

### 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. Anomalously low pH values (e.g., <5) in stream water could be related to oxidation of near-surface sulphide minerals.

### SAMPLING AND ANALYSIS PROGRAMS

Stream sediment and water samples from the Watson Lake and Coal River areas (NTS 105A and 95D, respectively) were collected at a reconnaissance scale in 1995 as part of the Canada-Yukon Mineral Resource Development Cooperation Agreement (Friske *et al.*, 1996). Field descriptions and initial geochemical data, including stream water pH, for 1117 sites were released in Geological Survey of Canada (GSC) Open File 3293. New geochemical data from the re-analysis of archive sample material from 824 sites were released in Yukon Geological Survey (YGS) Open File 2012-10 (Jackaman, 2012). The reader is referred to these reports for detailed descriptions of sampling techniques, analytical procedures and quality control measures.

### MINERAL OCCURRENCES

A variety of types of base and precious-metal mineralization are known to occur in the Watson Lake and Coal River area as shown in Table 1 (Yukon MINFILE, 2015). The most significant deposits are classed as intrusion-related gold (Hyland Deposit), Polymetallic Ag-Pb-Zn manto (past producing Mt. Hunderer Mine & McMillan deposit) and W skarn (Bailey deposit). Other types of mineralization include various Pb-Zn deposits and prospects such as the Ritco (Skarn), Balon (SEDEX), Jeri and Jeri-North (SEDEX or MVT), and Sambo (VMS). The volcanic and sedimentary package that hosts VMS mineralization in the Finlayson Lake district extends into the Watson Lake map area indicating a high prospectivity for this style of mineralization.

### STREAM WATER pH

As shown in Figure 1 the vast majority of the streams sampled have water with mildly alkaline pH (median = 8.0). Comparison of the location of known occurrences and stream water pH shows no obvious relationship suggesting any response from oxidation of near-surface sulphides related to these occurrences has been diluted or neutralized, or is indistinguishable changes in background due to varying geology. However, there are two samples with pH values less than 6 which could be related to sulphide mineralization. No known occurrences have been documented in the corresponding catchments.

