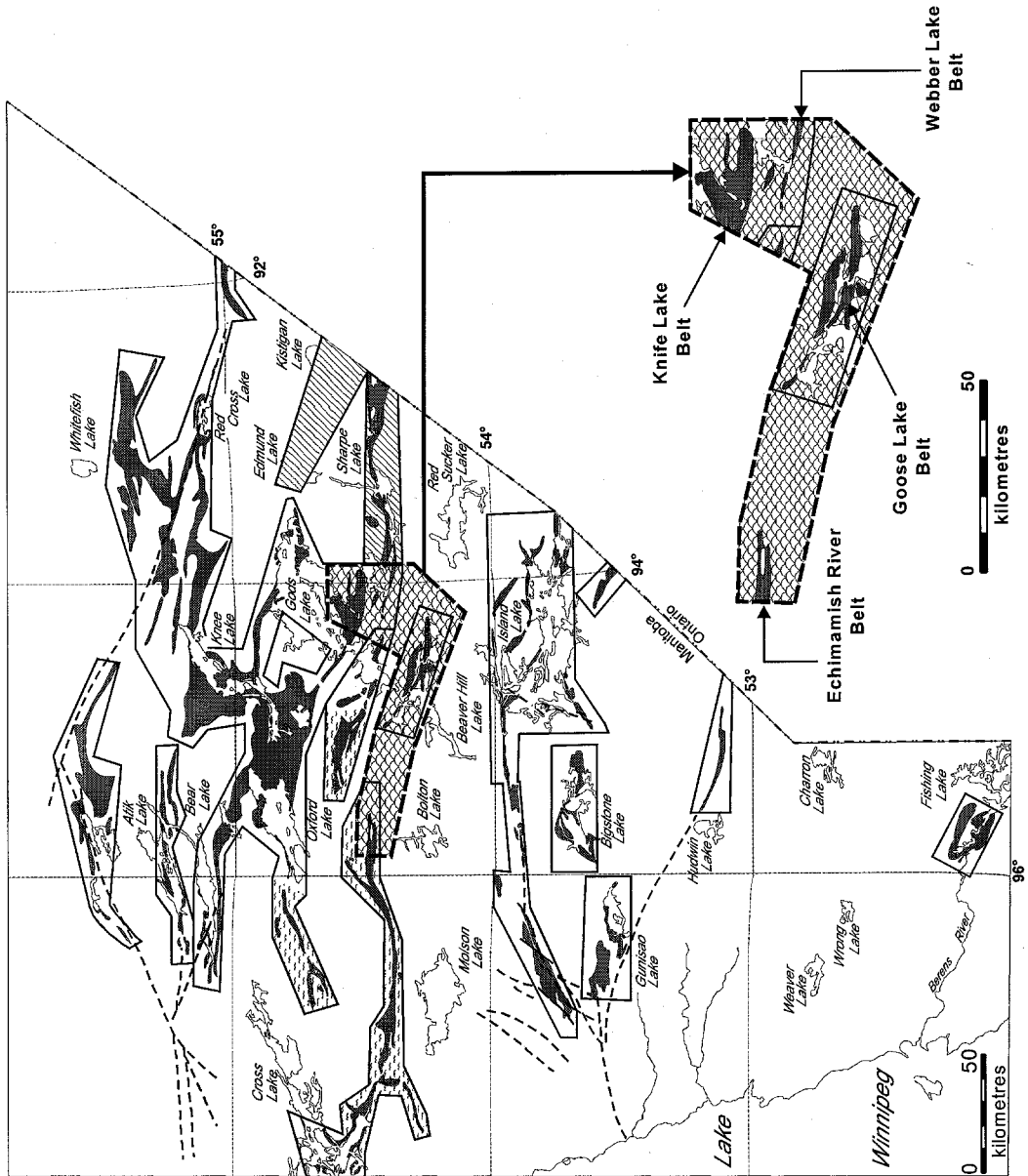


Figure GS-17-1: Target areas for multimedia geochemical surveys, 1998.

