VOLUME 2

Stream Survey Cards Thautil River Watershed 1996

Stream Survey Forms - Explanatory Notes

Data entry of the Stream Survey Cards required certain modifications in order for the data to be explanatory and to correct for inconsistencies between the hard copy and the disk copy. The following is a list of the modifications and some points which are important to note:

- Many of the smaller tributaries which were surveyed in the Thautil R. watershed have no official watershed codes. All tributaries were assigned alphanumeric codes, including those tributaries that do not have watershed codes. In order for the entry of each stream survey form into the program and to distinguish between each tributary, it was necessary to identify each tributary lacking a watershed code by INCORPORATING THE ALPHANUMERIC CODE INTO THE WATERSHED CODE.
- POOL DEPTH METHOD was entered on each stream survey form and is present on the disk copy. The program MISPRINTS this value on the hard copy, PRINTING OUT THE MAXIMUM RIFFLE DEPTH VALUE IN PLACE OF THE POOL DEPTH METHOD.
- When the percentage riffle is entered as 100%, the program prints out this value as 02. In cases WHERE THE PERCENTAGE RIFFLE IS 100%, IT IS ENTERED AS 99% to avoid the printing error. (The remaining 1% is entered into the percentage run category.)
- DEBRIS AREA is divided into categories of 0%, 0-5%, 5-15%, and >15% and the data is entered appropriately into each of these categories. WHEN THE STREAM SURVEY FORMS ARE PRINTED OUT, THE CATEGORIES ARE MISPRINTED AS 0%, 0-10%, 10-40%, AND >40%.
- In the 'Cover' section of the stream survey form, the PERCENTAGE COVER BY BOULDER IS REPRESENTATIVE OF THE PERCENTAGE COVER BY BOULDER/COBBLE. This is due to the importance of cobble cover for the rearing of juveniles.
- BED MATERIAL ENTERED AS HIGH COMPACTION ON THE DISK COPY PRINTS OUT ON THE HARD COPY AS LOW COMPACTION AND VICE VERSA.
- EACH D90 VALUE WHICH IS ENTERED AS LESS THAN 1 CM IS AUTOMATICALLY ROUNDED OFF TO ZERO BY THE PROGRAM.

- In the 'Banks' section, the METHODS PH, TC and CM were added to the list. CM represents a CONDUCTIVITY METER, PH represents a pH METER, and TC represents a CELSIUS THERMOMETER.
- The majority of the tributaries in the Thautil River watershed were given a TURBIDITY VALUE OF 200 CM. This value was not quantitatively measured but was a SET VALUE USED TO REPRESENT GIN CLEAR WATER which was visually observed.
- CREEKS WHICH HAD A TRICKLE FLOW DISCHARGE WERE GIVEN A MINIMUM DISCHARGE VALUE OF 0.01 M³/S even though the flow was presumably less than this value. This was done to prevent a null value when some flow was, indeed, present.
- The majority of the discharge values were visually estimated by experienced field persons. THE METHOD OF DISCHARGE WAS ENTERED IN THE METHOD OF WATER VELOCITY CATEGORY because this was the only place the program would allow the appropriate method, VO (visual observation), to be entered.
- In the Reach Symbol, the FISH SPECIES ABBREVIATIONS WHICH ARE IN BRACKETS ARE ONLY SUSPECTED TO BE PRESENT based on other sampling data or other research previously conducted in the area. NO SAMPLING WAS PERFORMED TO CONFIRM THAT THESE SPECIES ARE PRESENT.
- In the Reach Symbol, the abbreviations NS and NF in the fish species section stand for 'NOT SAMPLED' and 'NO FISH' respectively.
- In the Reach Symbol, the average stream channel width is rounded off to the nearest 1 m. IF THE AVERAGE STREAM CHANNEL WIDTH IS LESS THAN 0.5 M, IT IS GIVEN A VALUE OF ZERO.
- Stream/Valley Cross-Sections were not entered onto the disk copy; if needed, they can be found on the original stream survey cards.
- In the 'Fish Summary' section the abbreviation CHF was added to the list and stands for CHAR FRY. In many of the sample sites, both Dolly Varden and bull trout were present and one cannot distinguish between DV and BT fry. Thus, DV and BT fry were combined as char fry.
- The 'Obstructions' section rounds off the obstruction location to 0.1 km from the mouth and the obstruction height to 1 m. Obstructions less than 1 m are important to fish distribution on smaller systems and are specified in the comment section.

26-Mar-9"

Stream: THAUTIL R

Watershed Code:

Stream Survey Report

460-6006-508-000-000-000-000-000-000-000-000

| Header Informa | tion | | | | | | | | | | | | | |
|--|---------------------|---|----------|--|------------------|------------|-----------|------|------|----------------------|----------|-------------------------------------|---------------|---------|
| Stream Name: 111A | UTIL R | | | Stream "Lo | cal"; | THAL | JTIL R | | | | | Access: | | 11 |
| Watershed Code: 460-6 | 5006-5 08- 4 | 000-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 24.8 Method: | MW |
| Location: INDE | X SITE L | 1; LOCATED ON MAINSTEM THA | UTIL | Map#: | 093 L02 4 | ı | | | | Site No.: | 1 | Length surveyed (m): | 240.0 Method: | нС |
| R. ~4 | 00 m D/S | FROM THI | | U.T.M. : | 9.6072 | .60096 | | | | Fish Card: | Y | Field: Yes | listorical: | No |
| Date: 10/23/96 T | ime: 10:- | Agency: C58 Sur | vey Cre | :w: JH\SS \ \ | 111 | 1 1 | | | | Photos: | B13/1, 2 | Air Photos: | BCB 91 | 179:100 |
| Channel Charac | teristi | cs | | | | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | 53.8 | Method Av. Chan. Width (m): | T | 45.9 | 49.8 | 73.0 | 78.0 | 36.0 | 40.0 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 15.6 | Method Av. Wet. Width (m): | T | 15.6 | 12.0 | 19.2 | | | | | | , , | | |
| Av. Max. Rif. Depth (cm): | 46 | Av. Max. Riffle Depth (cm): | MS | 41 | 50 | 46 | | | Ì | % Gravels: | 30 | Small (2-16mm): Large (16-64mm): | | |
| Av. Max. Pool Depth (cm): | 100 | Av. Max. Pool Depth (cm): | 46 | | | | | | | | | • , | | |
| Gradient (%): | 0.8 | Method Gradient: | CL | ' | | | | | | % Larges: | 65 | Small cobble (64-128mm): | | |
| % Pool: 30 % R | iMe: 50 | % Run: 20 % Other: | 0 | Method: | GE | | | | | Į. | | Large cobble (128-256mm): | | |
| % Side Channel: | >40 | Method Side Channel: | GE | | | | | | | } | | Boulder cobble (>256mm): | | |
| % Debris Area: | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 15 | Compaction: | ! | Medium |
| Cover Total % : | 35 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 55 L.O.D.: | 10 | Boulder: 35 In Veg.: | 0 | Over Veg: | 0 | Cutbs | ink: | | 0 | Dunns | | | | |
| Crown Closure %: | 5 | Method Crown Closure: | GE | Aspect: | sw | Metho | od Aspect | : | AE | Height (m): | 1.0 | % Unstable: | | 50 |
| | | | | | | | | | | Textures Fines: | No | Gravel: Yes Larges: | es Bedrock: | : No |
| Discharge | | | | | e | pecific De | ~*~ | | | Confinement: | 3 | | | |
| _ | 10.0 | Made - F. West, J. West, C. | T | · } | إد | pecijik Di | 484 | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | 10.0 | Method Wested Width (m): | T T | | | | | | | Stage: | L | | | |
| Mean Depth (m): | 1.0 | Method Mean Depth (m): Method Mean Velocity (m/s | vo | • | | | | | | Flood Signs Ht(m): | 1.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): Discharge (m3/s): | 0.60 6.00 | Method Discharge (m3/s): | VO | i | | | | | | Braided: | Y | Method Braided: | | GŁ |
| | 0.00 | Method Discharge (m3/s) : | | <u>. </u> | | | | | | Bars (%): | 70 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pH: | 8.5 | Method pH: | | PH |
| | | | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | SST BT C | O MW I | PL (PK) | | | | | | Water Temp. (°C): | 3 0 | Method Temperature: | | IC |
| | | 54 B 1.0 | 136 | 0 | | | | | | Turb. (cm); | 200 | Method Turbidity: | | Gl |
| | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | | | Cond. (µmhos): | 60 | Method Conductivity: | | CM |

26-Mar-9"

Stream: THAUTIL R

Watershed Code:

Stream/Valley Cross-Section

Planimetric View

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| SST | 20 | 68 - 93 | 1 | R | М | | EL |
| SST | 28 | 33 - 52 | F | R | | | EL |
| BT |] 1 | 114 | J | R | M | | EL |
| co | 2 | 85 - 98 | j j | R | M | | EL |
| MW | [I | 52 | F | R | | | EL |
| PL. | į i | | J | R | | | EL |

Obstructions

| Obstruction | Ht(m) | Туре | Location |
|-------------|-------|------|----------|
| | | | |

- C1 -20 pieces of LOD were found per 100 m of channel.
- C2 High bank erosion was noted on river left of this index site.
- C3 Wetted widths represent the widths of the whole channel. The sidechannel where the index site was performed had wetted widths of 5.0 m, 5.2 m, 5.6 m, 4.1 m, and 5.5 m. The site length was 32 m in length.
- C4 Deep pools unable to measure depth >1 m.
- C5 Suspected pink salmon spawning in lower Reach 1, 5,000 pink salmon were observed in this section in 1987 (SISS-BC Environment, data on file).
- C6 Air Temp 1 C.

26-Mar-9"

Stream: THAUTIL R

Watershed Code:

Stream Survey Report

460-6006-508-000-000-000-000-000-000-000-000

| TT 1 T C | . 49 | | | | | | | | | | | | |
|-----------------------|--------------|----------------------------------|------------|------------|-----------------|---------------|------|-----|----------------------|-----------|--------------------------|---------------|--------|
| Header I n foi | rmation | | | | | | | | | | | | |
| Stream Name: | THAUTIL R | | | Stream "L | ocal": | THAUTIL R | | | | | Access: | | Н |
| Watershed Code: | 460-6006-508 | 000-000-000-000-000-000-000-000- | 000 | | | | | | Reach No.: | 1 | Reach Length (km): | 24.8 Method: | MW |
| Location: | | n 2; LOCATED ON MAINSTEM T | HAUTIL | Map #: | 09 3L0 2 | 4 | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | HC |
| | R. ~300 m BE | LOW THIO. | | U.T.M. : | 9.6061 | .60153 | | | Fish Card: | Y | Field: Yes | Historical: | No |
| Date: 10/23/96 | Time: 10 | 00 Agency: C58 | Survey Cre | ew: RD\CP\ | 1 1 1 | \ \ \ | | | Photos: | A14/23-25 | Air Photos: | BCB 91 | 180:15 |
| Channel Ch | aracterist | ics | | | | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m) | : 57,0 | Method Av. Chan. Width (m): | AP | 60.0 | 90.0 | 60.0 42.0 | 33.0 | | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 6.3 | Method Av. Wet. Width (m): | T | 4.7 | 4.9 | 3.8 7.1 | 8.3 | 8.8 | % Gravels: | 20 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | (cm): 1 | Av. Max. Riffle Depth (cm): | MS | | | | | | 76 Graveis. | 20 | Large (16-64mm): | | 15 |
| Av. Max. Pool Depth | (cm): 38 | Av. Max. Pool Depth (cm): | 11 | | | | | | | | 5 , | | |
| Gradient (%): | 2.0 | Method Gradient: | CL | ' | | | | | % Larges: | 75 | Small cobble (64-128mm): | | 50 |
| % Pool: 20 | % Riffle: 40 | % Run: 40 % Ot | her: 0 | Method: | GE | | | | | | Large cobble (128-256mm) | : | 20 |
| % Side Channel: | >40 | Method Side Channel: | GE | | | | | | | | Boulder cobble (>256mm): | | 5 |
| % Debris Area: | 10-40 | Method Debris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | D90 (cm): | 19 | Compaction: | 1 | Mediun |
| Cover Total % : | 75 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 15 L | .O.D.: 10 | Boulder: 70 In Veg. | : 0 | Over Veg: | 0 | Cutbank: | | 5 | Duning | | | | |
| Crown Closure % : | 5 | Method Crown Closure: | GE | Aspect : | sw | Method Aspect | : | ΑE | Height (m): | 0.5 | % Unstable: | | 10 |
| | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | . N |
| Discharge | | | | | | | | | Confinement: | 4 | | | |
| · · | | | | 1 | | Specific Data | | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (nn): | | Method Wetted Width (m): | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | i | | | | | Flood Signs Ht(m): | 0.8 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | Method Mean Velocity (m/s | vo | 1 | | | | | Braided: | N | Method Braided: | | Gl |
| Discharge (m3/s): | 0.28 | Method Discharge (m3/s): | | | | | | | Bars (%): | 30 | Method Bars: | | GI |
| Danah Curuh | al | | | | | | | | pH: | | Method pH: | | |
| Reach Symb | Ui | | (Fish) | | | | | | 02 (ppm): | | Method Dissolved Oxygen | | |
| | | S | ST BT DV (| PL) | | | | | Water Temp. (°C): | 2.5 | Method Temperature: | | 10 |
| | | 57 C | 2.0 127 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GI |
| | | (Width, Valley: Channel, S | | | | | | | Cond. (µmhos): | 60 | Method Conductivity: | | CM |

26-Mar-9⁻

Stream: THAUTIL R

Watershed Code:

Stream/Valley Cross-Section

Planimetric View

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| SST | 18 | 64 - 133 | J | R | | | EL |
| SST | 46 | 22 - 42 | F | R | | | EL |
| BT | 6 | 54 - 88 | j | R | | | EL |
| DV |] 1 | 129 | À | S | | | EL |
| CHF | 4 | 39 - 45 | F | R | | | EL |

Obstructions

- C1 Wetted widths represent the widths of the sidechannel where the index site was performed, not the widths of the whole river. The site length was 28.1 m in length. Discharge estimate is for sidechannel.
- C2 Sample site located at a wide oxbow section of the river. This index site was not marked with ribbon
- The DV caught was a mature male. It was not possible to distinguish between the DV and BT fry so they were combined into one group called char fry (CHF). Suspect Pacific lamprey are present in this section; captured in lower R1(Carswell, 1979).
- C4 LOD per 100 m in this section was ~11 pieces.
- C5 Tributaries Th19, Th20, Th24 and Th 29 were ground surveyed and had no defined channel and no potential fish habitat.
- C6 Air Teinp: 0 C.

26-Mar-9"

Stream: THAUTIL R

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|------------|--------|-----------------|------------|-------|-------|-------|------------------|
| SST | 15 | 72 - 120 | J | R | | | EL. |
| SST SST | 10 | 29 - 41 | F | R | | | EL |
| вт | 5 | 69 - 130 | J | R | [| | EL |
| ВТ | 5 | 36 - 51 | F | R | | | EL |
| AF | | | F | | | _ | vo |

was dewatered. The gradient was ~55% with no fish access (Photo A6/16).

Obstructions

Comments

Thautil River is at low flows. The wetted widths of the sidechannel where the index site was performed were 6.6 m, 5.1 m, 7.8 m and 5.9 m. The site length was 25 m long.

Numerous newly-emerged fry were observed in this section. Also, a 30 cm char was observed. The char fry (BT/DV fry) found at this site were assumed to be and were recorded as BT fry.

Excellent rearing for char/trout in the unembedded cobbles.

Wide unstable channel. Many unstable banks were noted in this reach. Debris is spread across the bars.

Tributaries Th32, Th34, Th37, Th40, Th42. Th43 and Th44 were not observed during the Thautil R. ground survey. Tributary Th36 was observed but had no defined channel and

26-Mar-9"

Stream: THAUTIL R.

Watershed Code:

Stream Survey Report

460-6006-508-000-000-000-000-000-000-000-000

| Header Info | mation | | | | | _ | | | - | · | | |
|-----------------------|-------------|------------------------------------|----------------|-------------|---------------------|------------|-----|----------------------|----------|---------------------------|---------------|--------|
| Stream Name: | THAUTIL R | | Stream " | Local": | THAUTIL R. | | | | | Access: | | Н |
| Watershed Code: | 460-6006-50 | -000-000-000-000-000-000-000-000 | | | | | | Reach No.: | 2 | Reach Length (km): | 5.7 Method: | MW |
| Location: | | In 4; LOCATED ON THE THAUTIL R. JU | ST Map #: | 093L04 | 14 | | | Site No.: | 4 | Length surveyed (m): | 280.0 Method: | HC |
| | ABOVE TH | В. | U.T.M. : | 9.6068 | 3 .60291 | | | Fish Card: | Y | Field: Yes | Historical: | No |
| Date: 10/22/96 | Time: 1 | :00 Agency: C58 Surve | Crew: ЛI\SS \ | 111 | 1 1 1 | | | Photos: | B11/6, 7 | Air Photos: | BCB 911 | 81:189 |
| Channel Cha | aracteris: | ics | - | | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m) | : 9 | 7 Method Av. Chan. Width (m): | T 8.6 | 12.0 | 9.7 11.9 | 7.9 | 7.9 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | 3 | Method Av. Wet. Width (m): | T 1.8 | 4.6 | 4.0 | | | % Gravels: | 30 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (| (cm): | 9 Av. Max. Riffle Depth (cm): | MS 16 | 19 | 21 | | | / Glaveis. | 30 | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): 6 | 6 Av. Max. Pool Depth (cm): | 19 78 | 51 | 69 | | Ì | | | | | |
| Gradient (%): | l | 7 Method Gradient: | CL ` | | - | | | % Larges: | 60 | Small cobble (64-128mm): | | |
| % Pool: 35 | % RiMe: | 0 % Run: 25 % Other: | 0 Method | l: GE | | | | } | | Large couble (128-256mm): | | |
| % Side Channel: | >4 | 0 Method Side Channel: | GE | | | | | l | | Boulder cobble (>256mm): | | |
| % Debris Area: | 0-1 | 0 Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | D90 (cm): | 18 | Compaction: | | High |
| Cover Total %: | 3 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 30 L | .O.D.: | Boulder: 30 In Veg.: | 0 Over Ve | g: 5 | Cutbank: | | 25 | Durins | | | | |
| Crown Closure %: | | Method Crown Closure: | GE Aspect: | SW | Method Aspect: | | ΑĒ | lleight (m): | 0.6 | % Unstable: | | 35 |
| | | | | | | | | Textures Fines: | No | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | i | | Specific Data | | | Confinement: | 4 | | | |
| | | | _ | • | зресінс <i>D</i> аш | | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | 1.3 | • , | T | | | | 1 | Stage: | L | | | |
| Mean Depth (in): | 0.3 | , | MS | | | | } | Flood Signs Ht(m): | 0.6 | Method Flood Signs: | | GE |
| Mean Velocity (m/s) | | | vo | | | | | Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s) : | 0.2 | Method Discharge (m3/s): | | | | | | Bars (%): | 40 | Method Bars: | | GE |
| Reach Symb | ol | | _ | - | | · <u> </u> | | pH: | 8.0 | Method pH: | | PH |
| licaen Symo | | (Fig | • | | | | | 02 (ppm)։ | | Method Dissolved Oxygen: | | |
| | | SST | DV | | | | | Water Temp. (°C): | 2.5 | Method Temperature: | | TC |
| | | 10 C 2.0 | 1360 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | | Cond. (µmhos): | 70 | Method Conductivity: | | CM |

26-Mar-9"

Stream: THAUTIL R

Watershed Code:

Stream Survey Report

460-6006-508-000-000-000-000-000-000-000-000

| Header Info | rmatic | n | | - | | | | | _ | | | | | | |
|-----------------------|-----------------|---------|------------------------------------|----------|--------------|--------------------------|------------|-----------|-----|---------------------------------------|----------------------|------------|-------------------------------------|---------------|---------|
| Stream Name: | THAUT | IL R | | | Stream "L | ocal": | UPPE | R THAUTI | L R | | | | Access: | | i i |
| Watershed Code: | 460-600 | 6-508-0 | 00-000-000-000-000-000-000-000-000 | 0 | | | | | | | Reach No.: | 2 | Reach Length (km): | 5.7 Method: | MW |
| ocation: | | | 5; LOCATED ON THAUTIL R40 | 00 m D/S | Map #: | 0 9 3 L044 | ļ | | | | Site No.: | 5 | Length surveyed (m): | 100.0 Method: | HC |
| | FROM | ГН50. | | | U.T.M. : | 9.6064 | .60306 | | | | Fish Card: | Y | Field: Yes | Historical: | No |
| Date: 10/8/96 | Tim | e: 15:0 | O Agency: C58 Su | urvey Cr | ew: DB\SS\ | 1 1 1 1 | 1.1 | | | | Photos: | DB4/11, 12 | Air Photos: | BCB 911 | 181:189 |
| Channel Cha | iracte | risti | es | | | S | Specific D | ata | | · · · · · · · · · · · · · · · · · · · | Bed Material | | | | |
| Av. Chan. Width (m) | : | 6.6 | Method Av. Chan. Width (m): | T | 7.1 | 9.5 | 7.3 | 6,0 | 5.4 | 4.2 | % Fines (<2mm): | 0 | % Fines (<2mm): | | 0 |
| Av. Wet. Width (m): | | 3.3 | Method Av. Wet. Width (m): | T | 3.5 | 3.1 | 3.0 | 2.9 | 3.2 | 3.8 | % Gravels: | 30 | | | |
| Av. Max. Rif. Depth (| (cm): | 12 | Av. Max. Riffle Depth (cm): | MS | | | | | | ļ | 76 Graveis: | 30 | Small (2-16mm): Large (16-64mm): | | 10 |
| Av. Max. Pool Depth | (cm): | 30 | Av. Max. Pool Depth (cm): | 12 | | | | | | ĺ | | | , | | 20 |
| Gradient (%): | | 0.5 | Method Gradient: | CL | ' | | | | | | % Larges: | 70 | Small cobble (64-128mm): | | 30 |
| % Pool: 70 | % Riff | le: 30 | % Run: 0 % Othe | r: 0 | Method: | GE | | | | | | | Large cobble (128-256mm) | : | 30 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | ì | | Boulder cobble (>256mm): | | 10 |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 25 | Compaction: | | High |
| Cover Total % : | | 50 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L | .O. D .: | 5 | Boulder: 80 In Veg.: | 0 | Over Veg: | 10 | Cutba | ink: | | 5 | Dunns | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect: | SW | Metho | d Aspect: | | ΑE | Height (m): | 2.0 | % Unstable: | | 25 |
| | | | | | | | | | | | Textures Fines: | No | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | | C- | i6- D | | | | Confinement: | 3 | _ | | |
| • | | | | | | SĮ | pecific De | ila · | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | 1 | | | | | į | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.7 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.14 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.14 | Method Discharge (m3/s) : | | <u> </u> | | | | | | Bars (%): | 40 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 8.1 | Method pH: | | PH |
| | -• | | | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | | |
| | | | | SST DV | | | | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | 1C |
| | | | 7 B 0 | 0.5 037 | 70 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GŁ: |
| l | | | (Width, Valley: Channel, Slop | pe) (Bo | ed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9" Stream: THAUTIL R.

Watershed Code:

Stream Survey Report

460-6006-508-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use I | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| SST | 10 | 29 - 38 | F | R | | | EL |
| SST | | 61 - 109 | J | R | | | EL |
| DV | 8 | 70 - 87 | J | R | Ì | , | EL |
| DV | 1 | 44 | F | R | | | EL |

Obstructions

- Unembedded bed material provide high suitability for spawning and rearing throughout this reach. Low densities of SST fry were observed between Th47 and Th49. Higher densities were observed ~Th49 and u/s.
- C2 Electrofished 33 m length of stream. The char fry was recorded as DV fry although unable to distinguish between BT and DV fry.
- C3 Air Temp: 1 C.
- Several SST redds were observed: 1 redd (2.0 m x 0.8 m) ~98 m u/s from Th48; 1 recent SST redd ~640 m u/s from Th49 (Photo B11/#14); 2 BT redds ~780 m u/s from Th49; 1 BT redd ~890 m u/s from Th49. Stable flows through this section due to extensive subsurface flows through porous gravel material.
- C5 Numerous DV redds were observed: 3 DV redds ~790 m u/s of Th49, 3DV redds ~1035 m u/s of Th49; 4 DV redds ~1800 m u/s of Th49, 4 DV redds ~2323 m u/s of Th49
- C6 303 m u/s from Th48: 10 m high x 20 m eroding bank (Photo B11/#10). -650 m u/s from Th49: 10 m high x 40 m eroding bank (Photo B11/#13). -640 m and u/s: eroding banks up to 10 m high on numerous outside bends.
- C7 650 m u/s from Th50, gradient of mainstein Thautil R. is ~0.5%. Channel is unconfined with unstable gravels present

26-Mar-9"

Stream: THAUTIL R

Watershed Code:

Stream Survey Report

460-6006-508-000-000-000-000-000-000-000-000

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Stream/Valley Cross-Section

Planimetric View

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------------|------------------|
| SST | 10 | 67 - 105 | J | R | | EL |
| SST | 50 | 29 - 41 | F | R | T | EL |
| DV | 1 | 115 | J | R |]] | EL |
| DV | 2 | 34 - 44 | F | R | | EL |

Obstructions

Comments

C1 Index site was 22 m in length.

C2 Fry and juveniles quite visible in site. Steelhead fry were newly-emerged (28 - 31 mm). Good juvenile and fry habitat; abundant cover from cobbles and margin areas.

