Results of the Water Quality Monitoring Program for Coldwater Fisheries

Sudbury to Hudson Reliability Project

May 2023 – July 2023

AUGUST 2023

PREPARED FOR

Eversource Energy

PREPARED BY

SWCA Environmental Consultants

RESULTS OF THE WATER QUALITY MONITORING PROGRAM FOR COLDWATER FISHERIES
SUDBURY TO HUDSON RELIABILITY PROJECT
MAY 2023 – JULY 2023

Prepared for

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SWCA Project No. 67849

August 2023

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1 INTRODUCTION

The Sudbury to Hudson Reliability Project (Project) consists of a new, approximately 9-mile-long transmission line between Eversource's existing Sudbury substation in Sudbury, Massachusetts, and the Hudson Light & Power Company's (HL&P) substation in Hudson, Massachusetts. The new underground transmission line will be installed in the municipalities of Sudbury, Hudson, Stow, and Marlborough, Massachusetts. Approximately 7.5 miles of the new transmission line will be installed within an inactive Massachusetts Bay Transportation Authority (MBTA) railroad right-of-way (ROW) which is to be converted into the Massachusetts Central Rail Trail (MCRT).

Special Condition Part I(q) of the Sudbury Order of Conditions (OOC) for the Project required baseline monitoring of flow and water quality for all Coldwater Fisheries Resources (CFR) crossed by the Project. SWCA has prepared this quarterly summary of the water quality monitoring for the two (2) crossings of CFR in Hop Brook and six (6) other streams or tributaries that contribute to CFR and are crossed by the Project (see Figures in Appendix A).

The following eight streams were included in this monitoring plan as requested by the Sudbury Conservation Commission:

- Hop Brook – Bridge 128 (400+30): ST 400 Perennial Stream and State-listed CFR;
- Unnamed Stream (527+30): ST 527 Intermittent Stream and local CFR;
- Dudley Brook (539+40): ST 540 Perennial and local CFR;
- Unnamed intermittent stream (560+82): ST 561 Intermittent and local CFR;
- Unnamed Intermittent stream (593+18): ST 593 Intermittent and local CFR;
- Intermittent Tributary to Hop Brook (700+50, 710+50): ST 700/710 Intermittent and local CFR;
- Hop Brook (Bridge 127) (725+00): ST 725 Perennial Stream and State-listed CFR; and
- Intermittent Tributary to Wash Brook (747+39): ST 747 Intermittent and local CFR.

2 WATER QUALITY MONITORING METHODS AND RESULTS

2.1 Surface Water Monitoring Methods

In accordance with the *Baseflow and Baseline Water Quality Monitoring Program for Cold Water Fisheries* proposed by SWCA dated August 25, 2021 and approved by the Sudbury Conservation Commission, the following parameters were monitored on a monthly basis:

- temperature, dissolved oxygen, as well as pH, specific conductivity, and oxygen reduction potential (ORP) measured with a YSI multi-meter;
- flow velocity with a Hach FH950 flow velocity meter;
- turbidity levels measured with a turbidity meter; and

- chlorine, hardness and alkalinity measured with field test strips.

Based on the Massachusetts Surface Water Quality Standards (SWQS) (314 CMR 4.00), CFRs have special designated criteria for dissolved oxygen and temperature. All other criteria are the same as those for warm water fisheries.

The following Table 1 includes ranges for temperature, dissolved oxygen and pH that are favorable to cold water fisheries. Table 2 indicates ranges for other surface water criteria that are favorable for freshwater fish.

Table 1. Surface Water Conditions for Cold Water Fisheries

Parameter[1]	Favorable Ranges for Cold Water Fisheries
Temperature	below 20ºC (up to 26ºC for 24 hours)
Dissolved Oxygen	min of 6 mg/L, up to 7 mg/L preferred
pH	6.5 - 8.3

Note: C = Celsius; mg/L = milligrams per liter

Source:

1: 314 CMR 4.00: Massachusetts Surface Water Quality Standards

Table 2. Surface Water Conditions for Freshwater Fish

Parameter	Favorable Ranges for Freshwater Stream or Fish
Specific Conductivity[1]	150 - 500 µs/cm
Turbidity[2]	"free from turbidity that would impair fish habitat"
Chlorine[3]	<4 mg/L
Alkalinity[4,5]	< 300 mg/L

Note: ORP = oxygen reduction potential; mg/L = milligrams per liter; µs/cm = microsiemens per centimeter; mV = millivolts

Sources:

1: EPA Volunteer Stream Monitoring: A Methods Manual

2: 314 CMR 4.00: Massachusetts Surface Water Quality Standards

3: EPA National Primary Drinking Water Regulations

4: UMass Dartmouth Northeast Regional Aquaculture Center NRAC Fact Sheet No. 170-1993.

5: EPA National Recommended Water Quality Criteria for Aquatic Life.

During this quarterly monitoring period (May 2023 to July 2023) SWCA monitored these eight locations on May 17, June 21, and July 28, 2023. Earth disturbance activities began near the monitoring points beginning in January 2023 and continuing into late winter and spring months. All crossings were observed to be flowing to some extent during at least one of those monitoring events with the exception of the unnamed stream at station 593+18, which has never been observed to be flowing since the initial survey was conducted. Temperature and dissolved oxygen can change naturally when the sun rises and enables aquatic plants to release more oxygen. Later winter and early spring months temperatures begin to warm allowing the surface water temperatures to become warmer with the rising air temperatures. Sampling was conducted in the same order of monitoring points and as a result, the sampling was conducted during roughly the same time of day at each location each month to help ensure comparability over time. Table 3 attached to this report in Appendix B summarizes the data collected during each of these monitoring events. The individual summary field logs are also included in Appendix C.

2.2 Temperature

Temperature of the surface water in the month of May was higher than previous months. The months of June and July were higher than the previous months. Temperatures in June were below 20 degrees Celsius but rose above 20 degrees Celsius in July.

The monitoring results show that in May water temperatures ranged from 12.55-17.44 degrees Celsius. The June water temperatures fluctuated from 12.31-18.54 degrees Celsius. Water temperature monitoring results in the month of July ranged from 17.41-24.90 degrees Celsius. The upgradient and downgradient readings across the Project are similar and comparable to each other, and therefore the construction activities have not impacted surface water temperatures.

2.3 Dissolved Oxygen

Dissolved oxygen levels were varied in all locations for all three months, with results being both above and below the favorable value of 6 mg/L. Stations 561 U/D were <6 mg/L in the month of May. Stations 400 D, 527 D, 561 U, 700 U, and 710 D were <6 mg/L in the month of June. Dissolved oxygen levels were below 6 mg/L for all locations sampled in the month of July, as a result of the temperatures of the surface water increasing. The upgradient and downgradient readings across the Project are similar in comparison to each other, and therefore the construction activities have not impacted surface water dissolved oxygen levels.

2.4 pH

The monitoring locations reported most of the pH levels to be slightly below normal ranges for cold water fisheries at 6.5-8.3 for May through July 2023. Some station locations were reported to have normal pH levels and include 400 U/D (May and June), 725 U/D (May- July), 747 U (May and June), and 747D (May). The upgradient and downgradient readings across the Project are similar to each other, and therefore the construction activities have not impacted surface water pH levels.

2.5 Specific Conductivity

At a majority of the stations for all three monitoring events, the specific conductivity (at 25 degrees Celsius) readings were above the acceptable range for freshwater fisheries at 150-500 µS/cm. Readings were within the acceptable range at 527 U/D, 540 U, and 561 U/D for all three months. Station 540 D was high only in July. Stations 700 U and 710 D were at significantly higher than the acceptable range, with readings above 1000 µS/cm for all three months. However, these results correlate with previous monitoring results at this station. Further, no difference was observed between the upgradient and downgradient readings across the Project, and therefore the construction activities have not impacted surface water specific conductivity.

2.6 Turbidity

Turbidity levels are not specifically defined by a standard value in Massachusetts. Based on available information, for the purpose of this assessment, it can be assumed that a value of less than 5 NTU is favorable for freshwater, however the lower the better as typical groundwater is less than 1 NTU. For each of the monitoring events between May 2023 through July 2023, turbidity levels at each station were observed to be less than 5 NTUs in all locations other than Stations 561 U/D, 725 U, 747 U/D, 700 U and 710 D at the Hop Brook Tributary. Within this tributary, poor water quality conditions and frequent turbid water has been observed including before construction began. The upgradient and downgradient readings

across the Project are coinciding to each other, concluding the construction activities have not impacted surface waters turbidity.

2.7 Other Parameters

The stream flow velocities from the downgradient side to the upgradient side were similar and consistent from month to month. The ORP, alkalinity, chlorine, and hardness levels from the downgradient side to the upgradient side were the same within the sampling months. Alkalinity and chlorine levels were within the desirable levels for freshwater.

3 SUMMARY

No significant differences were observed between upgradient and downgradient stations across the Project corridor. Therefore, construction activities do not appear to be impacting the water quality of these coldwater fisheries.

4 REFERENCES

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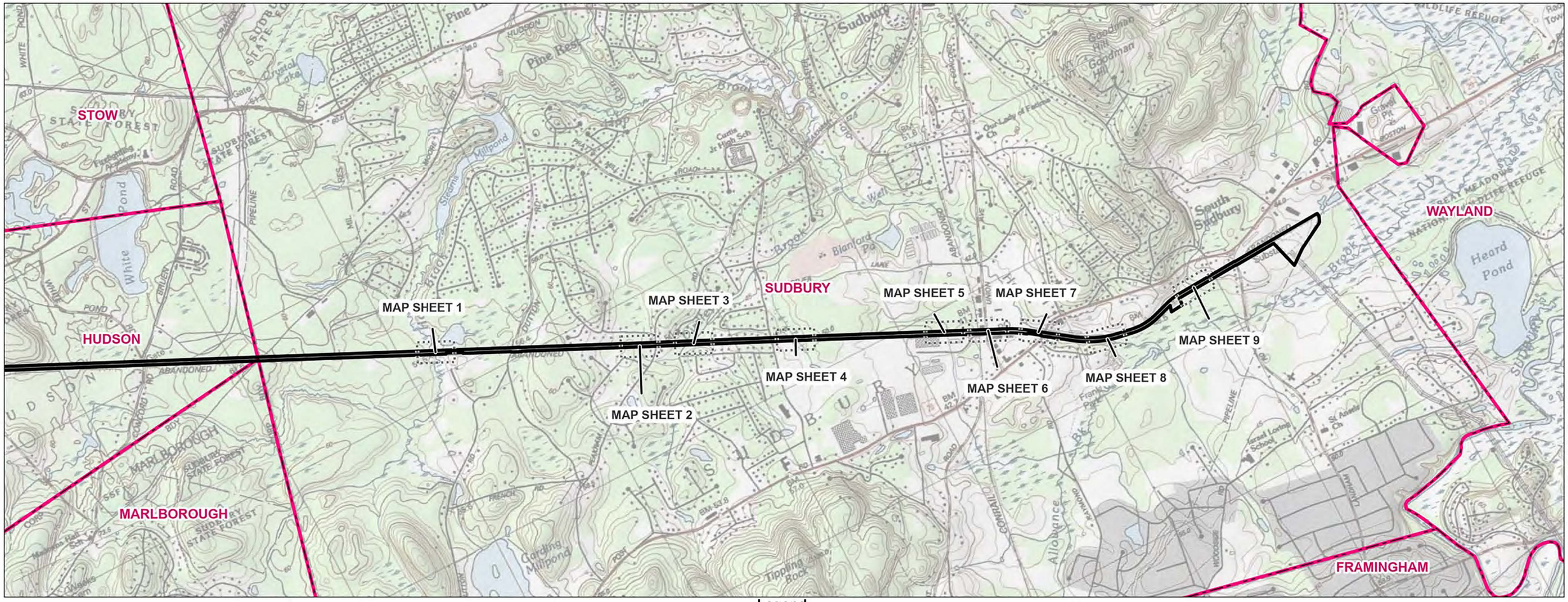
APPENDIX A

Figures Map Book

2021 - Sudbury Hudson Reliability Project

HUDSON, STOW, & SUDBURY, MA
Water Sampling Map

Date: August 11, 2021



Legend

Map Sheet Matchline

PREPARED FOR:

EVERSOURCE ENERGY
107 Selden Street
Berlin, CT 06037

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0 0.25 0.5 Miles

INDEX OF FIGURES

Title Sheet / Index Map
Map Sheets 1-9

NO.	DATE	REVISIONS

PREPARED BY:

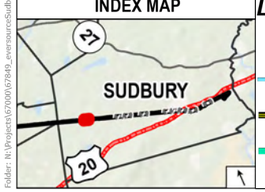
SWCA ENVIRONMENTAL CONSULTANTS
15 Research Drive
Amherst, MA 01002

SUDBURY

ST-400-D

ST-400-U

INDEX MAP



Legend

- Water Sampling Point
- Watercourse
- Limit Of Work (LOW)
- Coldwater Fisheries Line
- Open Water
- Approximate Wetland (Not Delineated)
- Existing Right-of-Way (ROW)
- Municipal Boundary

N

1:600

0 25 50 Feet

Base Map: MassGIS Ortho 2019, accessed August 2021

NO.	DATE	REVISIONS

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Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA

MAP SHEET 1 OF 9

Date: August, 2021

SWCA ENVIRONMENTAL CONSULTANTS

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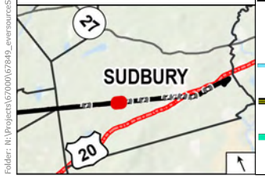
ST-527-U

ST-527-D

SUDBURY

INDEX MAP



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Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA | MAP SHEET 2 OF 9

Date: August, 2021

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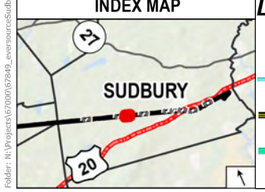
DUDLEY BROOK

ST-540-D

ST-540-U

SUDBURY

INDEX MAP



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Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA

MAP SHEET 3 OF 9

Date: August, 2021

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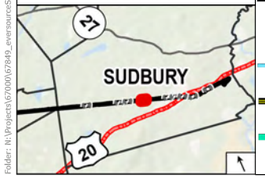
ST-561-D

ST-561-U

SUDBURY

INDEX MAP



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EVERSOURCE ENERGY

Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA | MAP SHEET 4 OF 9

Date: August, 2021

SWCA ENVIRONMENTAL CONSULTANTS

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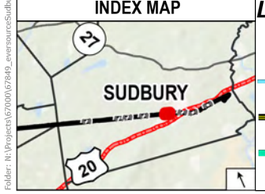
SUDBURY

ST-593-U

ST-593-D

INDEX MAP



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Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA | MAP SHEET 5 OF 9

Date: August, 2021

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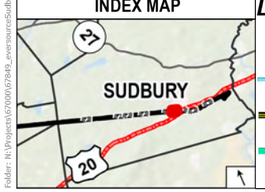
INDEX MAP



