SLOCAN LAKE RESEARCH CENTER

SLRC
Slocan Lake Research Center

WATER QUALITY MONITORING
Aywin, Baby Ruth, Fingland, Vevey & Willa Creeks

Red Mountain Creek Data Final Report
Data from start, August 25, 2013, to Feb 1, 2015

Program initiated by the Slocan Lake Stewardship Society
Assisted by Slocan River Streamkeepers

Data and samples collected by
Volunteers of the Red Mountain Residents Association

Results and analyses by
Richard H. Johnson, Slocan Lake Research Center

March 30, 2015

Final Report
Red Mountain Creek Water Quality Data
From August 25, 2013 to February 1, 2015

Summary:

A program to monitor the quality of water in five creeks on Red Mountain in the Slocan Watershed of the West Kootenay District of B.C was conducted by the Red Mountain Residents Association (RMRA). The Program was initiated by the RMRA through the Slocan Lake Stewardship Society. The program was designed by the Slocan River Streamkeepers Society and sample analyses were carried out by Richard Johnson of the Slocan Lake Research Center (SLRC).

The RMRA collected water sample from the five creeks and delivered them to the SLRC. The frequency of sampling varied from 1 week to 1 month. The samples were analysed for the physical properties of Conductivity, Turbidity and pH. All of the data as well as graphical presentation of the significant portions of the data are presented in the Appendix of this report.

The sampling program was designed to obtain baseline data for each creek, to show its natural variability, and to note when "events" happened. These events can be caused by rainfall, snowmelt, landslides and human disturbance such as road building, other machine activity and drilling mud escapement. A graph of the precipitation at New Denver, the nearest meteorological station, is included to aid interpretation of the results. It should be noted that the precipitation value is rain plus snow.

The data on each creek is presented in tables in the Appendix. In addition two graphs of the data are included to visually illustrate the variability of the data and to highlight events. A description of the interpretation of these data and graphs is included for each creek. The interpretation is strictly based upon the laboratory data and I am aware that the volunteers know more about what could be causing the anomalies that I point out in the detailed description of each creek.

Description of lab results:

Several items should be noted when considering the results. The most significant parameter measured is the conductivity. The conductivity measures the ability of water to conduct electricity. It is a measure of the dissolved ions in the water. The main ions influencing the conductivity of fresh water are the sodium, potassium, calcium, magnesium, chloride, bicarbonate and sulfate. To a lesser extent nitrate and phosphate influence the conductivity but these are usually associated with the introduction of a chemical fertilizer. The most likely cause of changes in the conductivity of the water in these creeks is contact with limestone rocks and sulfate rich soils. During periods of high water flow, after a rain or snow melt, the residence time of the water on the rocks or soils is less and we see a decrease in conductivity due to less of the solid material dissolving. This is normal and causes the seasonal cycles exhibited by all of the creeks, i.e. a drop in conductivity during spring freshetl. Because conductivity readings are temperature sensitive, the term specific conductance refers to conductivity values which have been corrected to 25 degrees C. Other metals, which are important from a drinking water quality standpoint, are aluminium, lead, zinc, copper, cadmium and

similar metals. These are in such small concentrations in typical streams that they will not be seen in the conductivity measurements, even when they exceed the concentrations of drinking water guidelines. A full analysis of the water with special sampling and storage procedures is required to measure these metals.

The turbidity refers to the amount of light that will pass through a sample of water. Turbidity values less than 1 are insignificant. If the value is less than 10 the human eye has to be pretty sharp to see it. Above 20 the water starts to look cloudy. Turbidity and rapid conductivity changes are the result of physical changes (events) in the drainage area of the stream.

The pH of the samples fluctuates mainly from dissolving limestone and from contamination of the water from chemicals. It usually shows smooth variations related to precipitation but if an event exposes limestone to the water the pH may reflect this. The pH of a sample can change slightly over time. For this reason the pH should be taken at the site when collecting samples. It has been my experience that samples stored in closed bottles show insignificant change in pH over time. Since all of the samples in this program are measured the same way, the value of pH is consistent and trends in pH are meaningful even if the true value is slightly different from the actual pH of the water in creek..

Data observations from the creeks:

The data and graphs illustrate various characteristics of each creek. The following description notes items of interest with respect to the data and graphs, which are in the Appendix.

Aylwin Creek
The samples from this creek show the most variability of the five creeks sampled. Conductivity varied from a low of 100 to 1080. The high conductivity and therefor high total dissolved solids occurred in the winter, when the precipitation and water flow was low. This variation is expected and can be seen on all of the other creeks but none have the dramatic variation that Aylwin exhibits. Experience in observing creeks in the Slocan Valley shows that a large yearly fluctuation in conductivity is related to the relative amount of surface water entering the creek versus the amount contributed by ground water. The latter usually has a higher conductiviety..
 It would seem to me that other factors are in play. The turbidity does not change significantly so the fluctuation is probably not due to landslides, which usually are reflected in corresponding change increase in turbidity.

Baby Ruth Creek
This creek is very stable and shows the expected decrease in conductivity with increased water flow during spring freshet. The relatively slight fluctuation in conductivity may indicate either more water storage capacity (wetlands) or ground water in the watershed. The pH tracks this seasonal fluctuation as well. There is no significant fluctuation of turbidity, all values remaining below 1.

Fingland Creek
The conductivity follows the same seasonal cycle as the other creeks. The single sample spike at the date of October 10, 2014 is abnormal but it settles back towards normal on October 15th, and 19th. There is no significant change in turbidity nor in the pH value.

Vevey Creek

The data from Vevey Creek follows the same seasonal cycle as the samples from the other creeks. The drop in conductivity shown in the September 29, 2013 sample correlates with a slight increase in turbidity. The turbidity increase was caused by organic matter in the sample and not by clay. There is something interesting that happened in October 2014 at Vevey as well. The turbidity and conductivity show fluctuations that may relate to events on the creek. Local knowledge may shed light on this abnormality. An increase in turbidity in the fall due to organics may reflect a normal flux of algal/plant growth from summer build-up within the watershed.

Willa Springs Creek

The samples from Willa Springs are similar to the other creeks with respect to the seasonal fluctuation of conductivity. It is, however, unique in that it has a lot of organic material causing turbidity fluctuations. This may be related to the configuration of the sampling site. It is unique also in the high conductivity of the water from this site, compared to the other sample sites. As a spring, conductivity reflects the geology of the site. Normally, upper valley springs and creeks have higher conductivity than lower valley springs due to more soluble minerals being in contact with the water.

Thanks are due to the volunteers from Red Mountain for collecting the samples and to Jennifer Yeow, Slocan River Streamkeepers, for designing the program and editing this report.

Richard Johnson
Slocan Lake Research Center

March 30, 2015

SLOCAN LAKE RESEARCH CENTER

Red Mountain Creek Data
Final Report
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Appendix