C3 Important spawning and rearing area.

C4 Char fry (DV/BT fry) were recorded in the DV fish species category.

C5 Noted flows were exceptionally low in this reach given the size of the watershed. Tributaries entering the Thautil R. also had substantial flow relative to the Thautil R. discharge downstream. Suspect that there is considerable subsurface flow through the gravel material.

C6 In Reach 2 the channel meanders and is confined within a pine ridge bank. Further u's grassy meadows lie along the mainstern edge with the channel remaining well-defined

26-Mar-97

Stream: THAUTIL R

Watershed Code

Stream Survey Report

460-6006-508-000-000-000-000-000-000-000-000

Header Information THAUTIL R Stream Name: Stream "Local": UPPER THAUTIL R Access: 11 Watershed Code: 460-6006-508-000-000-000-000-000-000-000-000 Reach No.: мw 3 Reach Length (km): 3.7 Method: Location: LOCATED 2250 m U/S IN REACH 3 Man #: 093L044 Site No.: Length surveyed (m): 100.0 Method: HC U.T.M. : 9.6088 .60328 Fish Card: Field: Yes Historical: No Date: 10/15/96 Time: 11:00 Survey Crew: DB\CP\\\\\\\\ DB4/19 20 Agency: C58 Photos: Air Photos: BC 7326:148 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 5.0 Method Av. Chan. Width (m): T 5.8 5.4 6.3 39 40 % Fines (<2mm): % Fines (<2mm): 0 r Av. Wet. Width (m): 2.5 Method Av. Wet. Width (m): 2.5 2.3 2 8 2.8 2.6 2.2 % Gravels: Small (2-16mm): Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): MS 18 10 18 20 Large (16-64mm): Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 28 15 30 25 30 % Larges: Small cobble (64-128mm): 20 Gradient (%): 5.5 Method Gradient: CL Large cobble (128-256mm): 30 % Riffle: 70 % Pool: 10 % Run: 20 % Other: 0 Method: GE Boulder cobble (>256mm): 30 0 Method Side Channel: GE % Side Channel: 0-10 Method Debris Area: GE % Debris Area: % Bedrock: % Bedrock: 0 D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks 0 L.O.D.: 0 Do Pool: 25 Boulder: 75 In Veg.: 0 Over Veg: 0 Cutbank: GE Crown Closure %: 20 Method Crown Closure: SW Method Aspect: ΑE Aspect: Height (m): % Unstable: 25 Textures Fines: No Gravel: No Larges: Yes Bedrock: Yes Discharge Confinement: 2 Specific Data Valley: Chan. Ratio: Wetted Width (m) : Method Wetted Width (m): Stage: М Mean Depth (m): Method Mean Depth (m): Method Flood Signs: Flood Signs Ht(m): 0.5 MS Mean Velocity (m/s): Method Mean Velocity (m/s VO Braided: Method Braided: GĿ 0.26 Method Discharge (m3/s): Discharge (m3/s): Bars (%): 35 Method Bars: GE pH: 8.0 Method pH: PH Reach Symbol (Fish) Method Dissolved Oxygen: 02 (ppm): D۷ Water Temp. (°C): Method Temperature: TC 1.0 6.0 0280 Turb. (cm): 200 Method Turbidity: GI: (Width, Valley: Channel, Slope) [(Bed Material) Cond. (umnos): 60 Method Conductivity: CM

26-Mar-9"

Stream: THAUTIL R

Watershed Code:

Stream Survey Report

460-6006-508-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

| L | Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| D | V | 4 | 70 - 97 | 1 | R | | | EL |

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 2 | F | |
| 3 | c | |

- C1 GPS Lat/Lon at helicopter landing site: 54 25.93 127 19.46
- C2 2 m falls located ~100 m d/s of TH52. 3 m chute located ~250 m d/s of TH52.
- Banks become more confined and gradient increases in Reach 3. Many ~0.5 in drops in log steps in the lower half of Reach 3 were observed. In the upper end of Reach 3, some
 - cascades were observed but none appeared to be barriers.
- C4 Electrofished 38 in length of stream, 1 pass with no lower net.
- C5 Air Temp: 3 C.

26-Mar-9

Stream: THAUTILR

Watershed Code:

Stream Survey Report

460-6006-508-000-000-000-000-000-000-000-000

| Header Informati | on | | | _ | | | _ | | | | | | |
|---------------------------|----------------|------------------------------------|--------------|---------|-----------|-----------|-----|-----|----------------------|-------------|---|--------------|---------|
| Stream Name: THAU | TIL R | | Stream "Le | ocal": | UPPE | R THAUTI | L R | | | | Access: | | H |
| Watershed Code: 460-60 | 06-508-0 | 000-000-000-000-000-000-000-000 | | | | | | | Reach No.: | 4 | Reach Length (km): | 1.5 Method: | MW |
| Location: LOCA | TED ~13 | 50 m U/S IN REACH 4. | Map #: | 093L044 | | | | | Site No.: | 2 | Length surveyed (m): | 75.0 Method: | HC |
| | | | U.T.M. : | 9.6105 | .60342 | | | | Fish Card: | N | Field: Yes I | listorical: | No |
| Date: 10/15/96 Tir | ne: 10:0 | Agency: C58 Survey C | rew: RD\SS\ | 1 1 1 1 | 1 1 | | | | Photos: | A13/9, 10 | Air Photos: | BC 73 | 326:149 |
| Channel Characte | eristi | cs | 1 | S | pecific D | ata | | - | Bed Material | | | | |
| Av. Chan. Width (m): | 0.7 | Method Av. Chan. Width (m): | 0.6 | 0.7 | 0.9 | 0.9 | 0.4 | 0.5 | % Fines (<2mm); | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 0.7 | Method Av. Wet. Width (m): T | 0.6 | 0.7 | 0.9 | 0.9 | 0.4 | 0.5 | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (cm): | 7 | Av. Max. Riffle Depth (cm): MS | | | | | | j | 76 GTAVEIS. | 13 | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth (cm): | 23 | Av. Max. Pool Depth (cm): 7 | | | | | | | 9/ 1 | 90 | | | 70 |
| Gradient (%): | 4.0 | Method Gradient: CL | | | | | | | % Larges: | 80 | Small cobble (64-128mm): | | 5 |
| | Me : 70 | % Run: 20 % Other: 0 | Method: | GE | | | | | i | | Large cobble (128-256mm): Boulder cobble (>256mm): | | 5 |
| % Side Channel: | 0 | Method Side Channel: GE | | | | | | | | | | | - |
| % Debris Area: | 0-10 | Method Debris Area: GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | _ | | | D90 (cm): | 11 | Compaction: | | High |
| Cover Total % : | 70 | Method Cover Total %: GE | | | | | | | Banks | | | | |
| Dp Pool: 15 L.O.D.: | 5 | Boulder: 30 In Veg.: 0 | Over Veg: | 10 | Cutba | nk: | | 40 | | | | | |
| Crown Closure % : | 3 | Method Crown Closure: GE | Aspect : | SW | Metho | d Aspect: | | AE | Height (m): | 0.6 | % Unstable: | | |
| - | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedruck: | No |
| Discharge | | | | ç, | ecific Da | uta | | | Confinement: | 3 | | | |
| - Wetted Width (m) : | | Method Wetted Width (m): | | ., | ecyae Du | | | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | l | Stage: | M | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s VO | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.03 | Method Discharge (m3/s): | | | | | | | Braided: | N | Method Braided: | | GE |
| | | | 1 | | | | | | Bars (%): | 4 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | pH: | 7.9 | Method pH: | | PH |
| , , | | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | DV | | | | | | | Water Temp. (°C): | 2.0 | Method Temperature: | | 10 |
| | | I B 4.0 H | 80 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GŁ |
| | | (Width, Valley: Channel, Slope) (B | ed Material) | | | | | | Cond. (µmhos): | 50 | Method Conductivity: | | CM |

26-Mar-97

Stream: THAUTIL R

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 3 | 62 - 99 | J | R | | - | EL |

Obstructions

- C1 Sample site was 32 m in length. Electroshocked site with 1 u/s pass and no lower net.
- C2 Channel is confined due to 2.5 m high sideslopes from meadow. Lots of willow overstory.
- C3 Very small creek. Main flow comes from TH55.
- C4 Suspect fish use may extend from 500 900 in u/s with a barrier above 900 in based on contours. Not able to sample or determine total fish distribution due to snow.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-093-000-000-000-000-000-000-000

| Header Infor | matior | 1 | | | | | | | | | | | | |
|-----------------------|-----------|--------|---------------------------------|--------|-------------|---------|---------------|-------|----|----------------------|-------|--------------------------|---------------|---------|
| Stream Name: | THAUTIL | R. TR | IBUTARY | | Stream "Lo | cal": | THI | | | | | Access: | | FT |
| Watershed Code: | 460-6006- | 508-09 | 3-000-000-000-000-000-000-000 | | | | | | | Reach No.: | l | Reach Length (km): | 0.6 Method: | MW |
| Location: | | | m U/S FROM THAUTIL R THI | | Мар #: | 93L024 | | | | Site No.: | 1 | Length surveyed (m): | 580.0 Method: | HC |
| | CONFLU | ENCE | | | U.T.M.: | 9.60728 | 1.6009825 | | | Fish Card: | N | Field: Yes | Historical: | Nο |
| Date: 9/12/96 | Time: | 14:00 | Agency: C58 Surv | еу Сге | w: RD\CP\ | 1 1 1 1 | \ \ | | | Photos: | A1/#3 | Air Photos: | BCB 911 | 179:100 |
| Channel Cha | ıracter | istic | s | i | - | S | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 2.2 | Method Av. Chan. Width (m): | Т | 2.9 | 2.4 | 1.9 | 7 2.3 | | % Fines (<2mm): | O | % Fines (<2maı): | | U |
| Av. Wet. Width (m): | | 1.5 | Method Av. Wet. Width (m): | T | | | | | 1 | % Gravels: | 10 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (| | 7 | Av. Max. Riffle Depth (cm): | MS | | | | | | | | Large (16-64mm): | | 5 |
| Av. Max. Pool Depth | (cm): | 16 | Av. Max. Pool Depth (cm): | 7 | | | | | . | % Larges: | 90 | Small cobble (64-128mm): | | 30 |
| Gradient (%): | | 9.0 | Method Gradient: | CL | | | | | | 70 Laigts. | ,,, | Large cobble (128-256mm | ١٠ | 60 |
| % Pool: 20 | % Riffle | | % Run: 0 % Other: | 0 | Method: | GE | | | | | | Boulder cobble (>256mm) | | 0 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | · | • | |
| % Debris Area: | | >40 | Method Debris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 20 | Compaction: | | Medium |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 10 L | O.D.: | 20 | Boulder: 70 In Veg.: | 0 | Over Veg: | 0 | Cutbank: | | 0 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect : | W | Method As | pect: | AE | Height (m): | 2.0 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | I. | S | pecific Data | | ì | Confinement: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | ٠, | pergit Data | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | Stage: | М | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | İ | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s): | | | Method Discharge (m3/s): | •• | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (ms/s). | | •, | | | | | | | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | plf: | | Method pll: | | |
| | | | • | Fish) | | | | | | 02 (ppու)։ | | Method Dissolved Oxyge | ı: | |
| | | | | TR | | | | | | Water Temp. (°C): | 9.0 | Method Temperature: | | TC |
| | | | 2 A 9.0 | 0190 |) | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed | i Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-093-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

| į | Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| | TR | 1 | | F | R | | | vo |

Obstructions

- C1 Small stable stream, LOD abundant, very entrenched, and moderate gradient.
- Easy fish access at the confluence through a small beaver dam complex. Trib is a cobble/gravel fan for ~70 m u/s, then becomes confined with ~50% sideslopes and an 8 10% gradient. No access above 270 m due to a 0.4 m debris jam and a 30 40 % gradient which continues until the reach break at ~580 m. Assume fish use to 100m. Class S6 u/s based on fish sample results.
- C3 Some evidence of unstable sideslopes in R1 and R2.

26-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-093-000-000-000-000-000-000-000-000

Header Information Stream Name: THAUTIL R. TRIBUTARY Stream "Local": THI $\mathbf{F}\mathbf{I}$ Access: Watershed Code: 460-6006-508-093-000-000-000-000-000-000-000 Reach No .: 2 Reach Length (km): 0.8 Method: MW Location: LOCATED ~200 m D/S FROM ROAD CULVERT Map#: 093L024 Site No.: Length surveyed (m): 800.0 Method: HC U.T.M.: 9.607281.6009825 Fish Card: Yes No Field: Historical: Date: 9/13/96 Time: 10:00 Agency: C58 Survey Crew: RD\CP\ \ \ \ \ BCB 91179:101 Photos: A1/4, 5 Air Photos: Channel Characteristics **Bed Material** Specific Data T Av. Chan. Width (m): 2.3 Method Av. Chan, Width (m): 1.9 2.1 2.6 2.6 2.8 % Fines (<2mm): % Fines (<2mm): 10 T Av. Wet. Width (m): 1.9 Method Av. Wet. Width (m): % Gravels: Small (2-16mm): 15 Av. Max. Rif. Depth (cm): 7 Av. Max. Riffle Depth (cm): MS 15 Large (16-64mm): Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 7 Small cobble (64-128mm): % Larges: 40 Gradient (%): 2.5 Method Gradient: CLLarge cobble (128-256mm): 20 % Pool: 30 % Riffle: 30 % Other: 0 Method: GE Boulder cobble (>256mm): 0 GE % Side Channel: 0-10 Method Side Channel: % Debris Area: GE >40 Method Debris Area: % Bedrock: % Bedrock: Û D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks Dp Pool: 20 L.O.D.: 30 In Veg.: Boulder: 40 Over Veg: Cutbank: Method Crown Closure: Crown Closure %: Method Aspect: Aspect: Height (m): 0 % Unstable: Textures Fines: Yes Gravel: Yes Larges: No Bedrock: Nυ Discharge 2 Confinement: Specific Data Valley: Chan. Ratio: 2 Wetted Width (m): Method Wetted Width (m): М Stage: Mean Depth (m): Method Mean Depth (m): Flood Signs IIt(m): GE0.2 Method Flood Signs: Mean Velocity (m/s): Method Mean Velocity (m/s vo GE Braided: Method Braided: Discharge (m3/s): Method Discharge (m3/s): GEBars (%): Method Bars: Reach Symbol pH: Method pH: (Fish) 02 (ppm): Method Dissolved Oxygen: NF Water Temp. (°C): Method Temperature: IC 2 B 3.0 | 1360 Turb. (cm): 200 Method Turbidity. GE (Width, Valley: Channel, Slope) (Bed Material) Method Conductivity: Cond. (µmhos):

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-093-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| | X | |

Comments

| Cl | Set 6 traps at road and no fish were caught. |
|----|--|
| C2 | Reach 2 is confined by steep sidewalls. The trib is primarily low gradient fish habitat which is mainly single channel. Sections are present with potential spawning for trout/coho species. |
| C3 | Easy access for juveniles and fry through road culvert. |
| C4 | Some evidence of unstable sideslopes in R1 and R2. |
| C5 | Impassable debris jam is present ~620 m d/s from road. |

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26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-093-000-000-000-000-000-000-000

| Header Information | | | | | |
|--|--------------------------|----------------------|-----------|---------------------------|------------------|
| Stream Name: THAUTIL R. TRIBUTARY | Stream "Local": THI | | | Access: | FT |
| Watershed Code: 460-6006-508-093-000-000-000-000-000-000-000 | | Reach No.: | 3 | Reach Length (km): | 1.5 Method: MW |
| Location: MINNOW-TRAPPED MEADOW, ~900 m U/S FROM RO | D Map #: 093L024 | Site No.: | 3 | Length surveyed (m): | 200.0 Method: HC |
| | U.T.M.: 9.607281.6009825 | Fish Card: | N | Field: Yes ! | Historical: No |
| Date: 10/21/96 Time: 14:00 Agency: C58 Survey | Crew: RD\CP\ \ \ \ \ \ \ | Photos: | A14/9, 10 | Air Photos: | BCB 91179:102 |
| Channel Characteristics | Specific Data | Bed Material | | | |
| * * | | % Fines (<2mm): | 100 | % Fines (<2mm): | 100 |
| Av. Wet. Width (m): O.3 Method Av. Wet. Width (m): Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): | | % Gravels: | 0 | Small (2-16mm): | |
| Av. Max. Pool Depth (cm): 40 Av. Max. Pool Depth (cm): | | | | Large (16-64mm): | |
| Gradient (%): 1.0 Method Gradient: | | % Larges: | 0 | Small cobble (64-128mm): | |
| | Method: GE | | | Large cobble (128-256mm): | |
| % Side Channel: 0 Method Side Channel: C | | | | Boulder cobble (>256mm): | |
| % Debris Area: 0 Method Debris Area: C | | % Bedrock: | 0 | % Bedrock: | 0 |
| Cover | | D90 (cm): | 0 | Compaction: | Medium |
| Cover Total %: 40 Method Cover Total %: C | | Banks | | | |
| Dp Pool: 10 L.O.D.: 0 Boulder: 0 In Veg.: 9 | Over Veg: 0 Cutbank: | 0 | | | |
| Crown Closure %: 0 Method Crown Closure: 0 | Aspect: W Method Aspect: | AE Height (m): | 0.0 | % Unstable: | O |
| • | · | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: No |
| Discharge | Specific Data | Confinement: | 5 | | |
| Wetted Width (m): Method Wetted Width (m): | 7.19. | Valley: Chan. Ratio: | 4 | | |
| Mean Depth (m): Method Mean Depth (m): | | Stage: | l. | | |
| Mean Velocity (m/s): Method Mean Velocity (m/s | , | Flood Signs Ht(m): | 0 | Method Flood Signs: | GĿ |
| Discharge (m3/s): 0.03 Method Discharge (m3/s): | | Braided: | N | Method Braided: | GE |
| Distribut Distri | | Bars (%): | 0 | Method Bars: | GE |
| Reach Symbol | | pH: | | Method pH: | |
| (Fish | | 02 (ppm): | | Method Dissolved Oxygen: | |
| NF | | Water Temp. (°C): | 1.0 | Method Temperature: | 1C |
| 0 D 1.0 | | Turb. (cm): | 200 | Method Turbidity: | GE |
| (Width, Valley: Channel, Slope) | Bed Material) | Cond. (µmhos): | 60 | Method Conductivity: | CM |

26-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C4 Tributary Th1.2 is a very small seepage channel with very poor fish habitat. Tributary Th1.3 is located in a bog area with no defined channel.
- C1 Large meadow area, no defined channel.
- C2 5 minnow traps were set at this site for a 24 h. period. No fish were caught but 5 tadpoles and 2 Western Spotted Frogs were caught.
- C3 In Reach 4 u/s, the tributary exiting the lake has a low to moderate gradient with an estimated wetted width of 1.5 m.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-141-000-000-000-000-000-000-000

| Header Inform | ation | | | | | | | | | | | | | |
|--------------------------|------------------------------|--|--------|--------------|---------|------------|-----------|-----|-----|----------------------|--------------|-------------------------|---------------|--------|
| Stream Name: TH | AUTIL R. | TRIBUTARY | | Stream "Lo | cal": | TH2 | | | | | | Access: | | V2 |
| Watershed Code: 46 | -600 6 -50 8 - | 141-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.3 Method: | MW |
| Location: ~10 | 5 m U/S FI | ROM TH2 - THAUTIL R. CONFLUENCE | E. | Map #: | 093L024 | 1 | | | | Site No.: | 1 | Length surveyed (m): | 320.0 Method: | HC |
| | | | | U.T.M. : | 9 .6059 | .60105 | | | | Fish Card: | Y | Field: Yes | Historical: | Nο |
| Date: 9/13/96 | Time: 15 | 00 Agency: C58 Surv | ey Cre | ew: SSUH \ \ | . \ \ \ | \ \ | | | | Photos: | B1/16; B3/18 | Air Photos: | BCB 911 | 79,100 |
| Channel Chara | cterist | cs | | | | Specific D |)ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | 1.6 | Method Av. Chan. Width (m): | T | 1.7 | 1.5 | 1.4 | 1.2 | 1.5 | 2.1 | % Fines (<2mm): | 40 | % Fines (<2mm): | | 40 |
| Av. Wet. Width (m): | 1.3 | Method Av. Wet. Width (m): | T | 1.7 | 1.5 | 1.4 | 1.2 | 1.0 | 1.2 | % Gravels: | 40 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm) | 14 | Av. Max. Riffle Depth (cm): | T | | | | | | | 7. Graveis. | 40 | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm | : 38 | Av. Max. Pool Depth (cm): | 14 | | | | | | | | | | | |
| Gradient (%): | 6.6 | Method Gradient: | CL | 1 | | | | | | % Larges: | 20 | Small cobble (64-128mm) | | |
| % Pool: 60 % | Riffle: 40 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | | |
| % Side Channel: | C | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | >40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 8 | Compaction: | | High |
| Cover Total % : | 50 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 30 L.O.D | .: 40 | Boulder: 5 In Veg.: | 0 | Over Veg: | 15 | Cutba | nk: | | 10 | | | | | |
| Crown Closure %: | 30 | Method Crown Closure: | GE | Aspect : | SE | Metho | d Aspect: | | ΑE | lleight (m): | 0.5 | % Unstable: | | O |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | | Ç. | pecific Da | nta. | | | Confinement: | ì | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | reigne Du | | | | Valley: Chan. Ratio: | 2 | | | |
| | | ` , | | | | | | | | Stage: | М | | | |
| Mean Depth (in): | | Method Mean Depth (m) : Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.03 | Method Discharge (m3/s): | VO | | | | | | | Braided: | N | Method Braided: | | GĿ |
| Discharge (m3/s) : | 0.03 | Method Discharge (m3/s) : | | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pH: | 7.1 | Method pH: | | PH |
| | | • | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | <u> </u> | V RB | | | | | | | Water Temp. (°C): | 9.5 | Method Temperature: | | TC |
| | | 2 B 7.0 | 442 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | MS |
| | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmbos): | | Method Conductivity: | | |

Stream: THAUTIL R. TRIBUTARY 26-Mar-9"

Stream Survey Report Watershed Code:

460-6006-508-141-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| RB | 7 | 39 - 48 | F | R | | | EL |
| DV | 1 | 83 | J | R | | | EL |

Obstructions

- CI In Reach 1, electroshocked for ~100 m of stream length at two different locations with no lower net. Species were identified as RB (instead of SST) based on spotting and faint jaw slashes, and location of the site. A Western Spotted frog tadpole was also caught at this site.
- C2 Reach 2 was observed at the road (Photo B2/#3). Although there was no defined channel, a sample site was performed and no fish were caugh (Photo B3/18).
- C3 ~860 m d/s from the road in Reach 2, the channel disappears into a wetland (shown on the map) and then reforms a channel at the other end where it exits the marsh. At the confluence with Th2.1, the average wetted width of the channel was 2.2 in. Although no fish were observed, the habitat is complex with potential for fish use. No barriers along the stream were observed.

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-141-TH -2.1-000-000-000-000-000-000

| Header Informa | tion | | | | | | | | | | | | | |
|---------------------------|------------|-----------------------------------|-----------|--------------|---------|-------------|-----------|-----|-----|----------------------|-------|----------------------|--------------------|----------|
| • | | RIBUTARY | | Stream "L | ocal": | TH2.1 | | | | | | Access: | | V2 |
| Watershed Code: 460 | -6006-508- | 141-TH -2.1-000-000-000-000-000-0 | 00 | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.9 Method: | ı: MW |
| Location: ~65 | m D/S FRO | OM ROAD CROSSING. | | Map#: | 093L024 | 1 | | | | Site No.: | 2 | Length surveyed (m) | : 65.0 Method: | I: HC |
| l | | | | U.T.M.; | 9.6056 | .60105 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/17/96 | Time: 15: | 30 Agency: C58 S | Survey Cr | ew: SSUH\ | 1111 | ١ ١ | | | | Photos: | B2/14 | Air Photos: | BCB 91 | 1179:100 |
| Channel Chara | cteristi | cs | | | - | Specific De | ua | | | Bed Material | | | | |
| Av. Chan. Width (m): | 1.1 | Method Av. Chan. Width (m): | T | 0.9 | 1.3 | 1.1 | 1.3 | 0.7 | 1.6 | % Fines (<2mm): | 100 | % Fines (<2mm): | • | 100 |
| Av. Wet. Width (m): | 1.0 | Method Av. Wet. Width (m): | T | 0.7 | 0.9 | 1.2 | 1.3 | 0.7 | 1.3 | % Gravels: | 0 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm): | 0 | Av. Max. Riffle Depth (cm): | MS | | | | | | | 70 Graveisi | ŭ | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm) | 27 | Av. Max. Pool Depth (cm): | 0 | | | | | | | 0.1 | 0 | • | | |
| Gradient (%): | 4.8 | | CL | | | | | | | % Larges: | 0 | Small cobble (64-128 | · | |
| % Pool: 100 % | RiMe: 0 | | | Method: | GE | | | | | | | Large cobble (128-2) | | |
| % Side Channel: | 0 | | GE | | | | | | | | | Boulder cobble (>25 | omm): | |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 0 | Compaction: | | High |
| Cover Total % : | 30 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L.O.D | : 15 | Boulder: 0 In Veg.: | 15 | Over Veg: | 50 | Cutbai | ık: | | 20 | Duning | | | | |
| Crown Closure %: | 20 | Method Crown Closure: | GE | Aspect : | SE | Metho | d Aspect: | : | AE | lleight (m): | 0.0 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: No L | arges: No Bedrock: | : No |
| Discharge | | | | | S | pecific Da | ta | | | Confinement: | 5 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | ~, | ,, | | | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Stage: | L | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0 | Method Flood Signs | : | GE |
| Discharge (m3/s): | 0.01 | Method Discharge (m3/s): | •0 | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m5/s) . | | Method Discharge (m3/s). | | Į | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | ptt: | 6.5 | Method pH: | | PH |
| | | | (Fish) | | | | | | | 02 (ppm)։ | | Method Dissolved C |)xygen: | |
| | | | NF | | | | | | | Water Temp. (°C): | 6.5 | Method Temperatu | re: | IC. |
| | | 1 B | 5,0 F | | | | | | | Turb. (cm); | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slo | pe) (B | ed Material) | | | | | | Cond. (µmhos): | | Method Conductivi | ty: | |

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-141-TH-2.1-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

Comments

C2

C1 Electrofished 65 m length of stream. No fish were caught.