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Base Map: MassGIS Ortho 2019, accessed August 2021

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Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA | MAP SHEET 6 OF 9

Date: August, 2021

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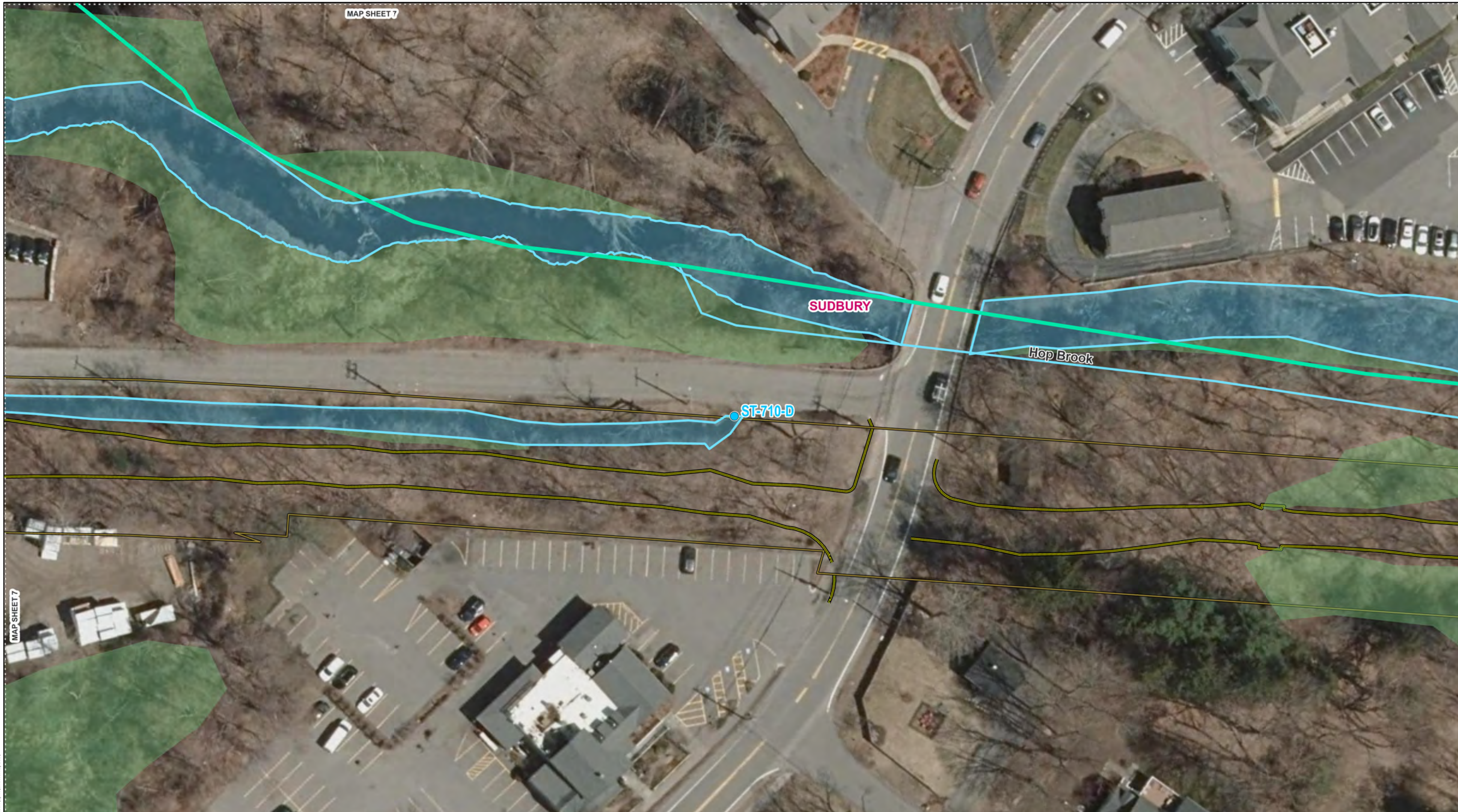

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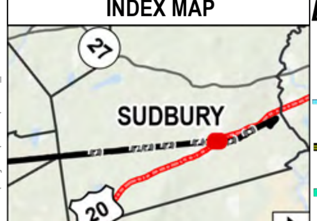

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Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA

MAP SHEET 7 OF 9

Date: August, 2021

SWCA ENVIRONMENTAL CONSULTANTS

Hop Brook

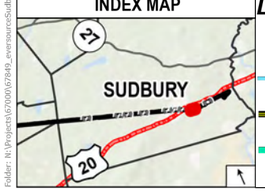
ST-725-U

ST-725-D

SUDBURY

MAP SHEET 8

INDEX MAP



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EVERSOURCE ENERGY

Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA

MAP SHEET 8 OF 9

Date: August, 2021

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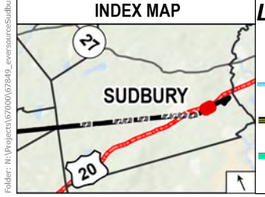
SUDBURY

ST-747-U

ST-747-D

INDEX MAP



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NO.	DATE	REVISIONS

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Sudbury Hudson Reliability Project
Water Sampling Map

SUDBURY, MA

MAP SHEET 9 OF 9

Date: August, 2021

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APPENDIX B

Tables

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 400 UP**																							
Brook/Stream/Tributary	Conditions	Hop Brook																							
Plan #	for	PLAN 47																							
Direction of Flow	Cold	south																							
Type	Water	perennial																							
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**	**21-Nov**	**21-Dec**	**30-Jan**	**24-Feb**	**24-Mar**	**20-Apr**	**17-May**	**21-Jun**	**28-Jul**
Temperature (°C)	< 20	22.25	16.20	9.23	2.77	2.16	2.48	6.48	11.88	15.15	24.82	21.27	26.25	22.64	16.06	11.38	2.3	2.37	4.35	0.96	10.49	12.04	<Null>	18.54	24.9
Specific Conductance (µS/cm @ 25°C)	150-500	414	422	421	408	410	573	768	730	727	889	771	787	852	666	598	764	572	523	403	503	450	188	634	664
Specific Conductance (µS/cm)	150-500	393	351	294	235	231	327	496	547	599	880	716	806	813	552	442	432	325	316	235	364	367	470	556	662
Dissolved Oxygen (%)	nsl	62	80	87	97	101	99	80.1	88.8	97.1	74.6	90.5	84.1	62.8	73.6	78.8	84.5	88	89.9	74.7	90.3	91.1	<Null>	65.5	68.5
Dissolved Oxygen (mg/L)	> 6	5.34	7.85	9.99	13.12	13.95	13.40	9.82	9.56	9.72	6.21	8.00	6.78	5.4	7.23	8.60	11.55	12.03	11.66	10.66	10.02	10.28	<Null>	6.12	5.66
pH	6.5-8.3	6.6	6.8	6.7	6.5	6.8	7.0	7.2	7.52	8.01	7.75	7.42	7	7.79	7.78	6.8	6.8	7.2	6.68	6.9	6.74	6.98	8.07	6.56	6.32
ORP	nsl	91	94	93	78	104	69	156	144	137	107	73	60	73	85	109	135	34	Nm	Nm	Nm	Nm	610	1246.8	887.9
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.86	1.73	2.39	1.95	2.37	2.58	1.83	0.81	1.45	2.03	3.64	1.69	2.6	1.6	2.7	2.4	1.25	0.87	2.62	1.88	1.78	3.64	2.33	3.07
Alkalinity	< 300	40	40	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	0	20	0	40	20	40	40	40	40	80	40	40	40	40	40	40	40	40	40	40	40
Velocity (ft/s)	nsl	0.35	0.38	0.4	0.28	Na	0.36	1.3	0.42	0.52	0.34	0.32	0.14	0.29	0.59	0.36	0.35	1.25	0.48	1.376	0.75	0.62	0.602	0.77	0.97

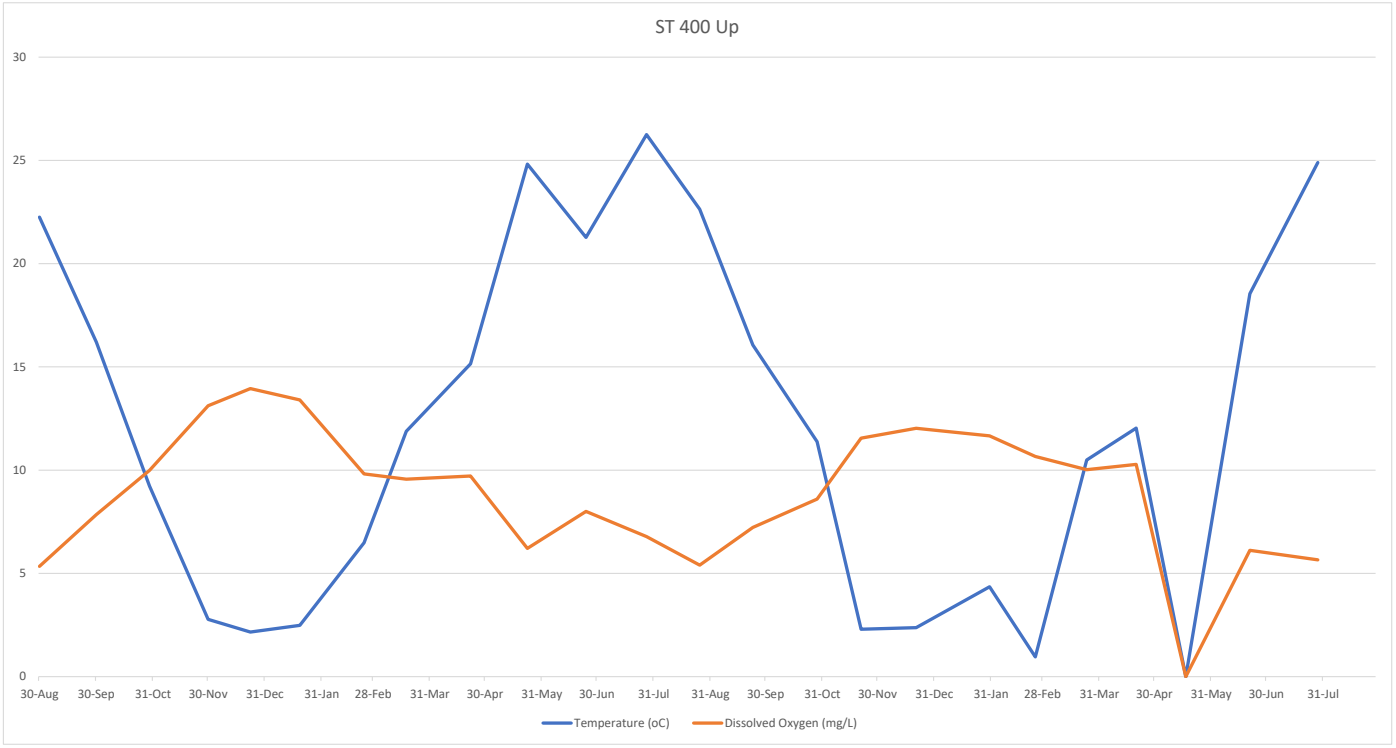


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	ST 400 DOWN																						
Brook/Stream/Tributary	Conditions	Hop Brook																						
Plan #	for	PLAN 47																						
Direction of Flow	Cold	south																						
Type	Water	perennial																						
Date	Fisheries	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb	18-Mar	22-Apr	23-May	24-Jun	27-Jul	25-Aug	23-Sep	28-Oct	21-Nov	21-Dec	30-Jan	24-Feb	24-Mar	20-Apr	17-May	21-Jun	28-Jul
Temperature (°C)	< 20	22.25	16.17	9.22	2.74	2.12	2.47	6.45	11.85	15.16	24.78	21.14	26.18	22.59	16.04	11.39	2.29	2.37	4.34	0.95	10.48	11.4	<Null>	18.52	24.86
Specific Conductance (µS/cm @ 25°C)	150-500	415	422	420	408	408	573	775	717	715	868	777	788	877	681	604	761	572	525	422	506	417	190	635	667
Specific Conductance (µS/cm)	150-500	394	351	293	235	230	327	500	537	580	865	718	805	834	564	447	431	325	318	227	365	310	474	556	666
Dissolved Oxygen (%)	nsl	60	78	86	104	105	99	83.5	87.9	93.5	75.9	90	77.5	63.6	74.1	79.9	83.7	88	91	74.7	85.5	88.5	<Null>	63.5	67.5
Dissolved Oxygen (mg/L)	> 6	5.20	7.64	9.02	14.05	14.33	13.46	10.24	9.48	9.37	6.26	7.98	6.24	5.49	7.3	8.68	11.46	12.03	11.79	10.65	9.53	9.45	<Null>	5.95	5.59
pH	6.5-8.3	6.6	6.7	6.7	6.5	6.8	7.0	7.1	7.47	7.85	7.7	7.73	7	7.85	7.68	6.8	6.8	7.2	6.79	7.0	6.67	6.94	8.05	6.6	6.4
ORP	nsl	91	94	93	79	117	119	159	146	142.4	103	60	50	75	86.2	140	140	34	Nm	Nm	Nm	Nm	620	1070.3	957.5
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.86	1.73	2.30	2.02	2.43	2.56	1.88	1.04	1.91	1.97	3.25	1.5	2.63	1.3	2.74	2.45	1.25	0.86	2.64	1.35	1.96	3.55	2.43	2.61
Alkalinity	< 300	40	40	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	0	20	0	40	20	40	40	40	40	80	40	40	40	40	40	40	40	40	40	40	40
Velocity (ft/s)	nsl	0.34	0.31	0.39	0.4	Na	0.35	1.25	0.32	0.49	0.28	0.3	0.17	0.34	0.56	0.4	0.37	1.25	0.475	1.247	0.67	0.59	0.565	0.76	0.93

