

INTRODUCTION

New geochemical data from re-analysis of archived stream sediment samples have been assessed using weighted sums modeling (WSM) and catchment basin analysis as described in the methodology report that accompanies this map (Mackie et al., 2015). In addition to a series of maps displaying WSM results, a catchment map of stream water pH has also been constructed.

SAMPLING AND ANALYSIS PROGRAMS

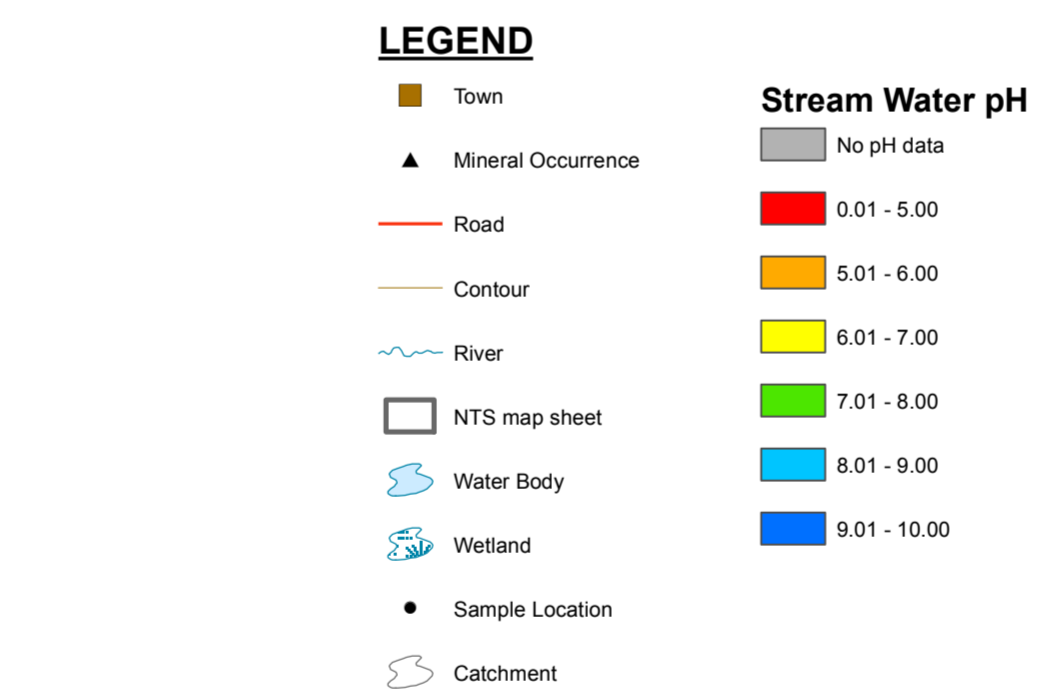
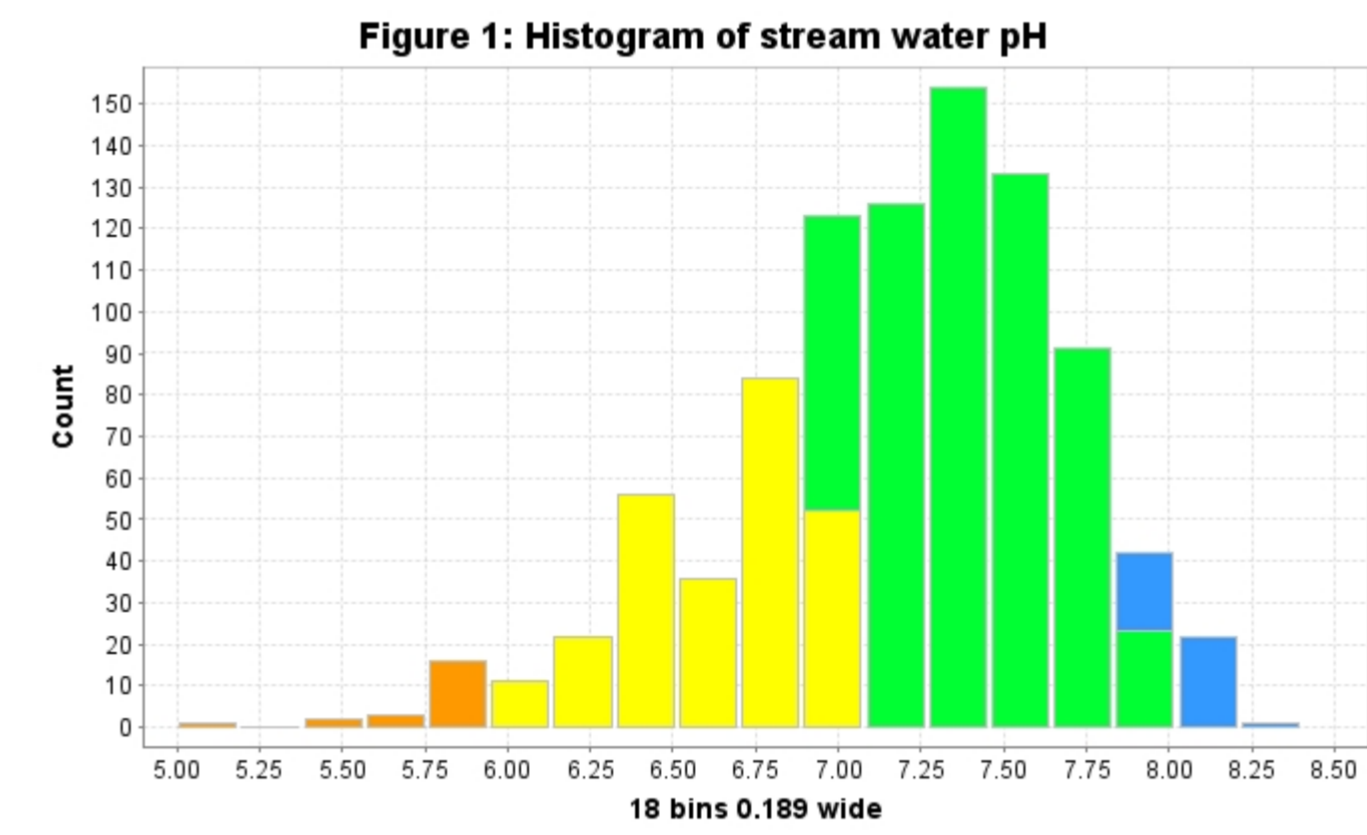
Stream sediment and water samples from the Carmacks area (NTS 1151) were collected at a reconnaissance scale in 1985 under the direction of the Geological Survey of Canada (GSC) in conjunction with the Department of Indian Affairs and Northern Development and the government of Yukon (Geological Survey of Canada, 1986). Geochemical data for 951 sample sites were first released in GSC Open File 1220 (Geological Survey of Canada, 1986). As part of an ongoing database upgrade project by the Yukon Geological Survey (YGS), archived sample material has been re-analysed by inductively coupled plasma mass spectrometry following an aqua-regia digestion as described in YGS Open File 2015-14 (Jackaman, 2015). The reader is referred to these reports for detailed descriptions of sampling techniques, analytical procedures and quality control measures.