At 50 m d/s from road culvert, there is no continuous channel. Flow is intermittent.

Obstructions

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-141-111-2.1-1-000-000-000-000-000-000

Header Information Stream Name: THAUTIL R. TRIBUTARY Stream "Local": TH2.1.1 V2 Access: Watershed Code: 460-6006-508-141-TH -2.1-.1 -000-000-000-000 Reach No.: Reach Length (km): 1.6 Method: мw Location: ~200 m D/S FROM TH2.1.1.1 CONFLUENCE 093L024 Site No.: Length surveyed (m): 540.0 Method: HC U.T.M.: 9,6056,60105 Fish Card: Yes Field: Historical: No Date: 9/13/96 Time: 13:00 Agency: C58 Survey Crew: SSUH\ \ \ \ \ \ Photos: B1/11, 13, 14 Air Photos: BCB 91179:100 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 1.6 Method Av. Chan. Width (m): T 1.7 1.5 1.6 2.0 1.3 1.7 % Fines (<2mm): % Fines (<2mm): 90 1.3 Method Av. Wet. Width (m); T 1.2 1.6 1.3 1.5 Av. Wet. Width (m): 1.0 1.1 % Gravels: Small (2-16mm): Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): MS Large (16-64mm): Av. Max. Pool Depth (cm): 10 Av. Max. Pool Depth (cm): % Larges: Small cobble (64-128mm): CL Gradient (%): 3.2 Method Gradient: Large cobble (128-256mm): % Pool: 70 % Riffle: 20 10 % Other: 0 Method: GE Boulder cobble (>256mm): % Side Channel: Method Side Channel: GE % Debris Area: >40 Method Debris Area: GE % Bedrock: % Bedrock: 0 D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks Dp Pool: 70 L.O.D.: Boulder: 10 In Veg.: Over Veg: Cutbank: Crown Closure %: Method Crown Closure: GE Method Aspect: Aspect: Height (m): 0 % Unstable: Textures Fines: Yes Gravel: No Larges: No Bedrock: No Discharge Confinement: Specific Data Valley: Chan. Ratio: 3 Wetted Width (m): Method Wetted Width (m): Stage: М Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): 0.15 Method Flood Signs: MS Mean Velocity (m/s): VO Method Mean Velocity (m/s Braided: Method Braided: GE Discharge (m3/s): 0.01 Method Discharge (m3/s): Bars (%): Method Bars: GE p**H**: Method pH: PH Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: (SP) Water Temp. (°C): Method Temperature: \mathbf{IC} 2 C 3.0 9100 Turb. (cm): 200 Method Turbidity GE (Width, Valley: Channel, Slope) (Bed Material) Cond. (µmhos): Method Conductivity:

26-Mar-9⁻

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-141-111-2.1-.1-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 Low gradient tributary with potentially good fish habitat. Much of the reach d/s from the Th2.1.1 Th2.1.1.1 confluence is marsh.
- C2 A Western Spotted frog was found in the sample site (Photos B1/13, 14).

26-Mar-9"

Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-141-TH -2.1-.1 -000-000-000-000-000

| Header Infor | matio | n | | | | | | | | - | _ | | | |
|-----------------------|----------|---------|----------------------------------|---------|-------------|---------|------------------|---|-----|----------------------|-----------|--|--------------|------------|
| Stream Name: | THAUTI | LRT | IBUTARY | | Stream "Lo | cal": | TH2.1.1 | | | | | Access: | | V 2 |
| Watershed Code: | 460-6006 | 5-508-1 | 41-TH -2.11 -000-000-000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.6 Method: | MW |
| Location: | ~80 m D/ | S FRO | M ROAD CROSSING. | | Map#: | 093L024 | ļ | | | Site No.: | 4 | Length surveyed (m): | 90.0 Method: | HC |
| | | | | | U.T.M. : | 9. 6056 | . 6010 5 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/17/96 | Time | : 15:0 | O Agency: C58 Sur | vey Cre | w: SSUH\ | 111 | \ \ | | | Photos: | B2/10, 11 | Air Photos: | BCB 911 | 179:100 |
| Channel Cha | ractei | ristic | es · | | | .5 | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m): | | 1.0 | Method Av. Chan. Width (m): | T | 1.2 | 1.3 | 1.2 0.7 | | 0.9 | % Fines (<2mm): | 75 | % Fines (<2mm): | | 75 |
| Av. Wet. Width (m): | | 0.8 | Method Av. Wet. Width (m): | T | 0.7 | 0.8 | | | | % Gravels: | 5 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (| cm): | 5 | Av. Max. Riffle Depth (cm): | MS | | | | | | " Olaveis. | , | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 25 | Av. Max. Pool Depth (cm): | 5 | | | | | - 1 | | 30 | | | |
| Gradient (%): | | 6.7 | Method Gradient: | CL | | | | | | % Larges: | 20 | Small cobble (64-128mm): Large cobble (128-256mm) | | |
| % Pool: 85 | % Riffl | | % Run: 0 % Other: | 0 | Method: | GE | | | | | | Boulder cobble (>256mm): | • | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | _ | | | |
| % Debris Area: | | >40 | Method Debris Area: | GE | | | | _ | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 8 | Compaction: | <u> </u> | High |
| Cover Total % : | | 90 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 30 L | O.D.: | 15 | Boulder: 5 In Veg.: | 45 | Over Veg: | 5 | Cutbank: | | 0 | Dunns | | | | |
| Crown Closure % : | | 50 | Method Crown Closure: | GE | Aspect : | SE | Method Aspect: | | ΑE | Height (m): | 0.2 | % Unstable: | | 0 |
| | | | | | | | <u> </u> | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | i | c. | pecific Data | | į | Confinement: | 2 | | | |
| | | | Made 1997 of 1997 ld. () | | | Sį | ресук даш | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | WO. | | | | | | Flood Signs Ht(nt): | 0.15 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | i | 0.01 | Method Mean Velocity (m/s | VO | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.01 | Method Discharge (m3/s): | | <u> </u> | | | | 1 | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | ρH: | 6.9 | Method pll: | | PH |
| | | | (| Fish) | | | | | | 02 (ppm): | | Method Dissolved Oxygen | | |
| | | | | NF | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | TC |
| | | | 1 B 7.0 | 712 | 0 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9"

Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-141-TH -2.1-.1 -000-000-000-000-000

| Stream/Valley Cro | oss-Section |
|-------------------|-------------|
|-------------------|-------------|

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

CI

Appeared to have useable habitat but no fish were present at sample site. Electrofished 35 m length of stream.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

interest of the second of the

Watershed Code:

Stream Survey Report

460-6006-508-141-TH -2.1- 1.-1 -000-000-000-000

| Header Inform | ation | | | | | | | | | | · · · · · · | | | |
|---|----------------------|--------------------------------|---------|---------------|-----------|-------------|-----------|-----|-----|----------------------|----------------|--------------------------|---------------|------------------|
| Stream Name: Th | AUTIL R. T | RIBUTARY | | Stream "Lo | ocal": | TH2.1. | 1.1 | | | | | Access: | | V2 |
| Watershed Code: 46 | 0-60 06-508 - | 141-TH -2.111 -000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.i Method: | MW |
| Location: ~160 m D/S FROM ROAD CROSSING | | | | Map #: | 093L024 | ; | | | | Site No.: | 5 | Length surveyed (m): | 140.0 Method: | HC |
| | | | | U.T.M.: | | | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/13/96 | Time: 12: | 00 Agency: C58 Sur | vey Cre | w: SSUH\ | 1 1 1 1 | \ \ | | | _ | Photos: | B1/10; B2/4, 5 | Air Photos: | BCB 911 | 1 79 :100 |
| Channel Chara | cteristi | cs | [| | S | Specific Da | ıta | | | Bed Material | | | | |
| Av. Chan. Width (m): | 1.2 | Method Av. Chan. Width (m): | Т | 1.2 | 0.8 | 0.8 | 1.9 | 1.5 | 1.1 | % Fines (<2mm): | 85 | % Fines (<2mm): | | 85 |
| Av. Wet. Width (m): | 0.7 | Method Av. Wet. Width (m): | т | 0.9 | 0.5 | 0.6 | 0.7 | 1.1 | Ì | % Gravels: | 10 | Smalt (2-16mm): | | |
| Av. Max. Rif. Depth (cm) | : 9 | Av. Max. Riffle Depth (cm): | MS | | | | | | | % Graveis: | 10 | , | | |
| Av. Max. Pool Depth (cm |): 18 | Av. Max. Pool Depth (cm); | 9 | | | | | | | | | Large (16-64mm): | | |
| Gradient (%): | 5.5 | Method Gradient: | CL | | | | | | , | % Larges: | 5 | Small cobble (64-128mm): | | |
| % Pool: 50 % | RiMe: 50 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm) | | |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | |
| % Debris Area: | >40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 2 | Compaction: | | High |
| Cover Total % : | 70 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 L.O.I | .: 25 | Boulder: 0 In Veg.: | 0 | Over Veg: | 60 | Cutbar | ık: | | 5 | Dunns | | | | |
| Crown Closure %: | 35 | Method Crown Closure: | GE | Aspect : | SE | Method | d Aspect: | | AE | Height (m): | 0.3 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | Specific Data | | | | | | Confinement: | 5 | | | |
| Wetted Width (m): | | Method Wetted Width (m) : | } | | | pergit Dai | | | i | Valley: Chan. Ratio: | 3 | | | |
| ` ' | | ` , | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | vo | | | | | | | Flood Signs IIt(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.01 | Method Mean Velocity (m/s | VU | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0 .01 | Method Discharge (m3/s) : | _ | | <u></u> . | | ; | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pH; | 6.9 | Method pll: | | PH |
| (FISN) | | | | | | | | | | 02 (բթու)։ | | Method Dissolved Oxygen | : | |
| | | | NF | | | | | | | Water Temp. (°C): | 8.0 | Method Temperature: | | TC |
| | | 1 C 6.0 | 8110 |) | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope |) (Bed | l Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-141-TH -2.1-.1.-1 -000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

Comments

C1 Tributary was sampled above the road. Electrofished 65 m length of stream. No catch.

C2 Potentially good habitat for fry but limited habitat for parr.

Obstructions

26-Mar-9"

Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-141-TH -2.1-.1.-2 -000-000-000-000

| Header Info | rmatio | n | | | · | | | | | | | | | | | |
|---|---------|-----------------------------|-------------------------------|---------------|---------------|-----------------|---------|-----------|----------------------|----------------|--------------------|----------------------|-------------------------|---------------|---------|--|
| Stream Name: | | | IBUTARY | | Stream "Lo | cal": | TH2.1.1 | 1.2 | | | | | Access: | | V2 | |
| Watershed Code: | 460-600 | 6-508-1 | 41-TH -2.112 -000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.5 Method: | MW | |
| Location: -40 m D/S FROM ROAD CROSSING. | | | | | Map #: | 093 L024 | | | | | Site No.: | 6 | Length surveyed (m): | 50.0 Method: | HC | |
| | | | | | U.T.M. ; | | | | | | Fish Card: | N | Field: Yes | Historical: | No | |
| Date: 9/17/96 | Time | e: 14:3 | 0 Agency: C58 Sur | vey Cre | w: SSUH\ \ | 111 | ۱ ۱ | | | | Photos: | B2/6, 9 | Air Photos: | BCB 911 | 179:100 | |
| Channel Characteristics | | | | | Specific Data | | | | | | Bed Material | | | | | |
| Av. Chan. Width (m) | : | 1.5 | Method Av. Chan. Width (m): | T | 1.3 | 1.6 | 1.0 | 1.8 | 1.2 | 2.2 | % Fines (<2mm): | 90 | % Fines (<2mm): | | 90 | |
| Av. Wet. Width (m): | | 1.4 | Method Av. Wet. Width (m): | T | 1.3 | 1.0 | 1.0 | 1.8 | 1.2 | 2.2 | % Gravels: | 10 | Small (2-16mm): | | | |
| Av. Max. Rif. Depth (cm): 3 Av. Max. Riffle Depth | | Av. Max. Riffle Depth (cm): | MS | 1 | | | | | | | | Large (16-64mm): | | | | |
| Av. Max. Pool Depth | (cm): | 26 | Av. Max. Pool Depth (cm): | 3 | | | | | | | 9/ 1 | 0 | Small cobble (64-128mm) | | | |
| Gradient (%): | | 8.3 | Method Gradient: | CL | | | | | | | % Larges: | U | Large cobble (128-256mr | | | |
| % Pool: 75 | % RiM | | % Run: 0 % Other: | 0 | Method: | GE | | | | | ľ | | Boulder cobble (>256mm | | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | · | <i>,</i> . | | |
| % Debris Area: | | >40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 | |
| Cover | | | | | | | | | | - | D90 (cm): | | Compaction: | | High | |
| Cover Total %: | | 75 | Method Cover Total %: | GE | | | | | | | Banks | | | | | |
| Dp Pool: 25 L | .O.D.: | 20 | Boulder: 0 In Veg.: | 25 | Over Veg: | 25 | Cutbar | ık: | | 5 | Bunns | | | | | |
| Crown Closure %: | | 20 | Method Crown Closure: | GE | Aspect : | SE | Method | d Aspect: | | ΑE | Height (m): | 0.2 | % Unstable: | | O | |
| | | | | | | | —— | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No | |
| Discharge | | | | Specific Data | | | | | | Confinement: | 2 | | | | | |
| | | | эресук оши | | | | | | Valley: Chan. Ratio; | 2 | | | | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | VO. | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS | |
| Mean Velocity (m/s) | : | 0.01 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE | |
| Discharge (m3/s) : | | 0.01 | Method Discharge (m3/s): | | <u> </u> | | | | | | Bars (%): | 0 | Method Bars: | | GE | |
| Reach Symbol | | | | | | | | | | pH: | 8.0 | Method pl1: | | PH | | |
| (Fish) | | | | | | | | | | | 02 (թթա)։ | | Method Dissolved Oxygo | n: | | |
| | | | | NF | | | | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | 10 | |
| 1 | | | 2 B 8.0 | 910 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | Gb: | |
| (Width, Valley: Channel, Slope) (Be | | | | d Material) | | | | | | Cond. (µmbos): | 0 | Method Conductivity: | | | | |

26-Mar-9~

Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-141-TH -2.1-1.2 -000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

Comments

CI

The sample site was 50 m long. No fish were caught.

Obstructions

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-T11-3 -000-000-000-000-000-000

Header Information THAUTIL R. TRIBUTARY Stream "Local": Stream Name: TH3 V2 Access: Watershed Code: 460-6006-508-TH -3 -000-000-000-000-000-000 Reach No .: Reach Length (km): 0.4 Method: MW 093L024 TOP OF REACH 1, ~200 in U/S FROM TH3 MOUTH. Map#: Site No .: HC Location: Length surveyed (m): 200.0 Method: U.T.M.: 9.6058 .60109 Fish Card: Field: Yes Historical: No Time: 17:00 Agency: C58 Survey Crew: JH\S\$\\\\\\\\ Date: 9/13/96 Photos: B1/17, 18 Air Photos: BCB 91179:100 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 0.4 Method Av. Chan. Width (m): T 0.3 0.2 0.0 0.6 0.5 0.6 % Fines (<2mm): % Fines (<2mm): 100 T 0.3 0.2 0.6 0.5 Av. Wet. Width (m): Method Av. Wet. Width (m): 0.0 0.6 % Gravels: Small (2-16mm): Av. Max. Rif. Depth (cm): 5 Av. Max. Riffle Depth (cm): MS Large (16-64mm): Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 5 Small cobble (64-128mm): % Larges: 0.5 Method Gradient: CLGradient (%): Large cobble (128-256mm): 0 % Pool: 18 % Riffle: 2 80 % Other: Method: GE Boulder cobble (>256mm): % Side Channel: GE Method Side Channel: % Debris Area: 20 Method Debris Area: GE % Bedrock: % Bedrock: 0 D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks 30 Dp Pool: 5 L.O.D.: Boulder: In Veg.: 10 Over Veg: 45 Cutbank: Crown Closure %: GE SE Method Crown Closure: Aspect: Method Aspect: ΑE 0 Height (m): 0.2 % Unstable: Textures Fines: Larges: No Bedrock: No Discharge Confinement: Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): М Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): Method Flood Signs: MS Method Mean Velocity (m/s vo Mean Velocity (m/s): Braided: Method Braided: GE Discharge (m3/s): Method Discharge (m3/s): Bars (%): Method Bars: GE Reach Symbol pH: 7.6 Method pH: PH (Fish) 02 (ppm): Method Dissolved Oxygen: (SP) Water Temp. (°C): TC 7.0 Method Temperature: 0 D 0.5 Turb. (cm): 200 Method Turbidity: GE (Width, Valley: Channel, Slope) (Bed Material) Method Conductivity: Cond. (µmhos):

Stream: THAUTIL R. TRIBUTARY 2"-Mar-9"

Stream Survey Report 460-6006-508-111 -3 -000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

Comments

C2

Channel is lost in grass/alder wetland for most of Reach 1 in the lower section. The tributary is very small, the channel is discontinuous, and it is suspected that it contains no fish CI habitat. (No fish were observed.)

Reach 2 is ~0.5 km long. The tributary emerges as a seepage from the base of a 25% slope. No channel is present in the gully above.

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-TII - 3 - 000-000-000-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | | |
|---------------------|----------------|--|----------------|-----------|---------------|---------|----------|----------------------|-----------|------------------------|-----------------|------------|
| Stream Name: | THAUTIL R. | TRIBUTARY | Stream "Local | l": T | Н3 | | | | | Access: | | V 2 |
| Watershed Code: | 460-6006-508- | TH -3 -000-000-000-000-000-000 | | | | | R | leach No.: | 3 | Reach Length (km): | 0.9 Method: | MW |
| Location: | ~40 m D/S FR | OM ROAD CULVERT. | Map#: 09 | 3L024 | | | Si | ite No.: | 2 | Length surveyed (m): | 60.0 Method: | : HC |
| | | | U.T.M.: 9. | 6058 .601 | 09 | | F | ish Card: | N | Field: Yes | Historical: | No |
| Date: 9/17/96 | Time: 16 | 00 Agency: C58 Survey | Crew: JH\SS\\\ | 1111 | | | P | hotes: | B2/15, 16 | Air Photos: | BCB 911 | 179:100 |
| Channel Ch | aracterist | ics | | Speci | fic Data | | | Bed Material | | | | |
| Av. Chan. Width (m) | : 1.4 | Method Av. Chan. Width (m): | T 1.7 | 1.6 | .9 0.9 | 1.2 1.9 | 9 % | 6 Fines (<2mm): | 100 | % Fines (<2mm): | | 100 |
| Av. Wet. Width (m): | 0.0 | Method Av. Wet. Width (m): | E | | | | ∥, | % Gravels: | 0 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (c m): | Av. Max. Riffle Depth (cm): | | | | | | | | Large (16-64mm): | | |
| Av. Max. Pool Depth | (c m): | Av. Max. Pool Depth (cm): | | | | | . | ∕₀ Larges: | 0 | Small cobble (64-128mm | ۸۰ | |
| Gradient (%): | 2.3 | | | | | | ' | o Larges. | Ū | Large cobble (128-256m | | |
| % Pool: 0 | % Riffle: | | 0 Method: GI | E | | | - 1 | | | Boulder cobble (>256mr | | |
| % Side Channel: | (| | | | | | - 1. | | • | | | 0 |
| % Debris Area: | 10 | Method Debris Area: | E | <u> </u> | | | ~ | % Bedrock: | 0 | % Bedrock: | | |
| Cover | | | | | | | | D90 (cm): | 0 | Compaction: | | High |
| Cover Total %: | 15 | Method Cover Total %: | E | | | | | Banks | | | | |
| Dp Pool: 0 I | O.D.: 30 | Boulder: 0 In Veg.: | Over Veg: | 70 C | Cutbank: | | 0 | | | | | |
| Crown Closure %: | 20 | Method Crown Closure: | E Aspect: | E N | 1ethod Aspect | : | AE | Height (m): | 0.2 | % Unstable: | | 0 |
| | | | | | | | \dashv | Textures Fines: | Yes | Gravel: No Large | es: No Bedrock: | : No |
| Discharge | | | 1 | Specia | ic Data | | | Confinement: | 2 | | | |
| | | But at a d Stranger d Stranger (make | | Dpcc., | | | Ш | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | Stage: | Dry | | | |
| Mean Depth (m): | | Method Mean Depth (m): | 0 | | | | | Flood Signs Ht(m): | 0.15 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | The state of the s | 0 | | | | - 11 | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0.00 | Method Discharge (m3/s) : | | <u> </u> | <u> </u> | | | Bars (%): | | Method Bars: | | GE |
| Reach Symb | ool | | | | | | 1 | pH: | | Method pH: | | |
| | • | (Fis | • | | | | } | 02 (ppm): | | Method Dissolved Oxyg | en: | |
| ĺ | | NI | | | | | | Water Temp. (°C): | | Method Temperature: | | |
| | | 1 B 2.3 | F | | | | 1 | Turb. (cm): | 200 | Method Turbidity: | | GE |
| ì | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Stream Survey Report

460-6006-508-TH -3 -000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- Cl Channel has no flow with pockets of stagnant water for the first 40 m d/s from the road culvert. Channel goes subsurface between 40 60 m d/s of culvert. Above 60 m there is some evidence of a channel but it is discontinuous.
- C2 Sample site is the first 40 in of stream going d/s from the culvert. No fish were caught.

26-Mar-9^

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-174-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | |
|---------------------|----------|--------|---|---------|-------------|---------|---------------|-----|-------|----------------------|-----------|--------------------------|---------------|---------|
| Stream Name: | THAUTI | LR. TI | RIBUTARY | | Stream "L | ocal": | TH4 | | | | | Access: | | V2 |
| Watershed Code: | 460-6006 | -508-1 | 74-000-000-000-000-000-000-000 | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.6 Method: | MW |
| Location: | LOCATE | D ~20 | 0 m D/S FROM CONFLUENCE WITH | TH4.3 | Мар #: | 093L024 | ı | | | Site No.: | 1 | Length surveyed (m): | 300.0 Method: | HC |
| | | | | | U.T.M.: | 9.6061 | .60117 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/13/96 | Time | : 10:0 | O Agency: C58 Sur | vey Cre | w: CP\RD\ | 1 1 1 1 | \ \ | | | Photos: | A1/14, 15 | Air Photos: | BCB 91 | 179:220 |
| Channel Ch | aractei | ristic | es | į | | | Specific Data | · | | Bed Material | | | | |
| Av. Chan. Width (m |): | 7.1 | Method Av. Chan. Width (m): | Т | 6.8 | 6.9 | 6.9 7.5 | 7.2 | | % Fines (<2mm): | 15 | % Fines (<2mm): | | 15 |
| Av. Wet. Width (m): | | 4.7 | Method Av. Wet. Width (m): | T | 1 | | | | ij | % Gravels: | 45 | Small (2-16mm): | | 15 |
| Av. Max. Rif. Depth | (cm): | 15 | Av. Max. Riffle Depth (cm): | MS | | | | | | / Glavels. | 43 | Large (16-64mm): | | 30 |
| Av. Max. Pool Depth | (cm): | 45 | Av. Max. Pool Depth (cm): | 15 | | | | | ∭ | | | | | |
| Gradient (%): | | 1.5 | Method Gradient: | CL | | | | | | % Larges: | 40 | Small cobble (64-128mm): | | 40 |
| % Pooi: 35 | % Riffle | : 30 | % Run: 35 % Other: | 0 | Method: | GE | | | ļ | | | Large cobble (128-256mm | | 0 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | ļ | | | Boulder cobble (>256mm) | | 0 |
| % Debris Area: | 10 | | Method Debris Area: | GE | | | | | - 1 | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | - 11 | Compaction: | | High |
| Cover Total %: | | 75 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 20 L | O,D.; | 10 | Boulder: 20 In Veg.: | 0 | Over Veg: | 25 | Cutbank: | | 25 | Dunks | | | | |
| Crown Closure % : | | | Method Crown Closure: | | Aspect: | sw | Method Aspe | ct: | AE | Height (m): | 2.0 | % Unstable: | | 0 |
| | | | | | | | | | { | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | 1 | c | pecific Data | | | Confinement: | 3 | | | |
| J | | | No. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | | , | pecyte Data | | - { } | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | Stage: | M | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | VO | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | 0.44 | Method Mean Velocity (m/s | vo | | | | | - }} | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.64 | Method Discharge (m3/s): | | <u> </u> | | | | _ } | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symb | ool | | | | | | | | ł | pli: | 8.2 | Method pH: | | PH |
| | | | | Fish) | | | | | | 02 (ppm); | | Method Dissolved Oxyger | : | |
| | | | SP (I | DV) (BT | ·) | | | | | Water Temp. (°C): | 8.0 | Method Temperature: | | IC |
| | | | 7 B 1.5 | 2440 |) | | | | - { | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) |) (Bed | l Material) | | | | ł | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-174-000-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | | | J | R | S | | vo |
| BT | | | j | R | M | | VO |

Obstructions

- A sample site was not performed at this site. See trap data u/s. Good habitat for rearing juveniles was present at this site. It is also possible that this could be a coho stream despite very little off-channel habitat.
- C2 This tributary has the potential to move debris.
- C3 Areas of gravels for spawning were present but the majority of the bed material was too large for spawning (cobble).