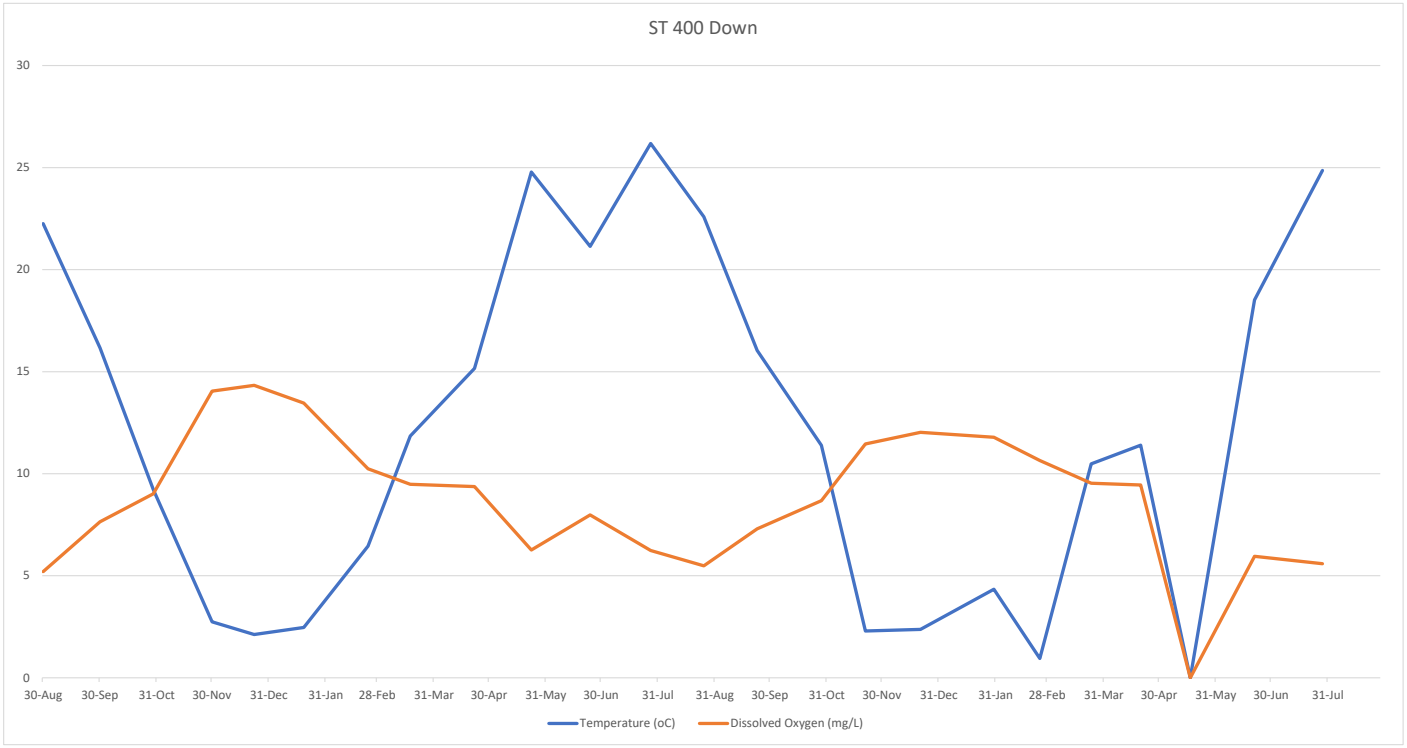


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 527 UP**																							
Brook/Stream/Tributary	Conditions	Unnamed Stream																							
Plan #	for	PLAN 52																							
Direction of Flow	Cold	south																							
Type	Water	intermittent																							
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**	**21-Nov**	**21-Dec**	**30-Jan**	**24-Feb**	**24-Mar**	**20-Apr**	**17-May**	**21-Jun**	**28-Jul**
Temperature (°C)	< 20	17.19	12.17	7.42	2.39	1.56	1.08	5.58	10.66	13.53	17.21	15.18	dry	dry	13.4	8.75	1.82	0.92	5.31	2.45	10.1	14.03	13.5	13.57	17.71
Specific Conductance (µS/cm @ 25°C)	150-500	305	290	201	301	260	309	527	426	508	487	563	dry	dry	587	474	623	462	366	334	303	409	375	387	451
Specific Conductance (µS/cm)	150-500	259	219	148	170	144	163	332	309	397	420	458	dry	dry	493	327	389	241	229	190	217	318	292	302	388
Dissolved Oxygen (%)	nsl	51	61	54	67	70	72	62.4	78.8	91.3	50.5	63.6	dry	dry	71.2	44.3	65.3	76.5	85.5	85.3	76.3	81.1	81.6	61.1	62.2
Dissolved Oxygen (mg/L)	> 6	4.94	6.56	6.02	9.17	9.71	10.2	7.82	8.74	9.47	4.87	6.38	dry	dry	7.03	5.13	8.91	9.49	10.82	11.63	8.57	8.34	8.48	6.35	5.92
pH	6.5-8.3	5.4	6.1	6.3	6.3	6.0	6.0	6.2	6.37	6.42	6.62	6.8	dry	dry	7.2	6.8	6.8	7	6.14	5.7	7.3	7.17	5.89	5.9	5.67
ORP	nsl	130	117	105	97	127	97	200	186	179	119	Ns	dry	dry	90	98	87	100	<Null>	<Null>	Nm	Nm	304	1081.8	662
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.30	0.63	1.52	1.53	2.98	2.20	2.03	2.01	1.46	3.01	0.76	dry	dry	1.97	1.77	3.76	1.77	1.64	0.94	1.68	1.2	2.3	1.29	0.4
Alkalinity	< 300	0	0	0	100	0	0	0	0	0	100	100	dry	dry	100	100	100	100	0	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	0	20	0	0	20	0	0	0	dry	dry	40	0	40	40	0	40	40	40	40	40	40
Velocity (ft/s)	nsl	0.2	0.18	0.1	0.21	Na	0.15	0.53	0.09	0.08	0.14	0.09	dry	dry	0.14	0.13	0.013	0.15	0.186	0.092	0.18	0.14	0.083	0	0.69

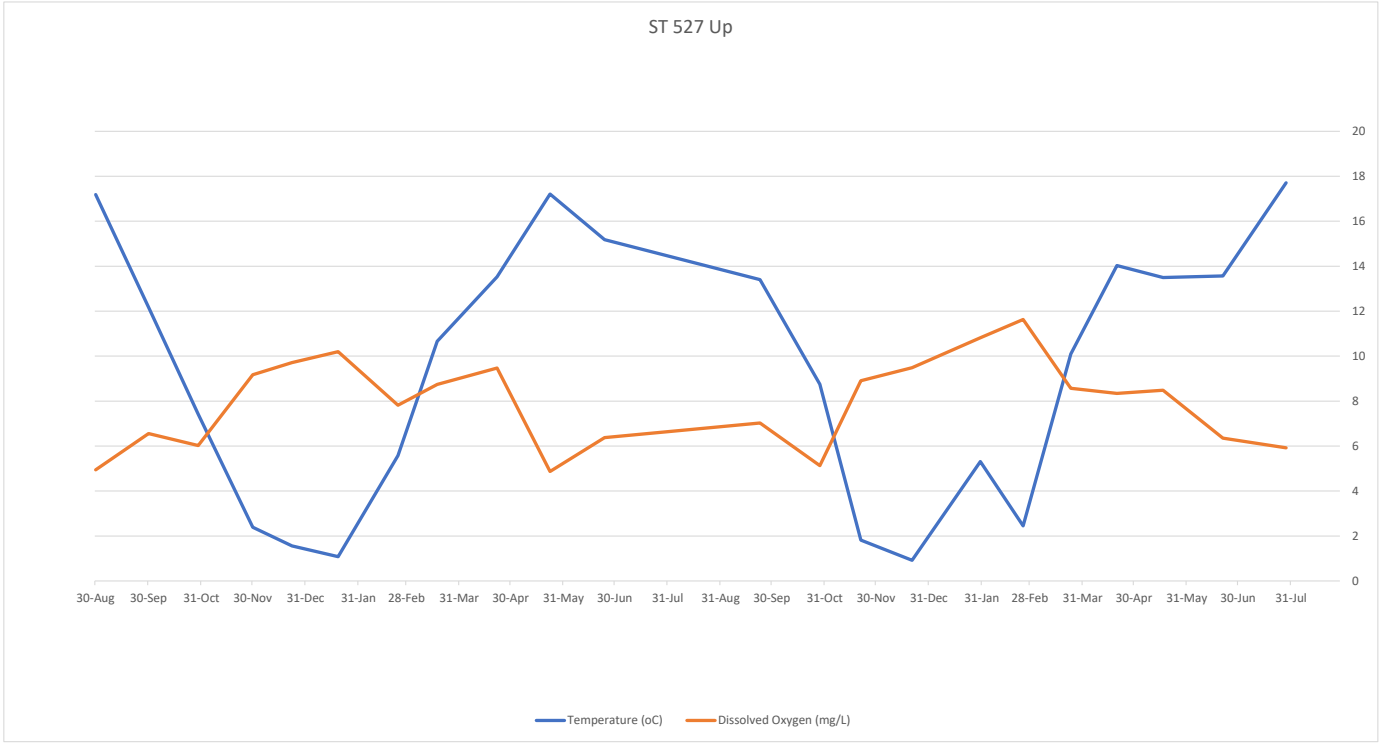


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 527 DOWN**																							
Brook/Stream/Tributary	Conditions	Unnamed Stream																							
Plan #	for	PLAN 52																							
Direction of Flow	Cold	south																							
Type	Water	intermittent																							
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**	**21-Nov**	**21-Dec**	**30-Jan**	**24-Feb**	**24-Mar**	**20-Apr**	**17-May**	**21-Jun**	**28-Jul**
Temperature (°C)	< 20	17.07	12.13	7.36	2.48	1.63	1.07	5.49	10.11	13.11	17.17	14.88	dry	dry	13.56	8.84	1.68	0.89	4.74	2.82	10.08	13.96	13.03	12.31	17.41
Specific Conductance (µS/cm @ 25°C)	150-500	301	287	204	304	262	294	538	435	513	604	579	dry	dry	560	482	624	481	374	341	305	405	371	378	462
Specific Conductance (µS/cm)	150-500	255	217	154	174	145	159	337	311	396	513	467	dry	dry	479	323	402	274	229	196	218	320	287	286	395
Dissolved Oxygen (%)	nsl	52	64	56	67	74	74	64.6	70.9	85.3	54.5	61.8	dry	dry	67.9	39.4	67.4	73.5	75.3	75.9	76.1	81.6	77.1	37.6	55.4
Dissolved Oxygen (mg/L)	> 6	4.98	6.87	6.16	9.12	10.31	10.45	8.13	7.88	8.95	5.23	6.23	dry	dry	6.89	4.57	8.46	10.21	9.65	10.22	8.56	8.41	8.11	3.98	5.31
pH	6.5-8.3	5.8	6.5	6.4	6.4	6.2	6.0	6.2	6.38	6.48	6.58	6.78	dry	dry	7.2	6.8	6.8	7	6.87	5.7	7.14	6.88	5.86	5.91	5.63
ORP	nsl	127	106	105	96	122	81	175	178	173	123	116	dry	dry	80	90	76	60	Nm	Nm	Nm	Nm	1354	357.8	605.3
Turbidity (NTU)	free from turbidity that would impair fish habitat	1.18	0.84	1.56	1.40	2.00	1.50	1.81	1.26	1.4	2.18	0.64	dry	dry	1.89	1.24	3.78	1.48	1.94	0.33	1.47	0.99	2.22	2.13	0.78
Alkalinity	< 300	0	0	0	100	0	0	0	0	0	100	100	dry	dry	100	100	100	100	0	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	100	0	0	0	0	0	20	0	0	0	dry	dry	40	0	40	40	0	40	40	40	40	40	40
Velocity (ft/s)	nsl	0.21	0.06	0.13	0.14	Na	0.1	0.48	0.23	0.17	0.09	0.06	dry	dry	0.12	0.09	0.01	0.1	0.155	0.193	0.16	0.13	0.063	0.01	0.33

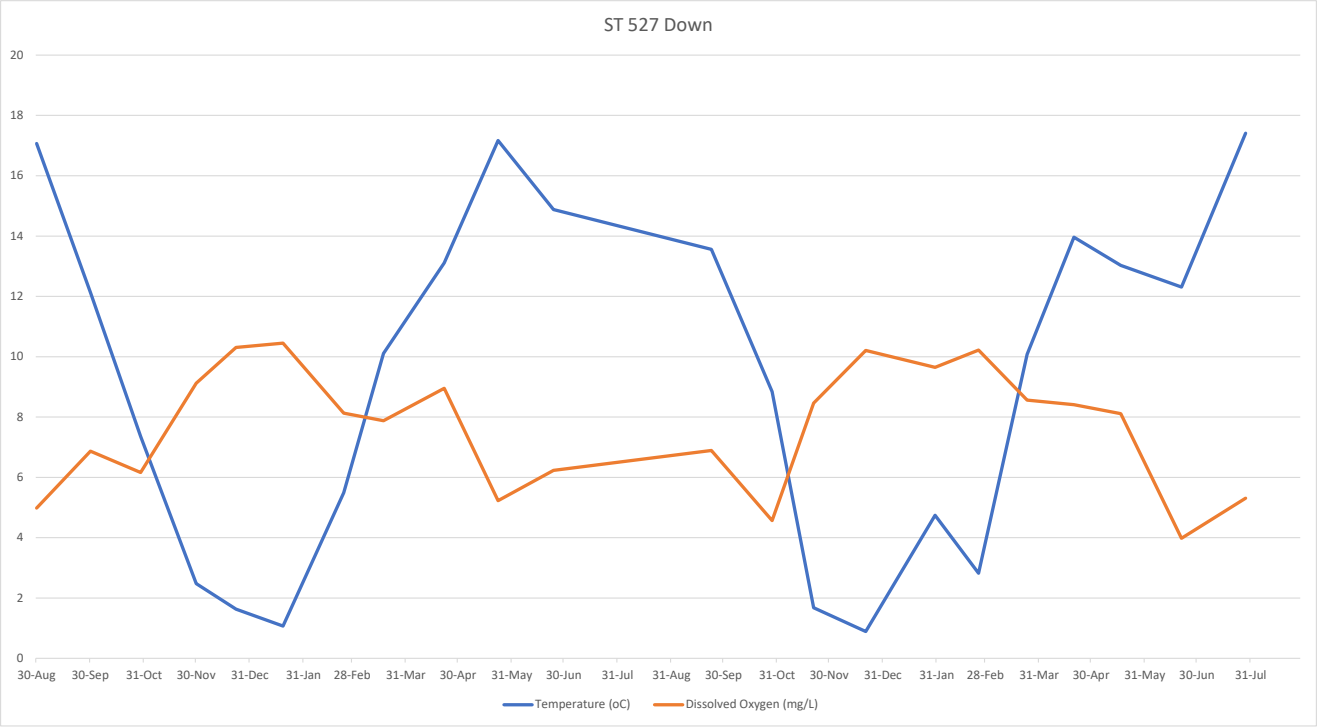


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 540 UP**																						
Brook/Stream/Tributary	Conditions	Dudley Brook																						
Plan #	for	PLAN 54																						
Direction of Flow	Cold	south																						
Type	Water	perennial																						
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**	**21-Nov**	**21-Dec**	**30-Jan**	**24-Feb**	**24-Mar**	**20-Apr**	**17-May**	**21-Jun**	**28-Jul**
Temperature (°C)	< 20	18.84	13.17	7.78	1.62	1.02	0.42	5.2	10.35	12.72	19.67	17.54	21.73	20.7	13.9	9.67	1.47	0.86	3.55	1.15	8.99	11.72	13.81	13.66	21.25
Specific Conductance (µS/cm @ 25°C)	150-500	340	305	271	312	288	377	573	487	553	663	630	609	890	701	654	599	461	405	436	488	433	406	504	504
Specific Conductance (µS/cm)	150-500	300	236	182	172	157	198	360	350	423	599	540	561	805	625	378	330	248	238	237	256	323	319	394	468
Dissolved Oxygen (%)	nsl	16	56	52	73	79	80	83	84.4	70.6	42.1	53	58.3	57.8	67	34.8	59.7	70	73.9	77.5	117.8	78.2	64	61.5	42.3
Dissolved Oxygen (mg/L)	> 6	1.41	5.91	6.11	10.16	11.15	11.60	10.26	9.43	7.6	4.01	5.07	5.12	4.77	6.92	3.93	8.35	9.97	9.78	10.94	12.3	8.47	6.62	6.37	3.73
pH	6.5-8.3	6.1	6.7	6.5	6.6	6.6	7.0	6.7	6.95	6.99	7.45	7.2	6.8	7	7.2	6.6	6.9	7.2	6.22	6.1	6.83	6.71	6.28	6.42	5.93
ORP	nsl	123	101	101	87	106	55	162	176	168	107	94	100	80	135	68	100	173	Nm	Nm	Nm	Nm	497	1020.6	993.9
Turbidity (NTU)	free from turbidity that would impair fish habitat	3.14	1.37	1.90	1.86	1.54	1.66	2.2	1.67	2	2.67	2.48	3.29	4.2	2.66	4.5	3.56	0.92	0.42	0.52	2.56	1.99	1.42	3.12	2.37
Alkalinity	< 300	40	20	0	100	0	0	100	0	100	100	100	100	100	100	100	100	100	100	0	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	0	0	0	0	20	20	40	40	40	40	40	40	40	40	40	40	40	40	40	0	40
Velocity (ft/s)	nsl	0.55	0.44	0.66	0.31	Na	0.8	0.78	0.52	1.1	0.4	0.25	1.09	0.19	0.26	0.26	0.035	0.52	1.445	1.442	0.87	0.81	1.089	0.57	2.9