MINERAL OCCURRENCES

The Carmacks area contains several significant base and precious-metal deposits of various types (Table 1). These include the Minto Cu-Au-Ag mine, past producing Mt. Nansen epithermal Au-Ag and Caribou Creek Au mines, Klaza and Tintina polymetallic Ag-Au-Pb-Zn deposits and the Nucleus and Revenue Cu-Mo-Au porphyry deposits. The Casino Cu-Mo-Au porphyry deposit occurs in the adjacent map area to the west supporting the prospectivity of the region for this deposit type.

STREAM WATER pH

As shown in Figure 1 the vast majority of the streams sampled have near-neutral pH (median = 7.2). Regional trends in stream water pH are evident but do not correspond to specific lithological map units. Streams with pH values less than six are associated with, primarily, felsic intrusions and biotite-muscovite schist in the western half of the map area. Streams with catchments that contain mineral occurrences are not notably acidic suggesting that any signal related to the oxidation of near-surface sulphides has been diluted or neutralized.



**Table 1: List of Mineral Occurrences for NTS map sheet 1151 (Yukon MINFILE, 2015)**

Number	Name	Type	Status	Commodities
1151068	DIVDE	Vein Au-Quartz	Drilled Prospect	Gold, Silver
1151069	SCHST	Ultramafic Mafic Gabbroid Cu-Ni-PGE	Anomaly	Asbestos, Copper, Nickel
1151070	MALONEY	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Molybdenum, Gold, Silver, Tungsten
1151071	CHART	Unknown	Unknown	Copper
1151074	COMANCHE	Porphyry Cu-Mo-Au	Drilled Prospect	Copper
1151075	NORTHSTAR	Unknown	Anomaly	Copper
1151076	TUF	Porphyry Cu-Mo-Au	Showing	Copper
1151077	CROSSING	Vein Cu+/Ag-Quartz	Showing	Copper
1151079	ORI	Porphyry Cu-Mo-Au	Anomaly	Copper, Gold
1151080	RICO	Unknown	Anomaly	Copper, Lead, Zinc, Gold
1151081	KERR	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Molybdenum
1151083	MEYERS	Unknown	Unknown	Copper
1151084	LONEY	Vein Au-Quartz	Showing	Copper, Silver, Gold
1151085	CAR	Vein & Disseminations Siltstone	Prospect	Antimony, Copper, Tungsten, Silver, Mercury, Lead, Gold, Arsenic
1151086	ROVILINSON	Vein & Disseminations Siltstone	Showing	Antimony, Mercury, Silver, Arsenic, Gold
1151087	KOOK	Porphyry Cu-Mo-Au	Anomaly	Copper, Molybdenum
1151088	BATH	Porphyry Alkali-Cu-Au	Anomaly	Antimony, Copper
1151092	RINK	Coal	Anomaly	Coal
1151093	GOUTLER	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Gold, Lead, Molybdenum, Zinc, Silver
1151095	BLUFF	Vein Cu+/Ag-Quartz	Showing	Copper, Silver, Zinc, Gold
1151096	RUBK	Vein Polymetallic Ag-Pb-Zn+/Au	Drilled Prospect	Copper, Lead, Silver, Molybdenum, Gold
1151098	HLAVAY	Coal	Drilled Prospect	Coal
1151100	HITTS	Epithermal Au-Ag-Cu: High Sulphidation	Showing	Antimony, Mercury, Arsenic, Gold
1151103	LIMBY	Porphyry Cu-Mo-Au	Anomaly	Copper, Molybdenum
1151105	MERIDIAN	Vein Polymetallic Ag-Pb-Zn+/Au	Drilled Prospect	Lead, Silver, Zinc
1151106	HAPPY	Vein Au-Quartz	Showing	Gold, Lead, Zinc