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-174-000-000-000-000-000-000-000

| Header Info | rmatio | on | | | | | | | | | | | | |
|--|----------------------|------------|--|------------|-------------|------|----------------|-----|-------|----------------------|-----------|-------------------------|----------------|---------|
| Stream Name: | THAUT | ILR. T | RIBUTARY | Str | eam "Local" | ٠: | TH4 | | | | | Access: | | V 2 |
| Watershed Code: | 460- 6 00 | 6-508- | 74-000-000-000-000-000-000-000 | | | | | | R | leach No.: | 3 | Reach Length (km): | 1.4 Method: | MW |
| Location: | LOCAT | ED JUS | T BELOW THE BRIDGE CROSSING | Ma | p#: 093 | L024 | | | Si | ite No.: | 2 | Length surveyed (m): | 1400.0 Method: | HC |
| | | | | U.1 | г.м. : 9.6 | 061 | .60117 | | F | ish Card: | N | Field: Yes | Historical: | No |
| Date: 9/13/96 | Tim | e: 12: | O Agency: C58 Surv | ey Crew: C | P\RD\\\ | 1.1 | 1 1 | | P | hotos: | A1/12, 13 | Air Photos: | BCB 91 | 179:220 |
| Channel Ch | aracte | risti | cs | į | | S | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m | | 4.1 | Method Av. Chan. Width (m): | T | 3.5 4. | .3 | 4.3 4.5 | 4.1 | % | 6 Fines (<2mm): | 0 | % Fines (<2mm): | | 0 |
| Av. Wet. Width (m): | | 3.6 | Method Av. Wet. Width (m): | T MS | | | | | % | 6 Gravels: | 20 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth Av. Max. Pool Depth | | 16 40 | Av. Max. Riffle Depth (cm): Av. Max. Pool Depth (cm): | 16 | | | | | - } } | | | Large (16-64mm): | | 10 |
| Av. Max. Fool Depti Gradient (%): | (Cm). | 5.0 | Method Gradient: | CL | | | | | ା , | % Larges: | 80 | Small cobble (64-128mm |): | 35 |
| % Pool: 25 | % Riff | | % Run; 10 % Other: | | dethod: GE | | | |) | | | Large cobble (128-256m) | m): | 40 |
| % Side Channel: | / , | 0 | Method Side Channel: | GE | remod. GE | | | | ļ | | | Boulder cobble (>256mm | 1): | 5 |
| % Debris Area: | 15 | | Method Debris Area: | GE | | | | | ١, | ∕₀ Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | - | | - r |)90 (cm): | 23 | Compaction: | | Medium |
| Cover Total % : | | 7 5 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 10 I | O.D.: | 20 | Boulder: 60 In Veg.: | 0 Ov | er Veg: | 10 | Cutbank: | 1 | 0 | Dunns | | | | |
| Crown Closure %: | | | Method Crown Closure: | As | pect : | sw | Method Aspect: | A | (E | Height (m): | 1.0 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Large | s: No Bedrock: | No |
| Discharge | | | | i | | c. | pecific Data | | | Confinement: | 2 | | | |
| _ | | | Man d Wanad Widd (a) | ĺ | | Sį | ecyte Data | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | 1 | | | | | - 11 | Stage: | М | | | |
| Mean Depth (m): Mean Velocity (m/s) | | | Method Mean Depth (m): Method Mean Velocity (m/s | vo | | | | | П | Flood Signs 11t(m): | 0.4 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | • | 0.35 | Method Discharge (m3/s): | V O | | | | | Ш | Braided: | N | Method Braided: | | GE |
| | | | | | | | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | - [| pll: | 8.2 | Method pH: | | PH |
| | • | | · | Fish) | | | | | l l | 02 (ppm): | | Method Dissolved Oxyg | en: | |
| | | | | DV | | _ | | | 1 | Water Temp. (°C): | 8.0 | Method Temperature: | | 1C |
| | | | 4 A 5.0 | 0280 | | | | | ļ | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed Ma | terial) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-174-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

| ľ | Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 Use 3 | Method/Reference |
|---|---------|--------|-----------------|------------|-------|-------------|------------------|
| Е |)V | 6 | 79 - 127 | J | R | | MT |
| Ĺ | ν | 2 | 130 - 143 | A | S | | MT |

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|----------|----------|
| 1 | <u> </u> | 2.3 |
| 1 | X | 2.4 |
| 1 | X | 3.3 |

- C1 The adult DV's which were caught were spawned-out males. Spawning habitat appears to be present but limited.
- C2 Th4 is a large and dynamic creek with potential to move debris. Large amounts of debris were present in the channel and overstory brush (alder swales) was abundant.
- C3 Several drops over debris were observed above the road: 1 m X at ~100 m u/s from road; 0.6 m X every 50 -100 m u/s; 1.1 m X at ~1015 m d/s from road. All drops would be passable during high flows.
- C4 A juvenile DV was observed at 120 in u/s from the road. Another juvenile DV was observed ~1100 m u/s from the road.
- C5 Suspect Th4 is accessible to fish up to the reach break between Reach 3 and Reach 4. The gradient is 15 18% in Reach 4.

26-Mar-9"

Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report

| Header Info | rmatic | on | | | | | | | | | | | | | |
|---------------------|---------|----------------|---------------------------------|--------|-------------|---------|------------|----------|-----|-----|----------------------|---------|--------------------------|---------------|---------|
| Stream Name: | THAUT | IL R TF | IBUTARY | | Stream "Lo | cal": | TH4.1 | | | | | | Access: | | V2 |
| Watershed Code: | 460-600 | 6-508-1 | 74-044-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 3.2 Method: | MW |
| Location: | LOCAT | ED ~10 | m BELOW ROAD CROSSING. | | Map#: | 093L024 |) | | | | Site No.: | 3 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | U.T.M. : | 9.6063 | .60118 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/13/96 | Tim | e: 11:0 | 0 Agency: C58 Surv | ey Cre | w: CP\RD\ | 1 1 1 1 | 1.1 | | | | Photos: | A1/7, 8 | Air Photos: | BCB 911 | 179:220 |
| Channel Ch | aracte | ristic | es | | | S | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m | ı): | 1.5 | Method Av. Chan. Width (m): | T | 1.6 | 1.5 | 1.1 | 1.5 | 1.6 | 1.5 | % Fines (<2mm): | 25 | % Fines (<2mm): | | 25 |
| Av. Wet. Width (m) | : | 1.5 | Method Av. Wet. Width (m): | T | 1.6 | 1.5 | 1.1 | 1.5 | 1.6 | 1.5 | % Gravels: | 55 | Small (2-16mm): | | 25 |
| Av. Max. Rif. Depth | (cm): | 10 | Av. Max. Riffle Depth (cm); | MS | | | | | | | /• Graveis: | ,, | Large (16-64mm): | | 30 |
| Av. Max. Pool Depti | h (cm): | 35 | Av. Max. Pool Depth (cm): | 10 | | | | | | | | | | | |
| Gradient (%): | | 5.0 | Method Gradient: | CL | ' | | | | | • | % Larges: | 20 | Small cobble (64-128mm): | | 20 |
| % Paol: 30 | % Riff | 1e: 30 | % Run: 40 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm) | : | 0 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | ļ | | Boulder cobble (>256mm): | | υ |
| % Debris Area: | 15 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 7 | Compaction: | | High |
| Cover Total %: | | 60 | Method Cover Total %: | GE | | | | | | | Banks | | = | | |
| Dp Pool: 30 I | L,O.D.: | 10 | Boulder: 10 In Veg.: | 0 | Over Veg: | 20 | Cutba | nk: | | 30 | Bunks | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect : | w | Metho | d Aspect | : | ΑE | Height (m): | 0.5 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | Νι |
| Discharge | | | | | | | pecific Da | | | | Confinement: | 2 | | | |
| _ | | | | | į | S | pecijic Da | 11a | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | ! | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) |): | 0.00 | Method Mean Velocity (m/s | vo | İ | | | | | | Braided: | N | Method Braided: | | GĿ |
| Discharge (m3/s) : | | 0.08 | Method Discharge (m3/s) ; | | | | | _ | | | Bars (%): | 0 | Method Bars: | | GE: |
| Reach Symb | hal | | | | | - | _ | | | | pH: | 8.4 | Method pH: | | PH |
| Syllie Syllie | · • • | | (1 | ish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxygen | | |
| | | | | DV | | | | | | | Water Temp. (°C): | 8.0 | Method Temperature: | | 10 |
| | | | 2 A 5.0 | 3520 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GF |
| 1 | | | (Width, Valley: Channel, Slope) | (Bed | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9"

Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-174-044-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm)_ | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|------------------|------------|-------|-------|-------|------------------|
| DV | 13 | 82 - 123 | J | R | | | MT |

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| | CV | 2.2 |

- C1 Set 2 minnow traps u/s from culvert and 3 traps d/s from culvert. Observed DV while setting the traps.
- C2 Tributary is a small stable system. Heavily overgrown alder swales cover the creek and LOD is present across the channel.
- C3 Sections suitable for DV spawning are present.
- C4 Culvert at road has a 15 cm drop at the mouth with dimensions of 1 m in diameter x 12 m in length. Estimate of 5% slope in culvert and is bent in the middle. May be passable to juveniles but suspect not to fry. (Photo A1/#6)

26-Mar-9"

Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-174-044-000-000-000-000-000-000

| Header Info | rmation | _ | | - | | | _ | | | | | | - | |
|---------------------|----------------|-------|------------------------------------|--------------|---------|-------------|-----------|-----|-----|----------------------|-----------|------------------------------------|----------------|---------|
| Stream Name: | THAUTIL | R TR | BUTARY | Stream "L | ecal": | TH4.1 | | | | | | Access: | | V2 |
| Watershed Code: | 460-6006-5 | 08-17 | 4-044-000-000-000-000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 3.2 Method: | MW |
| Location: | LOCATED | ~400 | m U/S FROM ROAD CROSSING. | Map #: | 093L024 | ļ | | | | Site No.: | 4 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | U.T.M. : | 9.6063 | .60118 | | | | Fish Card: | N | Field: Yes | Historical: | Nο |
| Date: 9/23/96 | Time: | 10:00 | Agency: C58 Survey Ci | ew: CP\RD\ | 1111 | . 1 1 | | | | Photos: | A5/10, 11 | Air Photos: | BCB 911 | 179:220 |
| Channel Ch | aracteri | stic | 5 | 1 | | Specific Da | ta . | | | Bed Material | | - | | - |
| Av. Chan. Width (m) |): | 1.8 | Method Av. Chan. Width (m): | 1.8 | 1.5 | 2.5 | 2.9 | 1.0 | 1.3 | % Fines (<2mm): | 15 | % Fines (<2mm): | | 15 |
| Av. Wet. Width (m): | | 1.8 | Method Av. Wet. Width (m): | 1.8 | 1.5 | 2.5 | 2.9 | 1.0 | 1.3 | % Gravels: | 50 | Small (2-16mm): | | 20 |
| Av. Max. Rif. Depth | (cm): | 5 | Av. Max. Riffle Depth (cm): MS | | | | | | | 7. Graveis: | 20 | Sman (2-10mm): Large (16-64mm): | | 30 |
| Av. Max. Pool Depth | (cm): | 20 | Av. Max. Pool Depth (cm): 5 | | | | | | Ì | { | | , | | |
| Gradient (%): | | 1.5 | Method Gradient: CL | ' | | | | | ' | % Larges; | 35 | Small cobble (64-128mm | | 35 |
| % Pool: 30 | % Riffle: | 40 | % Run: 30 % Other: 0 | Method: | GE | | | | | | | Large cobble (128-256m) | | 0 |
| % Side Channel: | (| -10 | Method Side Channel: GE | | | | | | | | | Boulder cobble (>256mm | ı): | U |
| % Debris Area: | 30 | | Method Debris Area: GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 11 | Compaction: | N | Medium |
| Cover Total % : | | 70 | Method Cover Total %: GE | | | | | | | Banks | | | | |
| | O. D .: | 40 | Boulder: 0 In Veg.: 0 | Over Veg: | 0 | Cutban | k: | | 30 | Danks | | | | |
| Crown Closure %: | | | Method Crown Closure: | Aspect : | w | Method | l Aspect: | | AE | Height (m): | 0.9 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Large | s: No Bedrock: | No |
| Discharge | | | | : | | | | | 1 | Confinement: | 4 | • | | |
| | | | | | Sį | pecific Dat | a | | İ | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m); | | | | | | | Stage: | Į, | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s VO | | | | | | | Braided: | N | Method Braided: | | Gb. |
| Discharge (m3/s) : | 0 | 07 | Method Discharge (m3/s): | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | pti: | | Method pH: | | |
| Reach Byllio | . | | (Fish) | | | | | | | 02 (բթա)։ | | Method Dissolved Oxygo | en: | |
| | | | (DV) | | | | | | | Water Temp. (°C): | 3.0 | Method Temperature: | | rc |
| | | | 2 C 1.5 25 | 40 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) (B | ed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9" Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C2

Small, stable creek. Survey was performed above the road to show habitat characteristics: good habitat above the road, fish access at higher flows, and areas of good DV resident spawning are present. Site was not sampled but suspect DV are present due to their presence at site 3 below the road. Classed as S3 habitat to the top of R1.

Upper extent of potential fish habitat was observed by helicopter; there appeared to be easy access on Th4.1 to at least the Th4.1.2 confluence.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-174-044-111-4.1-.1-000-000-000-000

| Header Info | rmation | ! | | | | | | | | | | | |
|-----------------------------|------------|-----------|--|----------|-------------|-------|----------------|----|----------------------|-----------|---------------------------|--------------|---------|
| Stream Name: | THAUTIL | R. TR | IBUTARY | | Stream "Lo | cal"; | TH4.1.1 | | | | Access: | | FT |
| Watershed Code: | 460-6006- | 508-17 | 74-044-TH -4.11 -000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 1.7 Method: | MW |
| Location: | LOCATED | IN R | 1 ~240 m D/S FROM ROAD. | | Map #: | 093L0 | 24 | | Site No.: | 5 | Length surveyed (m): | 00.0 Method: | HC |
| | | | | | U.T.M.: | 9.607 | 3 .60112 | | Fish Card: | N | Field: Yes | listorical: | No |
| Date: 9/17/96 | Time: | 17:00 | Agency: C58 Sur | vey Cre | w: CP\RD\ | 1-1-1 | 1 1 1 | | Photos: | A2/12, 13 | Air Photos: | BCB 911 | 179:220 |
| Channel Ch | aracteri | stic | s | | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m) |): | 0.4 | Method Av. Chan. Width (m): | T | | | | | % Fines (<2mm): | 95 | % Fines (<2mm): | | 95 |
| Av. Wet. Width (m): | , | 0.4 | Method Av. Wet. Width (m): | T | | | | | % Gravels: | 5 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | | 2 | Av. Max. Riffle Depth (cm): | MS | | | | | | | Large (16-64mm): | | U |
| Av. Max. Pool Depth | (cm): | 18 3.5 | Av. Max. Pool Depth (cm): Method Gradient: | 2 CL | | | | | % Larges: | 0 | Small cobble (64-128mm): | | 0 |
| Gradient (%): % Pool: 40 | % Riffle: | | % Run: 40 % Other: | | Method: | GE. | | | • | | Large cobble (128-256mm): | | U |
| % Fooi: 40 % Side Channel: | 76 Killie. | 0 | Method Side Channel: | GE | Method. | OE. | | | | | Boulder cobble (>256mm); | | 0 |
| % Debris Area: | 35 | Ů | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| 70 Debits Area. | | | | | | | | | | _ | | | |
| Cover | | | | | | | | | D90 (cm): | | Compaction: | | Medium |
| Cover Total %: | | 50 | Method Cover Total %: | GE | | | | | Banks | | | | |
| [· | O.D.: | 50 | Boulder: 0 In Veg.: | 0 | Over Veg: | 0 | Cutbank: | 30 | | | | | |
| Crown Closure % : | | | Method Crown Closure: | | Aspect : | W | Method Aspect: | AE | Height (m): | 0.4 | % Unstable: | | U |
| | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | | | Specific Data | 1 | Confinement: | 4 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | - | Valley; Chan. Ratio: | 3 | | | |
| Mean Depth (m) : | | | Method Mean Depth (m): | | | | | | Stage: | М | | | |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s | vo | | | | İ | Flood Signs Ht(m): | | Method Flood Signs: | | Gl: |
| Discharge (m3/s): | 0 | .01 | Method Discharge (m3/s): | | | | | | Braided: | N | Method Braided: | | GE |
| | | | - | | l | | • | | Bars (%): | 0 | Method Bars: | | Gl |
| Reach Symb | ol | | | (Fish) | | | | | pH: | 6.6 | Method pH: | | PH |
| | | | ' | NS NS | | | | | 02 (ppm); | | Method Dissolved Oxygen: | | |
| | | | | | | | | | Water Temp. (°C): | 6.5 | Method Temperature: | | IC. |
| | | | 0 C 4.0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | Gh: |
| 1 | | | (Width, Valley: Channel, Slope | (Bed | l Material) | | | | Cond. (μmhos): | | Method Conductivity: | | |

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-174-044-TH -4.1-.1 -000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction IIt(ni) | Туре | Location |
|---------------------|------|----------|
| 0 | Х | 0.1 |

- Trickle flow in tributary with no well defined banks. Too small to electrofish or trap so no sampling was performed. Suspect fish use in the lower 50 100 m of stream. Tributary is very small u/s of 100 m.
- C2 40 cm drop is over a stop log ~50 m u/s from mouth.
- C3 Bed inaterial consists primarily of silt and sand. No potential spawning areas were observed.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-174-TH -4 2-000-000-000-000-000

| Header Infor | mation | | | | | | | | | | |
|-------------------------------|------------------|-----------------------------------|----------------|---------------|-------------------|-------------|----------------------|---------|--------------------------|---------------|---------|
| Stream Name: | THAUTIL R | TRIBUTARY | Stream " | Local": | TH4.2 | | | | Access: | | V2 |
| Watershed Code: | 460-6006-50 | 8-174-TH -4.2-000-000-000-000-000 | | | | | Reach No.: | 2 | Reach Length (km): | 1.2 Method: | MW |
| Location: | LOCATED | N R2 ~250 m D/S FROM ROAD. | Map #: | 093L024 | 1 | | Site No.: | 6 | Length surveyed (m): | 300.0 Method: | HC |
| | | | U.T.M. : | 9.6073 | .60112 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/17/96 | Time: | 1:30 Agency: C58 Surve | Crew: CP\RD | 1111 | . \ \ | | Photos: | A2/6, 7 | Air Photos: | BCB 911 | 179:220 |
| Channel Cha | ıracteris | tics | | | Specific Data |] | Bed Material | | | | |
| Av. Chan. Width (m): | | 2 Method Av. Chan. Width (m): | Т | | | | % Fines (<2mm): | 80 | % Fines (<2mm): | | 80 |
| Av. Wet. Width (m): | | 2 Method Av. Wet. Width (m): | T | | | | % Gravels: | 20 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth (| | • • • | IS | | | | | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth | | 0 Av. Max. Pool Depth (cm): | 2 | | | | % Larges: | 0 | Small cobble (64-128mm): | | 0 |
| Gradient (%): | ı. "% Riffle: | | CL O Method | L CE | | | / g | - | Large cobble (128-256mm) | | 0 |
| % Pool: 20 % Side Channel: | % Kille; 0- | | iE | i: GE | | | | | Boulder cobble (>256mm): | | 0 |
| % Debris Area: | | | iE iE | | | | % Bedrock; | 0 | % Bedrock: | | 0 |
| | | - Wichida Debiis Atea. | | | | | | , | | | High |
| Cover | | | | | | | D90 (cm): | · | Compaction: | | |
| Cover Total %: | | | BE . | | | | Banks | | | | |
| Dp Pool: 0 L. | O. D .: | • | 0 Over Veg | ; : 60 | Cutbank: | 0 | | | | | |
| Crown Closure %: | | Method Crown Closure: | Aspect : | SW | Method Aspect: | AE | Height (m): | 0.2 | % Unstable: | | 0 |
| | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | Nο |
| Discharge | | | i | .5 | pecific Data | | Confinement: | 4 | • | | |
| Wetted Width (m) : | | Method Wetted Width (m): | | ~, | p. 1.9.1. 2 - 1.1 | | Valley: Chan. Ratio: | 3 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | İ | Stage: | М | | | |
| Mean Velocity (m/s): | | • • / | 'o | | | | Flood Signs Ht(m): | 0 | Method Flood Signs: | | GF |
| Discharge (m3/s): | 0.0 | • • | | | | į | Braided: | N | Method Braided: | | GE |
| | | | | | <u>.</u> | <u> </u> | Bars (%): | 0 | Method Bars: | | Gb |
| Reach Symbo | ol | | | | | | pH: | 7.0 | Method pH: | | PH |
| | | (Fig | • | | | | 02 (քրա)։ | | Method Dissolved Oxygen: | | |
| | | N | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | 10 |
| 1 | | 0 C 13.0 | 8200 | | | | Turb. (cm): | 200 | Method Turbidity: | | Gl |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-174-111-4.2-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary Obstructions