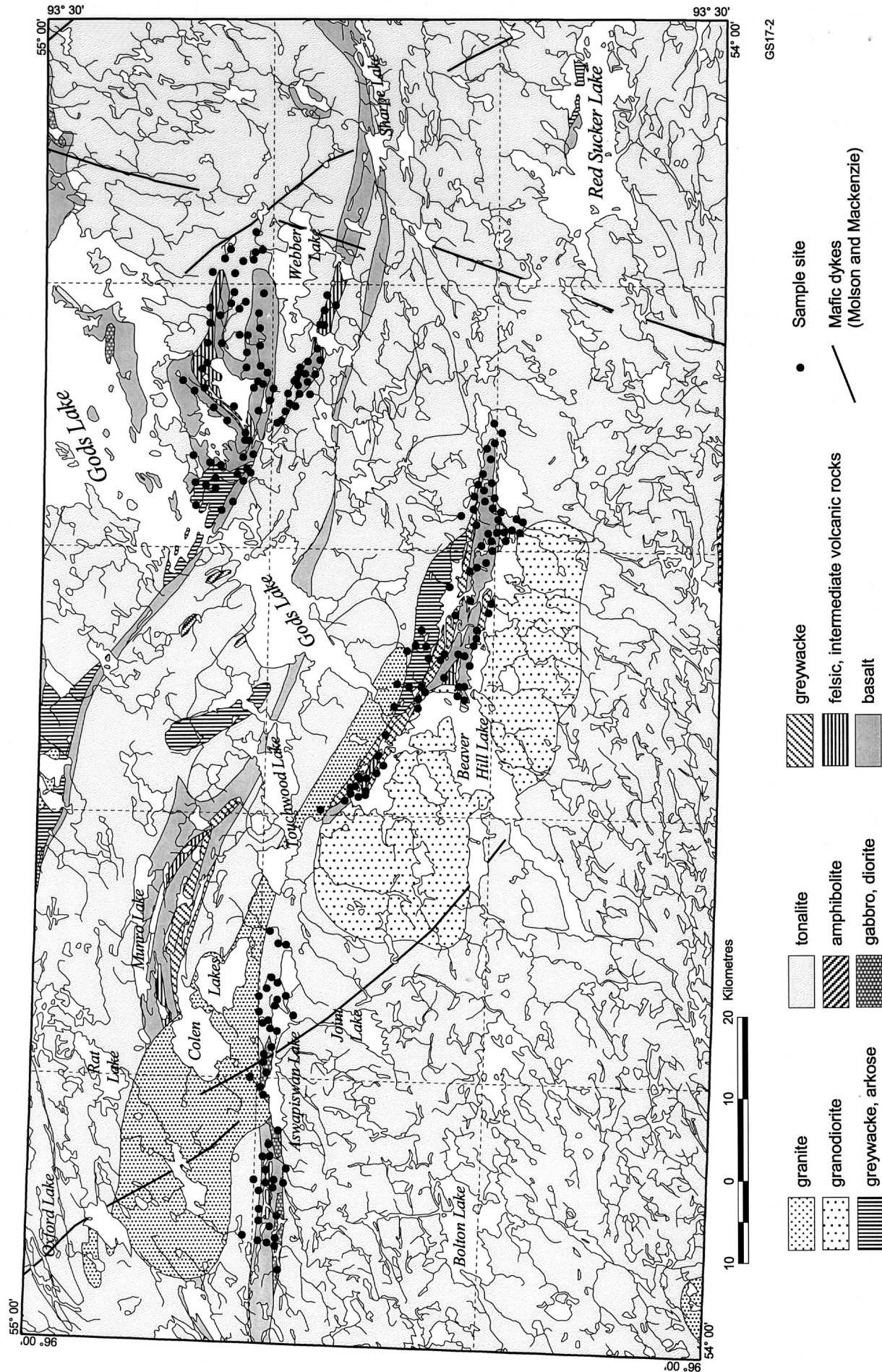


Figure GS-17-2: Distribution of sampling sites for the 1998 survey areas.