

Thermal Infrared Imagery  
Ground Truthing

Field Crew: Sue, Claire, Ben

Date: 7/7/2021

**Site Information**

River Name: E. Funny River

Significant Feature Name: Side Channel - 46

River Distance (km): 0.95

Land Ownership: AK DNR

GPS Coordinates: 60.488328, -150.856499 (at intersect w/ main channel)

QSI Thermal Data

Feature Min Temp (C): 11.80

Mainstem Mean Temp (C): 13.40

Ground Truthing

Feature Temp (C): 6.2 °C Time: 5:14 PM

Mainstem Temp (C): 11.3 °C Time: 5:00 PM

Instrument used: Hach Sca 1025

Description of tributary/Inflow:

open water @ toe of hillside is the feature.

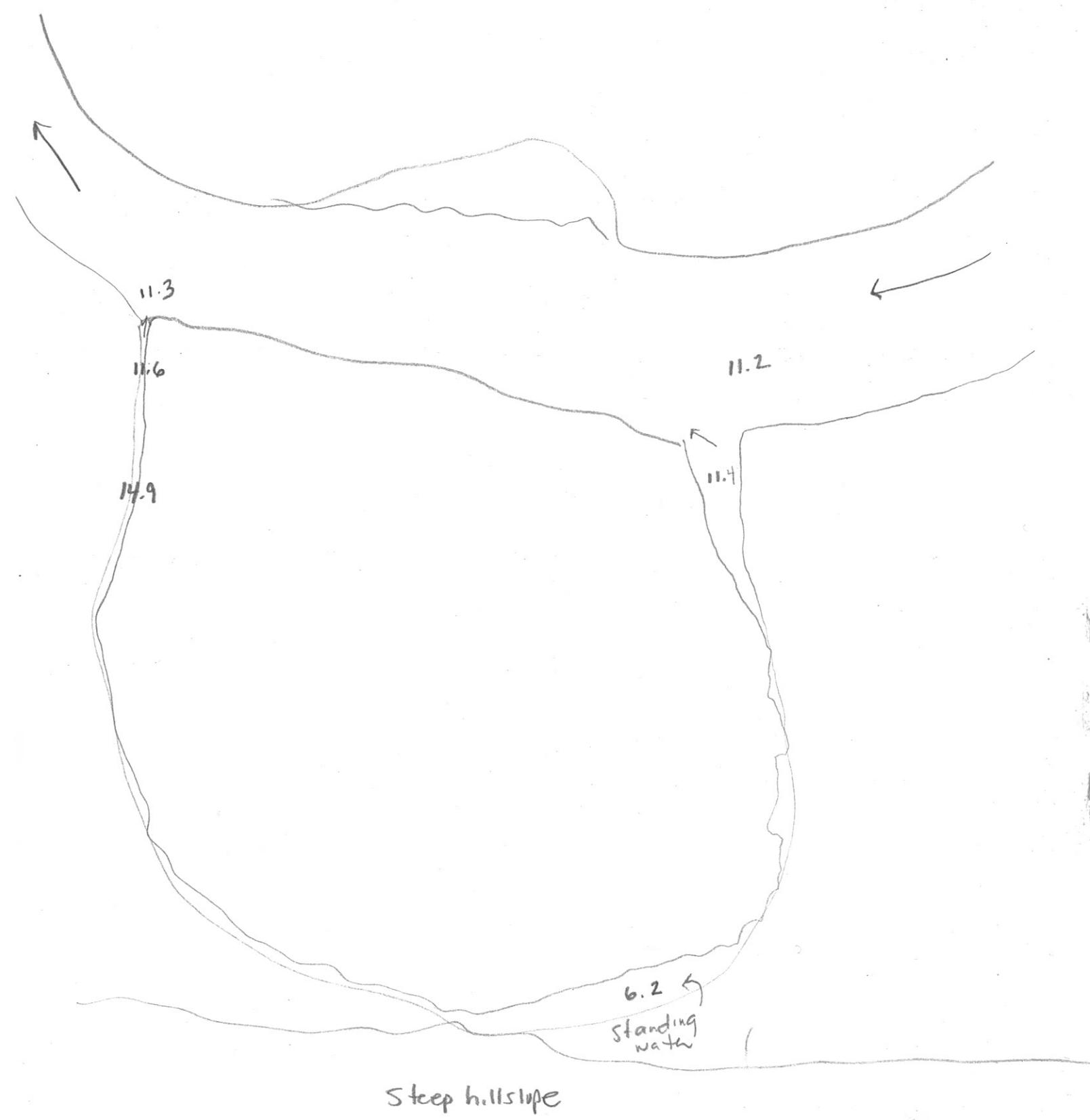
little flow from this old oxbow into channel - @ both ends

no discernable habitat/refugia

Photos:

Ricoh WG-6  
1549 - 1550 upstream entrance of oxbow)  
1551 ← feature

Sketch (on back)



Thermal Infrared Imagery  
Ground Truthing

Field Crew: Sue, Claire, Ben Meyers

Date:

7/7/2021

**Site Information**

River Name: Funny River

Significant Feature Name: Side Channel 44 

River Distance (km): 0.52

Land Ownership: ADNR, adjacent to private

GPS Coordinates: 60.489672, -150.860170

**QSI Thermal Data**

Feature Min Temp (C): 9.40

Mainstem Mean Temp (C): 10.10

**Ground Truthing**

Feature Temp (C): 6.4 Time: 16:21

Mainstem Temp (C): 11.0 Time: 16:31

Instrument used: Hach Sension 5

Description of tributary/Inflow:

96.8 μs/cm in feature

78.2 μs/cm mainchannel

juvenile + adult habitat

Photos: Recd 6-6 (Ben)

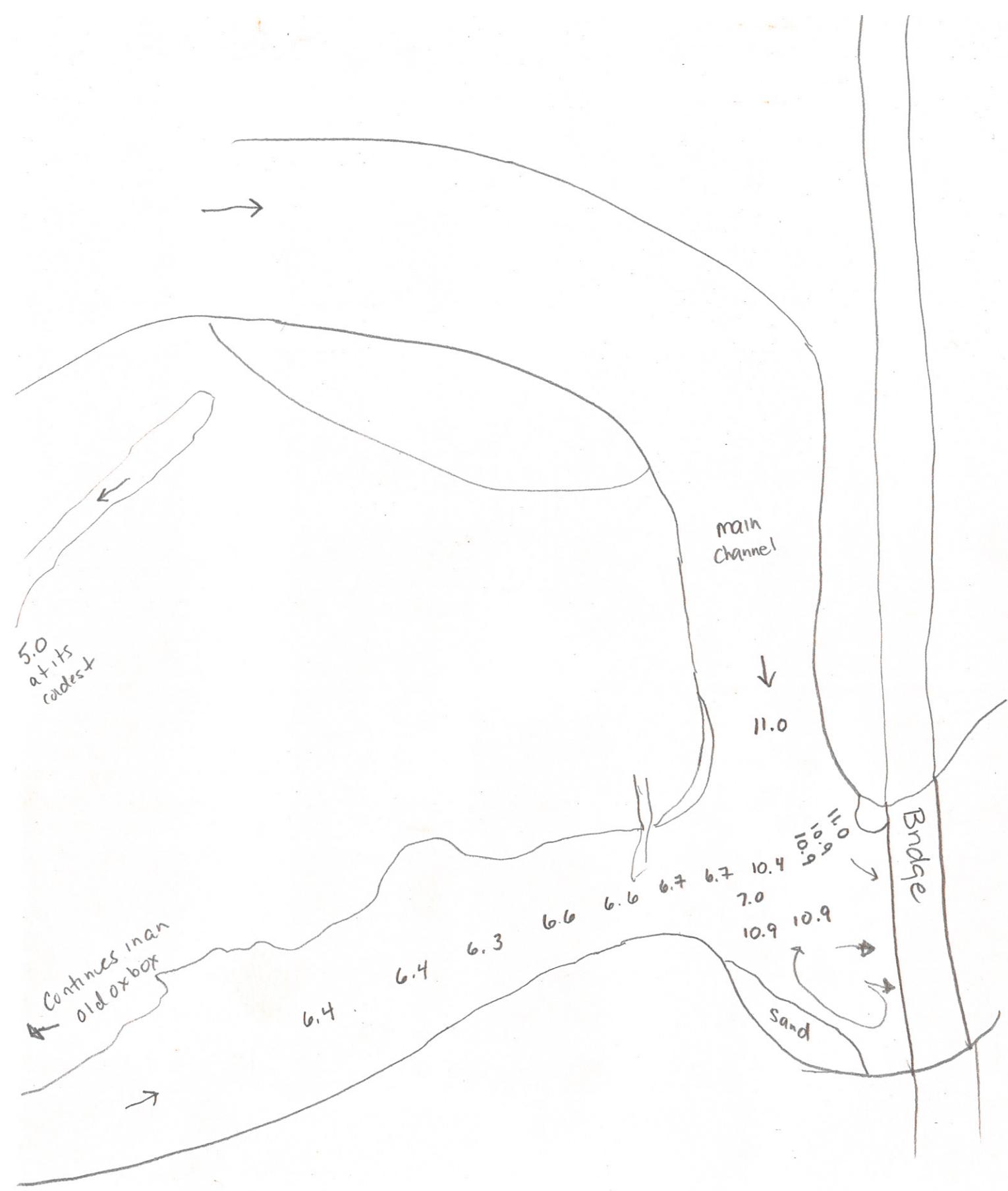
1542-1545 (near downstream intersect w/ main channel)

1546 (seepage mid channel)

1547-1548 (near upstream intersect w/ main channel)

Sketch (on back)

\* Note: NID layer reads the side channel as the Main channel.



Thermal Infrared Imagery  
Ground Truthing

Field Crew: Jack, Ben, Sue, Claire Date: 7/7/21

**Site Information**

River Name: Crabbed Creek

Significant Feature Name: Seepage/Spring - 37

River Distance (km): 3.97

Land Ownership: State DNR

GPS Coordinates: 60.303290, -151.274161

QSI Thermal Data

Feature Min Temp (C): 8.2 7.2°

Mainstem Mean Temp (C): 8.5°

Ground Truthing

Feature Temp (C): 5.5° Time: 13:33

Mainstem Temp (C): 11.3° Time: 13:57

Instrument used: Hach

conductivity: 167.1 µS/cm

Description of tributary/Inflow:

Defined channel, noticeable inflow

Photos:

Sketch (on back)



Thermal Infrared Imagery  
Ground Truthing

Field Crew: Ben, Jack, Claire Sue

Date: 7/7/21

**Site Information**

River Name: Crooked Creek

Significant Feature Name: seepage/spring 38

River Distance (km): 3.9

Land Ownership: State DWR

GPS Coordinates: 60.304500, -151.275393

QSI Thermal Data

Feature Min Temp (C): 9.1°

Mainstem Mean Temp (C): 10.6

Ground Truthing

Feature Temp (C): 7.3 / 89.645/cm Time: 14:23

Mainstem Temp (C): 11.6 Time: 14:30

Instrument used: Hach Sension 5

Description of tributary/Inflow:

Likely not a juvenile habitat (at low water at least)

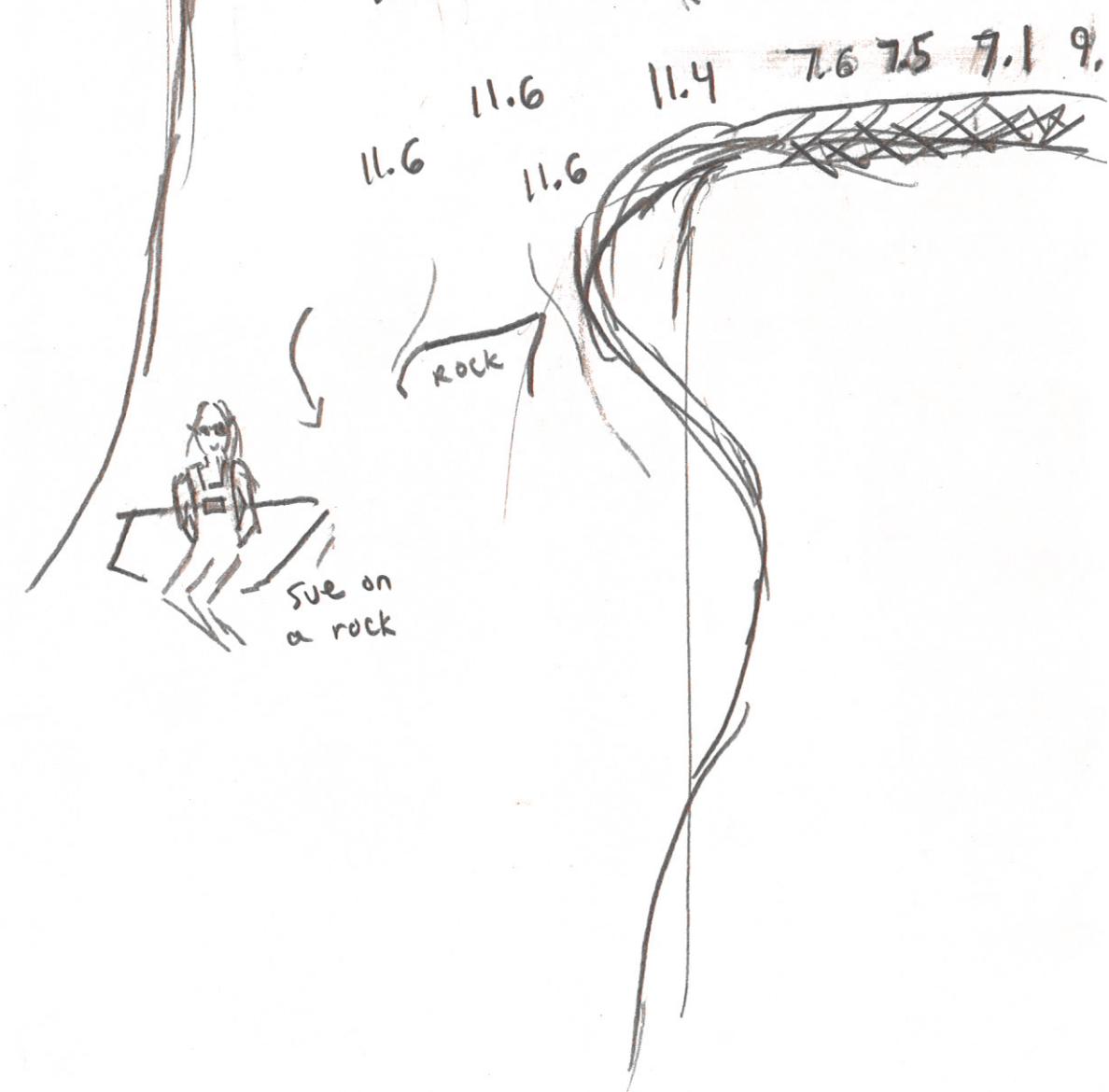
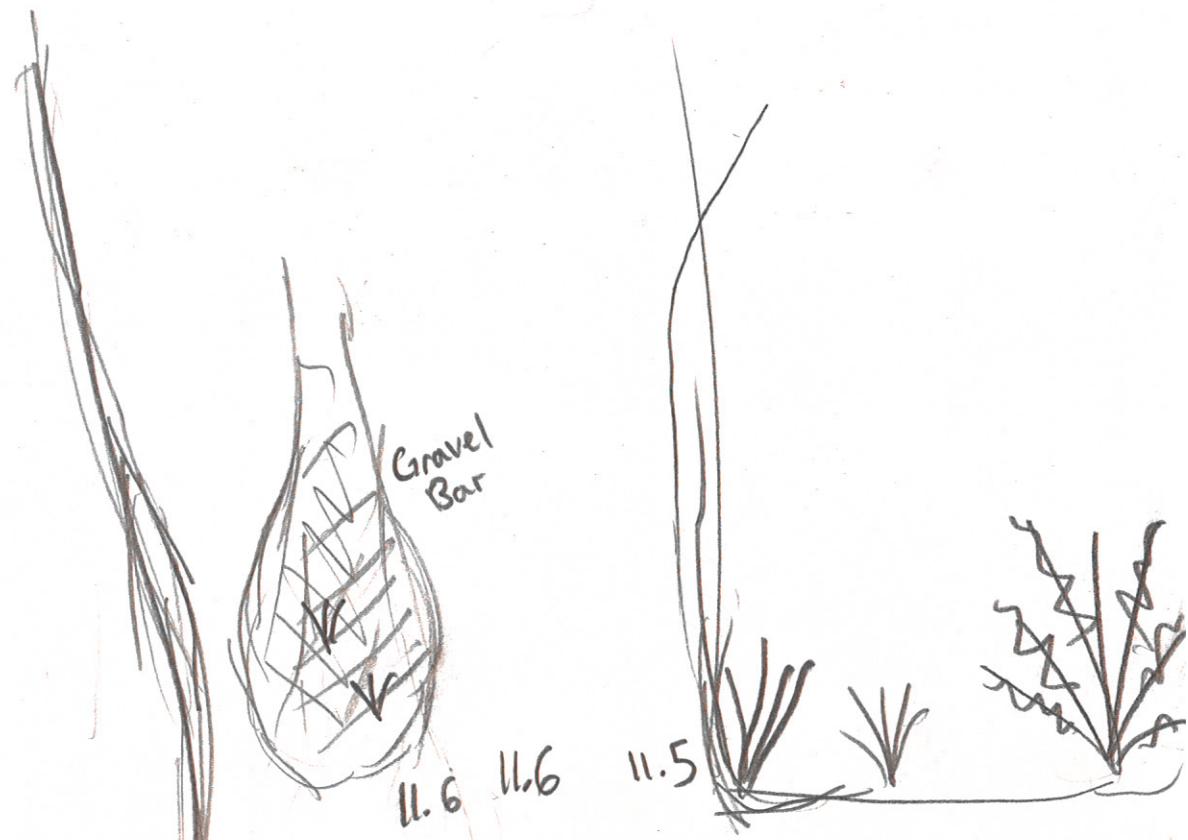
Draining a forested wetland