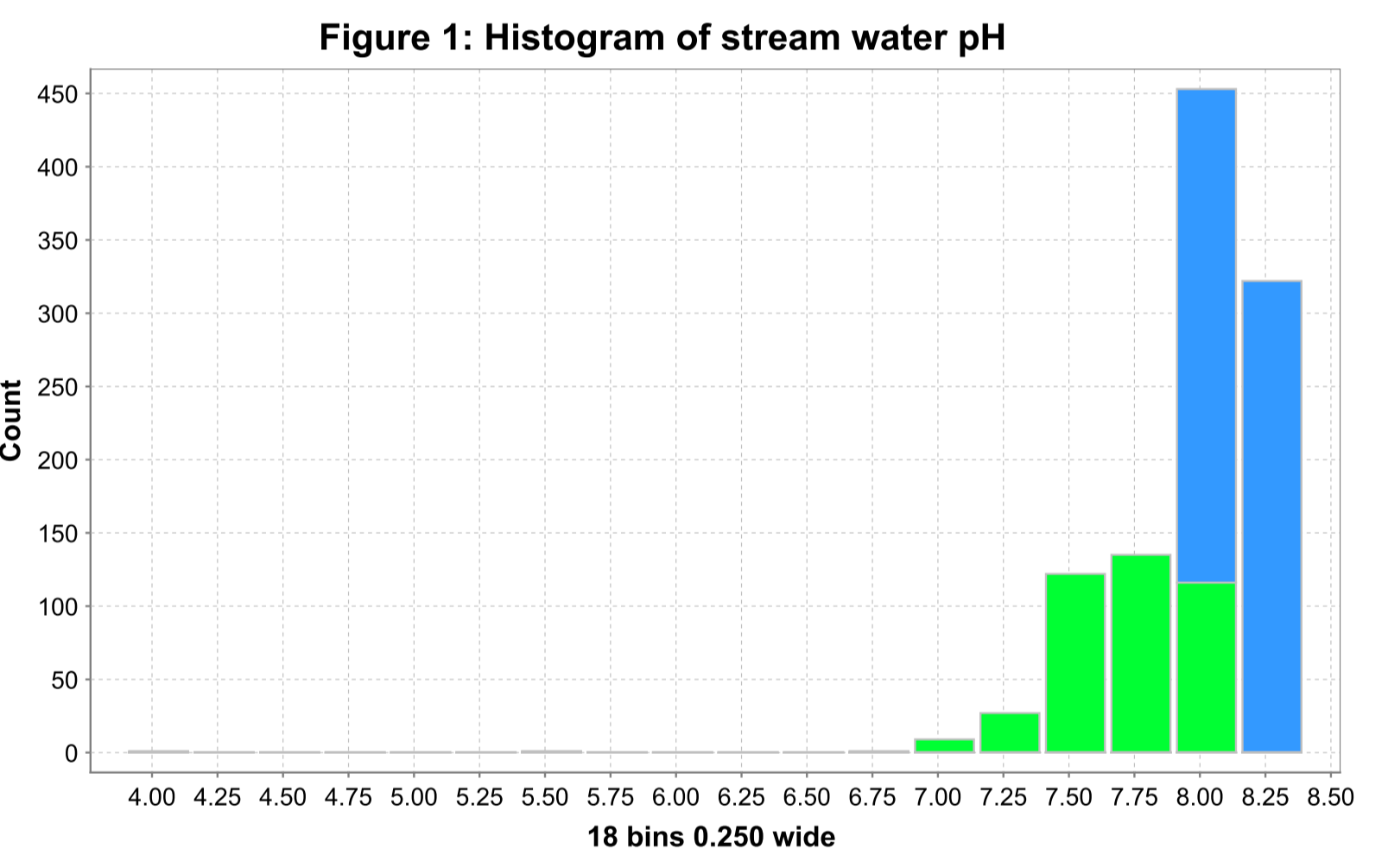
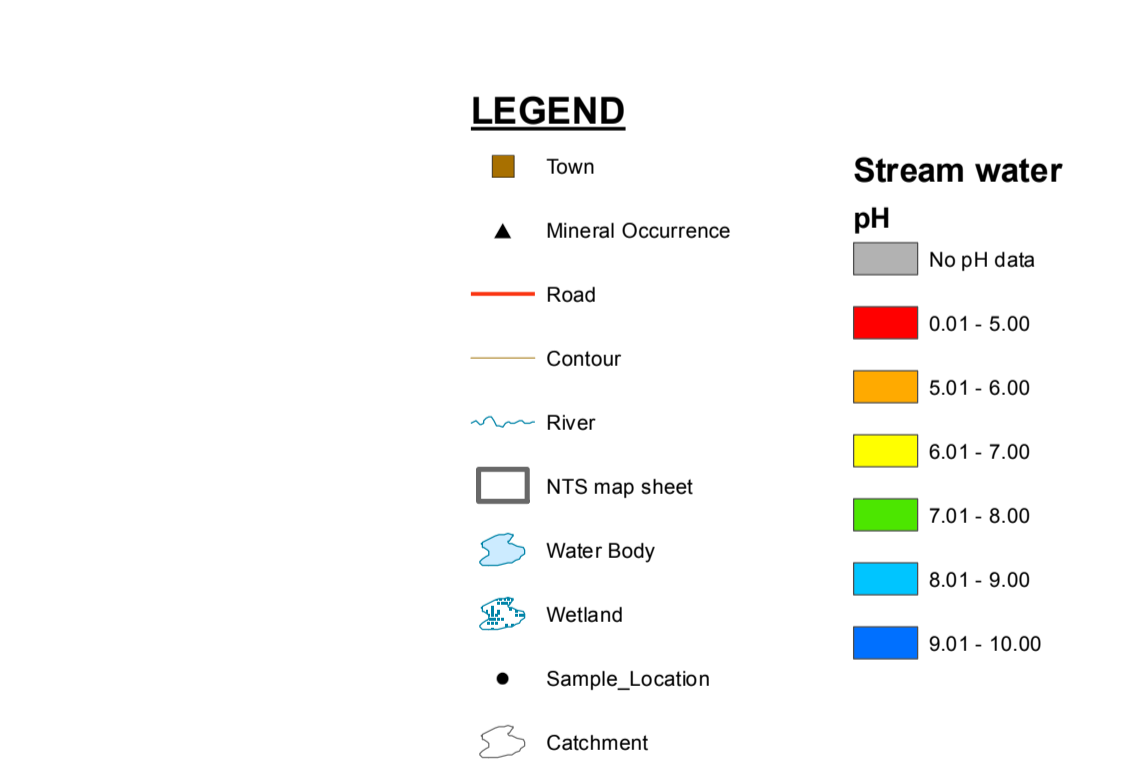