1151107	NUCLEUS	Porphyry Cu-Mo-Au	Deposit	Gold, Silver, Copper, Tungsten, Molybdenum
1151108	TOOT	Porphyry Cu-Mo-Au	Showing	Copper
1151110	ROW	Unknown	Anomaly	Copper, Silver, Zinc, Lead
1151111	ANTONIK	Porphyry Subvolcanic Cu-Au-Ag (As-Sb)	Deposit	Gold, Silver, Copper
1151112	WHALE	Vein Au-Quartz	Drilled Prospect	Gold, Silver
1151113	FIELD	Unknown	Anomaly	Gold
1151115	TOAST	Unknown	Anomaly	Gold
1151117	DIC	Vein Polymetallic Ag-Pb-Zn+/Au	Showing	Antimony, Gold, Copper, Lead, Silver, Zinc
1151119	DOWNS	Epithermal Au-Ag-Cu: High Sulphidation	Drilled Prospect	Gold
1151120	ELEPHANT	Epithermal Au-Ag-Cu: High Sulphidation	Anomaly	Copper, Silver, Zinc, Silver, Gold
1151121	STODDART	Vein Au-Quartz	Showing	Antimony, Gold, Copper, Lead, Silver, Zinc
1151122	GRZLY	Vein Au-Quartz	Showing	Gold, Silver, Tungsten
1151123	ANG	Unknown	Showing	Gold
1151001	SOUTH TANTALUS	Coal	Deposit	Coal
1151002	TANTALUS MINE	Coal	Past Producer	Coal
1151003	TANTALUS BUTTE	Coal	Past Producer	Coal
1151004	FIVE FINGERS	Coal	Past Producer	Coal
1151006	BCICE	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Gold
1151008	CARMACKS COPPER	Porphyry Alkali-Cu-Au	Deposit	Copper, Gold, Copper - Oxide, Copper - Total, Copper - Sulphide, Silver
1151012	MAUD	Unknown	Unknown	Unknown
1151013	HOOCHKOD	Vein Cu+/Ag-Quartz	Showing	Copper, Gold, Silver
1151017	TOWHATA	Unknown	Anomaly	Coal
1151018	NEEDLEROCK	Coal	Showing	Coal
1151019	BRADENS CANYON	Vein Cu+/Ag-Quartz	Prospect	Copper, Silver
1151020	COON	Vein Cu+/Ag-Quartz	Drilled Prospect	Copper, Gold, Silver
1151021	NINTO	Porphyry Alkali-Cu-Au	Producer	Copper, Silver, Gold, Lead, Zinc
1151022	NINTO NORTH	Porphyry Alkali-Cu-Au	Deposit	Copper, Silver, Gold
1151023	PAL	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Gold, Silver
1151025	GRENER	Coal	Showing	Coal
1151028	PELLEY	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Molybdenum
1151029	AMADEUS	Porphyry Cu-Mo-Au	Drilled Prospect	Antimony, Arsenic, Copper, Zinc, Lead, Silver, Gold
1151031	TADTORO	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Gold, Zinc, Molybdenum, Silver, Lead
1151032	PHELPS	Vein Polymetallic Ag-Pb-Zn+/Au	Showing	Copper, Molybdenum, Lead
1151034	PROSPECTOR MOUNTAIN	Vein Polymetallic Ag-Pb-Zn+/Au	Drilled Prospect	Copper, Silver, Zinc, Gold, Lead
1151036	STARBRD	Porphyry Subvolcanic Cu-Au-Ag (As-Sb)	Showing	Copper, Zinc, Silver
1151037	CASH	Porphyry Cu-Mo-Au	Deposit	Copper, Molybdenum, Zinc, Silver, Gold, Antimony, Lead
1151038	KLAZAN	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Gold, Silver, Molybdenum
1151039	COM	Porphyry Cu-Mo-Au	Anomaly	Copper, Fluorite, Tungsten
1151042	REVENUE	Porphyry Cu-Mo-Au	Deposit	Copper, Gold, Silver, Molybdenum, Tungsten
1151043	COMBO	Vein Polymetallic Ag-Pb-Zn+/Au	Showing	Gold, Tungsten, Zinc, Lead, Silver
1151045	NEWIKRK	Porphyry Cu-Mo-Au	Showing	Copper, Zinc, Molybdenum
1151046	L.E.	Vein Au-Quartz	Showing	Gold