Graph: Total Precipitation at New Denver
Aylwin Creek
      Data sheet
      Graph: Conductivity and Turbidity
      Graph: Conductivity and pH
Baby Ruth Creek
      Data sheet
      Graph: Conductivity and Turbidity
      Graph: Conductivity and pH
Fingland Creek
      Data sheet
      Graph: Conductivity and Turbidity
      Graph: Conductivity and pH
Vevey Creek
      Data sheet
      Graph: Conductivity and Turbidity
      Graph: Conductivity and pH
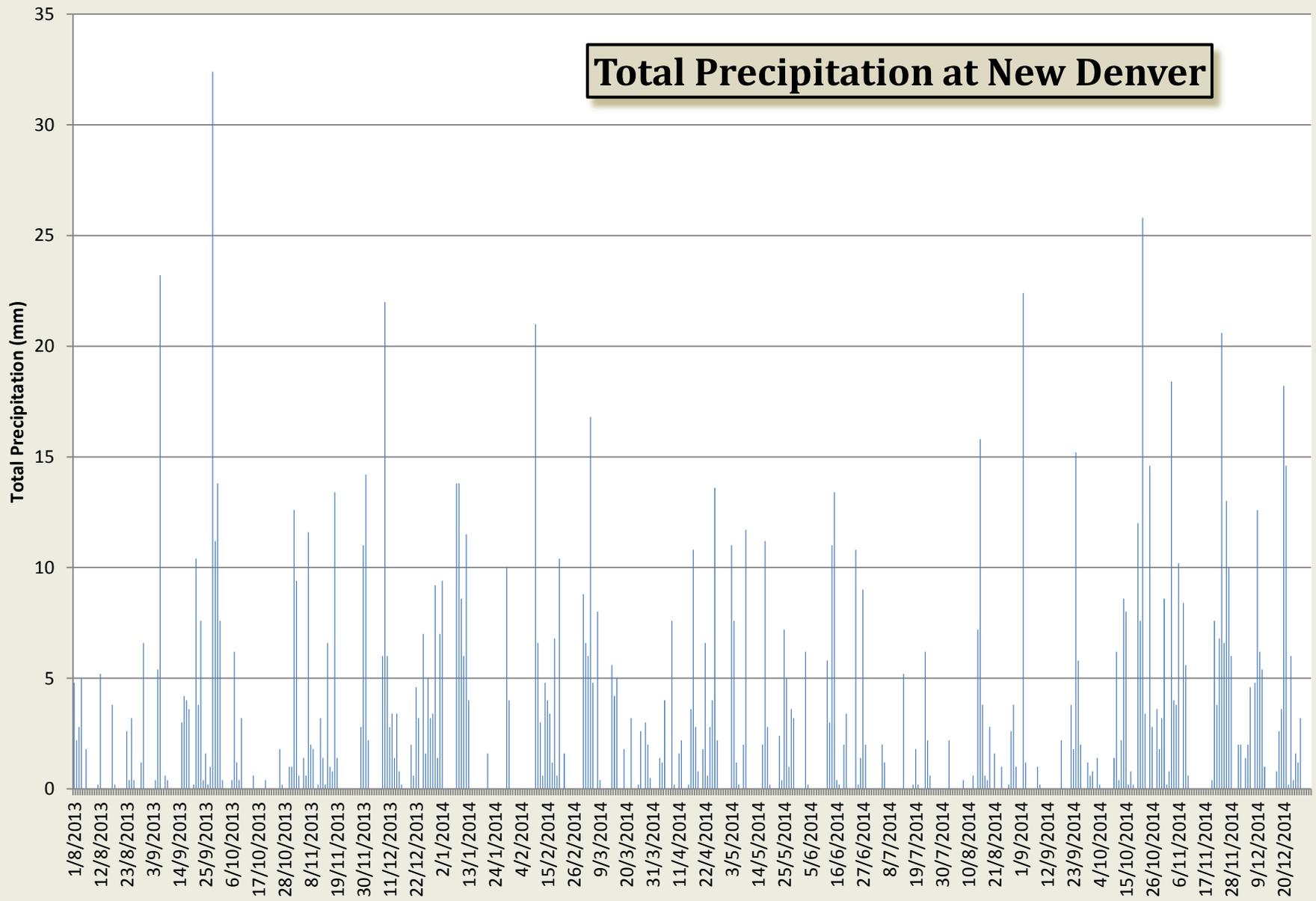Wila Springs Creek
      Data sheet
      Graph: Conductivity and Turbidity
      Graph: Conductivity and pH

Total Precipitation at New Denver

Slocan Lake Research Center

Stream Water Quality Monitoring Data

Project: <mark>SLSS - Red Mountain - Aug 2013 to Feb 2015</mark> units: Conductivity in µS/cm, Temp. in deg C, Turbidity in Nephelometric Turbidity Units
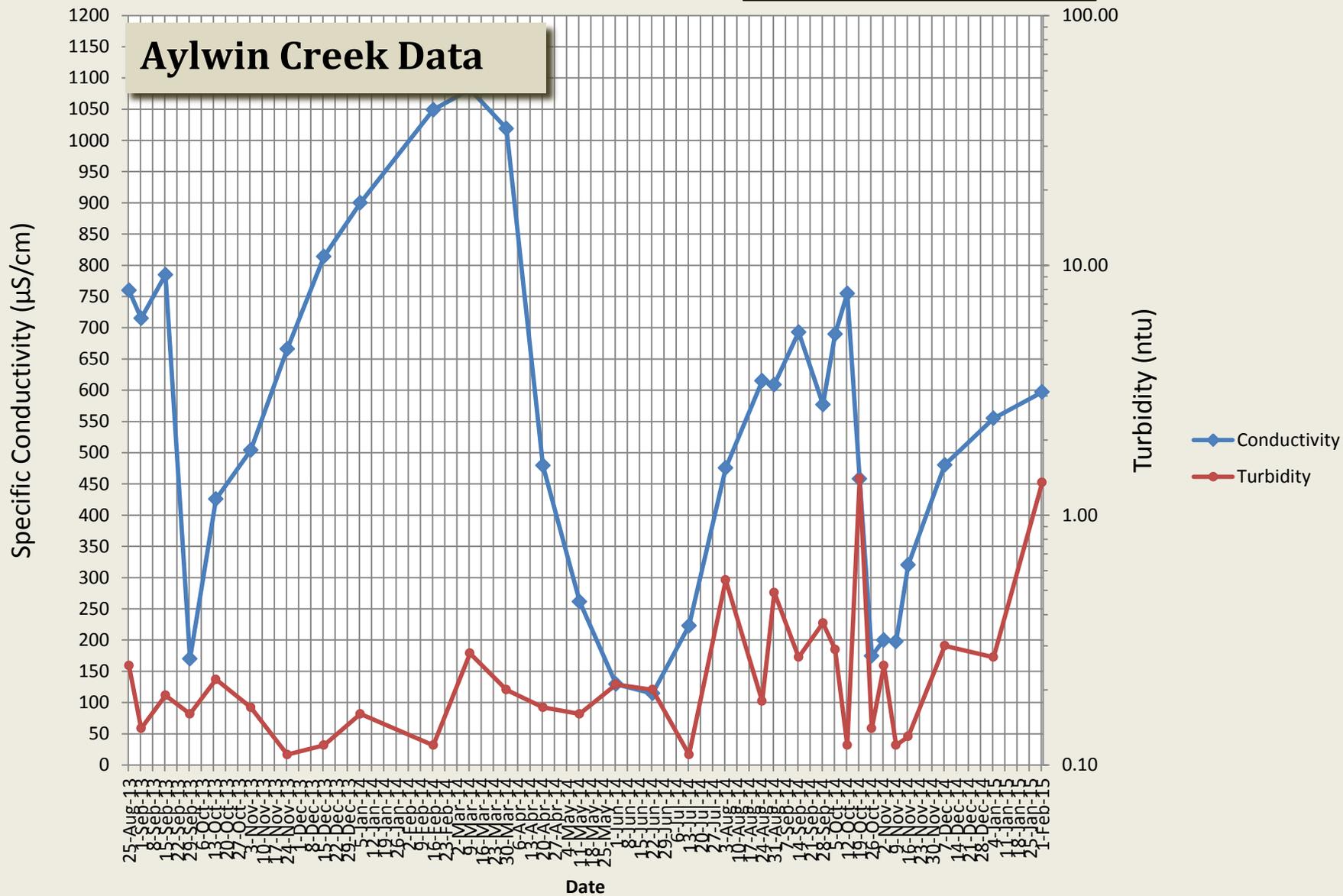**Stream:** <mark>Aylwin Creek</mark>