Comments

- C1 This tributary was not sampled; no fish habitat present.
- C2 Small, steep creek which is not accessible due to an average of 13% gradient throughout Reach 2.
- Surveyed lower end (Reach 1) by helicopter; tributary consists of ponded channel within a long meadow and of sections with no defined channel. Possible fish use in the lower 200 m; fish use u/s of 200 m is unlikely.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-174-159-000-000-000-000-000-000

| Header Info | | | | | | | | | | | | | | | |
|---------------------|--------|---------|--------------------------------|------------|----------------|---------|------------|-----------|-----|-----|----------------------|------------|---------------------------|---------------|---------|
| Stream Name: | | | RIBUTARY | | Stream "L | ocal": | TH4. | 3 | | | | | Access: | | V2 |
| Watershed Code: | | | 74-159-000-000-000-000-000-000 | -000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 2.5 Method: | MW |
| Location: | LOCAT | ED ~15 | 0 m D/S FROM THE ROAD. | | Map #: | 093L024 | | | | | Site No.: | 7 | | 985.0 Method: | HC |
| | | | | | U.T.M. : | 9.6072 | | | | | Fish Card: | N | | Historical: | No |
| Date: 9/13/96 | Tim | e: 11:3 | O Agency: C58 | Survey | Crew: CP\RD\ | 1111 | . 1 1 | | | | Photos: | A1/9, 10 | Air Photos: | BCB 911 | 179:220 |
| Channel Ch | aracte | risti | cs | | | | Specific I | Data | | | Bed Material | | | | |
| Av. Chan. Width (m) |): | 1.0 | Method Av. Chan. Width (m): | | T 1.2 | 0.9 | 0.7 | 1.1 | 1.3 | 1.0 | % Fines (<2mm): | 40 | % Fines (<2mm): | | 40 |
| Av. Wet. Width (m): | | 1.0 | Method Av. Wet. Width (m): | | T 1.2 | 0.9 | 0.7 | 1.1 | 1.3 | 1.0 | % Gravels: | 5 5 | Small (2-16mm): | | 35 |
| Av. Max. Rif. Depth | (cm): | 5 | Av. Max. Riffle Depth (cm): | N | is | | | | | | | | Large (16-64mm): | | 20 |
| Av. Max. Pool Depth | (cm): | 25 | Av. Max. Pool Depth (cm): | | 5 | | | | | | % Larges: | 5 | Small cobble (64-128mm): | | 5 |
| Gradient (%): | | 6.0 | | | CL | | | | | | 76 Larges: | , | Large cobble (128-256mm): | | 0 |
| % Pool: 20 | % Riff | | % Run: 60 % O | | 0 Method: | GE | | | | | | | Boulder cobble (>256mm): | | 0 |
| % Side Channel: | | 0 | Method Side Channel: | | ĴΕ | | | | | | | | | | |
| % Debris Area: | 60 | | Method Debris Area: | (|)E | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 5 | Compaction: | | High |
| Cover Total %: | | 70 | Method Cover Total %: | (| GE . | | | | | | Banks | | | | |
| Dp Pool: 40 L | O.D.: | 20 | Boulder: 10 In Veg | . : | 0 Over Veg | 10 | Cutb | ank: | | 20 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect : | W | Meth | od Aspect | : | AE | Height (m): | 0.8 | % Unstable: | | 0 |
| | | | | | | | | | _ | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | | c | pecific D | ata | | | Confinement: | 2 | | | |
| | | | NA -1 - 1 TV as 1 TV date (-1) | | | 3 | pecijic D | utu | | | Valley: Chan. Ratio: | ì | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | M | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | 10 | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.04 | Method Mean Velocity (m/s | , | /O | | | | | | Braided: | N | Method Braided: | | Gt: |
| Discharge (m3/s) : | | 0.04 | Method Discharge (m3/s): | | | | _ | | , | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 8.5 | Method pH: | | PH |
| | • | | | (Fis | - | | | | | | 02 (բրու)։ | | Method Dissolved Oxygen: | | |
| | | | | N | F | | | | | | Water Temp. (°C): | 8.0 | Method Temperature: | | IC. |
| | | | I A | 6.0 | 4510 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | Gl |
| | | | (Width, Valley: Channel, S | ilope) | (Bed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-174-159-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 Five minnow traps were set in this site. No fish were caught.
- C2 Tributary is small and overgrown. The overstory has grown into and across the channel.
- Tributary has an average gradient of 6% over the 985 m surveyed with some 0.20 m to 0.35 m drops over logs. Th4.3 is classed as S4 habitat up to 500 m and then class S6 above.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-174-TH -4.4-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | | | |
|---------------------|----------|--------|-------------|----------------------|---------------|---------|-------------|--------|-------|----------------|-------------|----------------------|---------|----------------------|------------|----------|--------|
| Stream Name: | THAUTI | LR.TI | RIBUTARY | | | | Stream "Le | ocal": | | TH4.4 | | | | Access: | | | V2 |
| Watershed Code: | 460-6006 | -508-1 | 74-TH -4.4- | 000-000-000 | -000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.2 | Method: | MW |
| Location: | LOCATE | D~10 | m D/S OF | THE ROAD |) | | Map#: | 093L0 | 24 | | | Site No.: | 8 | Length surveyed (m |): 500.0 | Method: | HC |
| | | | | | | | U.T.M. : | 9.607 | 3 .60 | 126 | | Fish Card: | N | Field: Yes | Histo | rical: | No |
| Date: 9/17/96 | Time | : 11:0 | 0 | Agency: | C58 Su | vey Cre | w: CP\RD\ | \ \ \ | \ \ | ١ | | Photos: | A2/4, 5 | Air Photos: | | BCB 911 | 79:220 |
| Channel Ch | aracter | istic | es . | | | | | _ | Spec | ific Data | | Bed Material | | | | | |
| Av. Chan. Width (m) |): | 0.3 | Method A | v. Chan. W | idth (m): | τ | | | | | | % Fines (<2mm): | 80 | % Fines (<2mm): | | | 80 |
| Av. Wet. Width (m): | | 0.3 | Method A | v. Wet. Wid | ith (m): | T | | | | | Ш | | 20 | , , | | | 10 |
| Av. Max. Rif. Depth | (cm): | 5 | Av. Max. | Riffle Deptl | h (cm): | MS | | | | | \parallel | % Gravels: | 20 | Small (2-16mm): | | | 10 |
| Av. Max. Pool Depth | (cm): | 20 | Av. Max. | Pool Depth | (cm): | 5 | | | | | Ш | | | Large (16-64mm): | | | 10 |
| Gradient (%): | | 7.0 | Method C | radient: | | CL | | | | | Ė | % Larges: | 0 | Small cobble (64-12) | • | | 0 |
| % Pool: 75 | % Riffle | : 5 | % Run: | 20 | % Other | . 0 | Method: | GE | | | | | | Large cobble (128-2 | | | 0 |
| % Side Channel: | | 0 | Method S | ide Channel | l: | GE | | | | | | | | Boulder cobble (>25 | 56mm): | | 0 |
| % Debris Area: | 40 | | Method D | ebris A rea : | | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | | 0 |
| Cover | | | | | | | | _ | | | | D90 (cm): | 1 | Compaction: | | | High |
| Cover Total %: | | 70 | | over Total | | GE | | | | | | Banks | | | | | |
| • | O.D.: | 30 | Boulder: | 0 | In Veg.: | 10 | Over Veg: | 60 | | Cutbank: | 0 | | | | | | |
| Crown Closure %: | | 40 | Method (| Frown Closu | ire: | GE | Aspect : | W | / 1 | Method Aspect: | AE | Height (m): | 0.2 | % Unstable: | | | () |
| | | | | | | | | | | | ᅥ | Textures Fines: | Yes | Gravel: No L | .arges: No | Bedrock: | Nο |
| Discharge | | | | | | | 1 | | Speci | fic Data | \perp | Confinement: | 5 | | | | |
| Wetted Width (m): | | | Method W | ett e d Width | (m): | | | | | | İ | Valley: Chan. Ratio: | 4 | | | | |
| Mean Depth (in) : | | | | ean Depth (| | | | | | | | Stage: | М | | | | |
| Mean Velocity (m/s) | : | | | ean Velocity | • | vo | | | | | - 11 | Flood Signs IIt(m): | 0.1 | Method Flood Signs | s: | | MS |
| Discharge (m3/s): | | 0.01 | | scharge (m3 | - | | | | | | H | Braided: | N | Method Braided: | | | GE |
| | | | | | | | <u> </u> | | | | | Bars (%): | 0 | Method Bars: | | | GF |
| Reach Symb | ol | | | | | (F) L | | | | | | pH: | 6.9 | Method pH: | | | PH |
| - | | | | | | (Fish) | | | | | | 02 (ppm): | | Method Dissolved (| Oxygen: | | |
| | | | | | | NF | | | | | | Water Temp. (°C): | 5.5 | Method Temperatu | ire: | | IC |
| | | | | | 0 D 7.0 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | | Gl: |
| | | | (Wide | h, Valley: C | hannel, Slope |) (Be | d Material) | | | | | Cond. (µmhos): | | Method Conductivi | ity: | | |

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-174-TH -4.4-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Electrofished 30 m length of stream. No fish were caught.
- C2 Th4.4 is a smallseepage which we suspect dewaters during the low flow period.
- C3 This tributary is not accessible to fish due to its small size and 7% gradient. Habitat is not suitable for fish.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-203-000-000-000-000-000-000-000

| Header Info | rmatio | on | | | | | | | | | | | | | | |
|---------------------|---------|---------|-----------------------|----------------|---------|-------------|---------|------------|----------|-----------|-----|----------------------|---------|-------------------------|---------------|--------|
| Stream Name: | THAUT | IL R. T | RIBUTARY | | | Stream "Lo | cal": | T115 | | | | | | Access: | | V2 |
| Watershed Code: | 460-600 | 6-508- | 203-000-000-000-000 | 0-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.3 Method: | MW |
| Location: | LOCAT | ED ~10 | 0 m D/S FROM ROAD. | | | Map#: | 093L024 | ı | | | | Site No.: | 1 | Length surveyed (m): | 340.0 Method: | HC |
| | | | | | | U.T.M. ; | 9.6054 | .60122 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/12/96 | Tim | e: 16: | OO Agency: | C58 Sur | vey Cre | ew: JH\SS\\ | 111 | 1 1 | | | | Photos: | B1/8, 9 | Air Photos: | BCB 911 | 79:221 |
| Channel Ch | aracte | risti | cs | | | | 3 | Specific D | ata | - | Ì | Bed Material | | | | |
| Av. Chan. Width (m |): | 2.7 | Method Av. Chan. W | /idth (m): | T | 2.8 | 3.3 | 2.8 | 3.6 | 2.4 | 1.1 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet, Width (m): | | 1.1 | Method Av. Wet. Wi | dth (m): | T | 1.4 | 0.6 | 1.0 | 1.4 | | | % Gravels: | 30 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 13 | Av. Max. Riffle Dept | h (cm): | MS | | | | | | | 76 GIAVEIS. | 30 | Large (16-64mm): | | |
| Av. Max. Pool Depth | n (cm): | 35 | Av. Max. Pool Depth | (cm): | 13 | | | | | | | | | | | |
| Gradient (%): | | 11.0 | Method Gradient: | | CL | ` | | | | | | % Larges: | 60 | Small cobble (64-128mm) | | |
| % Pool: 20 | % Riff | le: 80 | % Run: 0 | % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256m) | | |
| % Side Channel: | | 0 | Method Side Channe | 4 : | GE | | | | | | | | | Boulder cobble (>256mm |) : | |
| % Debris Area: | 10 | | Method Debris Areas | : | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | | D90 (cm): | 22 | Compaction: | | High |
| Cover Total % : | | 70 | Method Cover Total | % : | GE | | | | | | | Banks | | | | |
| Dp Pool: 15 L | O.D.: | 5 | Boulder: 25 | In Veg.: | 0 | Over Veg: | 50 | Cutba | nk: | | 5 | | | | | |
| Crown Closure % : | | 50 | Method Crown Closi | иге: | GE | Aspect: | E | Metho | d Aspect | | ΑE | Height (m): | 0.5 | % Unstable: | | 10 |
| | | | | | | | | | | | | Textures Fines: | No | Gravel: Yes Larges | : No Bedrock: | No |
| Discharge | | | | | | i | c | pecific Da | | | 1 | Confinement: | 1 | | | |
| | | | NA 1887 1887 1 | | | | ړد | pecijic Du | ıu | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width | , , | | | | | | | | Stage: | Н | | | |
| Mean Depth (m): | | | Method Mean Depth (| | WO | | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.01 | Method Mean Velocity | | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.01 | Method Discharge (m. | 3/S): | | | | | | <u></u> . | | Bars (%): | 50 | Method Bars: | | GE |
| Reach Symb | ool | | | | | | | | | | | pH: | 7.8 | Method pH: | | PH |
| | | | | (| (Fish) | | | | | | | 02 (քրա)։ | | Method Dissolved Oxyge | n: | |
| | | | | | NF_ | | | | | | | Water Temp. (°C): | 8.5 | Method Temperature: | | IC |
| 1 | | | | 3 A 11.0 | 136 | 00 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: C | Channel, Slope |) (Be | d Material) | | | | | | Cond. (µnihos): | | Method Conductivity: | | |

26-Mar-9 Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-203-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary Obstructions

- A sample site was located below the road culvert. Electrofished ~50 m length of stream and no fish were caught. Another electrofishing site was located ~100 m u/s from the Thautil R. Th5 confluence (gradient is ~7%). Site length was ~100 m and no fish were caught.
- C2 Good potential habitat for fry and parr was present u/s but electrofishing sites show that no fish are present. Suspect 22% gradient near mouth of Th5 is a barrier to fish and the habitat structure u/s is too small for resident use.
- C3 The gradient of Th5 was 22% in the first 40 m u/s from the Thautil confluence. It then gradually decreased for the rest of the reach with an average gradient of 11%.
- C4 High eroding banks were observed along the lower sections of stream (Photo B1/7).

2^-Mar-9^

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-TTI - 6 -000-000-000-000-000-000-000

| Header Info | matio | n | | | | | | | | - | | | | | • |
|---------------------|---------|------------------|---------------------------------|-----------------|-------------|---------|------------|-----------|-----|-------|----------------------|----------|------------------------|------------------|---------|
| Stream Name: | THAUT | LR. T | RIBUTARY | | Stream "Lo | cal": | TH6 | | | | | | Access: | | FT |
| Watershed Code: | 460-600 | 6-50 8- T | TH - 6 -000-000-000-000-000-000 | | | | | | | | Reach No.: | ı | Reach Length (km): | 0.2 Method: | MW |
| Location: | LOCAT | ED ~22 | 0 m D/S FROM ROAD. | | Map #: | 093L024 | ı | | | | Site No.: | 1 | Length surveyed (m): | 160 0 Method: | HC |
| | | | | | U.T.M. : | 9.6054 | .60127 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/12/96 | Time | : 15:0 | 0 Agency: C58 Sur | v ey Cre | w: JH\SS\ | 111 | ١ ١ | | | | Photos: | B1/3 - 6 | Air Photos: | BCB 911 | 179:221 |
| Channel Cha | racte | ristic | es | | | S | Specific L | Data | | - | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.7 | Method Av. Chan. Width (m): | T | 2.2 | 1.7 | 1.2 | 1.7 | 2.2 | 1.2 | % Fines (<2mm): | 40 | % Fines (<2mm): | | 40 |
| Av. Wet. Width (m): | | 1.1 | Method Av. Wet. Width (m): | T | 1.4 | 1.2 | 0.8 | | | ļ | 1 | 30 | | | |
| Av. Max. Rif. Depth | (cm): | 20 | Av. Max. Riffle Depth (cm): | MS | | | | | | į | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Pool Depth | (cm): | 40 | Av. Max. Pool Depth (cm): | 20 | | | | | | į | | | Large (16-64mm): | | |
| Gradient (%): | | 18.0 | Method Gradient: | CL | ' | | | | | | % Larges: | 40 | Small cobble (64-128mr | • | |
| % Pool: 40 | % RiM | e: 60 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256n | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256m | m): | |
| % Debris Area: | 15 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | · | • | | - | - | | _ | | D90 (cm): | 15 | Compaction: | | High |
| Cover Total % : | | 80 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 25 L | .O.D.: | 20 | Boulder: 10 In Veg.: | 0 | Over Veg: | 40 | Cutb | ank: | | 5 | Danis | | | | |
| Crown Closure %: | | 80 | Method Crown Closure: | GE | Aspect : | E | Meth | od Aspect | : | ΑE | Height (m): | 0.3 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | No | Gravel: Yes Larg | es: Yes Bedrock: | No |
| Discharge | | | | | | e. | pecific D | | | | Confinement: | 1 | | | |
| | | | | | 1 | ျှ | pecijic D | ara | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | } | | | | | | Stage: | Н | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.03 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.03 | Method Discharge (m3/s) : | | <u> </u> | | | | | | Bars (%): | 40 | Method Bars: | | GE |
| Reach Symb | ol . | | | | | | | | | | pH: | 7.4 | Method pH: | | PH |
| Symb | v. | | (I | Fish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxy | gen: | |
| | | | | NF | | | | | | | Water Temp. (°C): | 9.0 | Method Temperature: | | TC |
| | | | 2 A 18.0 | 424 | 0 | _ | | | | | Turb. (cm); | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cand. (µmikos): | | Method Conductivity: | | |

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-TH - 6 -000-000-000-000-000-000

Stream/Valley Cross-Section

Pianimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | С | 0.3 |

| Cl | An electrofishing site was located ~100 m u/s from the Thautil R. confluence. 100 m length of stream was sampled with no fish caught. Tadpoles were observed along the muddy margins of the channel near the base of Th6 (Photo B1/6). |
|----|--|
| C2 | A cascade plus a 50 cm high drop was observed ~300 m u/s from the mouth; suspect migration barrier to juveniles. (Photo B1/3) |
| C3 | Steep 21% section from Thautil R. floodplain u/s for ~ 50 m. Suspected to be a migration barrier and the top of the distribution for fish. Numerous SST fry were observed in Th6 near its mouth. |
| C4 | Eroding banks were observed: ~320 m below the road, bank has ~70% sideslopes (PhotoB1/4); ~40 m high very unstable eroding cutbank over the Thautil River (Photo B1/5). The has a high capacity to transport sediment from the eroding bank. |

2~-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-TH - 6 -000-000-000-000-000-000-000

| | _ | | | | | | | | | | | | | | |
|------------------------|-----------|------------|---------------------------------|--------|-------------|---------|------------|------------|-----|----------|----------------------|---------|-------------------------|----------------|---------|
| Header Infori | mation | l | | | | | | | | | | | | | |
| Stream Name: | THAUTIL | R. TI | RIBUTARY | | Stream "Lo | cal": | T116 | | | | | | Access: | | V2 |
| Watershed Code: | 460-6006- | 508-T | H - 6 -000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.5 Method: | MW |
| | | | EY AT ROAD CROSSING AND | | Мар#: | 093L024 | 4 | | | | Site No.: | 2 | Length surveyed (m): | 220.0 Method: | HC |
| • | TRAVELI | ED D | /S. | | U.T.M. : | 9.6054 | .60127 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/12/96 | Time: | 14:0 | O Agency: C58 Sur | vey Cr | ew: JH\SS\ | 111 | ١ ١ | | | | Photos: | B1/1, 2 | Air Photos: | BCB 911 | 179:221 |
| Channel Cha | racter | istic | es | | | | Specific I | Data | - | | Bed Material | | | | |
| Av. Chan. Width (m): | | 2.3 | Method Av. Chan. Width (m): | T | 2.5 | 1.8 | 2.9 | 2.8 | 1.8 | 2.1 | % Fines (<2mm): | 90 | % Fines (<2mm): | | 90 |
| Av. Wet. Width (m): | | 1.3 | Method Av. Wet. Width (m): | T | 1.3 | 1.1 | 0.9 | 2.1 | 1.0 | 1.1 | 1 ' ' | | • | | |
| Av. Max. Rif. Depth (c | :m): | 25 | Av. Max. Riffle Depth (cm): | MS | | | | | | | % Gravels: | 5 | Small (2-16mm): | | |
| Av. Max. Pool Depth (e | cm): | 45 | Av. Max. Pool Depth (cm): | 25 | | | | | | | | | Large (16-64mm): | | |
| Gradient (%): | | 8.0 | Method Gradient: | CL | · | | | | | , | % Larges: | 5 | Small cobble (64-128mm | | |
| % Pool: 35 | % Riffle: | 3 5 | % Run: 30 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256m) | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm | ı): | |
| % Debris Area: | 15 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | I | Compaction: | | High |
| Cover Total % : | | 65 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 40 L.C | O.D.: | 25 | Boulder: 5 In Veg.: | 0 | Over Veg: | 25 | Cutb | ank: | | 5 | | | | | |
| Crown Closure %: | | 40 | Method Crown Closure: | GE | Aspect: | SE | Meth | od Aspect: | | AE | Height (m): | 0.6 | % Unstable: | | O |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Large | s: No Bedrock: | : No |
| Discharge | | | | | ì | c | pecific D | ata | | | Confinement: | 1 | | | |
| Wetted Width (m) : | | 0.8 | Method Wetted Width (m): | Т | | , | pecijie D | | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | 0.1 | Method Mean Depth (m): | MS | | | | | | | Stage: | Н | | | |
| Mean Velocity (m/s): | , |).30 | Method Mean Velocity (m/s | VO | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s): | | 0.02 | Method Discharge (m3/s): | •0 | | | | | | | Braided: | N | Method Braided: | | GĿ |
| | | | | | i | | | | | <u> </u> | Bars (%): | 50 | Method Bars: | | GE |
| Reach Symbo | ol . | | | | | | | | | | pH: | 7.4 | Method pH: | | PH |
| , | | | , | Fish) | | | | | | | 02 (ρpm): | | Method Dissolved Oxyg | en: | |
| | | | | NF | | | | | | | Water Temp. (°C): | 9.0 | Method Temperature: | | 10. |
| | | | 2 A 8.0 | | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) |) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Stream Survey Report

Watershed Code:

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Comments

- C1 Electrofished 28 m length of stream d/s from the road. No fish were caught.
- C2 Drops of up to 0.7 m over woody debris were observed ~50 m d/s from road.

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| | X | 250.0 |

26-Mar-9"

Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-231-00-000-000-000-000-000-000

| Header Info | rmatio | n | | | _ | | | | | | | | | | |
|---------------------|---------|-------------|---------------------------------|---------|-------------|---------|------------|-----------|-----|-----|----------------------|-------|--------------------------|---------------|---------|
| Stream Name: | THAUT | IL R T | RIBUTARY | | Stream "Lo | cal": | TH7 | | | | | | Access: | | V2 |
| Watershed Code: | 460-600 | 6-508-2 | 31- 00-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 2.2 Method: | MW |
| Location: | ~50 m U | /S FRO | м моитн. | | Map#: | 093L024 | 4 | | | | Site No.: | I | Length surveyed (m): | 300.0 Method: | HC |
| | | | | | U.T.M.: | 9.6057 | .60134 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/23/96 | Tim | e: 11:0 | O Agency: C58 Surv | vey Cre | :w: JII\SS\ | | \ \ | | | | Photos: | B3/22 | Air Photos: | BCB 911 | 179:221 |
| Channel Ch | aracte | risti | cs | | ĺ | 2 | Specific I | Data | | | Bed Material | | | | |
| Av. Chan. Width (m) |): | 2.1 | Method Av. Chan. Width (m): | T | 2.0 | 2.6 | 1.8 | 1.9 | 2.5 | 2.0 | % Fines (<2mm): | 20 | % Fines (<2mm): | | 20 |
| Av. Wet. Width (m): | | 0.9 | Method Av. Wet. Width (m): | T | 0.4 | 1.6 | 0.7 | | | | % Gravels: | 50 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 9 | Av. Max. Riffle Depth (cm): | MS | | | | | | | o Graveis. | 50 | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 23 | Av. Max. Pool Depth (cm): | 9 | | | | | | | | | | | |
| Gradient (%): | | 5 .5 | Method Gradient: | CL | | | | | | | % Larges: | 30 | Small cobble (64-128mm): | | |
| % Pool: 25 | % Riff | le: 75 | % Run: 0 % Other: | 0 | Method: | GE | | | | | 1 | | Large cobble (128-256mm | • | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm) | : | |
| % Debris Area: | 10 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | _ | | | | | D90 (cm): | 18 | Compaction: | | High |
| Cover Total % : | | 40 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 L | .O.D.: | 10 | Boulder: 20 In Veg.: | 0 | Over Veg: | 40 | Cutb | ank: | | 20 | Dunks | | | | |
| Crown Closure %: | | 20 | Method Crown Closure: | GE | Aspect: | SE | Meth | od Aspect | : | ΑE | Height (m): | 1.0 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | No Bedrock: | No |
| Discharge | | | | | } | | :G- D | | | 1 | Confinement: | 3 | _ | | |
| | | | | | | 3, | pecific D | ala | | ĺ | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | Gŀ |
| Discharge (m3/s): | | 0.01 | Method Discharge (m3/s): | | | | | | | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symb | | | | | | | | | | | pll: | 7.8 | Method pH: | | PH |
| Keuch Symb | vi | | (1 | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | 1: | |
| | | | | (SP) | | | | | | | Water Temp. (°C); | 4.0 | Method Temperature: | | IC |
| | | | 2 C 6.0 | 253 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | 1 | | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9" Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-231- 00-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Stream/Valley Cross Section

Fish Summary

Comments

C1 No barriers to fish passage. Assume fish use the lower 600 m of this creek.