1151047	TRITOP	Porphyry Mo (Low F-Type)	Anomaly	Copper, Molybdenum, Gold
1151048	EDGAR	Porphyry Cu-Mo-Au	Anomaly	Copper, Molybdenum
1151049	CARIBOU CREEK	Vein Au-Quartz	Past Producer	Gold, Silver
1151050	GRANGER	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Silver, Molybdenum, Gold
1151051	CASTLE	Vein Cu+/Ag-Quartz	Showing	Antimony, Gold, Copper, Lead, Zinc, Silver
1151052	RED FOX	Vein Polymetallic Ag-Pb-Zn+/Au	Drilled Prospect	Gold, Lead, Zinc, Silver
1151053	GLEUER	Skarn Au	Deposit	Silver, Gold
1151054	LAFORMA	Epithermal Au-Ag-Cu: High Sulphidation	Deposit	Silver, Gold, Lead, Zinc, Copper
1151055	EMMONS HILL	Epithermal Au-Ag-Cu: High Sulphidation	Drilled Prospect	Antimony, Mercury, Silver, Gold
1151056	TINTA HILL	Vein Polymetallic Ag-Pb-Zn+/Au	Deposit	Copper, Gold, Zinc, Silver, Lead
1151060	WOLF	Unknown	Anomaly	Arsenic, Gold
1151062	FOSTER	Skarn Au	Showing	Gold
1151064	BROWN-MCDADE	Epithermal Au-Ag-Cu: High Sulphidation	Past Producer	Gold, Silver, Lead, Copper, Zinc, Antimony
1151065	MOUNT NANSEN	Epithermal Au-Ag-Cu: High Sulphidation	Past Producer	Silver, Gold
1151066	CYPRUS	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Gold, Molybdenum
1151005	CONGLOMERATE	Unknown	Anomaly	Copper, Silver, Gold
1151011	STU	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Silver, Gold
1151067	KLAZA	Vein Polymetallic Ag-Pb-Zn+/Au	Deposit	Copper, Gold, Zinc, Silver, Lead
1151069	RAND	Unknown	Unknown	Unknown
1151069	ZERO	Unknown	Unknown	Unknown
1151090	CHAT	Unknown	Unknown	Unknown
1151028	MINNESOTA	Vein Au-Quartz	Unknown	Unknown
1151033	TERRA	Unknown	Anomaly	Unknown
1151081	OPAL	Unknown	Unknown	Unknown
1151101	PANTHER	Epithermal Au-Ag-Cu: High Sulphidation	Anomaly	Arsenic, Gold
1151094	GIANT	Porphyry Cu-Mo-Au	Anomaly	Copper
1151124	ICE	Porphyry Cu-Mo-Au	Anomaly	Copper
1151125	PEPPER	Porphyry Cu-Mo-Au	Anomaly	Copper
1151014	VERLENE	Porphyry Cu-Mo-Au	Unknown	Copper, Silver, Gold
1151089	BEAVON	Unknown	Unknown	Copper
1151128	BLUTER	Porphyry Cu-Mo-Au	Anomaly	Copper, Gold
1151127	HOOCHIE	Porphyry Cu-Mo-Au	Anomaly	Copper, Gold
1151128	GRAN	Porphyry Cu-Mo-Au	Anomaly	Copper
1151010	BONANZA CREEK	Vein Cu+/Ag-Quartz	Prospect	Copper, Gold, Silver
1151007	WS	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Silver, Gold
1151009	MERRICE	Vein Cu+/Ag-Quartz	Showing	Copper, Silver, Gold
1151057	GRANITE MOUNTAIN	Vein Polymetallic Ag-Pb-Zn+/Au	Drilled Prospect	Copper, Molybdenum, Gold
1151068	KIRBY	Unknown	Unknown	Unknown
1151072	PHEOBE	Unknown	Unknown	Unknown
1151044	EGG	Unknown	Unknown	Unknown
1151082	LESS	Unknown	Anomaly	Unknown
1151091	MCCABE	Unknown	Drilled Prospect	Unknown
1151024	ADERA	Porphyry Cu-Mo-Au	Anomaly	Unknown
1151097	BOHLEN	Unknown	Anomaly	Unknown
1151114	TATLAMAN	Unknown	Anomaly	Unknown
1151027	NIX	Unknown	Showing	Unknown
1151090	SAM	Unknown	Anomaly	Unknown
1151015	LYDEN	Vein Au-Quartz	Showing	Unknown
1151040	SPOKANE	Skarn Cu	Anomaly	Unknown