| | | | | | | | | Sampling Information | | | | |
| | | | Specific | | Turbidity | | | Air | | | | |
Date	Conductivity	Temp.	Conductivity	pH	Normal	bar-X	RST	Temp.	Time	Sampler	Field pH	Remarks
25-Aug-13	553	10.8	760	7.2	0.20	0.25	---	10.5	11:07			
1-Sep-13	520	10.7	715	7.2	0.14	0.14	---	11	11:07			
15-Sep-13	570	10.7	785	7.2	0.17	0.19	---	11	11:15			
14-Oct-13	311	10.9	425.8	7.3	0.22	0.22	---	4.5	13:35	Randy/Sally	7.6	
3-Nov-13	367.2	10.8	504	7.3	0.15	0.17	---	3.5	11:27	Paul	7.8	
29-Sep-13	124.6	11.1	169.9	7.4	0.18	0.16	---	7	11:05			
24-Nov-13	483	10.6	666	7.2	0.11	0.11	---	1.5	10:20	Paul/Randy		
15-Dec-13	588	10.6	814	7.2	0.11	0.12	---	1	10:40	Paul/Randy		
5-Jan-14	658	10.9	900	7.3	0.15	0.16	---	0	10:45	Paul/Randy		
16-Feb-14	770	11.1	1049	7.3	0.12	0.12	---	---	10:45	Paul/Randy		
9-Mar-14	877	14.8	1082	7.5	0.31	0.28	---	---	11:50	Paul/Randy		
30-Mar-14	813	14.5	1019	7.6	0.17	0.20	---	2	10:00	R&S		
20-Apr-14	383.5	14.5	479.5	7.8	0.25	0.17	---	3	11:04	P.G.		
11-May-14	210.3	14.8	261.5	7.9	0.15	0.16	---	3	10:30	Paul/Randy		
1-Jun-14	103.6	14.6	129.3	7.9	0.21	0.21	---	4.5		Paul/Randy		
22-Jun-14	92.3	14.7	114.6	8	0.16	0.20	---	7		Paul/Randy		
13-Jul-14	179.6	14.8	223	7.9	0.15	0.11	---	12		Paul/Randy		
3-Aug-14	379.1	14.4	475.5	7.9	0.38	0.55	---	14		Paul/Randy		
24-Aug-14	493	14.6	615	7.8	0.21	0.18	---	12	11:45			
31-Aug-14	522	17.5	609	7.8	0.35	0.49	---	10		P&R		
14-Sep-14	592	17.7	693	7.8	0.29	0.27	---	8.5	10:30	Paul		
28-Sep-14	494	17.5	577	7.8	0.26	0.37	---	9	2:00	Randy		
5-Oct-14	591	17.5	690	7.7	0.26	0.29	---	8.5	10:30	P.G.		
12-Oct-14	555	11.3	755	7.5	0.12	0.12	---	8.5	11:03	PG		
19-Oct-14	338	11.2	458	7.6	0.12	1.40	---	8	1:12	P&R		
26-Oct-14	129.5	11.5	174.8	7.8	0.15	0.14	---	5.5	10:05	P&R		
2-Nov-14	147.7	11.3	200	7.6	0.25	0.25	---	4	11:10	P&R		
9-Nov-14	145.8	11.3	197.7	7.6	0.11	0.12	---	4	10:30	P&R		
16-Nov-14	236.3	11.3	320.3	7.6	0.14	0.13	---	1	10:30	P&R		
7-Dec-14	356.3	11.5	480.5	7.6	0.18	0.30	---	1.5	10:40	PG		
4-Jan-15	409.8	11.3	555	7.6	0.21	0.27	---	0.5	10:30	P&R		
1-Feb-15	440.5	11.3	597	7.6	1.21	1.35	---	1	11:30	P&R		

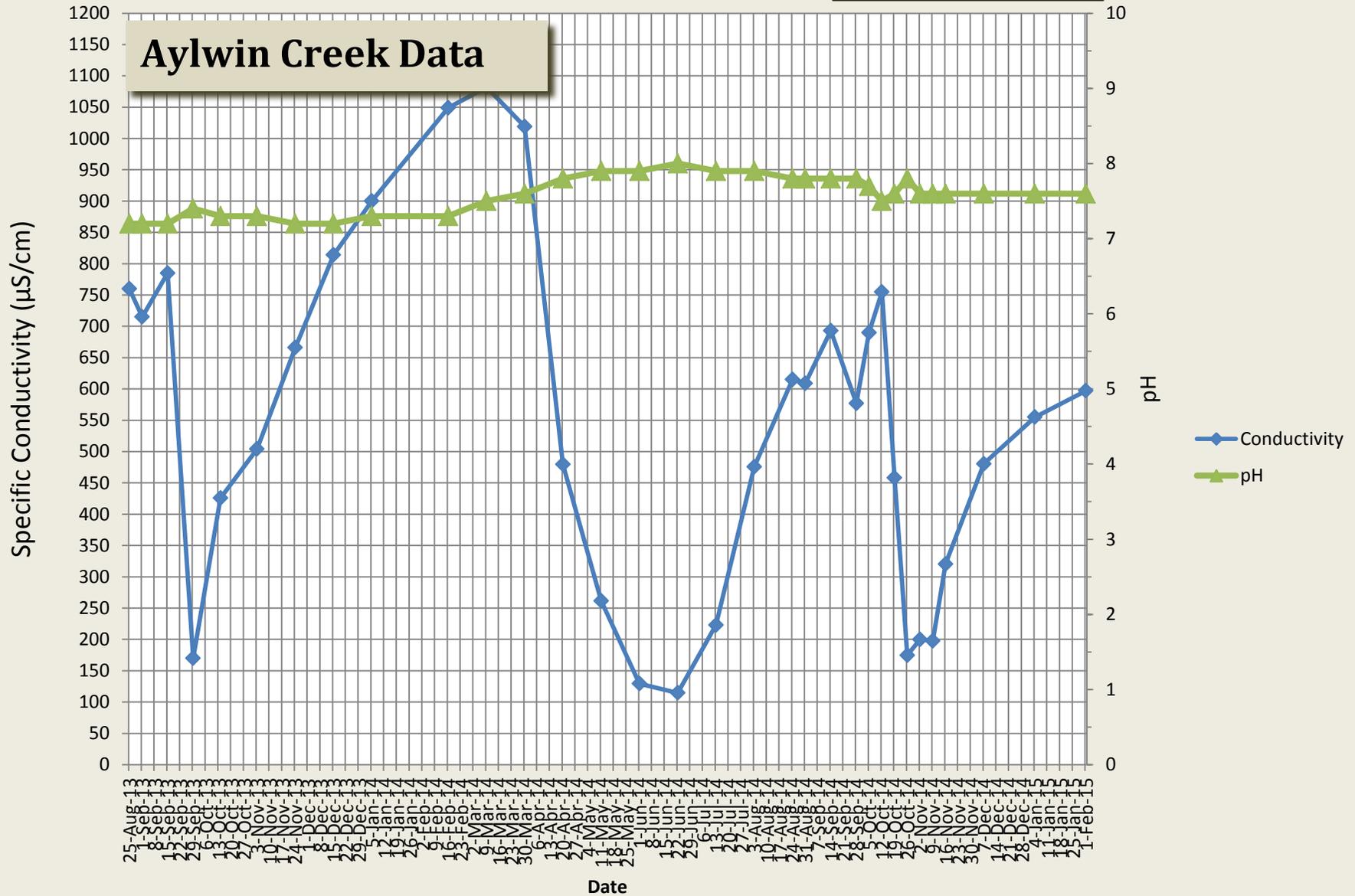Slocan Lake Research Center — Conductivity - Turbidity

Aylwin Creek Data

Slocan Lake Research Center

Conductivity-pH

Aylwin Creek Data

Slocan Lake Research Center

Stream Water Quality Monitoring Data

Project: SLSS - Red Mountain - Aug 2013 to Jan 2015
Stream: Baby Ruth Creek

units: Conductivity in µS/cm, Temp. in deg C, Turbidity in Nephelometric Turbidity Units