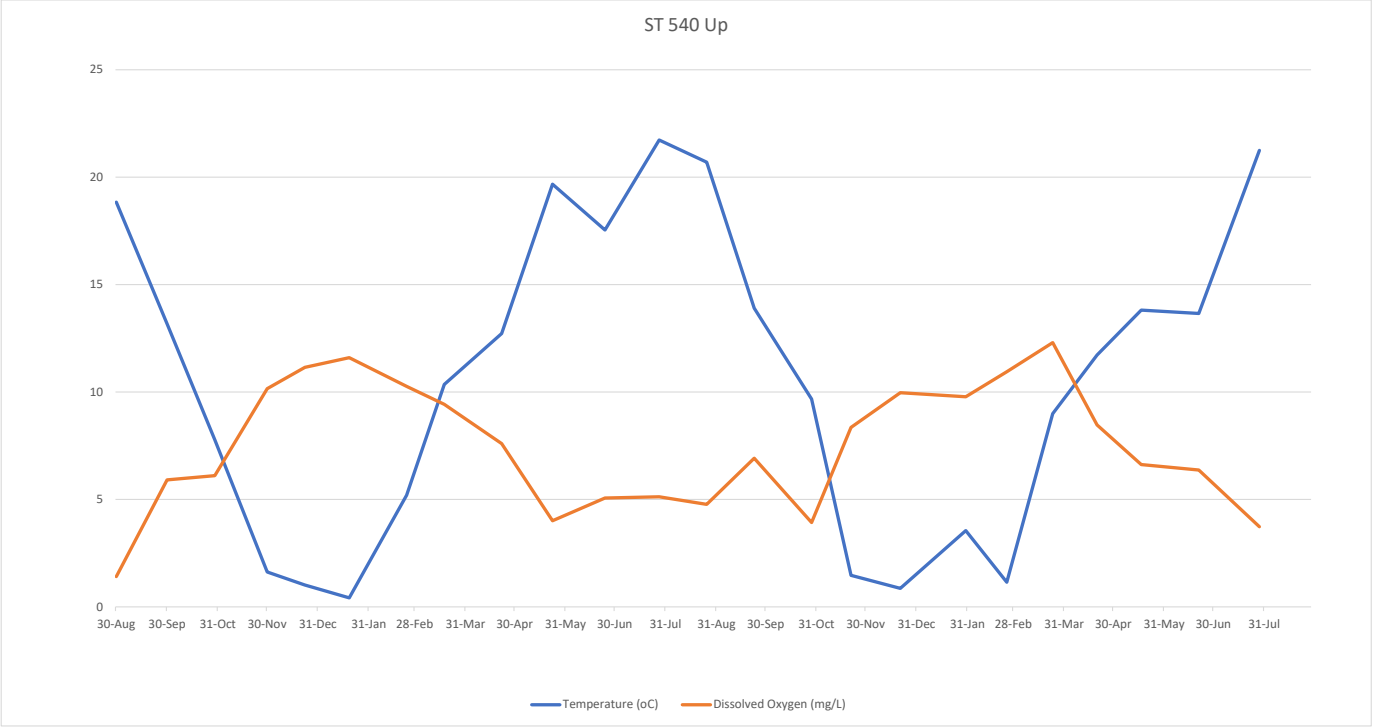


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 540 DOWN**																							
Brook/Stream/Tributary	Conditions	Dudley Brook																							
Plan #	for	PLAN 54																							
Direction of Flow	Cold	south																							
Type	Water	perennial																							
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**	**21-Nov**	**21-Dec**	**30-Jan**	**24-Feb**	**24-Mar**	**20-Apr**	**17-May**	**21-Jun**	**28-Jul**
Temperature (°C)	< 20	18.83	13.18	7.89	1.72	0.80	0.27	5.47	10.32	13.11	19.94	17.43	21.97	20.6	13.56	9.73	1.56	1.00	3.33	1.21	8.89	11.62	13.55	14.34	21.27
Specific Conductance (µS/cm @ 25°C)	150-500	344	311	274	311	296	376	628	480	555	674	654	591	895	560	558	585	484	406	446	445	439	393	432	510
Specific Conductance (µS/cm)	150-500	303	241	184	173	159	199	394	345	429	609	559	556	820	479	395	323	262	238	244	208	327	307	344	474
Dissolved Oxygen (%)	nsl	42	67	59	76	88	78	74.3	77.2	86.4	46.7	57	55.2	57.1	67.9	36.3	59.4	75.1	72.2	79	106.7	79	61.1	63.5	37
Dissolved Oxygen (mg/L)	> 6	3.86	6.98	7.00	10.57	12.49	11.33	9.28	8.63	9.06	4.24	5.51	4.82	4.92	6.89	4.11	8.27	10.61	9.62	11.12	11.8	8.57	6.36	6.48	3.28
pH	6.5-8.3	6.3	6.7	6.9	6.8	6.5	7.0	6.8	7.04	7.11	7.02	7.11	7.2	7	7.2	6.5	6.98	7.2	6.32	6.0	6.62	6.64	6.28	6.32	5.96
ORP	nsl	115	97	101	85	103	52	137	151	128	125	88	100	78	80	87	120	43	Nm	Nm	Nm	Nm	462	1216.7	1033.6
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.09	1.34	1.84	1.77	1.46	1.94	2.08	1.8	1.4	2.2	2.56	3.4	3.61	1.89	2.25	2.97	0.42	0.96	0.36	2.56	1.8	2.65	3.04	3.26
Alkalinity	< 300	40	40	0	0	0	0	0	100	100	100	100	100	100	100	100	100	100	0	0	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	<Null>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	0	20	0	0	20	20	40	40	40	40	40	40	40	40	40	40	40	40	40	0	40
Velocity (ft/s)	nsl	0.4	0.34	0.8	0.31	Na	0.25	0.6	1.2	0.82	0.36	0.57	0.26	0.26	0.12	0.43	0.045	0.48	1.128	1.305	0.68	0.83	1.253	1.06	2.38

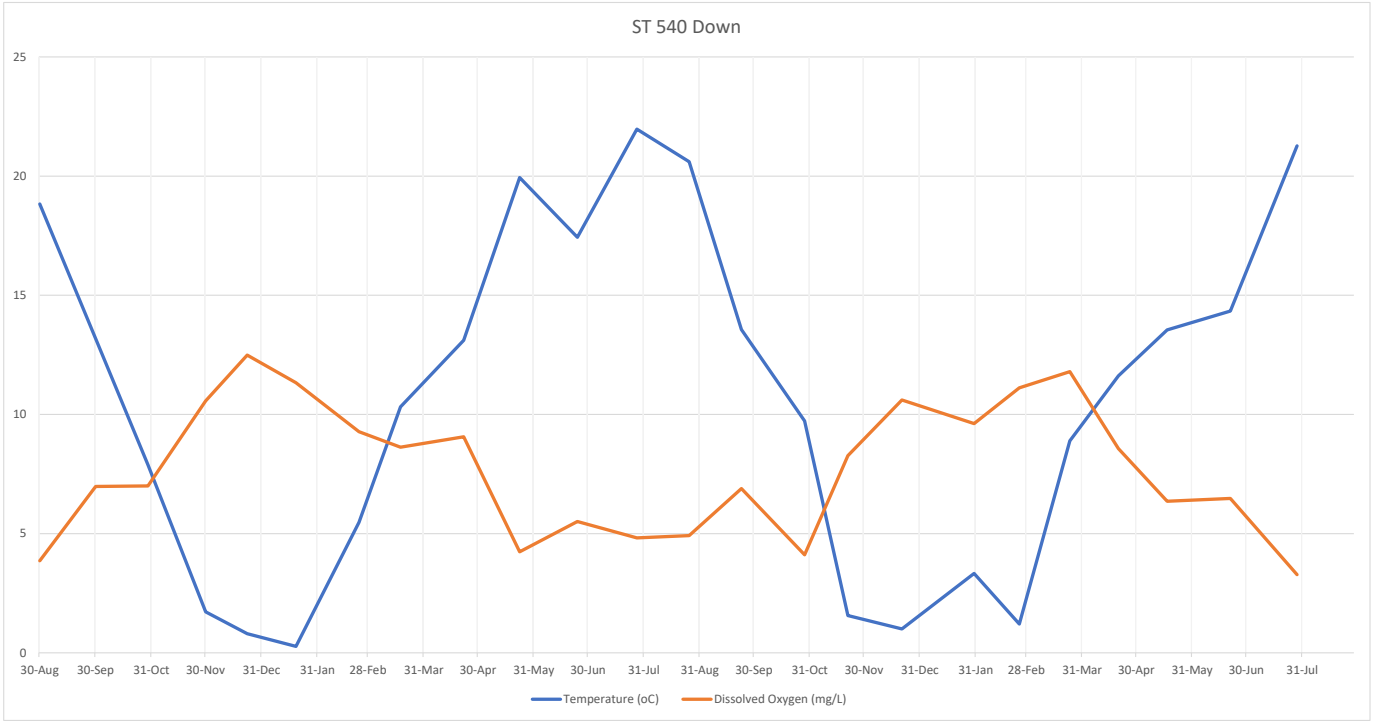


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 561 UP**																						
Brook/Stream/Tributary	Conditions	Unnamed Stream																						
Plan #	for	PLAN 57																						
Direction of Flow	Cold	north																						
Type	Water	intermittent																						
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**	**21-Nov**	**21-Dec**	**30-Jan**	**24-Feb**	**24-Mar**	**20-Apr**	**17-May**	**21-Jun**	**28-Jul**
Temperature (°C)	< 20	20.59	14.12	7.57	0.84	0.02	0.22	6.7	12.92	15.79	21	dry	dry	dry	dry	dry	dry	dry	4.1	0.84	9.17	14.2	17.44	14.48	23.73
Specific Conductance (µS/cm @ 25°C)	150-500	361	344	243	308	244	269	485	439	557	790	dry	dry	dry	dry	dry	dry	dry	408	426	469	479	460	399	426
Specific Conductance (µS/cm)	150-500	331	272	162	166	127	141	315	337	459	678	dry	dry	dry	dry	dry	dry	dry	245	229	210	380	394	319	415
Dissolved Oxygen (%)	nsl	22	42	38	64	71	40	62.4	80.8	91.3	62.5	dry	dry	dry	dry	dry	dry	dry	73.8	75.3	108.2	58.3	61.7	24.5	22.3
Dissolved Oxygen (mg/L)	> 6	2.00	4.32	4.53	9.07	10.4	5.81	7.6	8.53	9.03	6.01	dry	dry	dry	dry	dry	dry	dry	9.63	10.73	11.7	5.98	5.9	2.49	1.86
pH	6.5-8.3	6.1	6.7	6.4	6.9	6.6	6.7	6.8	7.08	7.35	7.45	dry	dry	dry	dry	dry	dry	dry	6.43	5.8	6.82	6.92	6.11	5.9	5.86
ORP	nsl	47	78	73	72	99	68	147	98	94	89	dry	dry	dry	dry	dry	dry	dry	Nm	Nm	Nm	Nm	552	1045.7	870.3
Turbidity (NTU)	free from turbidity that would impair fish habitat	5.74	1.40	2.16	1.72	1.44	1.70	1.58	3.28	1.94	3.2	dry	dry	dry	dry	dry	dry	dry	2.24	0.66	2.19	3.4	7.72	5.3	11.3
Alkalinity	< 300	40	40	40	0	0	0	100	100	100	100	dry	dry	dry	dry	dry	dry	dry	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	dry	dry	dry	dry	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	dry	dry	dry	dry	0	0	0	0	0.5	0	0
Hardness	nsl	100	100	0	0	40	0	40	20	40	40	dry	dry	dry	dry	dry	dry	dry	20	40	40	40	40	40	40
Velocity (ft/s)	nsl	0.08	0.06	0.19	0.16	Na	0.04	0.15	0.31	0.18	0.17	dry	dry	dry	dry	dry	dry	dry	0.478	0.107	0.26	0.04	0.176	0.06	1.38