Defined channel w/ flowing current

Photos: Camera Ricoh WG-6

for photos #1536-1538, location of feature seepage/spring 38  
#1539-41, outflow meets main channel

Sketch (on back)



Thermal Infrared Imagery  
Ground Truthing

Field Crew: Ben, Jack, Sue, 3 Claire Date: 7/7/21

**Site Information**

River Name: Crooked Creek

Significant Feature Name: Tributary - 44

River Distance (km): 1.19

Land Ownership: State (DNR)

GPS Coordinates: 60.315902, -151.284457

QSI Thermal Data

Feature Min Temp (C): 12.7°C

Mainstem Mean Temp (C): 14.7°C

Ground Truthing

Feature Temp (C): 8.9° / 9.2° Cond: 110.345 Time: 12:04 PM

Mainstem Temp (C): 11.2 Time: \_\_\_\_\_

Instrument used: YSI 30 / Hach

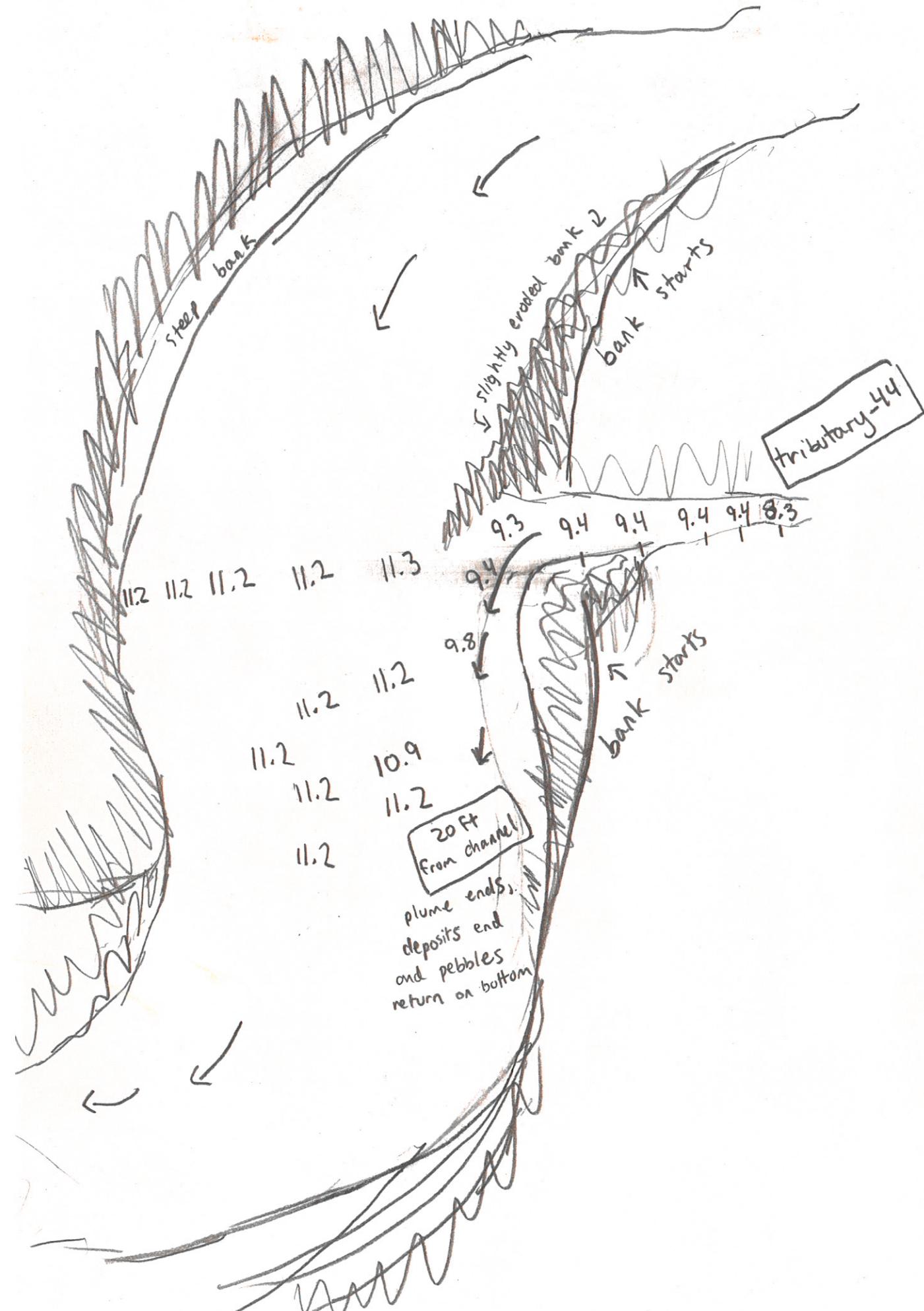
Description of tributary/Inflow:

Defined channel, noticeable flow, potential juvenile habitat.

Connected to mainstem during low flow.

Photos:

Sketch (on back)



Thermal Infrared Imagery  
Ground Truthing

Field Crew: Ben, Jack, Sue, Claire Date: 7/8/21

**Site Information**

River Name: Beaver Creek

Significant Feature Name: Side channel 5

River Distance (km): 4.96

Land Ownership: DNR

GPS Coordinates: 60.564650 , 151.118194

QSI Thermal Data

Feature Min Temp (C): 12.3

Mainstem Mean Temp (C): 12.5

Ground Truthing

Feature Temp (C): 5.2° / 129.345/cm Time: 13:38

Mainstem Temp (C): 11.3° / 146.245/cm Time: 13:53

Instrument used: Hach Sens Ion 5

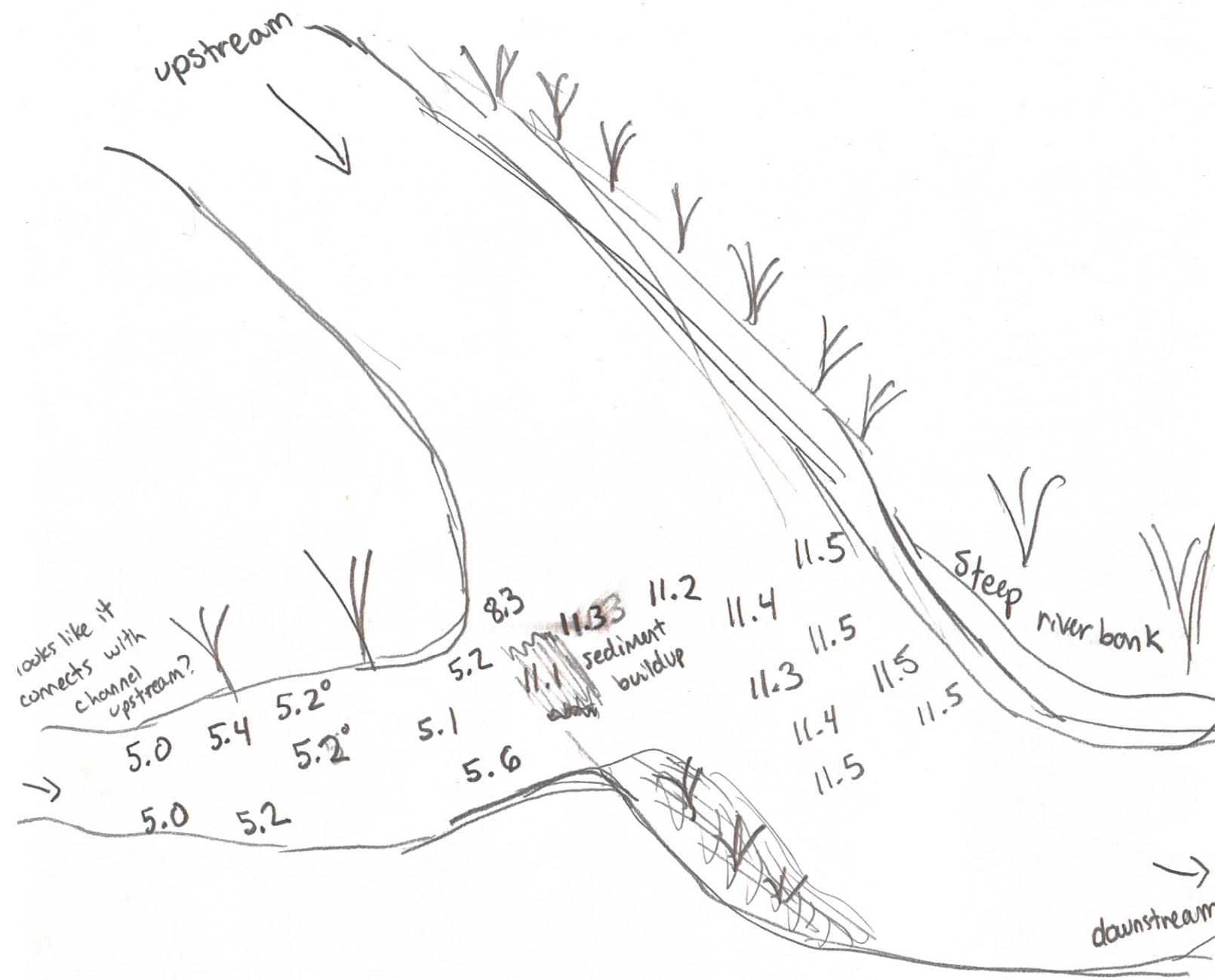
Description of tributary/Inflow:

Distinct channel ↗ tributary. Definite potential habitat.