								Sampling Information					
			Specific			Turbidity			Air				
Date	Conductivity	Temp.	Conductivity	pH	Normal	bar-X	RST	Temp.	Time	Sampler	Field pH	Remarks
25-Aug-13	98.1	10.7	134.9	7.7	0.30	0.37	---	7	11:50	Clare		
1-Sep-13	99.0	10.7	136.2	7.3	0.41	0.44	---	6.5		Clare		
18-Sep-13	98.5	10.8	135.1	7.4	0.30	0.25	---	6.5	7:15	Clare	7.5	
14-Oct-13	99.7	10.8	136.7	7.4	0.23	0.34	---	5				
3-Nov-13	100.0	10.7	137.6	7.4	0.16	0.16	---	5	13:45	Daren		
30-Sep-13	94.6	10.8	129.7	7.3	0.15	0.15	---	5.5		Clare		
24-Nov-13	98.4	10.5	135.9	7.4	0.27	0.19	---	4		Clarence		
15-Dec-13	102.8	10.6	142.0	7.4	0.29	0.28	---	4		Clare		
5-Jan-14	103.2	10.9	141.2	7.4	0.15	0.13	---	4		Clare		
26-Jan-14	101.9	11.0	139.3	7.3	0.28	0.34	---	---				
26-Feb-14	97.3	11.0	132.9	7.4	0.37	0.41	---	---	13:50			
9-Mar-14	106.0	14.7	131.3	7.9	0.2	0.29	---	---				
30-Mar-14	105.7	14.8	131.6	7.9	0.63	0.63	---	4.5		Clare		
28-Apr-14	102.6	14.8	127.3	7.9	0.24	0.28	---	4		Clare		
15-May-14	99.8	14.9	124	8	0.45	0.35	---	5.5	14:15	Daren T.		
5-Jun-14	94.9	14.8	117.6	7.9	0.23	0.18	---	5				
22-Jun-14	96.3	14.8	119.7	7.9	0.37	0.40	---	6		Clare		
15-Jul-14	99.5	14.9	123.2	7.9	0.26	0.19	---	8		Clare		
20-Jul-14	101.2	14.8	126	8	0.13	0.18	---	9		Clare		
27-Jul-14	101.5	14.8	125.9	8	0.56	0.51	---	7		Clare		
9-Aug-14	102.5	14.7	128	8	0.8	0.81	---	7				
17-Aug-14	100.6	14.7	125.1	8	0.42	0.32	---	6		Clare		
31-Aug-14	108.3	17.5	126.8	7.6	0.37	0.39	---	6.5		Clare		
7-Sep-14	108.5	17.5	126.7	7.6	0.28	0.31	---	6.5		Clare		
21-Sep-14	109.5	17.7	127.2	7.6	0.42	0.42	---	6.5		Clare		
29-Sep-14	108.3	17.5	127.8	7.6	0.22	0.31	---	6.5		Clare		
5-Oct-14	109.1	17.4	127.6	7.6	0.56	0.42	---	6		Clare		
10-Oct-14	72.8	10.5	100.6	7.7	0.16	0.17	---	-		Clare		
15-Oct-14	93.9	10.6	129.3	7.6	0.72	0.94	---	6		Clare		
19-Oct-14	95.6	10.7	131.6	7.7	0.3	0.27	---	6		Clare		
3-Nov-14	94.4	10.8	129.5	7.7	0.25	0.31	---	5.5		Clare		
27-Oct-14	94.2	11.0	128.8	7.7	0.31	0.23	---	4.5		Clare		
10-Nov-14	94.0	10.9	128.6	7.7	0.16	0.25	---	5		Clare		
22-Nov-14	94.8	10.7	130.6	7.8	0.17	0.26	---	5		Clare		
1-Dec-14	92.8	10.7	127.5	7.7	0.29	0.19	---	4		Clare		
13-Dec-14	92.9	10.8	127.6	7.8	0.25	0.38	---	5		Clare		
18-Jan-15	92.2	10.7	126.8	7.7	0.69	0.60	---	4.5		Clare		

Slocan Lake Research Center

Conductivity-pH

Baby Ruth Creek Data

Slocan Lake Research Center

Stream Water Quality Monitoring Data

Project: <mark>SLSS - Red Mountain - Aug 2013 to Jan 2015</mark> units: Conductivity in µS/cm, Temp. in deg C, Turbidity in Nephelometric Turbidity Units
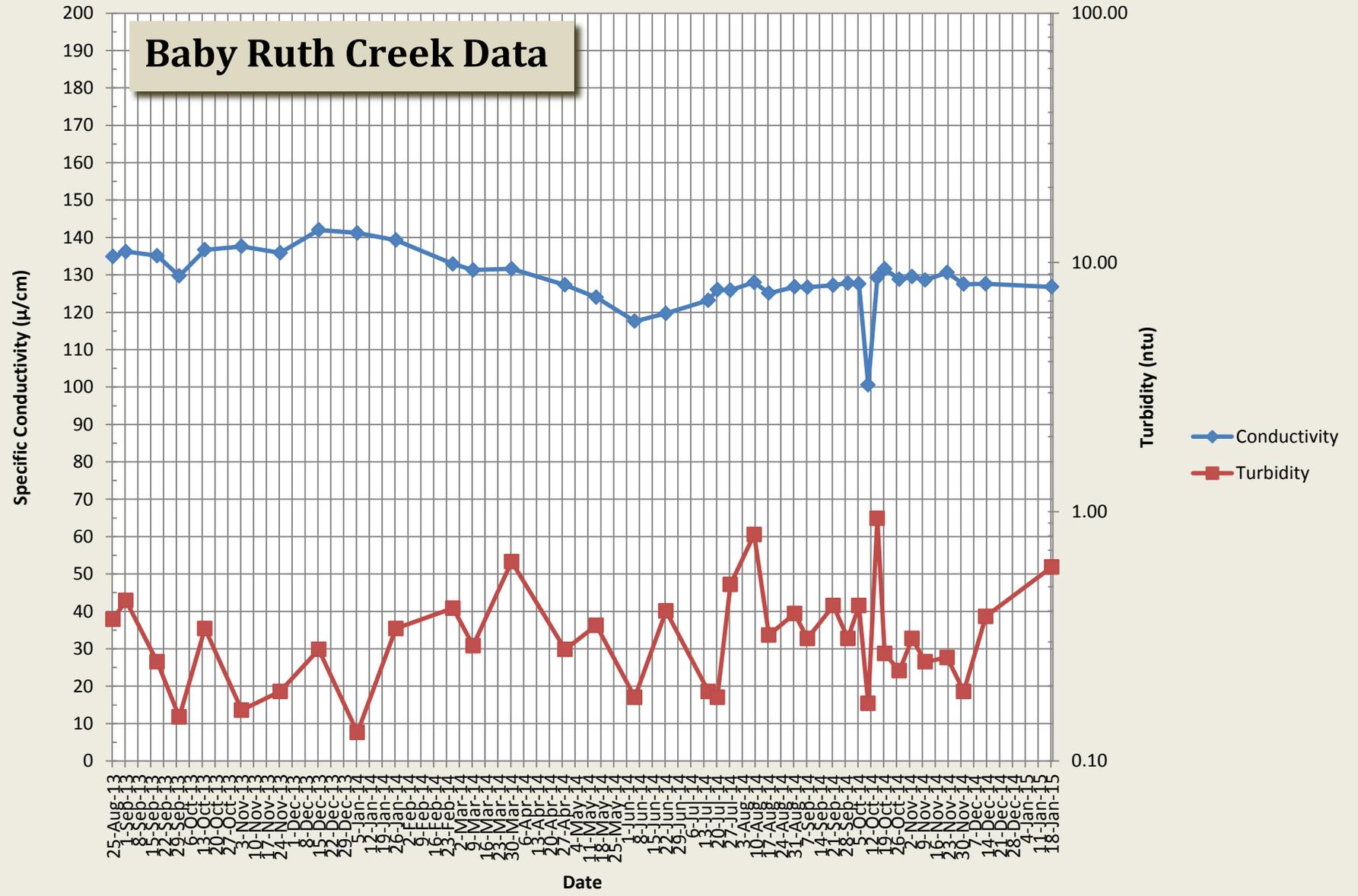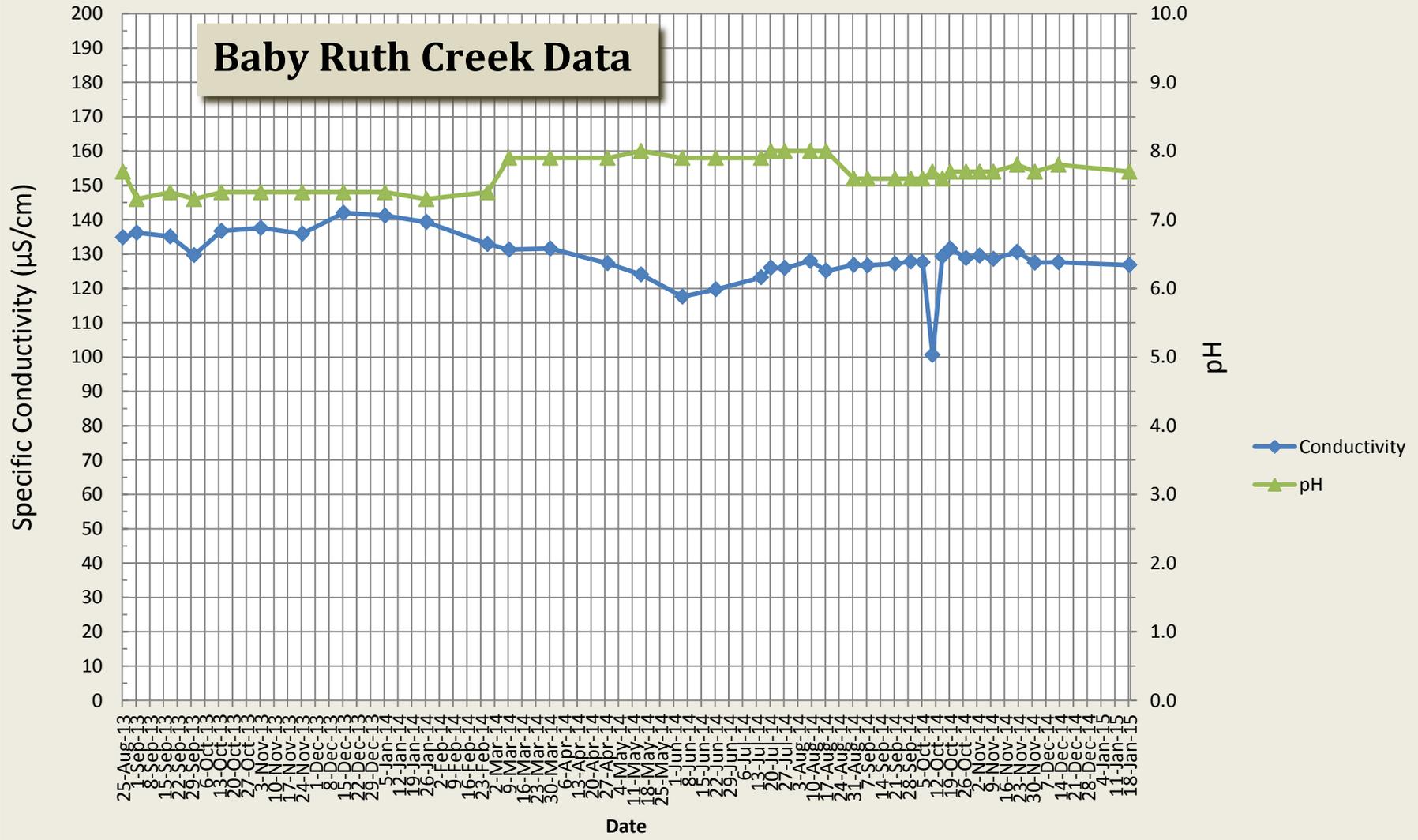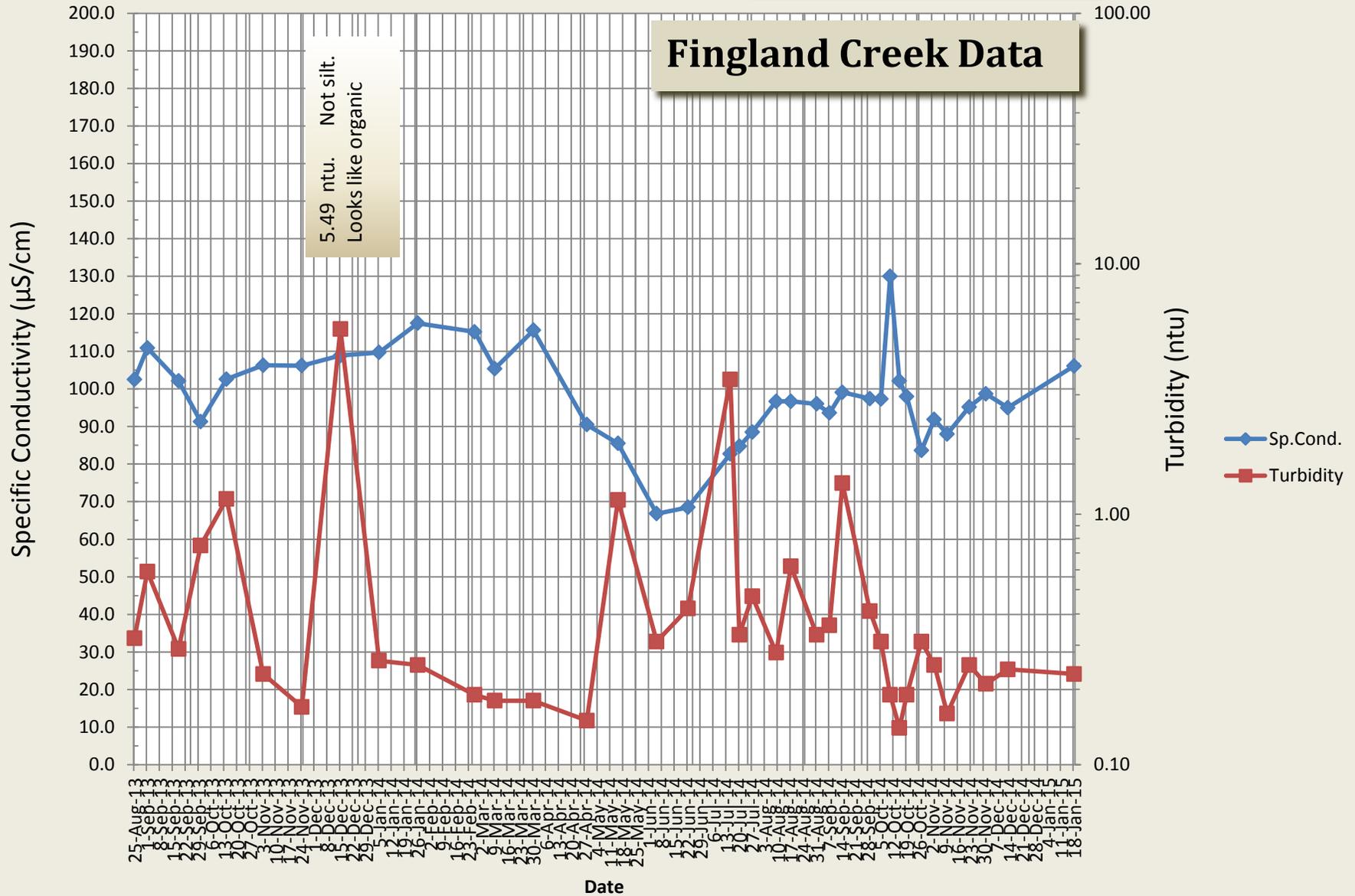**Stream:** <mark>Fingland Creek</mark>