Obstructions

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-231- 00-000-000-000-000-000-000-000

| Header Information | | | | | |
|---|-----------------------------|----------------------|-----------|---|-----------|
| Stream Name: THAUTIL R. TRIBUTARY | Stream "Local": TH7 | | | Access: | V2 |
| Watershed Code: 460-6006-508-231-00-000-000-000-000-000-000 | | Reach No.: | ı | Reach Length (km): 2.2 Method | d: MW |
| Location: ~35 m D/S FROM ROAD CROSSING. | Map #: 093L024 | Site No.: | 2 | Length surveyed (m): 100.0 Method | d: HC |
| | U.T.M.: 9.6057 .60134 | Fish Card: | N | Field: Yes Historical: | No |
| Date: 9/17/96 Time: 17:00 Agency: C58 Survey Cr | rew: JH\SS \ \ \ \ \ \ | Photos: | B2/17, 18 | Air Photos: BCB 9 | 91179:221 |
| Channel Characteristics | Specific Data | Bed Material | | | |
| Av. Chan. Width (m): 1.4 Method Av. Chan. Width (m): T | 1.3 1.0 1.5 1.5 1.9 1.3 | % Fines (<2mm): | 15 | % Fines (<2mm): | 15 |
| Av. Wet. Width (m): 0.8 Method Av. Wet. Width (m): T | 0.3 0.9 1.1 | % Gravels: | 75 | Small (2-16mm): | |
| Av. Max. Rif. Depth (cm): 5 Av. Max. Riffle Depth (cm): MS | | A GILICES | ,,, | Large (16-64mm): | |
| Av. Max. Pool Depth (cm): 25 Av. Max. Pool Depth (cm): 5 | | | 10 | | |
| Gradient (%): 6.0 Method Gradient: CL | | % Larges: | 10 | Small cobble (64-128mm): Large cobble (128-256mm): | |
| % Pool: 30 % Riffle: 70 % Run: 0 % Other: 0 | Method: GE | | | | |
| % Side Channel: 0 Method Side Channel: GE | | | | Boulder cobble (>256mm): | |
| % Debris Area: 20 Method Debris Area: GE | | % Bedrock: | 0 | % Bedrock: | 0 |
| Cover | | D90 (cm): | 5 | Compaction: | High |
| Cover Total %: 60 Method Cover Total %: GE | | Banks | | | |
| Dp Pool: 20 L.O.D.: 30 Boulder: 5 In Veg.: 0 | Over Veg: 40 Cutbank: | Dunks | | | |
| Crown Closure %: 70 Method Crown Closure: GE | Aspect: SE Method Aspect: A | E Height (m): | 0.4 | % Unstable: | 0 |
| | | Textures Fines: | Yes | Gravel: No Larges: No Bedrocl | |
| Discharge | | Confinement: | 2 | | |
| · · | Specific Data | Valley: Chan. Ratio: | 1 | | |
| Wetted Width (m): Method Wetted Width (m): | | Stage: | М | | |
| Mean Depth (m): Method Mean Depth (m): | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | MS |
| Mean Velocity (m/s): Method Mean Velocity (m/s VO | | Braided: | N | Method Braided: | GE |
| Discharge (m3/s): 0.01 Method Discharge (m3/s): | | Bars (%): | 15 | Method Bars: | GE |
| Reach Symbol | | pH: | 7.4 | Method pli: | PH |
| (Fish) | | 02 (ppm): | | Method Dissolved Oxygen: | |
| NF | | Water Temp. (°C): | 6.0 | Method Temperature: | TC |
| l A 6.0 27 | 10 | Turb. (cm): | 200 | Method Turbidity: | GE |
| | | | | | |

26-Mar-9" Stream: THAUTIL R. TRIBUTARY

Stream Survey Report

460-6006-508-231- 00-000-000-000-000-000-000

Stream/Valley Cross-Section

Fish Summary

Obstructions

Watershed Code:

Comments

C1 Marginal habitat for fish use.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-245-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | |
|--------------------------|---------|------------------|--|---------------|------------|---------------|---------|---------|----------------------|---------|--------------------------|---------------|---------|
| Stream Name: | THAUT | IL R. T | RIBUTARY | Stream | "Local": | TH8 | | | | | Access: | | H |
| Watershed Code: | 460-600 | 6-50 8- 2 | 45-000-000-000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 0.3 Method: | MW |
| Location: | ~100 m | U/S FR | OM THAUTIL R. CONFLUENCE | Map# | 093L02 | 24 | | | Site No.: | 1 | Length surveyed (m): | 200.0 Method: | HC |
| | | | | U.T.M | .: 9.6057 | .60138 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/20/96 | Tim | e: 13:0 | O Agency: C58 Surv | ey Crew: RD\(| CP \DB \ \ | \ \ \ \ | | | Photos: | A5/2, 3 | Air Photos: | BCB 911 | 179:220 |
| Channel Ch | aracte | risti | es . | | | Specific Dat | 'a | | Bed Material | | | | |
| Av. Chan. Width (m | | 2.9 | Method Av. Chan. Width (m): | T 2. | 7 3.4 | 2.5 | 2.9 | 3.1 3.0 | % Fines (<2mm): | 30 | % Fines (<2mm): | | 30 |
| Av. Wet. Width (m): | | 1.2 | Method Av. Wet. Width (m): | T | | | | | % Gravels: | 70 | Small (2-16mm): | | 55 |
| Av. Max. Rif. Depth | | 15 | Av. Max. Riffle Depth (cm): | MS 5 | | | | | | | Large (16-64mm): | | 15 |
| Av. Max. Pool Depth | (cm): | 15 0.5 | Av. Max. Pool Depth (cm): Method Gradient: | CL CL | | | | | % Larges: | 0 | Small cobble (64-128mm): | | 0 |
| Gradient (%): % Pool: 10 | % Riff | | % Run: 75 % Other: | | od: GE | | | | | | Large cobble (128-256mm |): | 0 |
| % Side Channel: | /• Kili | 0 | Method Side Channel: | GE | iou. OL | | | | | | Boulder cobble (>256mm) | : | 0 |
| % Debris Area: | 25 | · | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| | | | | | | | | | D90 (cm): | 4 | Compaction: | | High |
| Cover | | | | | | | | | | | | | |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 10 I | O.D.: | 40 | Boulder: 0 In Veg.: | 0 Over \ | /eg: 20 | Cutbanl | k: | 30 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | Aspec | : w | Method | Aspect: | A | Height (m): | 2.0 | % Unstable: | | 0 |
| | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | No Bedrock: | . No |
| Discharge | | | | | | Specific Data | | | Confinement: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | • | Specific Daia | • | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | Stage: | L | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | • | 0.03 | Method Discharge (m3/s): | 10 | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) . | | 0.03 | | <u>l</u> | | | | | Bars (%): | 70 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | pH: | | Method pH: | | |
| , | | | , | ish) | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | | SP) | | | | | Water Temp. (°C): | 8.0 | Method Temperature: | | TC |
| | | | 3 A 0.5 | 3 7 00 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE. |
| | | | (Width, Valley: Channel, Slope) | (Bed Materi | al) | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mur-9⁻ Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 Electrofished 38 m length of channel which was located ~60 m u/s from the confluence with the Thautil R. floodplain. No fish were caught or observed. Assume some fish use u/s to the break in slope.
- C2 Tributary is a low gradient meandering channel on the floodplain.
- C3 Th8 classed as S3 u/s to the top of R1 despite no catch; tributary could be used by fish in high flows.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-245-000-000-000-000-000-000-000-000

| Header Infor | matic | n | | | | | | | | | | | | |
|-----------------------|------------------------------------|---------------|--------------------------------|--------------|------------------|------------|-----------|----------------|-----|-------------------------|-----------------|--|---------------|---------|
| Stream Name: | THAUT | ILR. TI | RIBUTARY | Stream "Le | ocal": | TH8 | | | | | | Access: | | V2 |
| Watershed Code: | 460-600 | 6-508-2 | 45-000-000-000-000-000-000-000 | | | | | | | Reach No.: | 2 | Reach Length (km): | 3.2 Method: | MW |
| Location: | ~100 m | D/S FRO | OM THE ROAD. | Мар#: | 093L024 | ŀ | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | U.T.M.; | 9.6057 | .60138 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/17/96 | Tim | e: 14:3 | O Agency: C58 Survey C | rew: RD\CP\I |) B \ \ \ | 111 | | | | Photos: | A2/8 , 9 | Air Photos: | BCB 911 | 179:220 |
| Channel Cha | ıracte | ristic | es : | | | Specific L | ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | : | 1.1 | Method Av. Chan. Width (m): | 1.2 | 0.8 | 1.1 | 2.1 | 1.2 | 0.5 | % Fines (<2mm): | 40 | % Fines (<2mm): | | 40 |
| Av. Wet. Width (m): | | 1.1 | Method Av. Wet. Width (m): T | 1.2 | 8.0 | 1.1 | 2.1 | 1.2 | 0.5 | % Gravels: | 60 | Small (2-16mm): | | 35 |
| Av. Max. Rif. Depth (| cm): | 5 | Av. Max. Riffle Depth (cm): MS | | | | | | | | | Large (16-64mnı): | | 25 |
| Av. Max. Pool Depth | (cm): | 15 | Av. Max. Pool Depth (cm): 5 | | | | | | | 8/ 1 | 0 | | | 0 |
| Gradient (%): | | 3.0 | Method Gradient: CL | | | | | | | % Larges: | 0 | Small cobble (64-128mm): | ٠. | 0 |
| % Pool: 30 | % Riff | le: 40 | % Run: 30 % Other: 0 | Method: | GE | | | | | | | Large cobble (128-256mm Boulder cobble (>256mm) | | 0 |
| % Side Channel: | | 0-10 | Method Side Channel: GE | | | | | | | | | | • | - |
| % Debris Area: | 25 | | Method Debris Area: GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 5 | Compaction: | | Medium |
| Cover Total % : | | 70 | Method Cover Total %: GE | | | | | | | Banks | | | | |
| Dp Pool: 20 L. | .O.D.: | 40 | Boulder: 0 In Veg.: 0 | Over Veg: | 30 | Cutba | nk: | | 10 | | | | | |
| Crown Closure %: | | 2 | Method Crown Closure: GE | Aspect: | w | Meth | od Aspect | : | ΑĒ | Height (m): | 0.3 | % Unstable: | | 0 |
| | | | | | | _ | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | 1 . | | pecific D | ata | | . ! | Confinement: | 4 | | | |
| | | | M. d. 130 m. 130 M. d. () | İ | 3 | pecijic D | 414 | | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | Flood Signs Ht(m): | l | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | 0.04 | Method Mean Velocity (m/s VO | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.04 | Method Discharge (m3/s) : | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol (Fish) | | | | | | | | | | pH: | 7.8 | Method pH: | | PH |
| | | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | 1: | | | |
| | | | NF | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | IC |
| | | | I C 3.0 40 | 500 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | (Width, Valley: Channel, Slope) (I | Bed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | | | |

26-Mar-97 Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-245-000-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Electrofished 100 m length of stream, 1 pass with no lower net. No fish were caught. Tadpoles were observed along the margins.
- C2 Low gradient, low energy stream. Easy access through road culvert. Upstream from road, creek drops over a 1 in high bank.
- C3 Suspect access problems at the mouth of the tributary see contour map.

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-286-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | |
|---------------------|---------|--------------------------------------|--------------------------------|-------------|-------------|---------------|-----|-----|----------------------|----------|-------------------------|---------------|---------|
| Stream Name: | THAUT | IL R. T | RIBUTARY | Stream ' | Local": | TH9 | | | | | Access: | | V2 |
| Watershed Code: | 460-600 | 6-508-2 | 86-000-000-000-000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 0.9 Method: | MW |
| Location: | SITE LO | CATE | 0~550 m U/S FROM THAUTIL R. | Map#: | 093L02 | 4 | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | HC |
| | CONFL | UENCE | • | U.T.M. : | 9.6058 | .60149 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/21/96 | Tim | e: 11:1 | 5 Agency: C58 Survey | Crew: JH\SS | . , , , , , | \ \ | | | Photos: | no photo | Air Photos: | BCB 911 | 180:015 |
| Channel Ch | aracte | risti | es · | | | Specific Data | | İ | Bed Material | | | | |
| Av. Chan. Width (m) | : | 2.5 | Method Av. Chan. Width (m): | T 4.0 | 2.0 | 2.3 1.5 | 2.8 | 2.5 | % Fines (<2mm): | 80 | % Fines (<2mm): | | 80 |
| Av. Wet. Width (m): | | 1.5 | Method Av. Wet. Width (m): | T 2.2 | 1.2 | 1.2 | | | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 10 | Av. Max. Riffle Depth (cm): | is 9 | 10 | 12 | | | 76 GIAVEIS. | 20 | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 29 | • , , | 10 27 | 31 | 28 | | | l | | | | |
| Gradient (%): | | 2.5 | Method Gradient: | CL | | | | | % Larges: | 0 | Small cobble (64-128mm | | |
| % Pool: 30 | % Riff | le: 30 | % Run: 40 % Other: | 0 Metho | d: GE | | | | 1 | | Large cobble (128-256mr | • | |
| % Side Channel: | | 10-40 | Method Side Channel: | iΕ | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | | 10-40 | Method Debris Area: | E | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | D90 (cm): | 1 | Compaction: | | High |
| Cover Total % : | | 50 | Method Cover Total %: | iΕ | | | | | Banks | | | | |
| Dp Pool: 20 L | .O.D.; | 20 | Boulder: 0 In Veg.: | 0 Over Ve | g: 40 | Cutbank: | | 20 | Dunns | | | | |
| Crown Closure % : | | 50 | Method Crown Closure: | iE Aspect: | SE | Method Aspec | :t: | ΑE | Height (m): | 0.4 | % Unstable: | | 60 |
| | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | l | | Specific Data | | | Confinement: | 5 | | | |
| | | | Mathad Wassad Wideh (-) | ! | • | specific Data | | | Valley: Chan. Ratio; | 4 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | : | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | ,0 | | | | İ | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | • | 0.03 | • • | 'O | | | | [| Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s): | | 0.02 | Method Discharge (m3/s): | | | | | | Bars (%): | 25 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | pł1: | 8.2 | Method pH: | | PH |
| | •• | | (Fish | • | | | | | 02 (ppm): | | Method Dissolved Oxygo | n: | |
| | | | (SF | ') | | | | | Water Temp. (°C): | 3.0 | Method Temperature: | | IC |
| | | | 3 D 2.5 | 8200 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) (Bei | | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-97 Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 Electrofished ~100 m length of stream. No fish were caught, although the habitat appears suitable for fish.
- C2 Low gradient, unconfined channel; good pool development.
- C3 A permanent barrier d/s is unlikely as channel enters mainstem at a low flat area with abundant sidechannel development.
- C4 Th9 classed as S3 u/s to the top of R1 based on accessible habitat.
- C5 Air Temp: 4.5 C.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-286-000-000-000-000-000-000-000-000

| Header Infor | mation | | | | | | | | | | | | | | |
|---|------------|--------------------|---|---------------|---------------|----------|--------|-----------|-----------|-----|-------------------------|-----------|---|---------------|------------------|
| Stream Name: | THAUTIL | R. TR | IBUTARY | | Stream "Lo | cal": | TH9 | | | | | | Access: | | V2 |
| Watershed Code: | 460-6006-5 | 08-28 | 6-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.0 Method: | MW |
| Location: | SITE LOCA | ATED | ~50 m D/S FROM ROAD CROSSING |) . | Map#: | 093L024 | | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | U.T.M.: | 9.6058 | .60149 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/17/96 | Time: | 17:30 | Agency: C58 Surv | ey Cre | :w: JH\SS\ \ | 111 | \ \ | | | | Photos: | B2/19, 21 | Air Photos: | BCB 91 | 1 80 :015 |
| Channel Cha | racteri | stic | s | | Specific Data | | | | | | Bed Material | | | | |
| Av. Chan. Width (m): | | 2.1 | Method Av. Chan. Width (m): | T | 2.2 | 2.1 | 2.0 | 1.7 | 2.3 | 2.3 | % Fines (<2mm): | 30 | % Fines (<2mm): | | 30 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (c | em): | 1.4 | Method Av. Wet. Width (m): Av. Max. Riffle Depth (cm): | T MS | 1.4 | 1.7 | 1.4 | 0.9 | | | % Gravels: | 60 | Small (2-16mm): | | |
| Av. Max. Pool Depth (| • • | 35 | Av. Max. Pool Depth (cm): | 4 | | | | | | | % Larges: | 10 | Large (16-64mm): Small cobble (64-128mm): | | |
| Gradient (%): % Pool: 40 | % Riffle: | 10.0 60)-10 | Method Gradient: % Run: 0 % Other: Method Side Channel: | CL 0 GE | Method: | GE | | | | | , ve carges. | 10 | Large cobble (128-256mm) Boulder cobble (>256mm) | • | |
| % Side Channel: % Debris Area: | - | -10 -40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | • | 0 |
| Cover | | | | | · | | _ | | | | D90 (cm): | 5 | Compaction: | | 1.ow |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | | | Banks | _ | | | |
| Dp Pool: 20 L. | O.D.: | 30 | Boulder: 5 In Veg.: | 0 | Over Veg: | 30 | Cutbai | nk: | | 15 | | | | | |
| Crown Closure %: | | 15 | Method Crown Closure: | GE | Aspect : | SE | Metho | d Aspect: | | ΑE | Height (m): | 0.3 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | Sanifa Data | | | | | | Confinement: | 1 | | | |
| Ū | | | | | Specific Data | | | | | į | Valley: Chan. Ratio: | ı | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | ļ | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.17 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | | | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GŁ |
| Discharge (m3/s) : | | 01 | Method Discharge (m3/s) : | | | <u> </u> | | | | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symbo | ol . | | | | | | | | | | pH: | 7.6 | Method pH: | | PH |
| Reach Symbol (Fish) | | | | | | | | | 02 (թրա)։ | | Method Dissolved Oxyger | ı: | | | |
| | | | | NF - | | | | | | | Water Temp. (°C); | 6.0 | Method Temperature: | | тс |
| | | | 2 A 10.0 | 3616 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-286-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 Electrofished a 35 m length of stream; no fish were caught.
- C2 In the lower section of R1, gradient was 15%; suspect fish use ends at this point due to the high gradient.
- C3 Erosion problem at road culvert; cannot see through culvert sediment source for creek (Photo B2/21).

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-305-000-000-000-000-000-000-000

| Header Infor | mation | | | | | | | | | | | | | |
|-----------------------|-------------|-------------------|------------------------|----------------|--------------|--------|---------------|------|-----|----------------------|-------|--------------------------|---------------|---------|
| Stream Name: | THAUTIL R | . TRIBUTARY | | | Stream "Lo | cal": | THIO | | | | | Access: | | H |
| Watershed Code: | 460-6006-50 | 8-305-000-000-000 | -000-000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.2 Method: | MW |
| Location: | | | PER, CIRCULAR MEA | DOW, | Map #: | 093L02 | 4 | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | HC |
| | ~ 400 m U/S | FROM MOUTH. | | | U.T.M.: | 9.6062 | .60156 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/20/96 | Time: | 6:00 A | agency: C58 Sui | vey Cre | ew: JII\SS\\ | 111 | 1 1 | | | Photos: | B3/20 | Air Photos: | BCB 911 | 180:139 |
| Channel Cha | racteris | tics | | | | | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m): | : 1 | .9 Method Av. (| Chan. Width (m): | T | 2.3 | 2.4 | 1.0 1.8 | 1.9 | 1.9 | % Fines (<2mm): | 30 | % Fines (<2mm): | | 30 |
| Av. Wet. Width (m): | i | .7 Method Av. V | Wet. Width (m): | T | 1.4 | 2.1 | 1.7 | | | % Gravels: | 70 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (| cm): | 13 Av. Max. Rif | fle Depth (cm): | MS | | | | | | | | Large (16-64mm): | | |
| Av. Max. Pool Depth | (ст): | 25 Av. Max. Poo | ol Depth (cm): | 13 | 1 | | | | | } | • | | | |
| Gradient (%): | | .5 Method Grad | | CL | | | | | | % Larges: | 0 | Small cobble (64-128mm): | - | |
| % Pool: 25 | % Riffle: | | 60 % Other: | | Method: | GE | | | | • | | Large cobble (128-256mm | | |
| % Side Channel: | | 0 Method Side | | GE | | | | | | | | Boulder cobble (>256mm) | | |
| % Debris Area: | 0- | 10 Method Debr | ris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 4 | Compaction: | | High |
| Cover Total % : | ; | 25 Method Cove | er Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 30 L. | O.D.: | 5 Boulder: | 0 In Veg.: | 0 | Over Veg: | 35 | Cutbank: | | 30 | Duning | | | | |
| Crown Closure % : | | 0 Method Crov | vn Closure: | GE | Aspect : | S | Method Aspe | ect: | ΑE | Height (m): | 0.7 | % Unstable: | | Ü |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | | _ | | | | Confinement: | 4 | • | | |
| | | | | | i | S | Specific Data | | | Valley: Chan. Ratio: | 4 | | | |
| Wetted Width (m): | l. | · | | T | | | | | | Stage: | L | | | |
| Mean Depth (m): | 0 | | • • • | MS | | | | | ĺ | Flood Signs 11t(m): | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) : | | | • • | VO | 1 | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0.0 | 2 Method Disch | arge (m3/s): | | | | . <u> </u> | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symbo | ol | - | <u></u> | - - | | | | | | pH: | 7.8 | Method pli: | | PH |
| icach bymot | • | | | (Fish) | | | | | | 02 (թթա)։ | | Method Dissolved Oxyger | : | |
| | | | BT | SST (DV | /) | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | æ |
| | | | 2 D 1.: | 370 | 0 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, V | Valley: Channel, Slope |) (Be | d Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

Stream: THAUTIL R. TRIBUTARY

Stream Survey Report

460-6006-508-305-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

26-Mar-97

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| SST | | 50 - 65 | J | R | | | EL |
| ВТ | | 84 - 111 | 1 | R | { | | EL |
| CHF | Ī | 49 | F | R | | | EL |

Obstructions

Watershed Code:

Comments

Electrofished a 50 m length of stream. The RB caught are suspected to be progeny of SST. Suspect DV to be present in this reach due to their presence u/s. It was not possible to distinguish between BT and DV fry - referred to as char fry (CHF).

C2 Th10 is classed as S3 throughout R1.

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-305-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | _ | - | | - | | |
|---------------------|---------|------------------|--------------------------------|---------|-------------|---------|----------------|-----|----------------------|------------|---------------------------|-------------|---------|
| Stream Name: | THAUT | LR.T | RIBUTARY | | Stream "Lo | cal": | TH10 | | | | Access: | | V2 |
| Watershed Code: | 460-600 | 5-5 08- 3 | 05-000-000-000-000-000-000-000 | | | | | | Reach No.: | 2 | Reach Length (km): | 0.7 Method: | MW |
| Location: | | | VERT & U/S, ~1350 m U/S FROM | | Map #: | 093L024 | ı | | Site No.: | 2 | Length surveyed (m): 8 | 5.0 Method: | HC |
| | THAUTI | LR.C | ONFLUENCE. | | U.T.M.: | 9.6062 | .60156 | | Fish Card: | N | Field: Yes H | istorical: | No |
| Date: 9/23/96 | Time | : 13:3 | Agency: C58 Sur | vey Cre | w: JH\SS\\ | 111 | \ \ | | Photos: | B3/23 - 25 | Air Photos: | BCB 911 | 180:139 |
| Channel Cha | aracte | risti | cs | | | | Specific Data | • | Bed Material | | | | |
| Av. Chan. Width (m) | : | 2.2 | Method Av. Chan. Width (m); | Т | 2.3 | 1.9 | 2.4 2.2 | 2.3 | % Fines (<2mm): | 40 | % Fines (<2mm): | | 40 |
| Av. Wet. Width (m): | | 1.6 | Method Av. Wet. Width (m): | T | 1.2 | 2.0 | 1.6 1.5 | | % Gravels: | 45 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 6 | Av. Max. Riffle Depth (cm): | MS | | | | | A GILVELSI | | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 24 | Av. Max. Pool Depth (cm): | 6 | | | | |]] | | - , | | |
| Gradient (%): | | 5.0 | Method Gradient: | CL | | | | | % Larges: | 15 | Small cobble (64-128mm): | | |
| % Pool: 60 | % RiM | e: 40 | % Run: 0 % Other: | | Method: | GE | | | | | Large cobble (128-256mm): | | |
| % Side Channel: | | 0-10 | Method Side Channel: | GE | | | | | | | Boulder cobble (>256mm): | | |
| % Debris Area: | 20 | | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | _ | | D90 (cm): | 8 | Compaction: | | High |
| Cover Total % : | | 35 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 20 L | .O.D.: | 15 | Boulder: 5 In Veg.: | 0 | Over Veg: | 10 | Cutbank: | 5 | | | | | |
| Crown Closure %: | | 40 | Method Crown Closure; | GE | Aspect: | SE | Method Aspect: | A | E Height (m): | 0.4 | % Unstable: | | 0 |
| | | | | | | | - | | Textures Fines: | Yes | Gravel: No Larges: | lo Bedrock: | No |
| Discharge | | | | | | c | iG. Data | | Confinement: | 4 | | | |
| | | | | | | S | pecific Data | | Valley: Chan. Ratio: | 4 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | Flood Signs 11t(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s | vo | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.02 | Method Discharge (m3/s): | | | | | | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symb | ol - | | | | <u> </u> | | | | pH: | 7.8 | Method pH: | | PH |
| Acuen Byrno | ·· | | (| Fish) | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | | | DV | | | | | Water Temp. (°C): | 4.5 | Method Temperature: | | TC |
| | | | 2 D 5.0 | 4420 |) | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Beu | l Material) | | | | Cond. (jumbos): | | Method Conductivity: | | |

26-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-305-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

| S |
|---|
| |

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 1 | 47 | F | R | | | EL |

- C1 Electrofished 56 m of stream above the road culvert and 57 m of stream below the road culvert. The DV was caught below the culvert. No catch above the culvert does not mean the culvert is a barrier as it looks quite passable by both juveniles and fry, and the fish densities below the culvert are very low.
- C2 Culvert is 12 in long with a 1% gradient and no drop at its outlet. Velocities are ~ 0.3 m/s which is suitable for migration at this time. (Photo B3/23)
- C3 Useable fish habitat u/s of road and no barrier to fish migration identified. Suspect fish distribution extends u/s and ends at continuous 20% gradient.
- C4 3 Western Spotted frogs were observed d/s from the culvert.

26-Mar-9⁻

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-305-000-000-000-000-000-000-000

| Header Inform | nation | | | | | | | | | | _ | | | | |
|-------------------------|------------|-------|---------------------------------------|----------|-------------|---------|-------------|----------|-----|-----|----------------------|------------|---------------------------|---------------|--------|
| Stream Name: | THAUTIL F | R. TR | IBUTARY | | Stream "Lo | ocal"; | THIO | | | | | | Access: | | u |
| Watershed Code: | 460-6006-5 | 08-30 | 5-000-0 00-000-000-000-000-000 | | | | | | | | Reach No.: | 3 | Reach Length (km): | 2.1 Method: | MW |
| Location: | THIO LAK | E OL | TLET. | | Мар #: | 093L024 | | | | | Site No.: | 3 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | U.T.M.: | 9.6062 | .60156 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/22/96 | Time: | 12:00 | Agency: C58 Sur | vey Cro | ew: RD\CP\ | 1 1 1 1 | 1 1 | | | | Photos: | A14/15, 16 | Air Photos: | BCB 911 | 80:141 |
| Channel Chai | racteris | stic | s | | | S | Specific De | ala | * | | Bed Material | | | | |
| Av. Chan. Width (m): | | 1.4 | Method Av. Chan. Width (m): | T | 1.5 | 1.8 | 1.1 | 1.2 | 1.6 | 1.4 | % Fines (<2mm): | 25 | % Fines (<2mm): | | 25 |
| Av. Wet. Width (m): | | 1.3 | Method Av. Wet. Width (m): | T | 1.5 | 1.6 | 1.0 | 1.2 | 1.5 | 1.0 | % Gravels: | 10 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (cr | • | 7 | Av. Max. Riffle Depth (cm): | MS | l | | | | | | | | Large (16-64mm): | | 5 |
| Av. Max. Pool Depth (c | | 19 | Av. Max. Pool Depth (cm): | 7 | l | | | | | | % Larges: | 65 | Small cobble (64-128mm); | | 40 |
| Gradient (%): | | 8.0 | Method Gradient: | CL | | | | | | | 76 1.41 ges. | 65 | Large cobble (128-256mm): | | 15 |
| | % Riffle: | | % Run: 5 % Other: | | Method: | GE | | | | | | | Boulder cobble (>256mm): | | 10 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | 1 | | , | | |
| % Debris Area: | | -10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 24 | Compaction: | N | Medium |
| Cover Total % : | | 70 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 L.O | D.D.: | 15 | Boulder: 35 In Veg.: | 30 | Over Veg: | 0 | Cutbai | nk: | | 10 | | | | | |
| Crown Closure % : | | 5 | Method Crown Closure: | GE | Aspect : | SE | Metho | d Aspect | : | AE | Height (m): | 0.3 | % Unstable: | | U |
| L | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | 1 | S | ecific Da | ta | | | Confinement: | 4 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m) : | | | ~, | , cog.c D = | | | | Valley: Chan. Ratio: | 3 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Stage: | Ł | | | |
| Mean Velocity (m/s): | | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | 0.0 | | Method Discharge (m3/s): | •• | | | | | | | Braided: | N | Method Braided: | | GĿ |
| | | | | | | | <u> </u> | | | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symbo | 1 | | | . | | | | | | | pH: | | Method pH: | | |
| | | | (| Fish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxygen: | | |
| | | | | NF | | | | | | | Water Temp. (°C): | 2.5 | Method Temperature: | | IC |
| | | | 1 C 8.0 | 316 | 0 | | | | | | Turb. (cm); | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | 20 | Method Conductivity: | | CM |

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-305-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Comments

C1 Electrofished 71 m length of stream with 1 d/s pass and no lower net. No fish were caught.