Dissolved oxygen? Relatively stagnant, very cold.

Photos: RICOH WG-6 : 1562-1564

Sketch (on back)



Thermal Infrared Imagery  
Ground Truthing

Field Crew: Sue + Ben Date: 7/8/2021

**Site Information**

River Name: Beaver Creek

Significant Feature Name: Side Channel 6

River Distance (km): 4.97

Land Ownership: ADNR

GPS Coordinates: 60.564793, -151.117701

QSI Thermal Data

Feature Min Temp (C): 10.3

Mainstem Mean Temp (C): 10.6

Ground Truthing

Feature Temp (C): \_\_\_\_\_ Time: \_\_\_\_\_

Mainstem Temp (C): \_\_\_\_\_ Time: \_\_\_\_\_

Instrument used: Hachs

Description of tributary/Inflow:

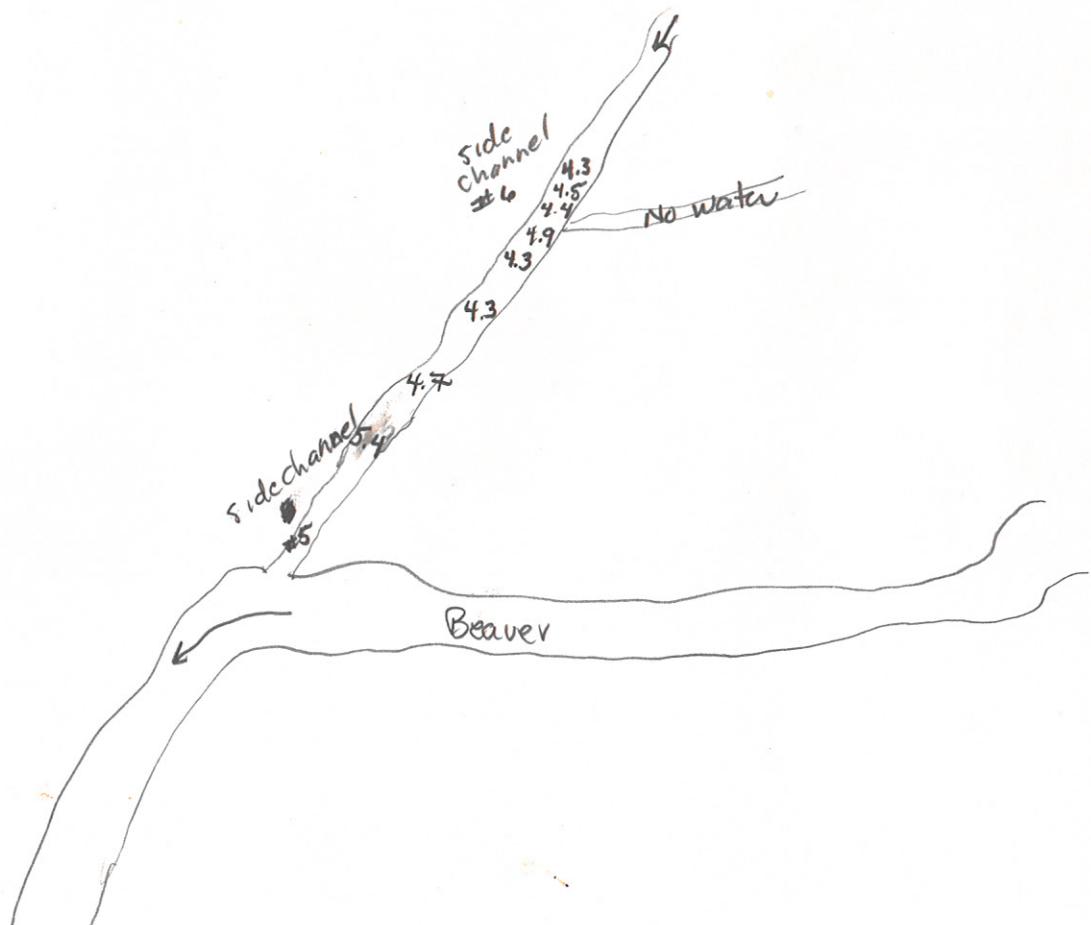
this is upstream of feature: Side channel 5 -

-the same sidechannel - not a different channel!

Photos:

Recoh WD-6 : 1565 - 67

Sketch (on back)



Thermal Infrared Imagery  
Ground Truthing

Field Crew: Claire, Sue, Ben, Jack Date: 7/8/21

**Site Information**

River Name: Beaver creek

Significant Feature Name: Side channel 19

River Distance (km): 4.88

Land Ownership: DNR (state)

GPS Coordinates: 60.563465, W 151.119712

QSI Thermal Data

Feature Min Temp (C): 14.30

Mainstem Mean Temp (C): 15.00

Ground Truthing

Feature Temp (C): \_\_\_\_\_ Time: \_\_\_\_\_

Mainstem Temp (C): 11.3° 145.7ys/cm Time: 13:06

Instrument used: Hach Sens Ion 5

Description of tributary/Inflow:

Highway infrastructure impacts channel

Photos:

RICOH W-G6 1556-1558: hypothetical feature connection to mainstem location

1559 - 1561 : feature location

Sketch (on back)