								Sampling Information				
			Specific		Turbidity			Air				
Date	Conductivity	Temp.	Conductivity	pH	Normal	bar-X	RST	Temp.	Time	Sampler	Field pH	Remarks
25-Aug-13	74.2	10.5	102.5	7.6	0.49	0.32	---	11	11:35	Clare		
1-Sep-13	80.3	10.6	110.9	7.3	0.41	0.59	---	11		Clare		
18-Sep-13	74.2	10.7	102.1	7.3	0.25	0.29	---	9.5	7:00	Clare		
14-Oct-13	74.6	10.8	102.6	7.4	0.85	1.15	---	3.5			7.5	
3-Nov-13	77.1	10.6	106.3	7.4	0.25	0.23	---	1	13:30	Daren	7.75	
30-Sep-13	66.2	10.7	91.3	7.3	0.93	0.75	---	5		Clare		
24-Nov-13	77	10.5	106.2	7.4	0.17	0.17	---	-1		Clarence		
15-Dec-13	78.7	10.5	108.9	7.4	5.31	5.49	8.64	0		Clare		organic (?) material
5-Jan-14	79.9	10.9	109.7	7.3	0.15	0.26	---	0		Clare		
26-Jan-14	86.7	11	117.5	7.3	0.22	0.25	---	---				
26-Feb-14	84.4	11	115.2	7.3	0.13	0.19	---	---	14:14			
9-Mar-14	84.7	14.7	105.4	8	0.21	0.18	---	---				
30-Mar-14	93	14.8	115.6	7.7	0.15	0.18	---	0				
28-Apr-14	72.7	14.8	90.5	7.7	0.19	0.15	---	2				
15-May-14	69.1	15	85.5	7.6	1.75	1.14	---	4		Daren T.		
5-Jun-14	53.8	14.9	66.8	7.5	0.36	0.31	---	4.5				
22-Jun-14	55.4	14.9	68.5	7.4	0.36	0.42	---	6		Clare		
15-Jul-14	66.5	14.9	82.7	7.5	2.50	3.45	---	10				
20-Jul-14	68.5	15	84.7	7.4	0.36	0.33	---	11		Clare		
27-Jul-14	71.4	14.9	88.5	7.4	0.53	0.47	---	10		Clare		
9-Aug-14	78.2	14.9	96.7	7.6	0.28	0.28	---	11				
17-Aug-14	78.1	14.9	96.7	7.4	0.52	0.62	---	11		Clare		
31-Aug-14	83.6	18.1	96.0	7.4	0.28	0.33	---	9		Clare		
7-Sep-14	81.4	18.3	93.6	7.7	0.27	0.36	---	9		Clare		
14-Sep-14	86.1	18.2	99.1	7.7	1.67	1.33	---	9				
29-Sep-14	83.7	17.8	97.4	7.7	0.27	0.41	---	9		Clare		
5-Oct-14	84.7	18	97.3	7.6	0.33	0.31	---	7		Clare		
10-Oct-14	93.3	10.2	130.0	7.7	0.30	0.19	---	-		Clare		
15-Oct-14	73.1	10.2	102.1	7.8	0.15	0.14	---	6.5		Clare		
19-Oct-14	70.2	10.4	98.0	7.8	0.15	0.19	---	6.5		Clare		
27-Oct-14	60.2	10.4	83.6	7.8	0.33	0.31	---	5.5		Clare		
3-Nov-14	66.5	10.4	91.9	7.8	0.13	0.25	---	4.5		Clare		
10-Nov-14	63.6	10.5	88.0	7.8	0.15	0.16	---	2		Clare		
22-Nov-14	68.7	10.4	95.2	7.7	0.21	0.25	---	1.5		Clare		
1-Dec-14	71.4	10.5	98.7	7.7	0.26	0.21	---	0.5		Clare		
13-Dec-14	68.8	10.7	95.0	7.8	0.20	0.24	---	2		Clare		
18-Jan-15	77.6	10.9	106.1	7.8	0.29	0.23	---	2		Clare		