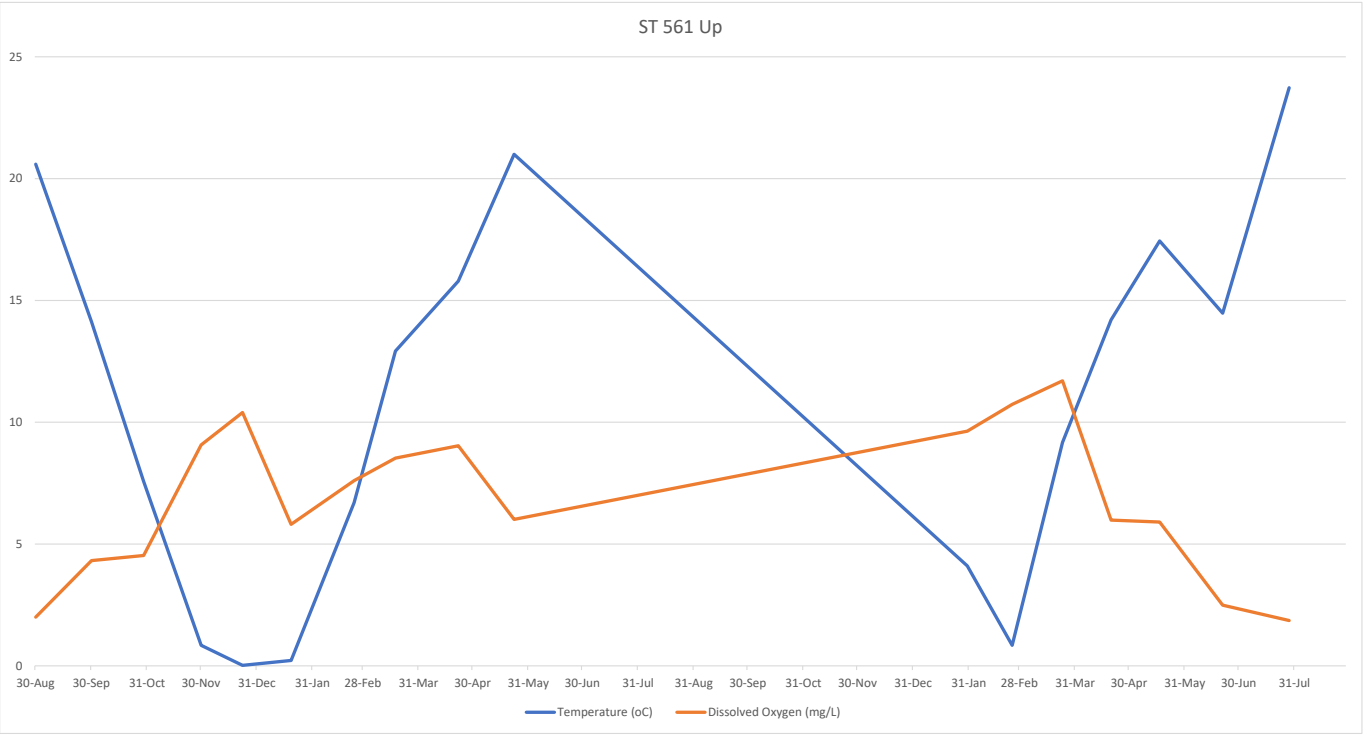


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	ST 561 DOWN																							
Brook/Stream/Tributary	Conditions	Unnamed Stream																							
Plan #	for	PLAN 57																							
Direction of Flow	Cold	north																							
Type	Water	intermittent																							
Date	Fisheries	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb	18-Mar	22-Apr	23-May	24-Jun	27-Jul	25-Aug	23-Sep	28-Oct	21-Nov	21-Dec	30-Jan	24-Feb	24-Mar	20-Apr	17-May	21-Jun	28-Jul
Temperature (°C)	< 20	20.14	14.10	7.61	1.17	0.19	0.27	6.79	12.42	14.56	20.3	dry	dry	dry	dry	dry	dry	dry	3.61	0.84	9.12	14.21	15.57	<Null>	22.3
Specific Conductance (µS/cm @ 25°C)	150-500	350	338	252	311	245	281	497	431	567	835	dry	dry	dry	dry	dry	dry	dry	424	444	478	474	424	<Null>	531
Specific Conductance (µS/cm)	150-500	318	268	168	168	129	149	324	327	454	750	dry	dry	dry	dry	dry	dry	dry	251	239	213	386	348	<Null>	503
Dissolved Oxygen (%)	nsl	37	62	62	76	85	44	63.6	74.4	85	67.8	dry	dry	dry	dry	dry	dry	dry	69.5	77.7	110.3	58.1	56.7	<Null>	27.4
Dissolved Oxygen (mg/L)	> 6	3.36	5.34	7.28	10.78	12.28	6.29	7.74	7.93	8.61	6.4	dry	dry	dry	dry	dry	dry	dry	9.18	11.03	12.4	5.96	5.64	<Null>	2.37
pH	6.5-8.3	6.7	7.0	7.3	7.2	6.5	6.7	6.9	7.1	7.26	7.45	dry	dry	dry	dry	dry	dry	dry	6.15	5.9	6.92	6.84	5.96	<Null>	5.8
ORP	nsl	53	70	52	46	79	95	131	116	92.2	48	dry	dry	dry	dry	dry	dry	dry	Nm	Nm	Nm	Nm	1041	<Null>	320.3
Turbidity (NTU)	free from turbidity that would impair fish habitat	1.87	1.90	3.27	1.90	1.73	1.67	1.89	1.85	2.3	4.2	dry	dry	dry	dry	dry	dry	dry	1.04	1.12	2.1	3.5	5.32	<Null>	4.3
Alkalinity	< 300	40	40	40	100	0	0	0	100	100	100	dry	dry	dry	dry	dry	dry	dry	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	dry	dry	dry	dry	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	dry	dry	dry	dry	0	0	0	0	0.5	0	0
Hardness	nsl	100	100	0	40	0	0	0	20	20	40	dry	dry	dry	dry	dry	dry	dry	20	40	40	40	80	40	40
Velocity (ft/s)	nsl	0.1	0.13	0.45	0.37	Na	0.04	0.28	0.12	0.2	0.12	dry	dry	dry	dry	dry	dry	dry	0.574	0.081	0.31	0.08	0.102	0.07	0.72

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 593 UP**																								
Brook/Stream/Tributary	Conditions	Unnamed Stream																								
Plan #	for	PLAN 60																								
Direction of Flow	Cold	north																								
Type	Water	intermittent																								
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**	**21-Nov**	**21-Dec**	**30-Jan**	**24-Feb**	**24-Mar**	**20-Apr**	**17-May**	**21-Jun**	**28-Jul**
Temperature (^{o}C)	< 20	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Specific Conductance (µS/cm @ 25^{o}C)	150-500	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Specific Conductance (µS/cm)	150-500	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Dissolved Oxygen (%)	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Dissolved Oxygen (mg/L)	> 6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
pH	6.5-8.3	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
ORP	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Turbidity (NTU)	free from turbidity that would impair fish habitat	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Alkalinity	< 300	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Chlorine, Free	< 4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Chlorine, Total	< 4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Hardness	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Velocity (ft/s)	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 593 DOWN**																								
Brook/Stream/Tributary	Conditions	Unnamed Stream																								
Plan #	for	PLAN 60																								
Direction of Flow	Cold	north																								
Type	Water	intermittent																								
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**	**21-Nov**	**21-Dec**	**30-Jan**	**24-Feb**	**24-Mar**	**20-Apr**	**17-May**	**21-Jun**	**28-Jul**
Temperature (^{o}C)	< 20	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Specific Conductance (µS/cm @ 25^{o}C)	150-500	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Specific Conductance (µS/cm)	150-500	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Dissolved Oxygen (%)	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Dissolved Oxygen (mg/L)	> 6	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
pH	6.5-8.3	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
ORP	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Turbidity (NTU)	free from turbidity that would impair fish habitat	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Alkalinity	< 300	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Chlorine, Free	< 4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Chlorine, Total	< 4	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Hardness	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Velocity (ft/s)	nsl	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 700 UP**																							
Brook/Stream/Tributary	Conditions	Hop Brook Tributary																							
Plan #	for	PLAN 61																							
Direction of Flow	Cold	East																							
Type	Water	intermittent																							
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**	**21-Nov**	**21-Dec**	**30-Jan**	**24-Feb**	**24-Mar**	**20-Apr**	**17-May**	**21-Jun**	**28-Jul**
Temperature (°C)	< 20	21.13	16.14	9.67	7.56	6.43	4.49	6.79	8.15	16.21	26	dry	dry	dry	13.88	11.4	dry	0.08	2.91	1.09	10.96	14.52	14.23	16.21	23.78
Specific Conductance (µS/cm @ 25°C)	150-500	1362	1129	1104	1110	1079	1689	2225	3094	2398	10112	dry	dry	dry	946	900	dry	942	1756	3320	1786	1482	1736	1932	1372
Specific Conductance (µS/cm)	150-500	1263	938	702	742	697	1027	1450	2098	1909	9978	dry	dry	dry	728	750	dry	501	1009	1750	1294	1204	1353	1628	1340
Dissolved Oxygen (%)	nsl	43	41	52	51	56	61	84.2	49.6	76.3	39.5	dry	dry	dry	48.9	46.8	dry	48.9	64.3	75.1	89.4	116.8	82.3	46.3	54.5
Dissolved Oxygen (mg/L)	> 6	3.96	4.13	5.87	5.45	6.88	7.84	10.19	5.78	7.11	3.7	dry	dry	dry	4.6	4.57	dry	6.71	8.67	10.36	9.73	10.7	8.43	4.52	4.63
pH	6.5-8.3	6.5	6.9	6.8	6.6	6.4	6.4	6.8	6.82	7.1	7.8	dry	dry	dry	7.6	6.7	dry	7.9	6.9	6.1	6.51	6.58	6.35	6.19	6.03
ORP	nsl	62	10	20	29	15	70	56.3	55	65	20	dry	dry	dry	105	82	dry	139	Nm	Nm	Nm	Nm	82.1	1015	607.4
Turbidity (NTU)	free from turbidity that would impair fish habitat	20.90	12.09	8.17	14.70	7.59	3.76	6.34	12.8	15	7.2	dry	dry	dry	3.7	5.1	dry	7.56	7.98	6.43	5.62	6.71	12.5	16.7	15.3
Alkalinity	< 300	40	80	40	250	0	100	250	250	100	250	dry	dry	dry	100	100	dry	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	0	0	dry	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	0	0	dry	0	0	0	0	0	0.5	0	0
Hardness	nsl	100	100	100	80	40	40	40	80	40	40	dry	dry	dry	40	40	dry	40	40	40	40	40	80	80	80
Velocity (ft/s)	nsl	0.23	0.02	0.05	0.01	Na	0.02	0.1	0.05	0.00	0.03	dry	dry	dry	0.02	0.03	dry	0.02	0.05	0.05	0.09	0.03	0	0	0

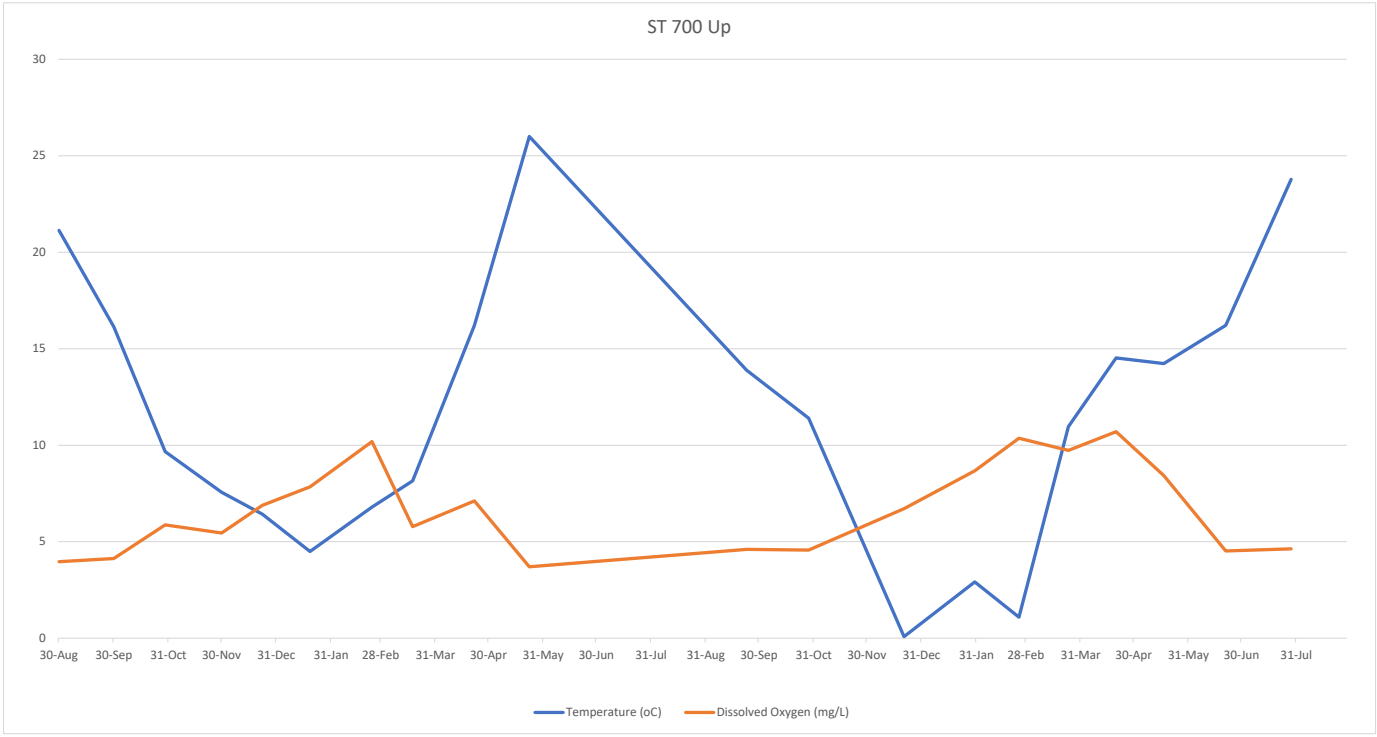


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	ST 710 DOWN																							
Brook/Stream/Tributary	Conditions	Hop Brook Tributary																							
Plan #	for	PLAN 63																							
Direction of Flow	Cold	East																							
Type	Water	intermittent																							
Date	Fisheries	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb	18-Mar	22-Apr	23-May	24-Jun	27-Jul	25-Aug	23-Sep	28-Oct	21-Nov	21-Dec	30-Jan	24-Feb	24-Mar	20-Apr	17-May	21-Jun	28-Jul
Temperature (°C)	< 20	21.08	14.28	9.55	0.40	0.01	frozen	8.55	11.06	15.44	24	dry	dry	dry	13.94	11.35	dry	0.03	2.68	1.67	10.8	14.34	14.05	16.17	24.05
Specific Conductance (µS/cm @ 25°C)	150-500	1122	755	927	1054	1108	frozen	2215	3268	2228	10068	dry	dry	dry	878	1260	dry	955	1731	3000	1734	1466	1669	1870	1290
Specific Conductance (µS/cm)	150-500	1039	600	653	559	580	frozen	1520	2409	1822	9630	dry	dry	dry	677	867	dry	495	992	1680	1265	1169	1322	1553	1267
Dissolved Oxygen (%)	nsl	37	49	61	59	73	frozen	54.8	57.4	82.5	46.8	dry	dry	dry	53.5	24.3	dry	52.3	65.5	75	95.1	122.9	81.9	45.2	57.3
Dissolved Oxygen (mg/L)	> 6	3.30	4.97	6.87	8.52	10.51	frozen	6.35	6.25	8.18	4.2	dry	dry	dry	5.61	2.8	dry	7.66	8.83	10.35	10.46	12.55	8.38	4.42	4.8
pH	6.5-8.3	6.8	6.9	6.8	6.5	6.5	frozen	6.8	6.94	7.3	7.6	dry	dry	dry	7.54	6.76	dry	7.8	6.9	6.0	6.52	6.7	6.41	6.18	6.08
ORP	nsl	66	51	25	72	60	frozen	92.4	98	79	10	dry	dry	dry	110	72.7	dry	410	Nm	Nm	Nm	Nm	80.1	989	603.9
Turbidity (NTU)	free from turbidity that would impair fish habitat	11.50	9.48	6.62	6.00	3.82	frozen	3.98	7.25	23	5.7	dry	dry	dry	3.65	4.58	dry	6.42	7.47	5.69	5.1	5.06	7.2	14.2	13.6
Alkalinity	< 300	100	120	40	100	0	frozen	100	250	100	100	dry	dry	dry	100	100	dry	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	frozen	0	0	0	0	dry	dry	dry	0	0	dry	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	frozen	0	0	0	0	dry	dry	dry	0	0	dry	0	0	0	0	0	0.5	0	0
Hardness	nsl	100	100	100	40	20	frozen	40	40	40	40	dry	dry	dry	40	40	dry	40	40	40	40	40	80	80	80
Velocity (ft/s)	nsl	0.08	0.02	0.07	0.02	Na	frozen	0.18	0.2	0.02	0.08	dry	dry	dry	0.06	0.04	dry	0.06	0.05	0.145	0.13	0.06	0.023	0	0.76