Thermal Infrared Imagery  
Ground Truthing

Field Crew: Sue, Ben, Jack, Claire Date: 7-8-21

**Site Information**

River Name: Beaver Creek

Significant Feature Name: side-channel 7

River Distance (km): 4.37

Land Ownership: City of Kenai

GPS Coordinates: 60 562438, -151.122210

QSI Thermal Data

Feature Min Temp (C): 9.20

Mainstem Mean Temp (C): 11.20

Ground Truthing

Feature Temp (C): 3.9 / 183.9 psat Time: 12:09

Mainstem Temp (C): 11.1 Time: \_\_\_\_\_

Instrument used: Hitech session 5

Description of tributary/Inflow:

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Photos:

Nicho WB-6 : 1553 - 1555

Sketch (on back)

downstream

channel  
continues

3.9°

3.6°

4.1°

4.0

4.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.1

11.2

11.2

11.2

11.2

upstream

Thermal Infrared Imagery  
Ground Truthing

Field Crew: S. Manger, B. Mayor Date: 7/8/21

**Site Information**

River Name: Beaver Creek

Significant Feature Name: Hyporheic 16

River Distance (km): 4.40

Land Ownership: City of Kenai

GPS Coordinates: 60.562661, 151.123064

QSI Thermal Data

Feature Min Temp (C): 11.30 °C

Mainstem Mean Temp (C): 12.20 °C

Ground Truthing

Feature Temp (C): 4.4 °C Time: 12:20

Mainstem Temp (C): 11.2 °C Time: 12:40

Instrument used: Hach Sension S (#2)

Description of tributary/Inflow:

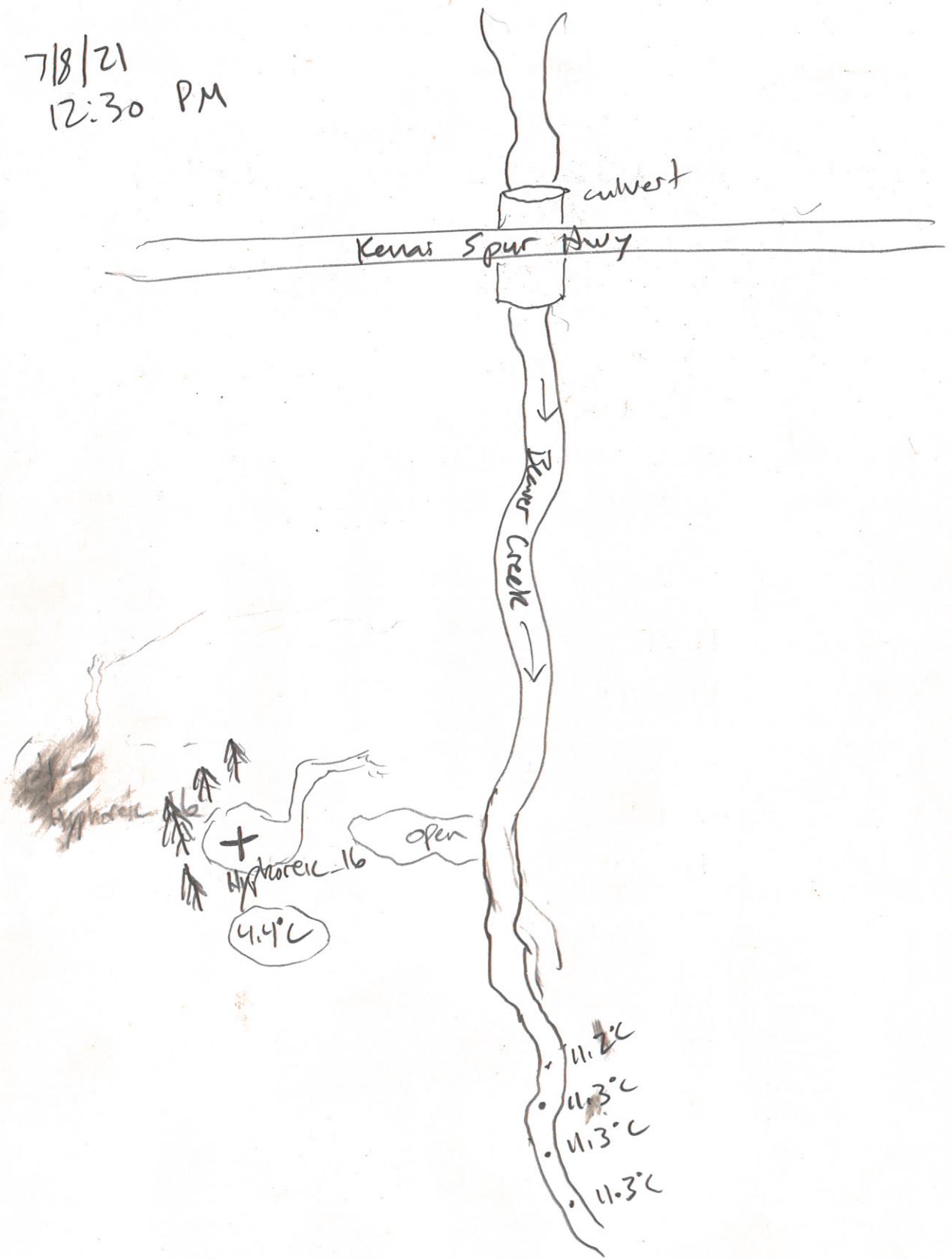
No obvious connection between main channel and feature, visually nor through temperature.

Photos:

2-3 photos on Sue's Phone

Sketch (on back)

7/8/21  
12:30 PM



Thermal Infrared Imagery  
Ground Truthing

Field Crew: B Mayer, S. Manger

7/8/2021

Date:

**Site Information**

River Name: Beaver Creek

Significant Feature Name: Tributary 15

River Distance (km): 3.95 km

Land Ownership: City of Kenai

GPS Coordinates: 60.560106, -151.126592

QSI Thermal Data

Feature Min Temp (C): 11.90

Mainstem Mean Temp (C): 12.40

Ground Truthing

Feature Temp (C): 9.3 Time: 3:09 PM

Mainstem Temp (C): 12.1 Time: 3:15 PM

Instrument used: Hach Sension 5 (#2)

\* Mainstem  
Temp site is  
below Tributary  
8.