REFERENCES

- Geological Survey of Canada, 1986. Regional stream sediment and water geochemical reconnaissance data, southern Yukon (NTS 1151). Geological Survey of Canada, Open File 1220.
- Jackaman, W., 2015. Regional stream sediment geochemical data, Carmacks area, southern Yukon (NTS 1151). Yukon Geological Survey, Open File 2015-14.
- Mackie, R., Arne, D. and Brown, O., 2015. Enhanced interpretation of regional stream sediment (RGS) geochemical data from Yukon: catchment basin analysis and weighted sums modeling. Yukon Geological Survey, Open File Report 2015-10.
- Yukon MINFILE, 2015. Yukon MINFILE - A database of mineral occurrences. Yukon Geological Survey, www.data.geology.gov.yk.ca, accessed May 2015.

RECOMMENDED CITATION

MACKIE, R., ARNE, D. AND PENNIMPEDE, C., 2016. Stream water pH. In: Enhanced interpretation of stream sediment geochemical data for NTS map sheet 1151. Yukon Geological Survey, Open File 2016-14, scale 1:250 000, sheet 15 of 15.

Catchment basin polygons generated by the Yukon Geological Survey (J. O. Bruce).  
Any revisions or additional geological information known to the user would be welcomed by the Yukon Geological Survey.

Paper copies of this map and the accompanying report may be obtained from the Yukon Geological Survey, Energy, Mines and Resources, Government of Yukon, Room 102-300 Main St., Whitehorse, Yukon, Y1A 2B5. Ph. 867-667-3201, Email geology@gov.yk.ca.