Slocan Lake Research Center   Conductivity - Turbidity

Fingland Creek Data

5.49 ntu. Not silt. Looks like organic
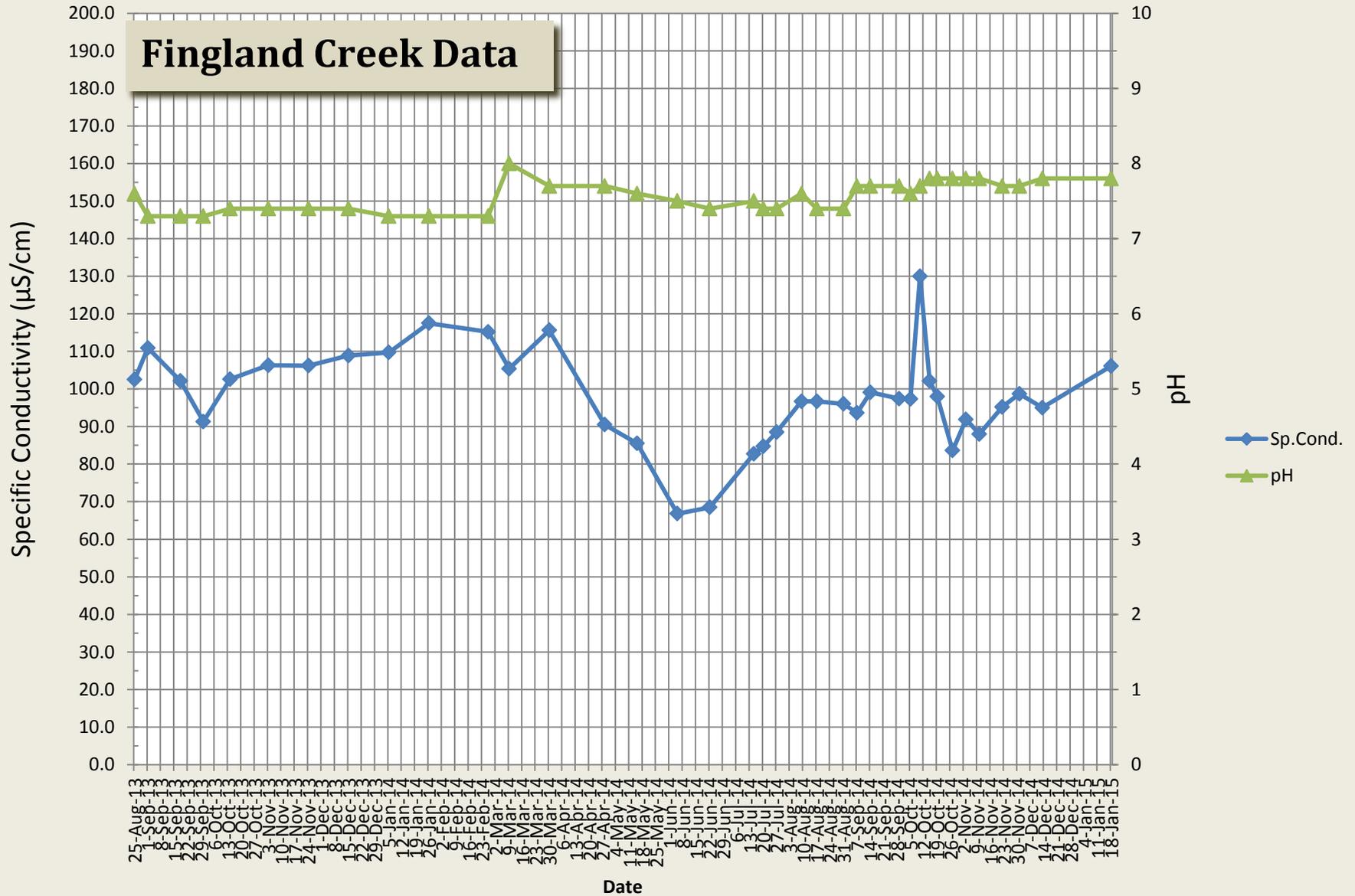
Slocan Lake Research Center — Conductivity -pH

Fingland Creek Data

Slocan Lake Research Center

Stream Water Quality Monitoring Data

Project: SLSS - Red Mountain - Aug 2013 to Feb 1_2015   units: Conductivity in µS/cm, Temp. in deg C, Turbidity in Nephelometric Turbidity Units
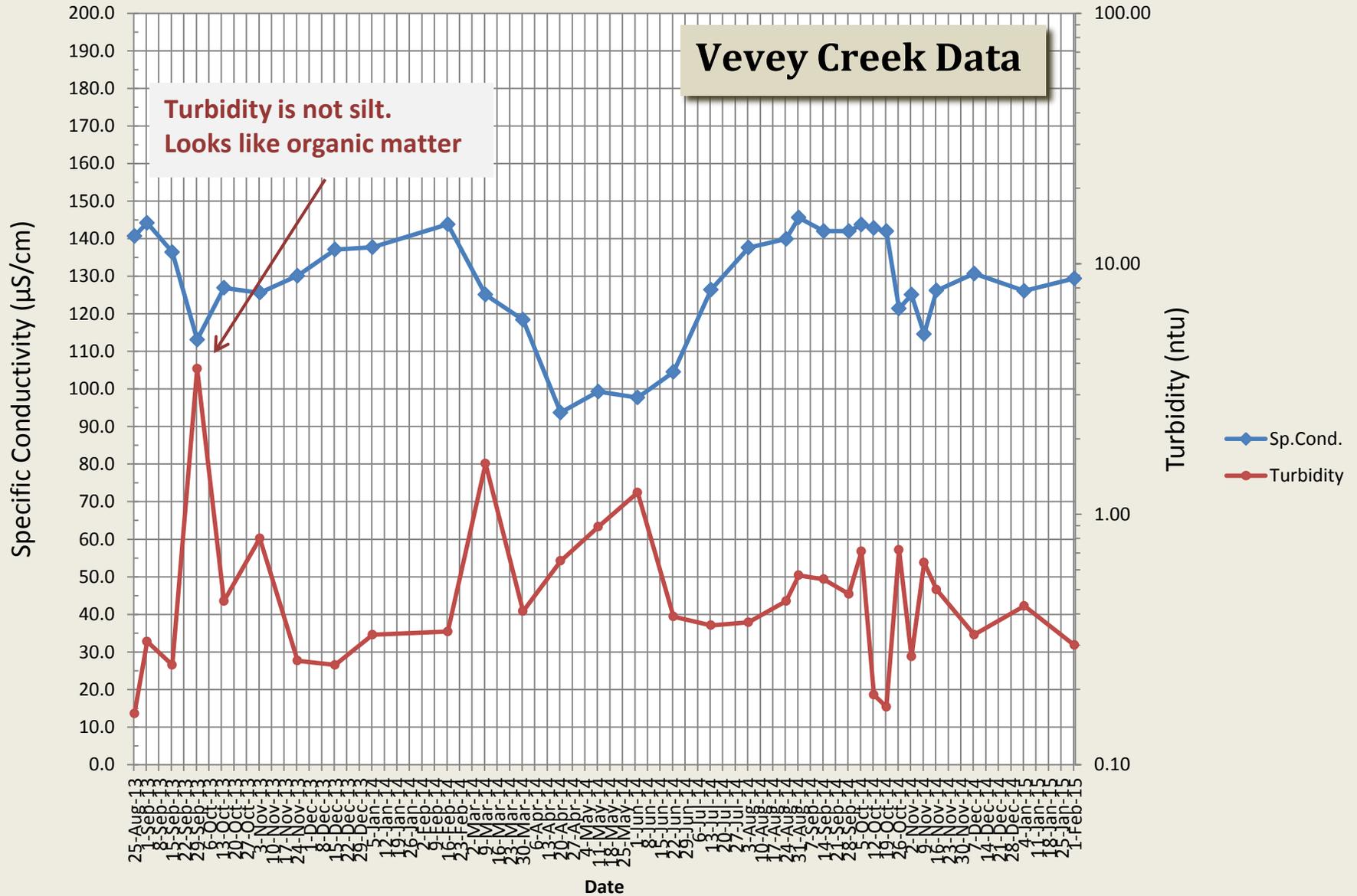**Stream:** Vevey Creek