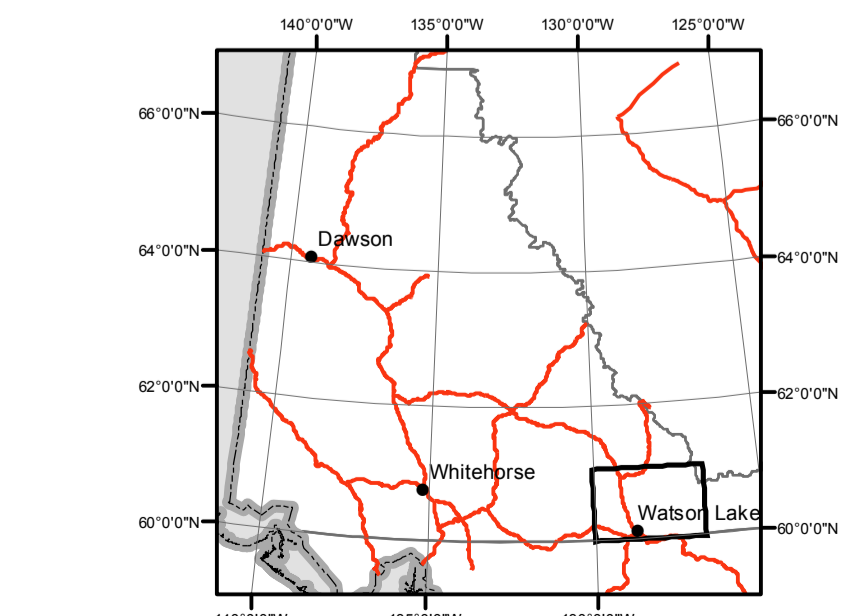