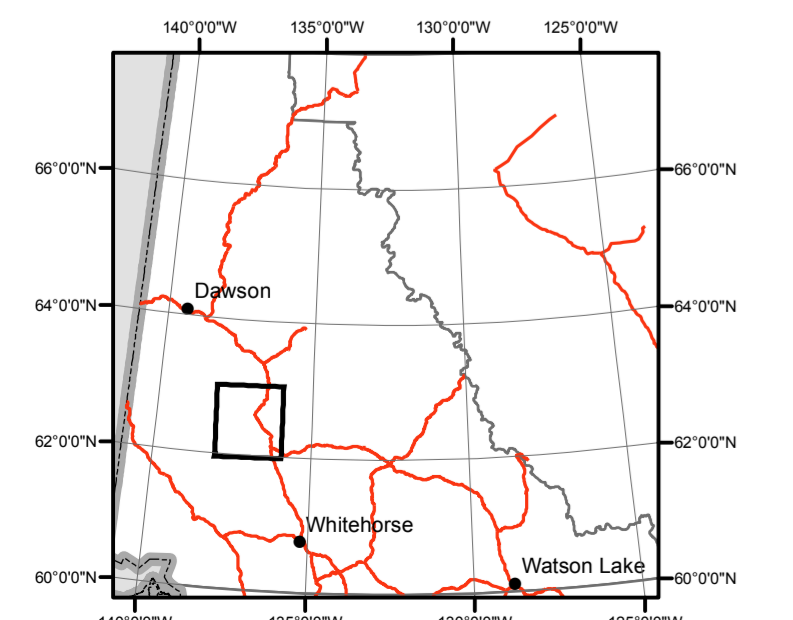
A digital PDF (Portable Document File) file of this map may be downloaded free of charge from the Yukon Geological Survey website: <http://www.geology.gov.yk.ca>.

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Open File 2016-14

**Stream Water pH (NTS 1151)**  
**Sheet 15 of 15**

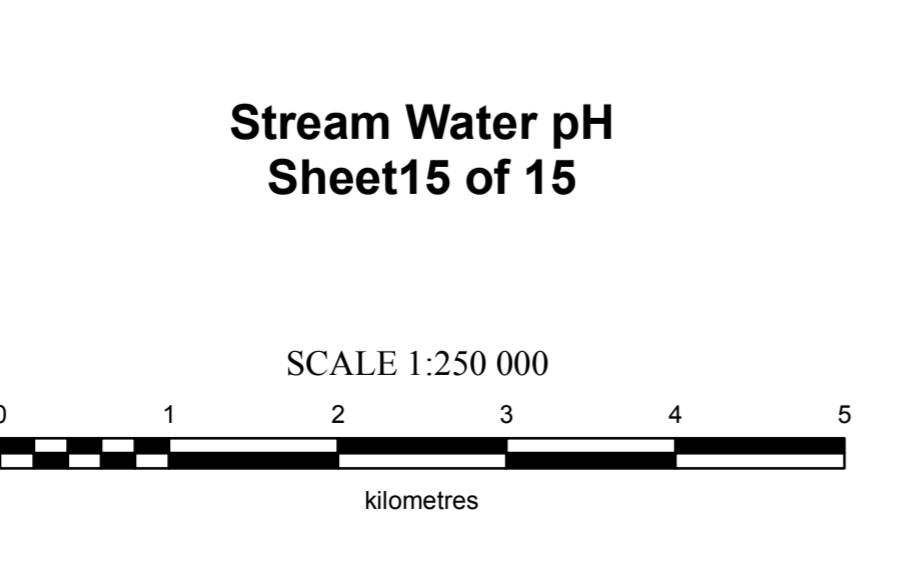
by  
Rob Mackie, Dennis Arne,  
and Chris Pennimpe



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ONE THOUSAND METRE GRID  
Universal Transverse Mercator Projection  
North American Datum 1983  
Zone 8

CONTOUR INTERVAL 100 FEET  
Elevations in metres above Mean Sea Level



1150 STEWART RIVER	115P MCQUESTEN	105M MAYO
115J STEVENSON RIDGE	<b>THIS MAP</b> 115I	105L GLENLYON
115G KLUANE LAKE	115H AISHIHK LAKE	105E LAKE LABERGE