| | | | | | | | | Sampling Information | | | | |
| | | Specific | | Turbidity | | | Air | | | | | |
Date	Conductivity	Temp.	Conductivity	pH	Normal	bar-X	RST	Temp.	Time	Sampler	Field pH	Remarks
25-Aug-13	102.6	10.8	140.7	7.3	0.17	0.16	---	9	10:40	Randy/Paul		
1-Sep-13	104.5	10.6	144.2	7.3	0.34	0.31	---	8	10:38			
29-Sep-13	82.0	10.7	113.1	7.1	8.96	3.81	1.93	8.5	10:45			organic (?) material
14-Oct-13	92.6	10.8	126.9	7.3	0.39	0.45	---	4	15:35	Randy/Sally	8.0	
3-Nov-13	91.4	10.7	125.6	7.3	0.41	0.80	---	3.5	10:58	Paul	8.2	organic (?) material
24-Nov-13	94.3	10.6	130.1	7.3	0.34	0.26	---	1	10:10	Randy/Paul	8.2	
15-Dec-13	99.3	10.6	137.1	7.3	0.44	0.25	---	2	10:15	Randy/Paul		
5-Jan-14	100.7	10.9	137.7	7.4	0.36	0.33	---	0	10:20	Randy/Paul		
16-Feb-14	105.5	11.0	143.8	7.4	0.25	0.34	---	---	10:20			
15-Sep-13	98.0	10.3	136.4	7.3	0.27	0.25	---	10	11:35			
9-Mar-14	101.5	15.1	125.1	7.3	0.71	1.59	---	---	10:25	Randy/Paul		
30-Mar-14	95.6	14.9	118.4	7.3	0.66	0.41	---	1.75	9:30	R&S		
20-Apr-14	76.0	15.0	93.7	7.5	0.42	0.65	---	2	10:40	P.G.		
11-May-14	80.5	15.1	99.3	7.2	0.42	0.89	---	4	10:15	P&R		
2-Jun-14	79.3	15.0	97.7	7.1	1.50	1.22	---	6.5	9:40	P&R		
22-Jun-14	84.7	15.1	104.5	7.3	0.38	0.39	---	7		P&R		
13-Jul-14	102.2	15.0	126.4	7.3	0.31	0.36	---	9		P&R		
3-Aug-14	111.5	15.1	137.6	7.3	0.50	0.37	---	11		P&R		
24-Aug-14	113.2	15.0	139.9	7.3	0.43	0.45	---	9.5	11:30			
31-Aug-14	123.4	17.2	145.6	7.8	0.43	0.57	---	8		P&R		
14-Sep-14	120.3	17.0	142.0	7.8	0.46	0.55	---	6	10:45			
28-Sep-14	120.8	17.1	142.0	7.8	0.69	0.48	---	7	2:30	Randy		
5-Oct-14	121.8	17.0	143.7	7.8	0.57	0.71	---	7	10:15	P.G.		
12-Oct-14	106.0	11.5	142.8	7.7	0.20	0.19	---	7	10:37	PG		
19-Oct-14	105.5	11.5	142.0	7.8	0.16	0.17	---	7.5	10:50	P&R		
26-Oct-14	89.9	11.4	121.4	7.7	0.53	0.72	---	6.5	10:30	P&R		
2-Nov-14	93.0	11.5	125.1	7.7	0.24	0.27	---	4.5	11:00	P&R		
9-Nov-14	85.5	11.7	114.6	7.7	0.40	0.64	---	5.5	10:15	P&R		
16-Nov-14	94.2	11.7	126.2	7.6	0.48	0.50	---	0.5	10:10	P&R		
7-Dec-14	97.4	11.6	130.7	7.7	0.53	0.33	---	2	11:20	P&R		
4-Jan-15	93.4	11.4	126.1	7.7	0.44	0.43	---	1	10:10	P&R		
1-Feb-15	95.9	11.5	129.4	7.8	0.32	0.30	---	1.5	11:10	P&R		