C2 Small lake was iced over during the survey but the channel below the lake was open and flowing.

C3 Bed material consists of cobble/fines; area is of very limited potential spawning.

C4 The outlet of the channel is accessible to fish but it becomes very steep d/s.

C5 Air Temp: 1 C.

Obstructions

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-305-TH -10.-1 -000-000-000-000-000

Header Information Stream Name: THAUTIL R. TRIBUTARY TH10.1 Stream "Local": Access: П Watershed Code: 460-6006-508-305-TH -10.-1 -000-000-000-000-000 Reach No.: MW Reach Length (km): 1.4 Method: Location: D/S EDGE OF CIRCULAR MEADOW; ~150 m U/S FROM Map #: 093L024 Site No.: Length surveyed (m): 100.0 Method: HC CONFLUENCE WITH TH10. 9.6063 .60159 U.T.M.; Fish Card: Field: Yes Historical: No Date: 9/20/96 Time: 16:30 Agency: C58 Survey Crew: JH\SS\\\\\\\\ Photos: B3/21 Air Photos: BCB 91180:139 Channel Characteristics **Bed Material** Specific Data 0.8 Method Av. Chan. Width (m): T Av. Chan. Width (m): 0.8 0.9 0.5 0.6 1.1 % Fines (<2mm): % Fines (<2mm): 50 Method Av. Wet. Width (m): Т Av. Wet. Width (m): Small (2-16mm): % Gravels: Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): MS Large (16-64mm): Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 0 % Larges: Small cobble (64-128mm): CLGradient (%): Method Gradient: Large cobble (128-256mm): % Pool: 0 % Run: % Other: 0 Method: GE % Riffle: 0 Boulder cobble (>256mm): GE % Side Channel: Method Side Channel: % Debris Area: GE 0 Method Debris Area: % Bedrock: % Bedrock: Û D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks Dp Pool: 0 L.O.D.: In Veg.: Over Veg: 50 50 Cutbank: Crown Closure %: Method Crown Closure: GE Aspect: Method Aspect: ΑE Height (m): % Unstable: 0 **Textures Fines:** Larges: No Bedrock: No Yes Gravel: No Discharge Confinement: Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): Stage: Dry Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): 0.1 Method Flood Signs: MS Mean Velocity (m/s): Method Mean Velocity (m/s VO Braided: Method Braided: GE Discharge (m3/s): Method Discharge (m3/s): Bars (%): Method Bars: Reach Symbol pH: Method pH: (Fish) 02 (ppm): Method Dissolved Oxygen: (SP) Water Temp. (°C): Method Temperature: 1 D 0.5 5500 Turb. (cm): Method Turbidity: (Width, Valley: Channel, Slope) (Bed Material) Cond. (jumbos): **Method Conductivity:**

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-305-TH-10.-1 -000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

- Tributary was dry with pockets of stagnant water, so there was zero discharge and some measurements such as temperature could not be taken. A sample site was not performed due to the lack of water in the stream.
- C2 Channel provides potential fish habitat during high spring flows, but above the steep gradient section the tributary is too small to provide habitat.

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-305-TH -10.-1 -000-000-000-000

| Header Infor | matio | n | | | | | | • | | | | | | |
|------------------------|----------|-----------------|--|---------|--------------|---------|----------------|-----|----|----------------------|---------|--------------------------|---------------|---------------|
| Stream Name: | THAUTI | LR.T | RIBUTARY | | Stream "Lo | cal": | TH10.1 | | | | | Access: | | V 2 |
| Watershed Code: | 460-6006 | - 508- 3 | 05-TH -101 -000-000-000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.4 Method: | MW |
| Location: | ~150 m E | /S FR | OM ROAD | | Map #: | 093L024 | | | | Site No.: | 5 | Length surveyed (m): | 150.0 Method: | HC |
| | | | | | U.T.M.: | 9.6063 | .60159 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/23/96 | Time | : 16:0 | 0 Agency: C58 Sur | vey Cre | :w: JH\SS\ \ | 1 1 1 | 1 1 | | | Photos: | B4/4, 5 | Air Photos: | BCB 9118 | 80:139 |
| Channel Cha | ractei | ristic | es | | i | | Specific Data | | 1 | Bed Material | | | | |
| Av. Chan. Width (m): | | 1.1 | Method Av. Chan. Width (m): | T | 1.5 | 1.1 | 0.8 1.2 | 0.9 | 3 | % Fines (<2nım): | 100 | % Fines (<2mm): | | 100 |
| Av. Wet. Width (m): | | 0.8 | Method Av. Wet. Width (m): | T | 1.4 | 0.9 | 0.2 | | | % Gravels: | 0 | Small (2-16mm): | | 0 |
| Av. Max. Rif. Depth (c | - | 9 | Av. Max. Riffle Depth (cm): | MS | | | | | | | | Large (16-64mm): | | O |
| Av. Max. Pool Depth (| cm): | 22 | Av. Max. Pool Depth (cm): | 9 | l . | | | | | % Larges: | 0 | Small cobble (64-128mm): | | 0 |
| Gradient (%): | | 5.0 | Method Gradient: | CL | | | | | | 70 Larges. | U | Large cobble (128-256mm | ı• | 0 |
| % Pool: 65 | % RiMe | | % Run: 0 % Other: | | Method: | GE | | | | | | Boulder cobble (>256mm) | | 0 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | • | | | _ |
| % Debris Area: | 10 | | Method Debris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 0 | Compaction: | | High |
| Cover Total %: | | 75 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 0 L.C |).D.: | 5 | Boulder: 0 In Veg.: | 0 | Over Veg: | 75 | Cutbank: | | 20 | | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect : | SE | Method Aspect: | | ΑE | Height (m): | 0.3 | % Unstable: | | 20 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | 1 | C | necific Data | | ļ | Confinement: | 3 | | | |
| _ | | | North and New and New York (and | | | .s, | ecijic Dulu | | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): Method Mean Velocity (m/s | vo | | | | | İ | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | | 10.0 | Method Discharge (m3/s): | VO | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.01 | | | 1 | | | | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symbo | ı | | | | | | | | | pH: | 8.0 | Method pH: | | PH |
| | | | (| Fish) | | | | | | 02 (ppm): | | Method Dissolved Oxyger | : | |
| | | | | NF | | | | | | Water Temp. (°C): | 5.5 | Method Temperature: | | \mathbf{IC} |
| | | | 1 C 5.0 | F | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

*** ** ** **

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-305-Ttt-10.-1 -000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

Comments

C2

C1 Electrofished 100 m length of stream, d/s from road crossing. No fish were caught.

Although no fish were observed, there's potential for fish access and presence d/s of the sample site.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Header Information THAUTIL R. TRIBUTARY Stream Name: Stream "Local": THII V2Access: Watershed Code: 460-6006-508-343-000-000-000-000-000-000-000 Reach No.: Reach Length (km): 1.9 Method: MW SAMPLED AT BRIDGE, ~800 m U/S FROM THAUTIL R. Map #: 093L024 100.0 Method: Location: Site No.: Length surveyed (m): HC CONFLUENCE. 9.6070 .60165 U.T.M.: Fish Card: Field: Yes Historical: No Time: 13:00 Survey Crew: RD\CP\\\\\\\\ Air Photos: Date: 9/17/96 Agency: C58 Photos: A2/10, 11 BCB 91180:017 Channel Characteristics **Bed Material** Specific Data T 3.1 Method Av. Chan. Width (m): 3.7 3.6 2.6 3.1 Av. Chan. Width (m): % Fines (<2mm): % Fines (<2mm): 5 T Av. Wet. Width (m): Method Av. Wet. Width (m): % Gravels: Small (2-16mm): 5 Av. Max. Riffle Depth (cm): MS Av. Max. Rif. Depth (cm): 20 Large (16-64mm): 10 Av. Max. Pool Depth (cm): 35 Av. Max. Pool Depth (cm): % Larges: Small cobble (64-128mm): 40 10.0 Method Gradient: CL Gradient (%): Large cobble (128-256mm): 30 % Pool: 25 % Run: 0 % Riffle: 60 15 % Other: Method: GE Boulder cobble (>256mm): % Side Channel: 0-10 Method Side Channel: GE % Debris Area: GE 0 10-40 Method Debris Area: % Bedrock: % Bedrock: D90 (cm): Compaction: Medium Cover Cover Total %: Method Cover Total %: GE Banks In Veg.: 10 Dp Pool: 40 L.O.D.: 30 Boulder: 20 0 Over Veg: Cutbank: Method Crown Closure: Crown Closure %: 25 GE NW ΑE Aspect: Method Aspect: Height (m): 1.5 % Unstable: () Gravel: Yes **Textures Fines:** Yes Larges: No Bedrock: Discharge Confinement: 2 Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): М Stage: Mean Depth (in): Method Mean Depth (m): Flood Signs 11t(m): 0.2 Method Flood Signs: MS vo Mean Velocity (m/s): Method Mean Velocity (m/s Braided: Method Braided: GE 0.14 Method Discharge (m3/s): Discharge (m3/s): Method Bars: Bars (%): GE pH: 7.8 Method pH: PH Reach Symbol (Fish) Method Dissolved Oxygen: 02 (ppm): DV Method Temperature: TC Water Temp. (°C); 50 3 A 10.0 1270 Turb. (cm): Method Turbidity: GE (Width, Valley: Channel, Slope) (Bed Material) **Method Conductivity:** Cond. (umhos):

26-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Species | Number Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|------------------------|------------|-------|-------|-------|------------------|
| DV | 4 81 - 112 | J | R | | | EL |

- C1 Electrofished ~25 m length of stream with a lower net, and spot-shocked ~25 m of channel d/s. 2 DV were caught and 2 DV were visually observed. Very low fish densities in this section of stream.
- Tributary has a high potential to transport debris. Channel is confined and LOD is an important component in the log stepping which is present. Several debris jams with 0.6 1.0 m high drops were observed d/s.
- C3 Fish in this Reach must be residents due to the 10% gradient, and the break in slope between R1 and R2 forming a bench which is likely impassable to fish.

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-343-000-000-000-000-000-000-000

| Header Info | mation | | | | - | | | | | | , | | | | |
|---------------------|-------------|------------------|------------------------------|-----------------|--------------|------------------|------------|-----------|-----|-----|----------------------|------------|------------------------|----------------|---------|
| Stream Name: | THAUTIL P | . TRIBUTA | RY | | Stream "Le | cal": | THH | | | | | | Access: | | Н |
| Watershed Code: | 460-6006-50 | 8-343-000-0 | 000-000 -000-000-000- | 000-000 | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.9 Method: | MW |
| Location: | SAMPLED | NEAR TOP | OF CUTBLOCK 610# | /2, ~950 m U/S | Map #: | 093 L0 24 | ļ | | | | Site No.: | 2 | Length surveyed (m): | 1100.0 Method: | HC |
| | FROM BRII | OGE. | | | U.T.M. : | 9.6070 | .60165 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/22/96 | Time: | 13:00 | Agency: C58 | Survey Ci | rew: RD\CP\ | 1 1 1 1 | 1 1 | | | | Photos: | A14/13, 14 | Air Photos: | BCB 911 | 180:017 |
| Channel Ch | aracteris | tics | <u> </u> | | <u> </u> | | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m) | : : | 2.9 Metho | od Av. Chan. Width (1 | m): T | 2.4 | 2.8 | 3.0 | 2.5 | 3.9 | 2.6 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | : | 2.6 Metho | od Av. Wet, Width (m | i): T | 1.6 | 2.7 | 2.8 | 2.3 | 3.4 | 2.6 | | | | | |
| Av. Max. Rif. Depth | (cm): | li Av. M | lax. Riffle Depth (cm) | : MS | | | | | | | % Gravels: | 35 | Small (2-16mm): | | 15 |
| Av. Max. Pool Depth | (cm): | 30 Av. M | iax. Pool Depth (cm): | il | | | | | | | | | Large (16-64mm): | | 20 |
| Gradient (%): | , | 9.0 Metha | od Gr≅dient: | CL | , | | | | | / | % Larges: | 55 | Small cobble (64-128mm | | 30 |
| % Pool: 20 | % Riffle: | 75 % Ru | n: 5 % | Other: 0 | Method: | GE | | | | | | | Large cobble (128-256m | | 20 |
| % Side Channel: | 0- | 10 Metho | od Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm | n): | 5 |
| % Debris Area: | > | 40 Metho | d Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 20 | Compaction: | N | Medium |
| Cover Total %: | | 75 Meth o | od Cover Total %: | GE | | | | | | | Banks | | | - | |
| Dp Pool: 30 L | .O.D.: | 20 Bould | er: 40 in | Veg.: 0 | Over Veg: | 0 | Cutba | nk: | | 10 | 1000000 | | | | |
| Crown Closure %: | | 15 Metho | od Crown Closure: | GE | Aspect: | NW | Metho | d Aspect: | | AE | Height (m): | 0.3 | % Unstable: | | 5 |
| | | | | | | | | | | _ | Textures Fines: | Yes | Gravel: Yes Large | s: No Bedrock: | Nυ |
| Discharge | | | | | | c. | :C. D. | | | | Confinement: | 3 | | | |
| | | | | | | 3) | pecific Da | ш | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Mean Depth (m) : | 110 | <u> </u> | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : 0.0 | | Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | o Method | l Discharge (m3/s) : | | <u> </u> | | | | | | Bars (%): | 10 | Method Bars: | | Gh |
| Reach Symb | ol | | | | | | | | | | pH: | | Method pH: | | |
| | | | | (Fish) | | | | | | | 02 (թթու)։ | | Method Dissolved Oxyg | en: | |
| | | | | DV | | | | | | | Water Temp. (°C): | 3.0 | Method Temperature: | | TC |
| | | | 3 | B 9.0 13 | 60 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE. |
| | | (V | Vidth, Valley: Channe | el, Slope) (B | ed Material) | | | | | | Cond. (µmhos): | 50 | Method Conductivity: | | CM |

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary

| | | • | | | | | |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
| DV | 2 | 75 - 130 | j | R |] | | EL |

Obstructions

Comments

C2

C1 Electrofished 25 m length of channel with 1 pass and no lower net.

The tributary becomes steep u/s of this site and then returns to a low gradient; accessible to fish to the top of R2 (2000 m u/s from mouth). Th11 is classified as S3 in R2 and becomes class S6 u/s of R2.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-343-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|--|----------|---------|---------------------------------|---------|-------------|-----------------|------------|-----------|-----|-----|----------------------|-----------|--------------------------|---------------|-----------|
| Stream Name: | THAUTI | LR. TI | RIBUTARY | | Stream "Lo | cal": | THH | | | | | | Access: | | Н |
| Watershed Code: | 460-6006 | 5-508-3 | 43-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 3 | Reach Length (km): | 3.4 Method: | MW |
| Location: | | | N, ~100 m U/S FROM TH11/ TH11.1 | | Map#: | 093 L024 | 1 | | | | Site No.: | 3 | Length surveyed (m): | 100.0 Method: | HC |
| | CONFLU | JENCE | • | | U.T.M.: | 9.6070 | .60165 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/22/96 | Time | : 14:0 | O Agency: C58 Sur | vey Cre | w: RD\CP\ | 111 | 1.1 | | | | Photos: | A5/14, 15 | Air Photos: | BCB 911 | 180:017 |
| Channel Ch | aracte | ristic | es | | ; | S | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 2.5 | Method Av. Chan. Width (m): | Ţ | 2.9 | 2.8 | 1.9 | 2.4 | 2.6 | 2.3 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 1.6 | Method Av. Wet. Width (m): | T | 1.7 | 1.2 | 1.5 | 1.7 | 1.7 | ļ | ` ′ | | , , | | |
| Av. Max. Rif. Depth | (cm): | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | 1 | % Gravels: | 50 | Small (2-16mm): | | 10 |
| Av. Max. Pool Depth | (cm): | 26 | Av. Max. Pool Depth (cm): | 8 | | | | | | | | | Large (16-64mm): | | 40 |
| Gradient (%): | | 8.0 | Method Gradient: | CL | 1 | | | | | ' | % Larges: | 45 | Small cobble (64-128mm): | | 40 |
| % Pool: 30 | % RiM | e: 60 | % Run: 10 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | • | 5 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm) | : | 0 |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | _ | | | | | | | D90 (cm): | 12 | Compaction: | | High |
| Cover Total %: | | 60 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 L | .O.D.: | 20 | Boulder: 55 In Veg.: | 0 | Over Veg: | 5 | Cutba | nk: | | 10 | | | | | |
| Crown Closure %: | | 30 | Method Crown Closure: | GE | Aspect: | NW | Metho | d Aspect: | | AE | Height (m): | 0.4 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | ſ | Ç, | pecific Da | ta | | | Confinement: | 3 | | | |
| 11/ | | | Method Wetted Width (m): | | | ., | pecyte Da | , | | } | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Mean Depth (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | _ | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs 11t(m): | 0.35 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) Discharge (m3/s): | | 0.06 | Method Discharge (m3/s): | VO | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s). | | U.00 | | | <u> </u> | | | _ | | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | | Method pH: | | |
| | | | (| Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | 1: | |
| | | | | NF | | | | | | | Water Temp. (°C): | 2.0 | Method Temperature: | | IC |
| | | | 3 A 8.0 | 1540 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Bed | d Material) | | | | | | Cond. (µmhos): | 60 | Method Conductivity: | | CM |

26-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code:

460-6006-508-343-000-000-000-000-000-000-000

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 2 | С | |

- C1 Electrofished 70 m length of stream with 1 pass and no lower net. No fish were caught although habitat is suitable for fish.
- C2 D/S in steep section in the top of R1, channel is very confined with bedrock; there is a 2 m high x 2.5 m long bedrock chute impassable to fish.
- C3 Lat/Lon of helicopter landing site: 54 16.53 127 19.57
- C4 Bed material is primarily cobbte but some spawning habitat was observed. Channel has good cover in the LOD and alder swale overstory.
- C5 Air Temp: 1 C.

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-343-TH-11.-1 -000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|---------------------|-------------|------------------|--|--------------|-------------|---------|------------|----------|-----|-----|----------------------|-----------|--------------------------|---------------|---------|
| Stream Name: | THAUT | IL R. T | RIBUTARY | | Stream "Lo | cal": | THII. | l | | | | | Access: | | FT |
| Watershed Code: | 460-600 | 6-50 8- 3 | 43-TH -111 -000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.4 Method: | MW |
| Location: | ~100 m | BELOV | SPUR ROAD AT BLOCK 610#5. | | Map #: | 093L024 | | | | | Site No.: | 4 | Length surveyed (m): | 100.0 Method: | : HC |
| | | | | | U.T.M.: | 9.6092 | .60154 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/23/96 | Tim | e: 11:0 | O Agency: C58 Su | теу Сте | w: RD\CP\ | 1 1 1 1 | 1 1 | | | | Photos: | A5/12, 13 | Air Photos: | BCB 91 | 180:017 |
| Channel Ch | aracte | ristic | es | | | .5 | Specific D | ata . | | 1 | Bed Material | | | | |
| Av. Chan. Width (m |): | 1.4 | Method Av. Chan. Width (m): | T | 1.9 | 0.8 | 1.6 | 3.1 | 0.6 | 0.6 | % Fines (<2mm): | 13 | % Fines (<2mm): | | 13 |
| Av, Wet, Width (m): | | 1.4 | Method Av. Wet. Width (m): | T | 1.9 | 0.8 | 1.6 | 3.1 | 0.6 | 0.6 | % Gravels: | 37 | Small (2-16mm): | | 12 |
| Av. Max. Rif. Depth | | 6 | Av. Max. Riffle Depth (cm): | MS | | | | | | ļ | | | Large (16-64mm): | | 25 |
| Av. Max. Pool Depth | (cm): | 20 | Av. Max. Pool Depth (cm): | 6 | | | | | | | % Larges: | 50 | Small cobble (64-128mm): | | 50 |
| Gradient (%): | | 5.5 | Method Gradient: | CL | | | | | | | % Larges. | 30 | Large cobble (128-256mm) | | 0 |
| % Pool: 20 | % Riff | | % Run: 30 % Other | | Method: | GE | | | | | | | Boulder cobble (>256mm): | | 0 |
| % Side Channel: | 16 | 0 | Method Side Channel: Method Debris Area: | GE GE | | | | | | | 9/ Dudos als: | 0 | • | | 0 |
| % Debris Area: | 35 ——— | | Method Debris Area: | | | | | | | | % Bedrock: | 0 | % Bedrock: | | |
| Cover | | | | | | | | | | | D90 (cm): | | Compaction: | | Medium |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 5 l | O.D.: | 75 | Boulder: 10 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 10 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect: | SW | Metho | od Aspec | ı: | ΑE | Height (m): | 0.5 | % Unstable: | | U |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | : No |
| Discharge | | | | | | S | pecific Da | nta | | | Confinement: | 3 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | | ., | ecyle Di | ••• | | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | į | | | | | | Stage: | l. | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s): | • | 0.03 | Method Discharge (m3/s): | •• | | | | | | | Braided: | N | Method Braided: | | GE |
| | | | | | <u> </u> | | · | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | (Eint) | | | | | | | pH: | 8 4 | Method pH: | | PH |
| [| | | | (Fish) NF | | | | | | | 02 (բթա)։ | | Method Dissolved Oxygen | : | |
| | | | | | | | | | | | Water Temp. (°C): | 3.0 | Method Temperature: | | TC |
| | | | 1 B 6. | | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope | (Bed | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-343-TH-11.-1 -000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C1 Electrofished ~40 m length of stream with 1 pass. No fish were observed.

Small, low gradient creek with some 30 m high drops over debris present. ~250 m d/s from road, gradient is 14% with a 10 m bedrock section with chutes: 1 m high x 2 m long chute and 0.5 m high x 1 m long chute. Further d/s to 400 m the gradient decreases to 10%. Suspect no fish access in steep 14% gradient section but possible fish use in the lower 150 m section of creek.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-355-000-000-000-000-000-000-000-000

| Header Info | | | | | | | | | | | | | | | |
|---------------------|------------|---------|--------------------------------|---------|-------------|--------|------------|-----------|-----|-----|----------------------|--------------|--------------------------|---------------|----------|
| Stream Name: | | | RIBUTARY | | Stream "Lo | cai": | TH12 | | | | | | Access: | | П |
| Watershed Code: | | | 55-000-000-000-000-000-000-000 | | | | _ | | | | Reach No.: | 1 | Reach Length (km): | 0.3 Method: | |
| Location: | ~100 m | U/S FR | OM THAUTIL R. CONFLUENCE | | Map#: | 093L02 | | | | | Site No.: | 1 | Length surveyed (m): | 300.0 Method: | HC |
| D . 0/20/00 | T : | . 14.5 | A | C | U.T.M.: | | .60169 | | | | Fish Card: | N DD2// Z | Field: Yes | Historical: | No No |
| Date: 9/20/96 | | e: 14:3 | | vey Cre | w: RD\CP\D | 8 1 1 | | | | | Photos: | DB2/6, 7 | Air Photos: | BCB 911 | 180:137 |
| Channel Ch | aracte | risti | 2S | | - | | Specific D | ala | - | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.9 | Method Av. Chan. Width (m): | T | 2.0 | 1.1 | 2.5 | 1.8 | 2.0 | 1.8 | % Fines (<2mm): | 50 | % Fines (<2mm): | | 50 |
| Av. Wet. Width (m): | | 1.9 | Method Av. Wet. Width (m): | T | 2.0 | 1.1 | 2.5 | 1.8 | 2.0 | 1.8 | % Gravels: | 50 | Small (2-16mm): | | 35 |
| Av. Max. Rif. Depth | (cm): | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | | 7. Graveis. | 50 | Large (16-64mm): | | 15 |
| Av. Max. Pool Depth | (cm): | 25 | Av. Max. Pool Depth (cm): | 8 | | | | | | | | | , | | |
| Gradient (%): | | 1.5 | Method Gradient: | CL | | | | | | | % Larges: | 0 | Small cobble (64-128mm): | | 0 |
| % Pool: 40 | % Riff | e: 10 | % Run: 50 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | • | 0 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm) | : | 0 |
| % Debris Area: | 80 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | _ | | | | | | _ | | | D90 (cm): | 5 | Compaction: | | High |
| Cover Total % : | | 100 | Method Cover Total %: | GE | | | | | | | Banks | | | - | |
| Dp Pool: 0 L | .O.D.: | 75 | Boulder: 0 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 25 | Dunks | | | | |
| Crown Closure %: | | 50 | Method Crown Ciosure: | GE | Aspect: | w | Metho | d Aspect: | | ΑE | Height (m): | 0.9 | % Unstable: | | U |
| | | | | | | | | | - | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | i | c | pecific Da | uta. | | | Confinement: | 5 | | | |
| 39/ 1 39/ 1d- /- 3 | | | Marked Wassed Widel () | | | • | pergu Di | | | | Valley: Chan. Ratio: | 4 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | VO. | | | | | | | Flood Signs Ht(m): | 0.8 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.07 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.07 | Method Discharge (m3/s): | | <u> </u> | | <u></u> | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | οl | | | | | | | | | | pit: | 8.0 | Method pli: | | PH |
| | ~* | | (| Fish) | | | | | | | 02 (քքա)։ | | Method Dissolved Oxyger | 1: | |
| | | | | DV | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | TC |
| | | | 2 D 1.5 | 550 | 0 | _ | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-355-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use i | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 1 | 132 | 1 | R | | | EL |

Comments

C1 Electrofished 30 m length of stream, 1 pass with no lower net. 1 DV was caught.