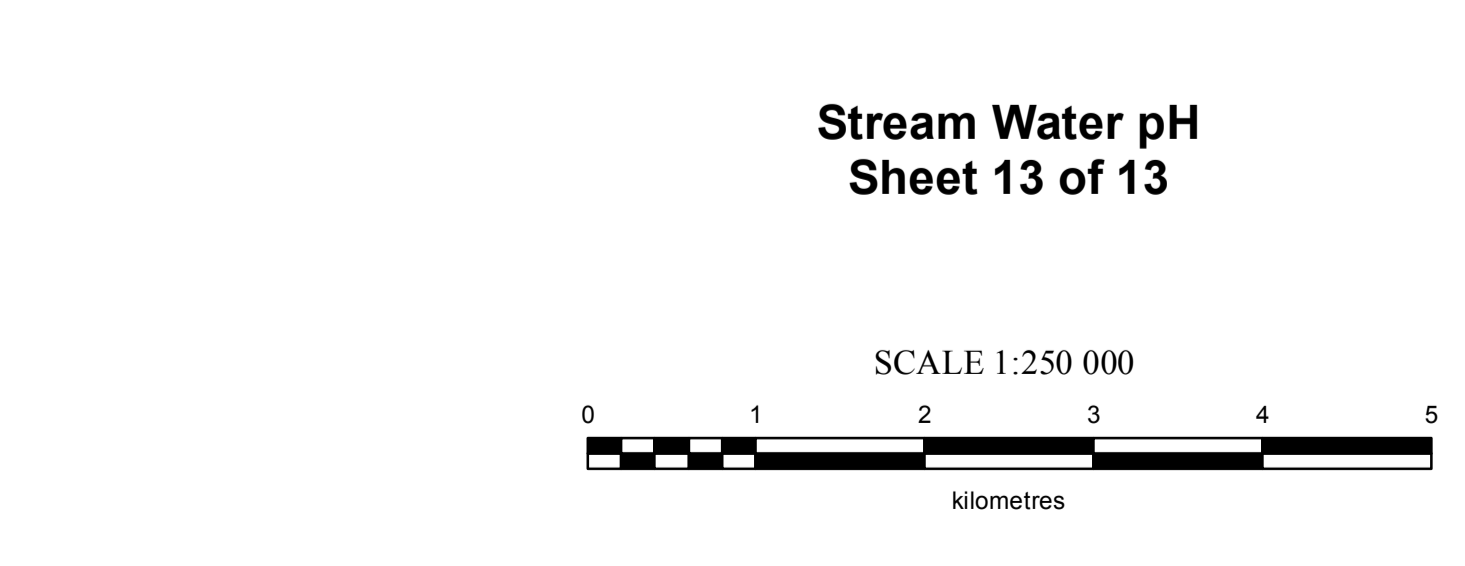
Figure 1: Histogram of stream water pH



Number	Name	Type	Status	Commodities
0950 001	TOGBALLY	Unknown	Showing	
0950 002	COSETY	Metagenetic Sulphide - type not determined	Showing	Copper
0950 003	IRA	Unknown	Showing	
0950 004	ME	Metagenetic Sulphide - type not determined	Showing	Lead, Zinc, Silver
0950 005	MEL	Sediment-hosted Mississippi Valley Type Pb-Zn (MVT)	Deposit	Barite, Zinc, Lead, Copper
0950 006	McMILLAN	Metagenetic Sulphide - type not determined	Showing	Lead, Zinc, Silver
0950 007	CHU	Skarn Pb-Zn	Showing	Lead, Zinc
0950 008	CHU	Metagenetic Sulphide - type not determined	Showing	Copper
0950 009	CHU	Metagenetic Sulphide - type not determined	Showing	Copper, Silver, Barium, Lead, Arsenic
0950 010	HYLAND GOLD	Polymetallic Ag-Pb-Zn	Deposit	Gold, Silver, Barium, Lead, Arsenic
0950 011	HYLAND GOLD	Polymetallic Ag-Pb-Zn	Deposit	Gold, Silver, Barium, Lead, Arsenic
0950 012	HALSE	Metagenetic Sulphide - type not determined	Showing	Lead, Silver, Zinc
0950 013	HALSE	Metagenetic Sulphide - type not determined	Showing	Zinc, Lead
0950 014	WATSF	Unknown	Anomaly	
0950 015	ASBURY	Unknown	Anomaly	
0950 016	SPORK	Unknown	Unknown	
0950 017	SPORK	Unknown	Unknown	
0950 018	FOODER	Skarn W	Anomaly	Tungsten
0950 019	BERAFAM	Unknown	Anomaly	
0950 020	LUTZ	Metagenetic Sulphide - type not determined	Anomaly	
0950 021	KRONOS	Unknown	Anomaly	
0950 022	HEPHE'S	Skarn W	Unknown	Barite, Zinc, Lead
0950 023	HEPHE'S	Unknown	Unknown	Tungsten
0950 024	COZ	Unknown	Anomaly	Coal
0950 025	SHAFETHO	Coal	Deposit	Coal
0950 026	SHAFETHO	Coal	Deposit	Coal
0950 027	PLAY	Sediment-hosted Mississippi Valley Type Pb-Zn (MVT)	Showing	Barium, Lead, Zinc, Silver
0950 028	CLUZ	Unknown	Unknown	Zinc, Lead
0950 029	CLUZ	Unknown	Unknown	Zinc, Lead
0950 030	CLUZ	Unknown	Unknown	Zinc, Lead
0950 031	CLUZ	Unknown	Unknown	Zinc, Lead
0950 032	CLUZ	Unknown	Unknown	Zinc, Lead
0950 033	CLUZ	Unknown	Unknown	Zinc, Lead
0950 034	CLUZ	Unknown	Unknown	Zinc, Lead
0950 035	CLUZ	Unknown	Unknown	Zinc, Lead
0950 036	CLUZ	Unknown	Unknown	Zinc, Lead
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0950 047	CLUZ	Unknown	Unknown	Zinc, Lead
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0950 200	CLUZ	Unknown	Unknown	Zinc, Lead



1:250 000-scale topographic base data produced by CENTRE FOR TOPOGRAPHIC INFORMATION, NATURAL RESOURCES CANADA. Copyright Her Majesty the Queen in Right of Canada. ONE THOUSAND METRE GRID Universal Transverse Mercator Projection North American Datum 1983 Zone 9. CONTOUR INTERVAL 100 FEET Elevations in metres above Mean Sea Level.



105G	105H	095E
FRANCONIA LAKE	FRANCES LAKE	FLAT RIVER
105B	105A	095D
WOLF LAKE	THIS MAP	THIS MAP
104P	094M	094N
MCDIAME	RABBIT RIVER	TOAD RIVER

105G	105H	095E
FRANCONIA LAKE	FRANCES LAKE	FLAT RIVER
105B	105A	095D
WOLF LAKE	THIS MAP	THIS MAP
104P	094M	094N
MCDIAME	RABBIT RIVER	TOAD RIVER

### REFERENCES

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### RECOMMENDED CITATION

MACKIE, R., ARNE, D. AND PENNIMPEDE, C., 2015. Stream water pH. In: Enhanced interpretation of stream sediment geochemical data for NTS 95D and 105A. Yukon Geological Survey, Open File 2015-30, scale 1:250 000, sheet 13 of 13.  
 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 purchased 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](mailto:geology@gov.yk.ca).  
 A digital PDF (Portable Document File) of this map may be downloaded free of charge from the Yukon Geological Survey website: <http://www.geology.gov.yk.ca>.

Yukon Geological Survey  
 Energy, Mines and Resources  
 Government of Yukon  
 Open File 2015-30  
**Stream Water pH (NTS 95D and 105A)**  
**Sheet 13 of 13**  
 by  
 Rob Mackie, Dennis Arne,  
 and Chris Pennimpepe