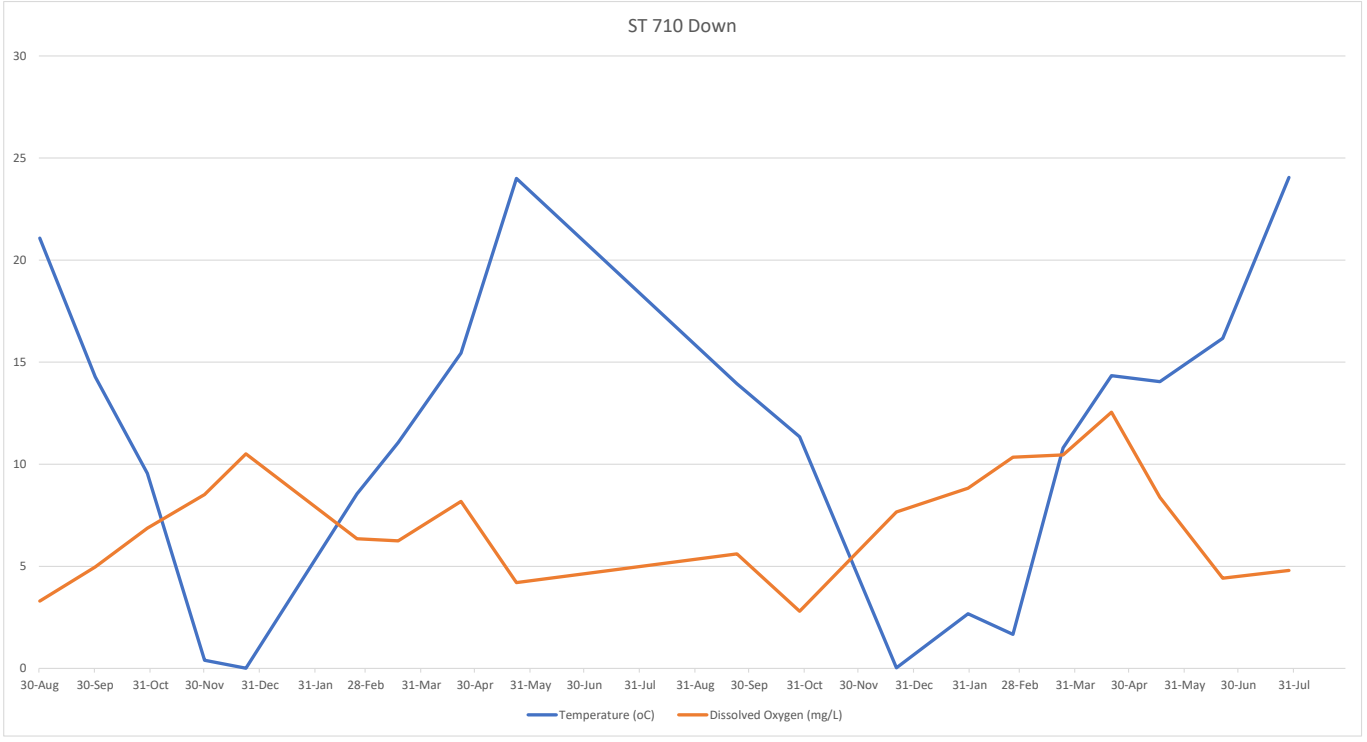


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 725 UP**																							
Brook/Stream/Tributary	Conditions	Hop Brook																							
Plan #	for	PLAN 65																							
Direction of Flow	Cold	south																							
Type	Water	perennial																							
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**	**21-Nov**	**21-Dec**	**30-Jan**	**24-Feb**	**24-Mar**	**20-Apr**	**17-May**	**21-Jun**	**28-Jul**
Temperature (°C)	< 20	20.55	14.52	7.67	1.17	0.54	0.05	6.3	8.9	12.12	22.2	18.63	21.51	21.36	14.26	10.28	1.17	0.12	2.6	2.23	8.99	10.1	15.16	16.52	22.46
Specific Conductance (µS/cm @ 25°C)	150-500	393	355	380	309	358	487	789	653	726	817	750	777	807	658	650	738	520	655	547	493	589	473	594	634
Specific Conductance (µS/cm)	150-500	360	284	254	168	190	255	507	452	548	773	659	725	750	523	475	402	273	375	311	338	420	384	493	593
Dissolved Oxygen (%)	nsl	75	87	94	95	97	105	82.8	83	94	85.9	68.9	67.6	67.3	69.9	74.6	84.3	83	84.8	87.1	84.8	82.7	74.7	64.2	53.8
Dissolved Oxygen (mg/L)	> 6	6.74	8.87	11.23	13.48	13.89	15.20	10.29	9.56	10.07	7.47	6.43	5.93	5.95	7.15	8.32	11.9	12.07	11.48	11.93	9.82	9.32	7.5	6.27	4.69
pH	6.5-8.3	6.8	7.0	6.9	7.1	7.2	7.4	7.2	7.49	7.75	7.89	6.8	7.63	7.2	6.8	6.8	6.8	7.2	6.72	6.5	6.91	6.62	6.65	6.71	6.63
ORP	nsl	97	96	88	81	94	35	88.5	121	116	91	Ns	134	100	140	127	Nm	215	Nm	Nm	Nm	Nm	352.3	1023.4	954.6
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.62	2.15	2.62	2.42	2.25	2.21	2.07	1.86	0.78	3.1	4.59	2.42	3.52	2.29	2.44	2.98	3.08	1.96	1.98	2.46	3.69	12.4	5.32	2.46
Alkalinity	< 300	40	0	0	100	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	40	0	0	0	20	40	40	40	40	80	40	40	40	0	40	40	40	40	40	40	40
Velocity (ft/s)	nsl	0.23	0.15	0.51	0.23	Na	0.46	0.34	0.57	0.38	0.2	0.06	0.1	0.18	0.2	0.27	0.027	0.17	0.19	0.462	0.37	0.24	0.126	0.06	0.36

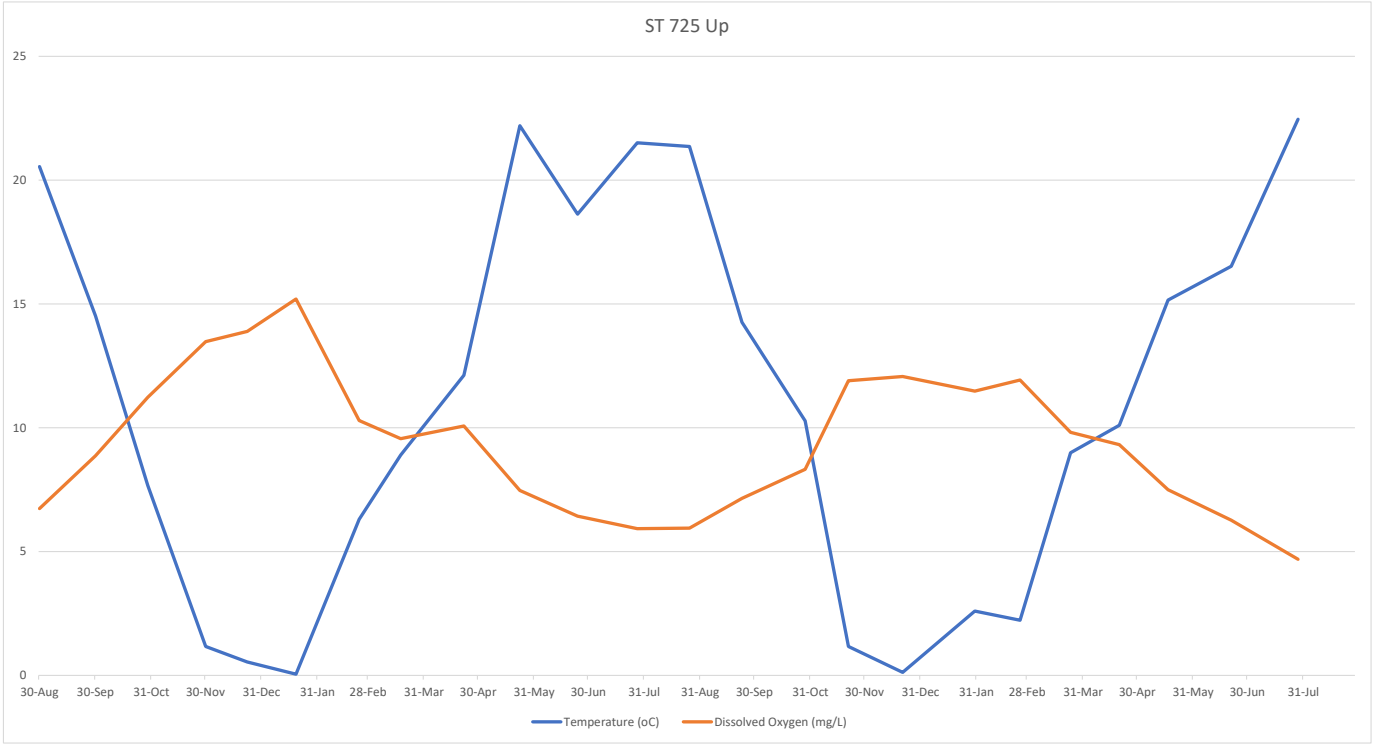


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	ST 725 DOWN																							
Brook/Stream/Tributary	Conditions	Hop Brook																							
Plan #	for	PLAN 65																							
Direction of Flow	Cold	south																							
Type	Water	perennial																							
Date	Fisheries	30-Aug	30-Sep	29-Oct	30-Nov	23-Dec	19-Jan	23-Feb	18-Mar	22-Apr	23-May	24-Jun	27-Jul	25-Aug	23-Sep	28-Oct	21-Nov	21-Dec	30-Jan	24-Feb	24-Mar	20-Apr	17-May	21-Jun	28-Jul
Temperature (°C)	< 20	20.49	14.45	7.63	1.13	0.51	0.06	4.91	8.81	12.17	22.14	18.57	21.5	21.39	14.23	10.24	1.24	0.06	2.49	2.25	8.89	9.96	15.05	16.41	22.37
Specific Conductance (µS/cm @ 25°C)	150-500	399	360	378	324	358	487	777	658	719	833	767	816	788	681	650	728	540	680	560	495	596	469	586	623
Specific Conductance (µS/cm)	150-500	365	287	253	176	190	255	479	455	543	788	673	760	733	541	467	398	283	388	325	343	425	380	490	591
Dissolved Oxygen (%)	nsl	80	79	100	102	101	106	74	81.5	93	87	62.4	65.1	65.2	70.6	75.6	83.6	88.1	89.1	87.3	86.1	82.2	74.8	64.4	53.8
Dissolved Oxygen (mg/L)	> 6	7.20	8.00	11.88	14.37	14.52	15.39	9.44	9.45	9.95	7.57	5.83	5.83	5.77	7.22	8.47	11.78	12.79	12.17	11.96	9.96	9.27	7.53	6.29	4.66
pH	6.5-8.3	7.2	7.0	7.1	7.2	7.2	7.3	7.1	7.6	7.78	7.98	6.8	7.61	7.25	6.8	6.8	6.8	7	7.07	6.5	6.94	6.68	6.56	6.64	6.53
ORP	nsl	98	98	80	76	92	29	128	124	122.2	89	Ns	140.3	110	120	120	Nm	51	Nm	Nm	Nm	Nm	345	932	939.7
Turbidity (NTU)	free from turbidity that would impair fish habitat	2.63	2.19	3.05	2.25	2.21	2.40	2.76	1.19	0.94	3.22	1.52	2.3	3.89	1.92	2.3	3.45	3.62	1.92	2.41	1.94	3.25	3.17	4.41	2.41
Alkalinity	< 300	40	0	0	100	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	nsl	100	0	0	0	0	0	0	20	40	40	40	40	80	40	40	40	0	40	40	40	40	40	40	40
Velocity (ft/s)	nsl	0.08	0.13	0.17	0.28	Na	0.3	0.28	0.25	0.35	0.27	0.1	0.16	0.11	0.22	0.23	0.038	0.32	0.558	0.42	0.4	0.28	0.132	0.11	0.64