Slocan Lake Research Center — Conductivity - Turbidity

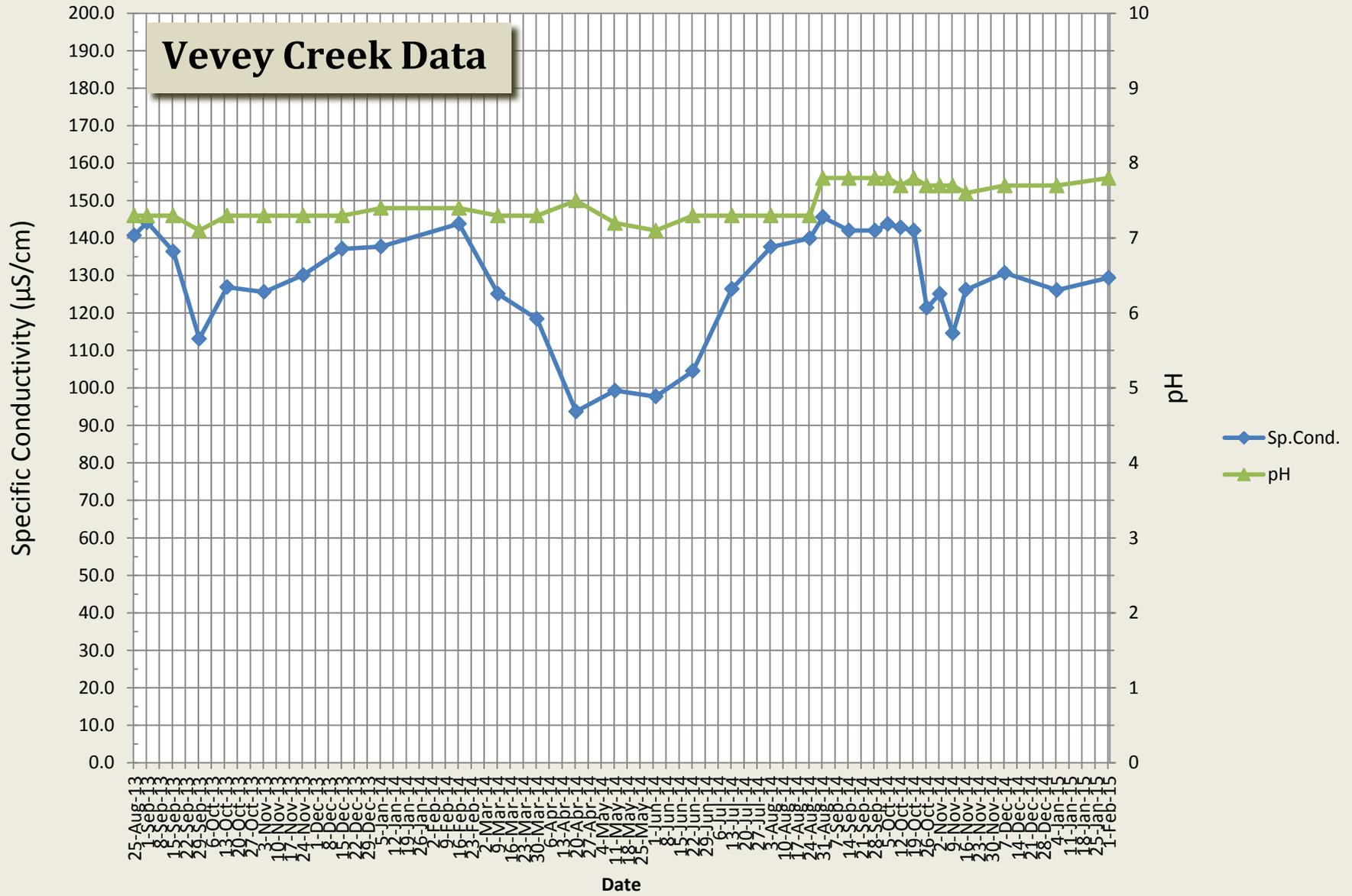Vevey Creek Data

Turbidity is not silt.
Looks like organic matter

Slocan Lake Research Center

Conductivity -pH

Vevey Creek Data

Slocan Lake Research Center

Stream Water Quality Monitoring Data

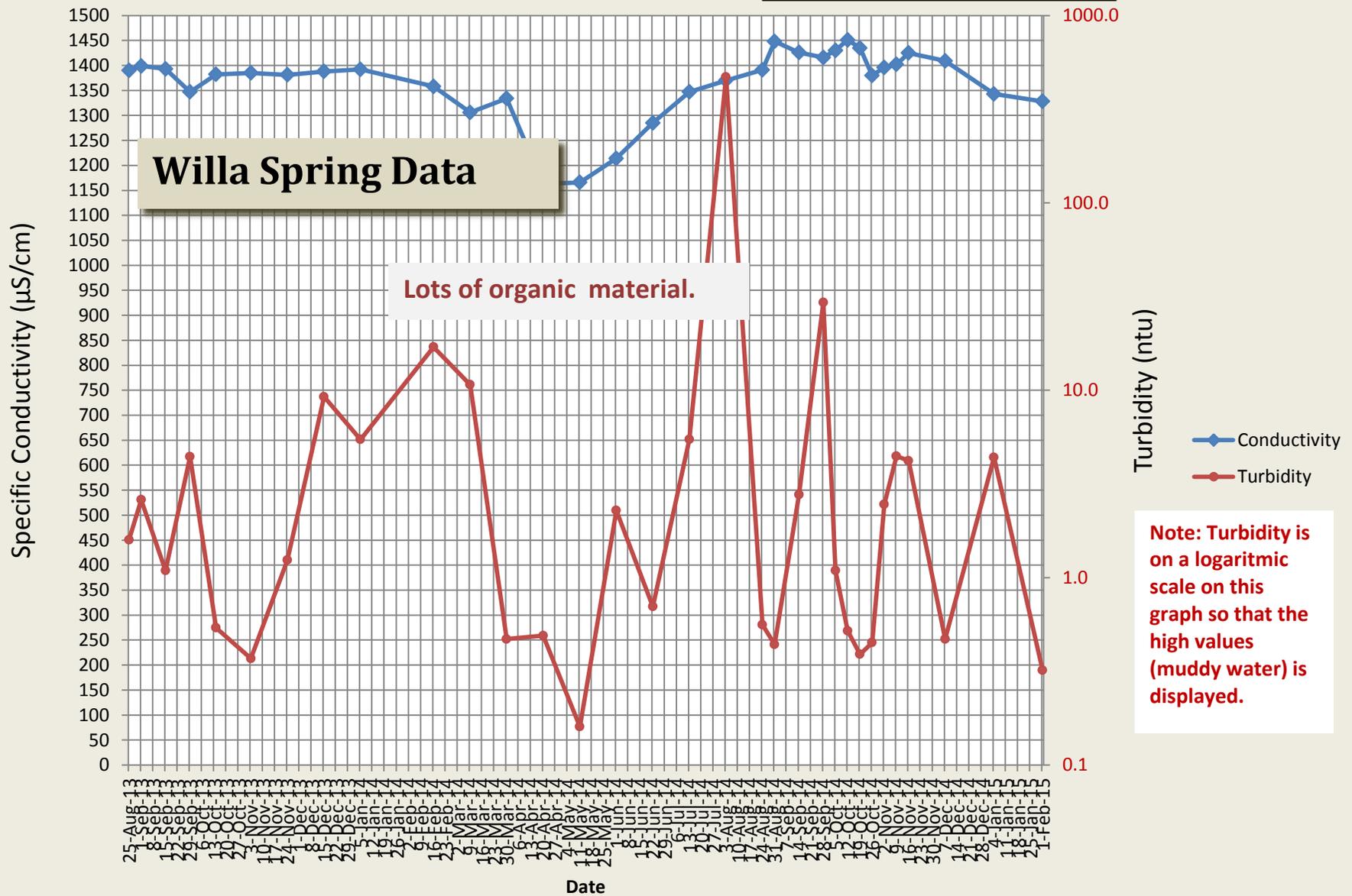**Project:** SLSS - Red Mountain - Aug 2013 to Feb 1_2015   **units:** Conductivity in µS/cm, Temp. in deg C, Turbidity in Nephelometric Turbidity Units
Stream: Willa Spring

			Specific		Turbidity			Air				
Date	Conductivity	Temp.	Conductivity	pH	Normal	bar-X	RST	Temp.	Time	Sampler	Field pH	Remarks
25-Aug-13	1017	10.9	1390	7.0	1.01	1.59	1.67	9	11:00	Randy/Paul		organic (?) material
1-Sep-13	1008	10.4	1399	7.0	2.73	2.60	can't read	9.5	11:20			organic (?) material
15-Sep-13	1016	10.8	1393	7.1	0.47	1.09	1.32	9.25	11:55			organic (?) material
14-Oct-13	1012	10.9	1382	7.1	0.84	0.54	---	6.75	16:10	Randy/Sally	7.3	organic (?) material
3-Nov-13	1008	10.8	1385	7.0	0.21	0.37	---	6	11:49	Paul	7.3	organic (?) material
29-Sep-13	985	10.8	1347	6.9	6.09	4.42	9.33	8	11:15			organic (?) material
24-Nov-13	1003	10.7	1381	7.0	2.20	1.24	1.55	5	10:35	Randy/Paul		
15-Dec-13	1012	10.9	1388	7.0	6.49	9.22	8.16	5	12:50	Randy/Paul		organic (?) material
5-Jan-14	1020	11.0	1392	7.0	4.48	5.46	3.47	4	10:50	Randy/Paul		organic (?) material
16-Feb-14	1000	11.2	1358	7.0	11.10	17.00	12.8	---	11:05	Randy/Paul		organic (?) material
9-Mar-14	1064	15.1	1306	7.3	13.9	10.70	---	---	11:30	Randy/Paul		
30-Mar-14	1078	15.0	1334	7.4	0.35	0.47	---	4	10:15	R&S		
20-Apr-14	941	15.0	1163	7.3	0.36	0.49	---	4.5	11:13	P.G.		
11-May-14	944	15.0	1166	7.3	0.11	0.16	---	4.5	10:45	Randy/Paul		
1-Jun-14	982	15.0	1214	7.2	1.11	2.28	---	5.5		Randy/Paul		
22-Jun-14	1039	15.0	1285	7.2	0.52	0.70	---	6		Randy/Paul		
13-Jul-14	1090	15.0	1347	7.1	2.63	5.46	---	8		Randy/Paul		
3-Aug-14	1108	15.1	1370	7.1	479	470	476	8		Randy/Paul		muddy
24-Aug-14	1129	15.2	1391	7.2	0.50	0.56	---	8	12 noon			
31-Aug-14	1226	17.0	1448	7.3	0.48	0.44	---	9		Randy/Paul		
14-Sep-14	1205	17.1	1426	7.4	2.40	2.77	---	8	10:40	Paul		
28-Sep-14	1206	17.1	1416	7.4	20.8	29.40	26.3	7.5	2:15	Randy		
5-Oct-14	1203	16.9	1430	7.4	0.75	1.09	---	8	10:40	P.G.		
12-Oct-14	1081	11.6	1451	7.4	0.92	0.52	---	8.5	11:17	P.G.		
19-Oct-14	1076	11.9	1435	7.2	0.62	0.39	---	8	11:15	R&P		
26-Oct-14	1038	12.1	1380	7.3	0.24	0.45	---	8	10:15	R&P		
2-Nov-14	1044	11.8	1396	7.3	1.42	2.46	---	7	11:18	R&P		
9-Nov-14	1049	11.8	1402	7.4	4.01	4.45	---	7	10:25	R&P		
16-Nov-14	1072	12.0	1425	7.4	4.55	4.20	---	5.5	10:35	R&P		
7-Dec-14	1058	12.2	1409	7.4	0.72	0.47	---	5.5	10:50	P.G.		
4-Jan-15	1008	11.9	1343	7.4	5.66	4.38	---	5	10:40	R&P		
1-Feb-15	997	12.0	1328	7.4	0.39	0.32	---	4	11:50	R&P		

Slocan Lake Research Center

Conductivity -pH

Willa Spring Data