Description of tributary/Inflow:

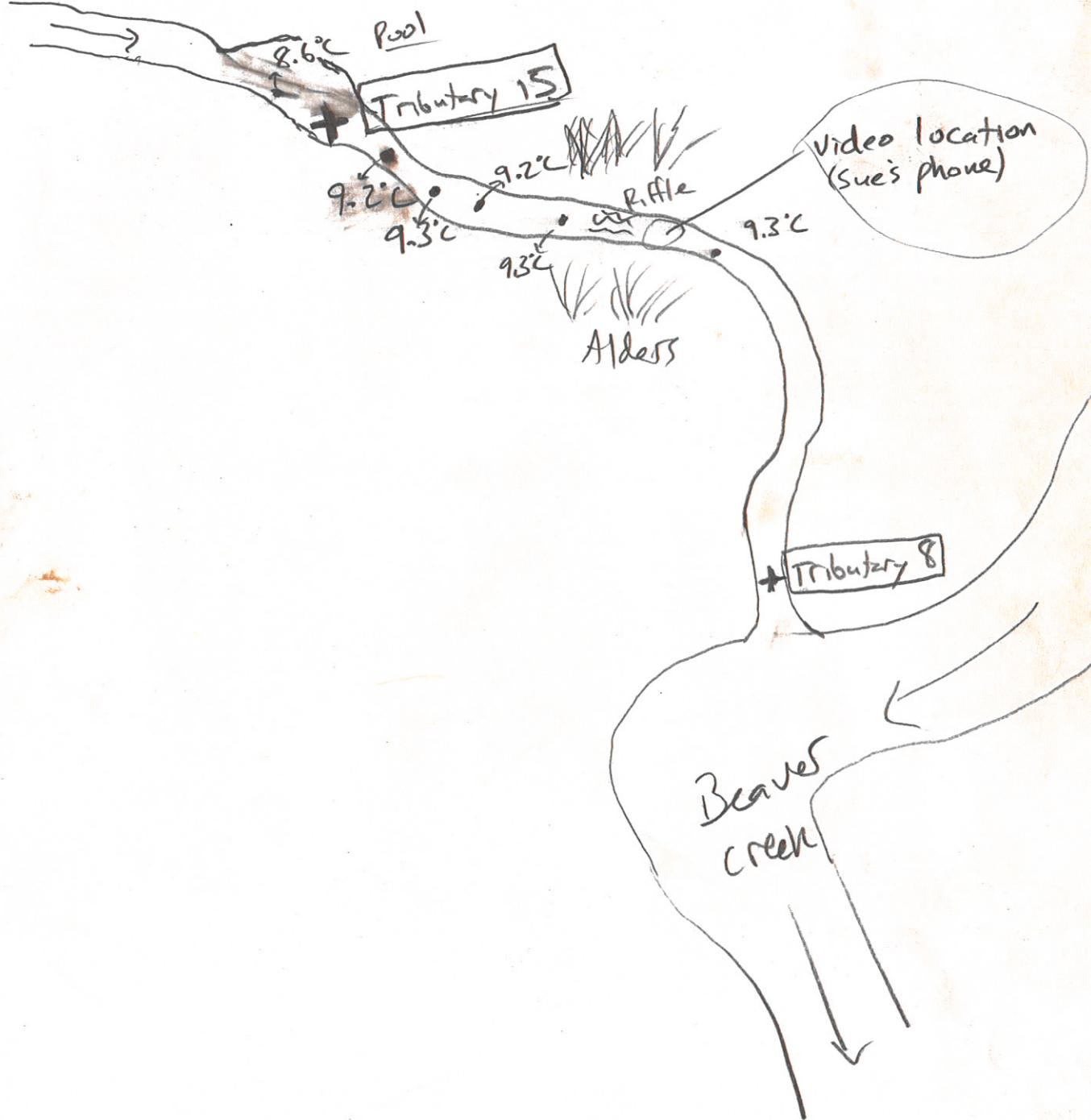
Defined channel + flow

Photos:

Recoh-ws-6; 1568-70

Sketch (on back)

7/8/2021  
3:15 PM



Thermal Infrared Imagery  
Ground Truthing

Field Crew: Claire & Jack Date: 7/8/21

**Site Information**

River Name: Beaver Creek

Significant Feature Name: tributary 8

River Distance (km): \_\_\_\_\_

Land Ownership: \_\_\_\_\_

GPS Coordinates: 60.559919, -151.126555

QSI Thermal Data

Feature Min Temp (C): \_\_\_\_\_

Mainstem Mean Temp (C): \_\_\_\_\_

Ground Truthing

Feature Temp (C): 9.3 Time: 15:15

Mainstem Temp (C): 12.1 Time: 15:30

Instrument used: Hach SENSION5

Description of tributary/Inflow:

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Photos:

Sketch (on back)

upstream  
↓

9.5°  
20245/cm

9.4°  
9.3°  
9.4°  
9.3°

12.1

9.8-10.3  
(jumping)

plume of  
iron

9.8  
10.9

10.8-11.4  
(jumping)

12.1

11.9  
one more  
downstream

11.2

11.3

11.5

12.1  
12.1

downstream  
12.1  
12.1

12.1

↑↑

7.0