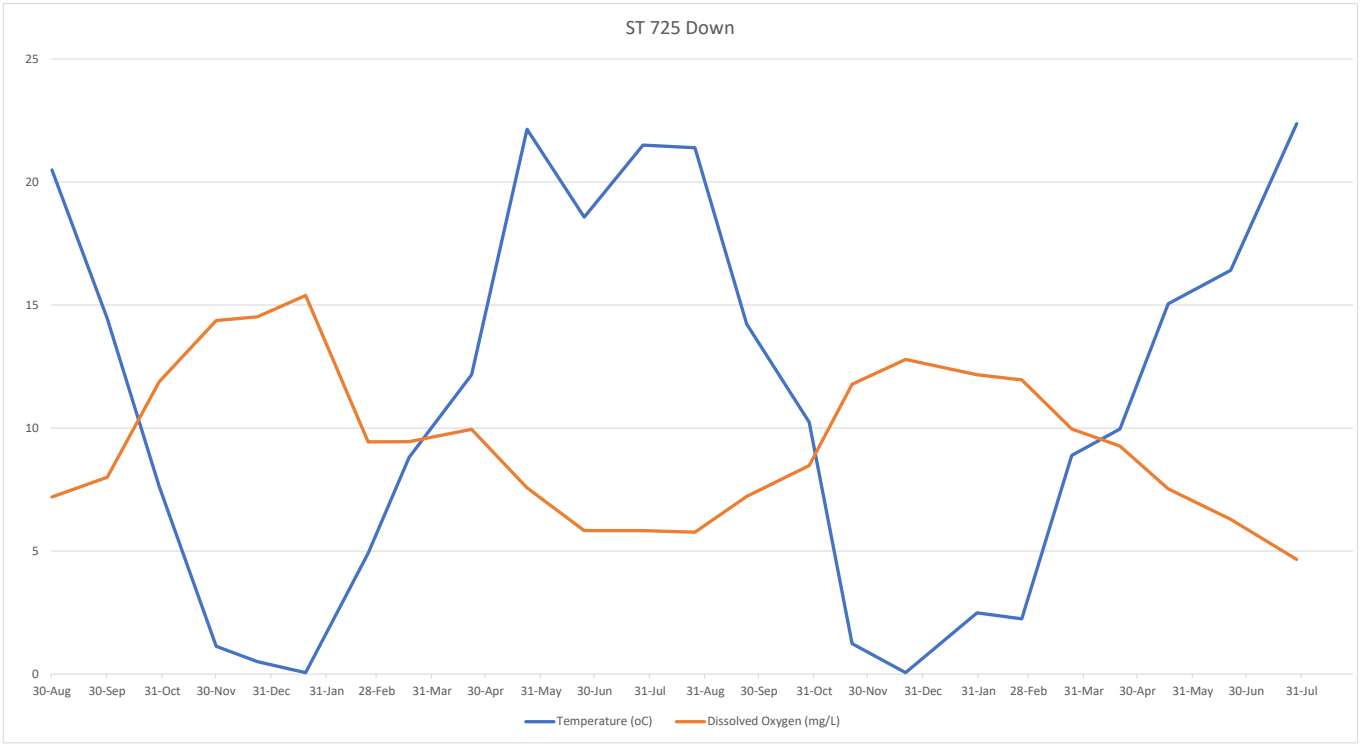
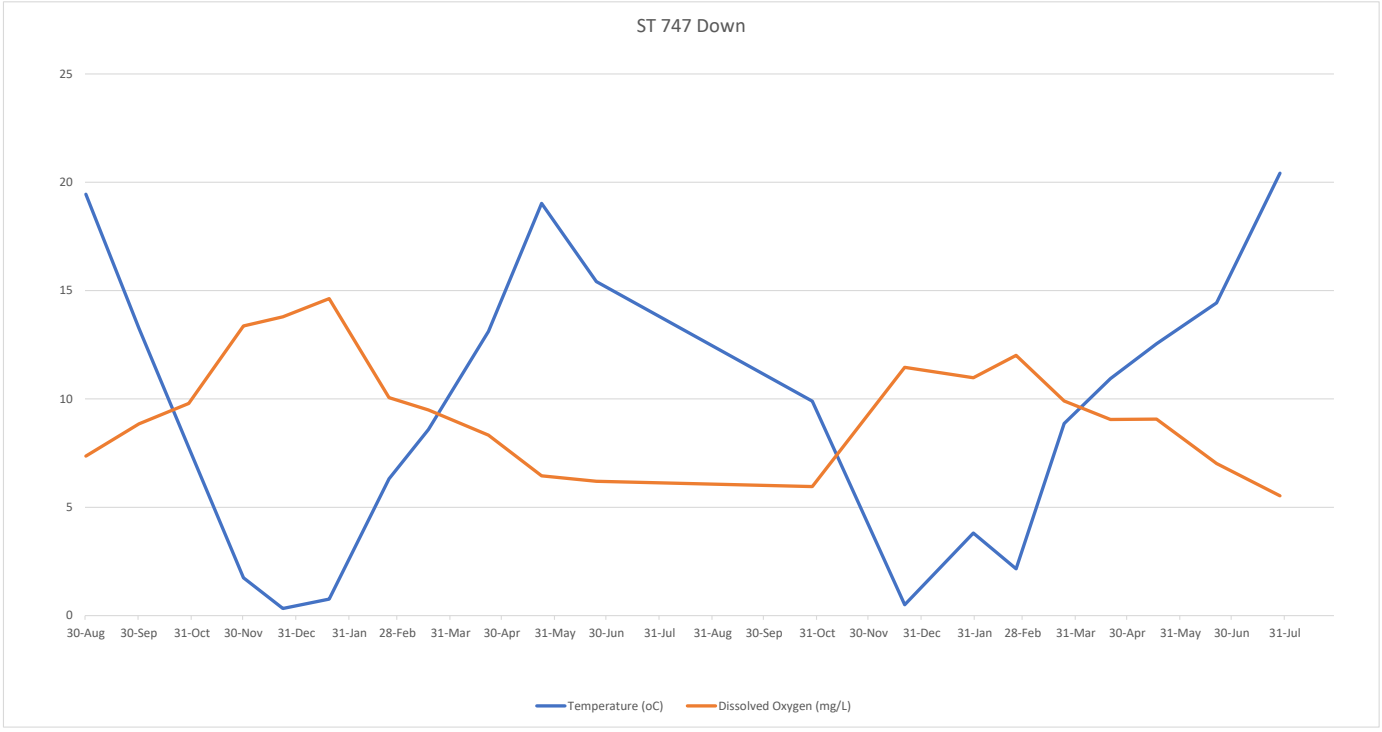


Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 747 UP**																						
Brook/Stream/Tributary	Conditions	Wash Brook Tributary																						
Plan #	for	PLAN 67																						
Direction of Flow	Cold	south																						
Type	Water	intermittent																						
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**	**21-Nov**	**21-Dec**	**30-Jan**	**24-Feb**	**24-Mar**	**20-Apr**	**17-May**	**21-Jun**	**28-Jul**
Temperature (°C)	< 20	19.39	13.34	7.72	1.94	0.32	0.83	5.04	8.81	12.86	19.02	16.01	dry	dry	dry	9.6	dry	0.6	3.62	2.18	9.11	11.03	12.71	14.57	20.52
Specific Conductance (µS/cm @ 25°C)	150-500	524	418	379	451	377	530	774	626	798	826	832	dry	dry	dry	627	dry	509	595	620	508	661	501	578	597
Specific Conductance (µS/cm)	150-500	468	325	254	252	200	286	473	432	612	730	689	dry	dry	dry	451	dry	272	352	351	354	485	383	463	544
Dissolved Oxygen (%)	nsl	91	86	89	92	107	97	73.5	79.6	80.5	72.5	67	dry	dry	dry	54.2	dry	77.5	82.7	87.6	84.3	79.4	75.8	65.7	63.5
Dissolved Oxygen (mg/L)	> 6	8.32	9.02	10.57	12.66	15.15	13.77	9.33	9.23	8.5	7.49	6.6	dry	dry	dry	5.87	dry	11.12	10.93	12.03	9.7	8.73	8.02	6.67	5.71
pH	6.5-8.3	7.2	7.0	6.6	7.2	7.2	7.4	7.15	7.55	7.5	7.4	6.8	dry	dry	dry	6.8	dry	7.6	6.67	6.3	6.79	7.32	6.58	6.7	6.21
ORP	nsl	58	60	80	59	76	-15	124	98	92	101	Ns	dry	dry	dry	102	dry	340	Nm	Nm	Nm	Nm	345	310.7	557.8
Turbidity (NTU)	free from turbidity that would impair fish habitat	0.72	1.15	1.88	1.69	1.58	2.17	3.32	1.28	1.29	2.6	2.42	dry	dry	dry	1.67	dry	0.29	1.48	0.96	2.35	2.45	2.62	6.92	1.72
Alkalinity	< 300	80	40	40	100	0	0	100	100	100	100	100	dry	dry	dry	100	dry	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	0	dry	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	0	dry	0	0	0	0	0	0	0	0
Hardness	nsl	100	100	100	40	20	40	40	40	40	40	40	dry	dry	dry	40	dry	40	40	40	40	40	40	40	40
Velocity (ft/s)	nsl	0.24	0.23	0.35	0.33	Na	0.1	0.36	0.43	0.55	0.19	0.03	dry	dry	dry	0.14	dry	0.38	0.245	0.539	0.44	0.24	0.64	0.63	1.34

Table 3: Cold Water Fisheries Monitoring Results
Sudbury to Hudson Reliability Project

Station #	Favorable	**ST 747 DOWN**																							
Brook/Stream/Tributary	Conditions	Wash Brook Tributary																							
Plan #	for	PLAN 67																							
Direction of Flow	Cold	south																							
Type	Water	intermittent																							
Date	Fisheries	**30-Aug**	**30-Sep**	**29-Oct**	**30-Nov**	**23-Dec**	**19-Jan**	**23-Feb**	**18-Mar**	**22-Apr**	**23-May**	**24-Jun**	**27-Jul**	**25-Aug**	**23-Sep**	**28-Oct**	**21-Nov**	**21-Dec**	**30-Jan**	**24-Feb**	**24-Mar**	**20-Apr**	**17-May**	**21-Jun**	**28-Jul**
Temperature (°C)	< 20	19.45	13.26	7.76	1.75	0.33	0.76	6.31	8.59	13.12	19.03	15.42	dry	dry	dry	9.9	dry	0.5	3.81	2.16	8.87	10.94	12.55	14.43	20.42
Specific Conductance (µS/cm @ 25°C)	150-500	495	451	382	453	403	532	803	643	795	875	836	dry	dry	dry	647	dry	532	575	617	561	668	474	583	634
Specific Conductance (µS/cm)	150-500	443	350	256	252	213	285	516	441	614	775	683	dry	dry	dry	460	dry	283	342	348	388	488	362	466	578
Dissolved Oxygen (%)	nsl	80	85	82	96	95	103	81.8	81.6	79.5	69.8	62.3	dry	dry	dry	53	dry	79.8	83.4	87.5	85.7	82.3	84.4	69	61.4
Dissolved Oxygen (mg/L)	> 6	7.36	8.85	9.79	13.37	13.79	14.63	10.06	9.49	8.33	6.45	6.2	dry	dry	dry	5.96	dry	11.46	10.98	12.01	9.91	9.05	9.07	7.02	5.53
pH	6.5-8.3	7.0	6.8	6.5	7.3	7.1	7.8	7.07	7.77	7.55	7.58	6.8	dry	dry	dry	6.7	dry	7.12	6.6	6.4	7.36	7.43	7.33	8.76	6.11
ORP	nsl	73	75	84	57	82	21	25.5	106	94	91.1	Ns	dry	dry	dry	100	dry	368	Nm	Nm	Nm	Nm	351	436.6	1111.7
Turbidity (NTU)	free from turbidity that would impair fish habitat	0.79	1.87	1.81	1.82	1.77	2.27	2.21	1.56	1.11	2.9	1.92	dry	dry	dry	1.9	dry	0.18	0.46	1.02	1.83	2.37	2.27	8.76	1.78
Alkalinity	< 300	80	40	40	100	0	0	0	100	100	100	100	dry	dry	dry	100	dry	100	100	100	100	100	100	100	100
Chlorine, Free	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	0	dry	0	0	0	0	0	0	0	0
Chlorine, Total	< 4	0	0	0	0	0	0	0	0	0	0	0	dry	dry	dry	0	dry	0	0	0	0	0	0	0	0
Hardness	nsl	100	100	100	40	40	40	0	40	40	40	40	dry	dry	dry	40	dry	40	40	40	40	40	40	40	40
Velocity (ft/s)	nsl	0.07	0.1	0.2	0.17	Na	0.06	0.39	0.31	0.46	0.22	0.06	dry	dry	dry	0.13	dry	0.36	0.305	0.213	0.18	0.2	0.15	0.32	0.55



APPENDIX C

Field Logs

	Summary of Field Monitoring (pg 1/3)									
	May-23									
Stream Point ID	**Station Number**	**Weather**	**AirTemp**	**Technician**	**Date**	**Upgradient or Downgradient**	**Flow Appearance**	**Flow_Odor**	**Location**	**Sampling Site**
ST 400 down	Hop Brook	sunny	57	FH	5/17/2023	Downgradient	light_tea	none	From Bridge	Open Channel
ST 400 up	Hop brook	sunny	57	FH	5/17/2023	Upgradient	light_tea	none	From Bridge	Open Channel
ST 527 down	Unnamed	sunny	57	FH	5/17/2023	Downgradient	dark_tea	none	From Bank	Open Channel
ST 527 up	Unnamed	sunny	57	FH	5/17/2023	Upgradient	dark_tea	none	From Bank	Open Channel
ST 540 down	Dudley brook	sunny	58	FH	5/17/2023	Downgradient	dark_tea	none	From Headwall	Open Channel
ST 540 up	Dudley Brook	sunny	59	FH	5/17/2023	Upgradient	dark_tea	none	From Bank	Open Channel
ST 561 down	Unnamed	sunny	58	FH	5/17/2023	Downgradient	dark_tea	none	From Bank	Open Channel
ST 561 up	Unnamed	sunny	58	FH	5/17/2023	Upgradient	dark_tea	none	From Bank	Open Channel
ST 593 down	Unnamed	sunny	56	FH	5/17/2023	Downgradient	clear	none	From Headwall	Open Channel
ST 593 up	Unnamed	sunny	56	FH	5/17/2023	Upgradient	clear	none	From Headwall	Open Channel
ST 700 up	Hop Brook tributary	sunny	55	FH	5/17/2023	Upgradient	yellow_orange	none	From Bank	Open Channel
ST 710 down	Hop brook tributary	sunny	55	FH	5/17/2023	Downgradient	cloudy_milky	none	From Headwall	Open Channel
ST 725 down	Hop Brook	sunny	53	FH	5/17/2023	Downgradient	dark_tea	none	From Bridge	Open Channel
ST 725 Up	Hop Brook	sunny	53	FH	5/17/2023	Upgradient	dark_tea	none	From Bridge	Open Channel
ST 747 Down	Wash brook tributary	sunny	53	FH	5/17/2023	Downgradient	light_tea	none	From Bank	Open Channel
ST-747-U	Wash brook tributary	sunny	53	FH	5/17/2023	Upgradient	light_tea	none	From Bank	Open Channel

	Summary of Field Monitoring (pg2/3)							
	May-23							
Stream Point ID	**Signs of Flow**	**Floatables**	**Condition of Bottom**	**Survey Comments**	**Water Temperature**	**Specific Conductance µS/cm @ 25 Degrees**	**Specific Conductance µS/cm**	**Dissolved Oxygen %**
ST 400 down	Present-Fast	None	sandy	ysi water temp and dissolved	<Null>	190	474	<Null>
ST 400 up	Present-Fast	None	sandy	king properly for temp and d	<Null>	188	470	<Null>
ST 527 down	Present-Slow	Floating_Solids	mud_clay	nt matter and pollen on surfa	13.03	371	287	77.1
ST 527 up	Present-Slow	None	mud_clay	<Null>	13.5	375	292	81.6
ST 540 down	Present-Fast	None	gravel	<Null>	13.55	393	307	61.1
ST 540 up	Present-Fast	Floating_Solids	sandy	llen and seed pods on surfac	13.81	406	319	64
ST 561 down	Present-Slow	Floating_Solids	mud_clay	llen and seed pods on surfac	15.57	424	348	56.7
ST 561 up	Present-Fast	Floating_Solids	sandy	and pollen on surface - very s	17.44	460	394	61.7
ST 593 down	Not Seen	None	not_visible	No water in channel - no dat	<Null>	<Null>	<Null>	<Null>
ST 593 up	Not Seen	None	not_visible	No water in channel - no data taken	<Null>	<Null>	<Null>	<Null>
ST 700 up	Not Seen	Iron_Bacteria,Debris	not_visible	<Null>	14.23	1736	1353	82.3
ST 710 down	Present-Slow	None	mud_clay	<Null>	14.05	1669	1322	81.9
ST 725 down	Present-Slow	None	mud_clay	<Null>	15.05	469	380	74.8
ST 725 Up	Present-Slow	Debris_buildup,Float	not_visible	<Null>	15.16	473	384	74.7
ST 747 Down	Present-Fast	None	sandy	<Null>	12.55	474	362	84.4
ST-747-U	Present-Fast	None	sandy	<Null>	12.71	501	383	75.8

	Summary of Field Monitoring (pg 3/3)								
	May-23								
Stream Point ID	**Dissolved Oxygen mg/L**	**pH**	**ORP**	**Turbidity (NTU)**	**Hardness**	**Chlorine_Free**	**Chlorine_Total**	**Alkalinity**	**Velocity (ft/s)**
ST 400 down	<Null>	8.05	620	3.55	100	0	0	40	0.565
ST 400 up	<Null>	8.07	610	3.64	100	0	0	40	0.602
ST 527 down	8.11	5.86	1354	2.22	100	0	0	40	0.063
ST 527 up	8.48	5.89	304	2.3	100	0	0	40	0.083
ST 540 down	6.36	6.28	462	2.65	100	0	0	40	1.253
ST 540 up	6.62	6.28	497	1.42	100	0	0	40	1.089
ST 561 down	5.64	5.96	1041	5.32	100	0	0.5	80	0.102
ST 561 up	5.9	6.11	552	7.72	100	0	0.5	40	0.176
ST 593 down	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
ST 593 up	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
ST 700 up	8.43	6.35	82.1	12.5	100	0	0.5	80	0
ST 710 down	8.38	6.41	80.1	7.2	100	0	0.5	80	0.023
ST 725 down	7.53	6.56	345	3.17	100	0	0	40	0.132
ST 725 Up	7.5	6.65	352.3	12.4	100	0	0	40	0.126
ST 747 Down	9.07	7.33	351	2.27	100	0	0	40	0.15
ST-747-U	8.02	6.58	345	2.62	100	0	0	40	0.64

	Summary of Field Monitoring (pg 1/3)									Summary of F
	Jun-23									
Stream Point ID	**Station Number**	**Weather**	**AirTemp**	**Technician**	**Date**	**Upgradient or Downgradient**	**Flow Appearance**	**Flow_Odor**	**Location**	**Sampling Site**
ST 400 down	Hop Brook	sunny	69	FH	6/21/2023	Downgradient	light_tea	none	From Bridge	Open Channel
ST 400 up	Hop brook	sunny	70	FH	6/21/2023	Upgradient	light_tea	none	From Bridge	Open Channel
ST 527 down	Unnamed	sunny	69	FH	6/21/2023	Downgradient	dark_tea	none	From Headwall	Open Channel
ST 527 up	Unnamed	sunny	69	FH	6/21/2023	Upgradient	dark_tea	none	From Bank	Open Channel
ST 540 down	Dudley brook	sunny	68	FH	6/21/2023	Downgradient	dark_tea	none	From Bank	Open Channel
ST 540 up	Dudley Brook	sunny	69	FH	6/21/2023	Upgradient	dark_tea	none	From Bank	Open Channel
ST 561 down	Unnamed	sunny	68	FH	6/21/2023	Downgradient	dark_tea	none	From Bank	Open Channel
ST 561 up	Unnamed	sunny	67	FH	6/21/2023	Upgradient	dark_tea	none	From Bank	Open Channel
ST 593 down	Unnamed	sunny	67	FH	6/21/2023	Downgradient	clear	none	From Bank	Open Channel
ST 593 up	Unnamed	sunny	67	FH	6/21/2023	Upgradient	clear	none	From Headwall	Open Channel
ST 700 up	Hop Brook tributary	sunny	67	FH	6/21/2023	Upgradient	yellow_orange	sewage	From Bank	Open Channel
ST 710 down	Hop brook tributary	sunny	66	FH	6/21/2023	Downgradient	cloudy_milky	sewage	From Headwall	Open Channel
ST 725 down	Hop Brook	sunny	62	FH	6/21/2023	Downgradient	dark_tea	none	From Bridge	Open Channel
ST 725 Up	Hop Brook	sunny	62	FH	6/21/2023	Upgradient	dark_tea	none	From Bridge	Open Channel
ST 747 Down	Wash brook tributary	sunny	62	FH	6/21/2023	Downgradient	light_tea	none	From Bank	Open Channel
ST-747-U	Wash brook tributary	sunny	62	FH	6/21/2023	Upgradient	light_tea	none	From Bank	Open Channel

	ield Monitoring (pg2/3)							
	Jun-23							
Stream Point ID	**Signs of Flow**	**Floatables**	**Condition of Bottom**	**Survey Comments**	**Water Temperature**	**Specific Conductance µS/cm @ 25 Degrees**	**Specific Conductance µS/cm**	**Dissolved Oxygen %**
ST 400 down	Present-Fast	None	sandy	<Null>	18.52	635	556	63.5
ST 400 up	Present-Fast	Debris_buildup	sandy	uckweed and other vegetatio	18.54	634	556	65.5
ST 527 down	Not Seen	cteria,Debris_buildup	mud_clay	Duckweed and bacterial shee	12.31	378	286	37.6
ST 527 up	Not Seen	buildup,Iron_Bacteria	mud_clay	<Null>	13.57	387	302	61.1
ST 540 down	Present-Fast	None	gravel	<Null>	14.34	432	344	63.5
ST 540 up	Present-Fast	None	sandy	<Null>	13.66	504	394	61.5
ST 561 down	Present-Fast	None	sandy	time of inspection - cannot g	<Null>	<Null>	<Null>	<Null>
ST 561 up	Present-Slow	None	sandy	<Null>	14.48	399	319	24.5
ST 593 down	Not Seen	None	gravel	No flow no data taken	<Null>	<Null>	<Null>	<Null>
ST 593 up	Not Seen	None	not_visible	No water no data taken	<Null>	<Null>	<Null>	<Null>
ST 700 up	Not Seen	Debris_buildup,Trash	not_visible	<Null>	16.21	1932	1628	46.3
ST 710 down	Not Seen	Floating_Solids,Trash	mud_clay	Duckweed and trash	16.17	1870	1553	45.2
ST 725 down	Present-Slow	None	not_visible	<Null>	16.41	586	490	64.4
ST 725 Up	Present-Slow	Debris_buildup,Trash	not_visible	<Null>	16.52	594	493	64.2
ST 747 Down	Present-Fast	None	sandy	<Null>	14.43	583	466	69
ST-747-U	Present-Fast	None	gravel	<Null>	14.57	578	463	65.7

	Summary of Field Monitoring (pg 3/3)								
	Jun-23								
Stream Point ID	**Dissolved Oxygen mg/L**	**pH**	**ORP**	**Turbidity (NTU)**	**Hardness**	**Chlorine_Free**	**Chlorine_Total**	**Alkalinity**	**Velocity (ft/s)**
ST 400 down	5.95	6.6	1070.3	2.43	100	0	0	40	0.76
ST 400 up	6.12	6.56	1246.8	2.33	100	0	0	40	0.77
ST 527 down	3.98	5.91	357.8	2.13	100	0	0	40	0.01
ST 527 up	6.35	5.9	1081.8	1.29	100	0	0	40	0
ST 540 down	6.48	6.32	1216.7	3.04	100	0	0	0	1.06
ST 540 up	6.37	6.42	1020.6	3.12	100	0	0	0	0.57
ST 561 down	<Null>	<Null>	<Null>	<Null>	100	0	0	40	0.07
ST 561 up	2.49	5.9	1045.7	5.3	100	0	0	40	0.06
ST 593 down	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
ST 593 up	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
ST 700 up	4.52	6.19	1015	16.7	100	0	0	80	0
ST 710 down	4.42	6.18	989	14.2	100	0	0	80	0
ST 725 down	6.29	6.64	932	4.41	100	0	0	40	0.11
ST 725 Up	6.27	6.71	1023.4	5.32	100	0	0	40	0.06
ST 747 Down	7.02	8.76	436.6	8.76	100	0	0	40	0.32
ST-747-U	6.67	6.7	310.7	6.92	100	0	0	40	0.63

	Summary of Field Monitoring (pg 1/3)									
	Jul-23									
Stream Point ID	**Station Number**	**Weather**	**AirTemp**	**Technician**	**Date**	**Upgradient or Downgradient**	**Flow Appearance**	**Flow_Odor**	**Location**	**Sampling Site**
ST 400 down	Hop Brook	sunny	86	FH	7/28/2023	Downgradient	light_tea	none	From Bridge	Open Channel
ST 400 up	Hop brook	sunny	86	FH	7/28/2023	Upgradient	light_tea	none	From Bridge	Open Channel
ST 527 down	Unnamed	sunny	84	FH	7/28/2023	Downgradient	dark_tea	none	From Headwall	Open Channel
ST 527 up	Unnamed	sunny	83	FH	7/28/2023	Upgradient	dark_tea	none	From Headwall	Open Channel
ST 540 down	Dudley brook	sunny	84	FH	7/28/2023	Downgradient	dark_tea	none	From Bank	Open Channel
ST 540 up	Dudley Brook	sunny	85	FH	7/28/2023	Upgradient	dark_tea	none	From Headwall	Open Channel
ST 561 down	Unnamed	sunny	82	FH	7/28/2023	Downgradient	light_tea	none	From Bank	Open Channel
ST 561 up	Unnamed	sunny	83	FH	7/28/2023	Upgradient	light_tea	none	From Bank	Open Channel
ST 593 down	Unnamed	sunny	82	FH	7/28/2023	Downgradient	clear	none	From Headwall	Open Channel
ST 593 up	Unnamed	sunny	82	FH	7/28/2023	Upgradient	clear	none	From Headwall	Open Channel
ST 700 up	Hop Brook tributary	sunny	82	FH	7/28/2023	Upgradient	yellow_orange	none	From Bank	Open Channel
ST 710 down	Hop brook tributary	sunny	81	FH	7/28/2023	Downgradient	cloudy_milky	none	From Headwall	Open Channel
ST 725 down	Hop Brook	sunny	78	FH	7/28/2023	Downgradient	dark_tea	none	From Bridge	Open Channel
ST 725 Up	Hop Brook	sunny	79	FH	7/28/2023	Upgradient	dark_tea	none	From Bridge	Open Channel
ST 747 Down	Wash brook tributary	sunny	77	FH	7/28/2023	Downgradient	light_tea	none	From Bank	Open Channel
ST-747-U	Wash brook tributary	sunny	78	FH	7/28/2023	Upgradient	light_tea	none	From Bank	Open Channel

	Summary of Field Monitoring (pg2/3)							
	Jul-23							
Stream Point ID	**Signs of Flow**	**Floatables**	**Condition of Bottom**	**Survey Comments**	**Water Temperature**	**Specific Conductance µS/cm @ 25 Degrees**	**Specific Conductance µS/cm**	**Dissolved Oxygen %**
ST 400 down	Present-Fast	None	sandy	<Null>	24.86	667	666	67.5
ST 400 up	Present-Fast	None	sandy	<Null>	24.9	664	662	68.5
ST 527 down	Present-Slow	None	mud_clay	<Null>	17.41	462	395	55.4
ST 527 up	Present-Slow	Debris_buildup,Iron_	mud_clay	<Null>	17.71	451	388	62.2
ST 540 down	Present-Fast	None	gravel	<Null>	21.27	510	474	37
ST 540 up	Present-Fast	None	gravel	<Null>	21.25	504	468	42.3
ST 561 down	Present-Slow	None	sandy	None	22.3	531	503	27.4
ST 561 up	Present-Fast	None	mud_clay	<Null>	23.73	426	415	22.3
ST 593 down	Not Seen	None	sandy	No water within channel - nc	<Null>	<Null>	<Null>	<Null>
ST 593 up	Not Seen	None	not_visible	no data taken	<Null>	<Null>	<Null>	<Null>
ST 700 up	Not Seen	Iron_Bacteria,Floatin	not_visible	<Null>	23.78	1372	1340	54.5
ST 710 down	Present-Slow	None	not_visible	<Null>	24.05	1290	1267	57.3
ST 725 down	Present-Fast	None	mud_clay	<Null>	22.37	623	591	53.8
ST 725 Up	Present-Slow	Debris_buildup,Trash	mud_clay	<Null>	22.46	634	593	53.8
ST 747 Down	Present-Slow	Foam	sandy	<Null>	20.42	634	578	61.4
ST-747-U	Present-Fast	None	sandy	<Null>	20.52	597	544	63.5

	Summary of Field Monitoring (pg 3/3)								
	Jul-23								
Stream Point ID	**Dissolved Oxygen mg/L**	**pH**	**ORP**	**Turbidity (NTU)**	**Hardness**	**Chlorine_Free**	**Chlorine_Total**	**Alkalinity**	**Velocity (ft/s)**
ST 400 down	5.59	6.4	957.5	2.61	100	0	0	40	0.93
ST 400 up	5.66	6.32	887.9	3.07	100	0	0	40	0.97
ST 527 down	5.31	5.63	605.3	0.78	100	0	0	40	0.33
ST 527 up	5.92	5.67	662	0.4	100	0	0	40	0.69
ST 540 down	3.28	5.96	1033.6	3.26	100	0	0	40	2.38
ST 540 up	3.73	5.93	993.9	2.37	100	0	0	40	2.9
ST 561 down	2.37	5.8	320.3	4.3	100	0	0	40	0.72
ST 561 up	1.86	5.86	870.3	11.3	100	0	0	40	1.38
ST 593 down	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
ST 593 up	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
ST 700 up	4.63	6.03	607.4	15.3	100	0	0	80	0
ST 710 down	4.8	6.08	603.9	13.6	100	0	0	80	0.76
ST 725 down	4.66	6.53	939.7	2.41	100	0	0	40	0.64
ST 725 Up	4.69	6.63	954.6	2.46	100	0	0	40	0.36
ST 747 Down	5.53	6.11	1111.7	1.78	100	0	0	40	0.55
ST-747-U	5.71	6.21	557.8	1.72	100	0	0	40	1.34