C2 Tributary is accessible from the mainstem Thautil R.

C3 Potential coho habitat though none were present. Debris is abundant within the stream channel.

Obstructions

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-355-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | <u> </u> | | | | | |
|---------------------|---------|-----------------|---------------------------------|--------------|---------------|----------------|----------|----------------------|---------|--------------------------|---------------|---------|
| Stream Name: | THAUT | IL R. T | RIBUTARY | Stream | "Local": | TH12 | | | | Access: | | н |
| Watershed Code: | 460-600 | 6-508-3 | 55-000-000-000-000-000-000-000 | | | | | Reach No.: | 2 | Reach Length (km): | 0.2 Method: | MW |
| Location: | ~300 m | U/S FR | OM THAUTIL R. CONFLUENCE | Map #: | 093L02 | 24 | | Site No.: | 2 | Length surveyed (m): | 200.0 Method: | HC |
| | | | | U.T.M. | : 9.6071 | .60169 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/20/96 | Tim | e: 14:0 | O Agency: C58 Surv | ey Crew: RD\ | 1 1 1 1 1 | <u> </u> | | Photos: | A5/4, 5 | Air Photos: | BCB 911 | 180:137 |
| Channel Ch | aracte | risti | es · | : | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m |): | 2.4 | Method Av. Chan. Width (m): | T 2. | 1.9 | 3.3 2.7 | 2.1 2.0 | % Fines (<2mm); | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 1.8 | Method Av. Wet. Width (m): | T | | | | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | | 7 | Av. Max. Riffle Depth (cm): | MS | | | | | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depti | ı (cm): | 35 | Av. Max. Pool Depth (cm): | 7 | | | | % Larges: | 80 | Small cobble (64-128mm) | | 35 |
| Gradient (%): | | 6.5 | Method Gradient: | CL | | | | % Larges: | 80 | Large cobble (128-256mm) | | 40 |
| % Pool: 20 | % Riff | l e : 50 | % Run: 30 % Other: | | od: GE | | | } | | Boulder cobble (>256mm | | 5 |
| % Side Channel: | | | Method Side Channel: | GE | | | | | | - | • | |
| % Debris Area: | 30 | | Method Debris Area: | GE | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | _ | | | | | | | D90 (cm): | 24 | Compaction: | ř | Medium |
| Cover Total % : | | 75 | Method Cover Total %: | GE | | | | Banks | | | | |
| Dp Pool: 20 l | O.D.: | 40 | Boulder: 10 In Veg.: | 0 Over V | 'eg: 20 | Cutbank: | 10 | | | | | |
| Crown Closure % : | | | Method Crown Closure: | Aspect | : W | Method Aspect: | AE | Height (m): | 1.8 | % Unstable: | | 0 |
| | | | | | _ | | | Textures Fines: | Yes | Gravel: Yes Larges | No Bedrock: | No |
| Discharge | | | | | | Carrier Data | | Confinement: | 2 | | | |
| • | | | | į | • | Specific Data | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | 1 | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.00 | Method Mean Velocity (m/s | vo | | | | Braided: | N | Method Braided: | | GŁ |
| Discharge (m3/s) : | | 0.08 | Method Discharge (m3/s) : | | | | | Bars (%): | 25 | Method Bars: | | GE |
| Reach Symb | ool | | | | | | | pH: | | Method pH: | | |
| | | | | ish) | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | SP | (DV) | | | | Water Temp. (°C); | 6.0 | Method Temperature: | | IC |
| | | | 2 B 7.0 | 1180 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed Materia | al) | | - | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-355-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Species | Number | Size Range (mm) | Life Phase | Use i | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | | | J | | | | vo |

Comments

C1 Large amounts of debris present in the channel. R2 is restricted due to numerous debris drops but suspect R2 is accessible in higher flows. The upper section of R2 is confined.

C2 Pockets of habitat suitable for coho spawning were observed. Fine gravel bed material is abundant.

C3 A juvenile DV was visually observed ~500 m u/s from mouth.

26-Mar-9^

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-355-000-000-000-000-000-000-000

| Header Inform | ation | | | | | | | | | | | | | - |
|--|------------|---|----------|-------------|----------|------------|-----------|-----|----|----------------------|-----------|---|---------------|----------|
| Stream Name: Ti | AUTIL R. | TRIBUTARY | | Stream "Le | ocal": | TH12 | | | | | | Access: | | V2 |
| Watershed Code: 46 | 0-6006-508 | -355-000-000-000-000-000-000-000 |) | | | | | | | Reach No.: | 3 | Reach Length (km): | 0.7 Method: | MW |
| Location: ~5 | D/S FROI | M ROAD CROSSING. | | Мар #: | 093L024 | • | | | | Site No.: | 3 | Length surveyed (m): | 500.0 Method: | НС |
| | | | | U.T.M. : | 9.6071 | .60169 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/23/96 | Time: 16 | 30 Agency: C58 Su | rvey Cro | ew: RD\CP\ | <u> </u> | 11 | _ | | | Photos: | A5/19, 20 | Air Photos: | BCB_911 | 180:137 |
| Channel Chard | cterist | ics | | : | | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | 2.0 | • | T | 2.7 | 1.6 | 1.8 | 2.1 | 1.8 | | % Fines (<2mm): | 0 | % Fines (<2mm): | | 0 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (cm | 2.0 : | , | T MS | 2.7 | 1.6 | 1.8 | 2.1 | 1.8 | | % Gravels: | 50 | Small (2-16mm): | | 10 |
| Av. Max. Pool Depth (cm |): 20 9 | | 5 CL | | | | | | | % Larges: | 50 | Large (16-64mm): Small cobble (64-128mm) | | 40 50 |
| Gradient (%): % Pool: 20 % | Riffle: 5 | | | Method: | GE | | | | | , . | | Large cobble (128-256mm | ı): | 0 |
| % Side Channel: | | Method Side Channel: | GE | | | | | | |] | | Boulder cobble (>256mm |): | 0 |
| % Debris Area: 30 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | _ | D90 (cm): | 10 | Compaction: | | High |
| Cover Total % : | 40 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L.O.I |).; 60 | Boulder: 10 In Veg.: | 0 | Over Veg: | 20 | Cutba | nk: | | 10 | | | | | |
| Crown Closure %: | 70 | Method Crown Closure: | GE | Aspect : | NW | Metho | d Aspect: | | AE | Height (m): | 0.8 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | No Bedrock: | Nο |
| Discharge | | | | 1 | Si | pecific Da | ta | | 1 | Confinement: | 4 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | - | . • | | | 1 | Valley: Chan. Ratio: | 4 | | | |
| Mean Depth (m) : | | Method Mean Depth (m) : | | ŀ | | | | | } | Stage: | M | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | İ | | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | 0.06 | • • | _ | | | | | | | Braided: | N | Method Braided: | | GE |
| | | | _ | | | · . | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | (E!-b) | | | | | | | pH: | | Method pH: | | |
| • | | | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | NF — | | | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | TC |
| | | 2 D 10. | 1 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope | e) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-355-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | CV_ | 1.0 |

| Cl | Electrofished 70 m length of stream, I pass with no lower net. No fish were caught. |
|----|--|
| C2 | Two culverts at the road with \sim 3 - 4 m high road fill on top of culverts. (Photo A5/21) |
| C3 | R3 is only accessible in the lower 50 in; above 50 m, gradient is 17% for ~60 m of stream and then the gradient decreases to ~ 7 - 12% and continues up to the road. Fish habitat is present below the road, but sample site results show no fish use. |
| C4 | Th12 was not surveyed above the road crossing; this section should be examined before logging block 610#3. |

26-Mar-9"

Stream: THAUTH R TRIBUTARY

Watershed Code:

Stream Survey Report

Header Information Stream Name: THAUTIL R. TRIBUTARY Stream "Local": TH12 I V٦ Access: 460-6006-508-355-TH -12.-1 -000-000-000-000-000 Reach No.: 1.0 Method: MW Watershed Code: Reach Length (km): ~50 D/S FROM ROAD CROSSING. 093L024 Map #: Site No.: Length surveyed (m): 100.0 Method: HC Location: U.T.M.: 9.6074 .60167 Fish Card: Field: Yes Historical: No Date: 9/23/96 Time: 16:00 Agency: C58 Survey Crew: RD\CP\ \ \ \ \ \ Photos: A5/16, 17 Air Photos: BCB 91180:137 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 0.5 Method Av. Chan. Width (m): T 0.5 0.5 0.3 % Fines (<2mm): % Fines (<2mm): 80 T 0.5 0.5 Method Av. Wet. Width (m): 0.5 0.4 0.7 0.3 Av. Wet. Width (m): % Gravels: Small (2-16mm): 5 MS Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): 5 Large (16-64mm): 2 Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): Small cobble (64-128mm): 10 % Larges: Gradient (%): 8.0 Method Gradient: CLLarge cobble (128-256mm): 0 0 Method: GE % Pool: 10 % Riffle: 30 % Run: 60 % Other: Boulder cobble (>256mm): 0 0 Method Side Channel: GE % Side Channel: 40 GE % Debris Area: Method Debris Area: % Bedrock: % Bedrock: 0 D90 (cm): Compaction: High Cover Method Cover Total %: GE Cover Total %: Banks 0 Dp Pool : 10 L.O.D.: Boulder: 0 In Veg.: 20 Over Veg: Cutbank: Crown Closure %: Method Crown Closure: Aspect: NW Method Aspect: Height (m): % Unstable: O Textures Fines: Larges: No Bedrock: Gravel: Yes No Discharge Confinement: 3 Specific Data Valley: Chan. Ratio: 2 Wetted Width (m): Method Wetted Width (m): Stage: L Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): 0.1 Method Flood Signs: MS Mean Velocity (m/s): Method Mean Velocity (m/s VO Braided: Method Braided: GE Discharge (m3/s): 0.01 Method Discharge (m3/s): Method Bars: Bars (%): GE Reach Symbol pH: Method pH: (Fish) 02 (ppm): Method Dissolved Oxygen: NF Water Temp. (°C): Method Temperature: IC 4.5 8.0 8110 Turb. (cm): 200 Method Turbidity: GE (Width, Valley: Channel, Slope) (Bed Material) Cond. (pmhos): Method Conductivity:

26-Mur-9° Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-355-TH-12.-1 -000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Electrofished 30 m length of stream, 1 pass with no lower net. No fish were caught. Sample site was conducted below the road culvert.
- R2 of Th12.1 begins at Th12.2 confluence. The lower 50 m section of R2 is steep (gradient ~20%); above 50 in the gradient decreases to 8 10%. Suspect end of fish use at the base of R2 due to impassable steep gradient.
- C3 R2 was not surveyed above the road; section should be examined as it seems flow out of cutblock 610#3.
- C4 A 4 in high fill on the culvert was noted (Photo A5/18).
- C5 R1 was surveyed: section had a gradient of 5 7% with a small meandering channel. Bed material was primarlily fines.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-355-711-12-1.1-000-000-000-000-000

Header Information Stream Name: THAUTIL R. TRIBUTARY Stream "Local": TH12.1.1 Access: FT Watershed Code: 460-6006-508-355-TH -12.-1.1-000-000-000-000 Reach No .: Reach Length (km): 3.1 Method: MW 093L024 Location: ~50 D/S FROM ROAD CROSSING Map#: Site No.: 100.0 Method: Length surveyed (m): HC U.T.M. : 9.6075 .60168 Fish Card: Field: Yes Historical: No Agency: C58 Date: 9/23/96 Time: 17:00 Survey Crew: RD\CP\ \ \ \ \ \ Photos: A5/6, 7 Air Photos: BCB 91180:137 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 0.2 Method Av. Chan. Width (m): Т 0.2 0.3 0.2 0.3 0.2 % Fines (<2mm): % Fines (<2mm): 100 Av. Wet. Width (m): Method Av. Wet. Width (m): T 0.3 0.2 0.3 0.2 0.2 % Gravels: Small (2-16mm): Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): MS Large (16-64mm): Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 3 % Larges: Small cobble (64-128mm): 5.5 Method Gradient: CLGradient (%): Large cobble (128-256mm): 0 % Other: 10 % Pool: 20 % Riffle: 30 40 Method: GE Boulder cobble (>256mm): % Side Channel: 0 Method Side Channel: GE 20 GE % Debris Area: Method Debris Area: % Bedrock: 0 % Bedrock: 0 D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks Dp Pool: 30 L.O.D.: Boulder: In Veg.: 0 Over Veg: Cutbank: 15 Crown Closure %: Method Crown Closure: Aspect: Method Aspect: ΑE Height (m): 0.1 % Unstable: 0 Textures Fines: Gravel: No Larges: No Bedrock: Discharge Confinement: Specific Data Valley: Chan. Ratio: 3 Wetted Width (m): Method Wetted Width (m): Stage: М Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): Method Flood Signs: GE Mean Velocity (m/s): Method Mean Velocity (m/s VO Braided: Method Braided: GE Discharge (m3/s): 0.01 Method Discharge (m3/s): Method Bars: Bars (%): GE pH: Method pll: Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: NF Water Temp. (°C): Method Temperature: IC 9.0 0 C 6.0 Turb. (cm): 200 Method Turbidity: GE: (Width, Valley: Channel, Slope) [Bed Material] Method Conductivity: Cond. (µmhos):

26-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-355-TH-12.-1.1-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 Very small seepage with a trickle flow, sand/silt bed material and a 4 5% gradient.
- C2 Electrofished 30 m length of stream d/s from road. No fish were caught. Potential fish use in the lower 20 m of the tributary.
- C3 Small culvert at road covered with a large 6 8 m high fill.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-370-000-000-000-000-000-000-000

| Header Info | rmatio | on | | | | | | | - | | | | _ |
|---------------------|----------|-------------------|--------------------------------|---------|-------------|---------|----------------|---------|----------------------|-------|---------------------------|---------------|---------|
| Stream Name: | THAUT | IL R. T | RIBUTARY | | Stream "Lo | cal": | TH13 | | | | Access: | | V2 |
| Watershed Code: | 460-600 |)6-508 - 3 | 70-000-000-000-000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 0.2 Method: | MW |
| Location: | ~50 m [|)/S FRC | M ROAD CROSSING. | | Map #: | 093L024 | 4 | | Site No.: | 1 | Length surveyed (m): | 133.0 Method: | HC |
| | | | | | U.T.M.: | 9.6068 | .60174 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/23/96 | Tim | ie: 15: | Agency: C58 Sui | vey Cn | ew: JH\SS\\ | . \ \ \ | \ \ | | Photos: | B4/ 2 | Air Photos: | BCB 91 | 180:139 |
| Channel Ch | aracte | risti | cs | | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.3 | Method Av. Chan. Width (m): | T | 1.5 | 0.2 | 1.5 1.5 | 1.9 1.0 | % Fines (<2mm): | 40 | % Fines (<2mm): | | 40 |
| Av. Wet. Width (m): | | 0.5 | Method Av. Wet. Width (m): | T | 1.1 | 0.2 | 0.3 | ĺ | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 7 | Av. Max. Riffle Depth (cm): | MS | | | |] | % Graveis: | 20 | • | | |
| Av. Max. Pool Depth | (cm): | 18 | Av. Max. Pool Depth (cm): | 7 | | | | [| | | Large (16-64mm): | | |
| Gradient (%): | | 21.5 | Method Gradient: | CL | | | | 1 | % Larges: | 40 | Small cobble (64-128mm): | | |
| % Pool: 10 | % Riff | le: 90 | % Run: 0 % Other: | . 0 | Method: | GE | | | | | Large cobble (128-256mm): | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | Boulder cobble (>256mm): | | |
| % Debris Area: | 5 | | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | <u>.</u> | | | | | | | | D90 (cm): | 17 | Compaction: | | Medium |
| Cover Total % : | | 25 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 0 L | .O.D.: | 5 | Boulder: 20 In Veg.: | 0 | Over Veg: | 25 | Cutbank: | 50 | Junis | | | | |
| Crown Closure % : | | 10 | Method Crown Closure; | GE | Aspect : | SE | Method Aspect: | AE | Height (m): | 0.4 | % Unstable: | | 0 |
| | | | | | | | | | Textures Fines: | No | Gravel: No Larges: | Yes Bedrock: | No |
| Discharge | | | | | ı | | | | Confinement; | 1 | | | |
| Ì | | | | | İ | 3, | pecific Data |] | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | No | j | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s | vo | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.01 | Method Discharge (m3/s) : | | <u> </u> | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symb | ol . | | | | | | | | pH: | | Method pH: | | |
| Seach Symb | V. | | • | (Fish) | | | | | 02 (ppm)։ | | Method Dissolved Oxygen: | | |
| 1 | | | | NF | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | rc |
| | | | 1 A 22.0 | 424 | 0 | = | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-370-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 21.5% gradient is the average for the whole reach. The gradient was 18 % at the confluence with the Thautil R. which then increased to 20+ % u/s where it remained continuous.
- C2 Discharge was entered with a minimum value but flow is almost zero; consists mainly of stagnant water
- C3 Electrofished 77 m length of stream below the culvert. No fish were caught. Habitat is not suitable for fish.

26-Mar-9"

Stream: HAGMAN C.

Watershed Code:

Stream Survey Report

460-6006-508-381-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | • | | | | | | | | |
|----------------------|---------|-----------------|----------------------------------|--------|--------------|---------|------------|-----------|----------|------|----------------------|-------------------|-------------------------|----------------|---------|
| Stream Name: | HAGMA | NC. | | | Stream "Lo | cal": | HAGI | MAN (TH | 14) | | | | Access: | | V2 |
| Watershed Code: | 460-600 | 6- 508-3 | 81-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | l | Reach Length (km): | 3.7 Method: | MW |
| Location: | | | 1; LOCATED ~ 1300 m U/\$ FROM TH | E | Map#: | 093L034 | | | | | Site No.: | ì | Length surveyed (m): | 1160.0 Method: | HC |
| | CONFL | JENCE | WITH THE THAUTIL R. | | U.T.M.: | 9.6071 | .60177 | | | | Fish Card: | Y | Field: Yes | Historical: | No |
| Date: 10/10/96 | Time | : 15:0 | O Agency: C58 Survey | у Сгеч | w: JH\SS \ \ | 111 | \ \ | | | | Photos: | B 9/19 -21 | Air Photos: | BCB 911 | 180:137 |
| Channel Cha | aracte | ristic | es · | [| | .s | Specific L | ata | | . | Bed Material | | _ | | |
| Av. Chan. Width (m) | : | 13.5 | Method Av. Chan. Width (m): | Т | 13.6 | 10.7 | 9.5 | 17.5 | 17.2 | 12.5 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 7.4 | Method Av. Wet. Width (m): | T | 7.8 | 6.5 | 7.8 | | | | , , , | _ | - | | - |
| Av. Max. Rif. Depth | (cm): | 27 | Av. Max. Riffle Depth (cm): | MS | 20 | 25 | 35 | | | | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Pool Depth | (cm): | 58 | Av. Max. Pool Depth (cm): | 27 | 65 | 70 | 40 | | | | | | Large (16-64mm): | | |
| Gradient (%): | | 2.0 | Method Gradient: | CL | | | | | | . 1 | % Larges: | 75 | Small cobble (64-128mm | : | |
| % Pool: 15 | % Rim | e: 75 | % Run: 10 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256m) | • | |
| % Side Channel: | | >40 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | , | | | | | | | | | D90 (cm): | 20 | Compaction: | 1 | Medium |
| Cover Total %: | | 30 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 20 L | .O.D.: | 20 | Boulder: 40 In Veg.: | 0 | Over Veg: | 20 | Cutba | nk: | | 0 | During | | | | |
| Crown Closure %: | | 20 | Method Crown Closure: | GE | Aspect: | w | Metho | od Aspect | t: | AE | lleight (m): | 0.8 | % Unstable: | | 40 |
| | | | | | | | | | | | Textures Fines: | No | Gravel: No Large | : Yes Bedrock: | No |
| Discharge | | | | i | | S | pecific De | nta | | | Confinement: | 4 | | | |
| Wetted Width (m) : | | 4.0 | Method Wetted Width (m): | Т | | -7 | ecy.c 2. | | | | Valley: Chan. Ratio: | 3 | | | |
| Mean Depth (m): | | 0.3 | , , | MS | | | | | | | Stage: | M | | | |
| Mean Velocity (m/s) | | 0.50 | | vo | | | | | | | Flood Signs Ht(m): | 1.5 | Method Flood Signs: | | MS |
| Discharge (m3/s): | • | 0.60 | Method Discharge (m3/s): | ' | | | | | | | Braided: | Y | Method Braided: | | GE |
| c.iiai ge (iiia/a) . | | | | ! | | | <u></u> | | <u>.</u> | | Bars (%): | 40 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pl1: | 7.8 | Method pH: | | PH |
| • | | | (Fis | - | | | | | | | 02 (ppm): | | Method Dissolved Oxygo | n: | |
| | | | DV BT | SST* | | | | | | | Water Temp. (°C): | 7.5 | Method Temperature: | | ŦC |
| | | | 14 C 2.0 | 1270 | ı | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed | Material) | | | | | | Cond. (µmhos): | 60 | Method Conductivity: | | CM |

26-Mur-9" Stream: HAGMAN C.

Watershed Code:

Stream Survey Report

460-6006-508-381-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 Use 3 | Method/Reference |
|------------|--------|-----------------|------------|-------|-------------|------------------|
| SST | 19 | 63 - 92 | j | R | | EL |
| SST SST | 25 | 34 - 41 | F | R | | EL |
| ĎV | 12 | 67 - 116 | J | R | | EL |
| вт | 1 | 101 | j | R | | EL |
| CHF | 17 | 43 - 56 | F | R | | El. |

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 2 | X | 3.4 |

- DV and BT fry were indistinguishable so they were combined as char fry (CHF). Photo B9/21: Dolly Varden Bull Trout comparison. Two unknown species of fish -250 mm long were observed in the top of Reach 1. They are suspected to be BT, DV or SST.
- C2 Large bed material provide suitable pockets for juv/fry rearing. Due to abundance of SST fry at this site, it is assumed that SST spawning occurs in R1.
- C3 Air temp: 13.5 C
- Eroding banks were observed: 15 m x 2.5 m bank ~100 m u/s from bridge crossing; 41 m x 20 m high bank ~120 m u/s from bridge (Photo B8/25); 20 m x 8 m high bank slump into channel ~315 m u/s from bridge (Photo B9/4).
- A large debris jam was noted ~170 m u/s from bridge; passable by fish —572 m u/s from bridge is the u/s end of an unstable, braided section. Observed soil creep on the bank. A 1.5 m high drop over debris was noted 3.4 km u/s from mouth: restricts fish movement but is not a total barrier.
- C6 Tributaries H3 and H4 were small, steep systems (>20%). H3 was dry with no discernible channel aat the time of survey.

26-Mar-9"

Stream: HAGMAN C.

Watershed Code:

Stream Survey Report

460-6006-508-381-000-000-000-000-000-000-000

| Header Infor | matio | n | | | | _ | | | | _ | | | | | |
|--|---------|----------|--------------------------------|--------|--------------------|-----------------|------------|----------|----------------------|-----|--------------------|-------------|---------------------------|---------------|------|
| Stream Name: | HAGM | AN C. | | | Stream "Lo | cal"; | HAGN | AAN (TH | 14) | | | | Access: | | FT |
| Watershed Code: | 460-600 | 6-508-3 | 31-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 5.1 Method: | MW |
| Location: BOTTOM END OF ENTRENCHED CANYON, ~3.7 km U/S | | | | | | 09 3L034 | ŧ . | | | | Site No.: | 1 | Length surveyed (m): | 200.0 Method: | HC |
| FROM THAUTIL R. CONFLUENCE. | | | U.T.M.: | 9.6071 | .60177 | | | | Fish Card: | N | Field: Yes | Historical: | No | | |
| Date: 10/9/96 Time: 15:00 Agency: C58 Survey Crev | | | | | | 111 | \ \ | | | | Photos: | B9/6 - 8 | Air Photos: | BCB 91180:137 | |
| Channel Cha | aracte | ristic | es . | | Į. | | Specific D | ala | | 1 | Bed Material | | | | |
| Av. Chan. Width (m) | : | 8.0 | Method Av. Chan. Width (m): | T | 10.6 | 7.8 | 5.8 | 7.4 | 7.8 | 8.8 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 5.7 | Method Av. Wet. Width (m): | T | 7.7 | 6.1 | 4.6 | 5.5 | 5.8 | 4.6 | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (| (cm): | 27 | Av. Max. Riffle Depth (cm): | MS | 30 | 30 | 20 | | | | % Graveis. | 20 | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 58 | Av. Max. Pool Depth (cm): | 27 | 60 | 45 | 50 | 75 | | | | | | | |
| Gradient (%): | | 2.5 | Method Gradient: | CL | | | | | | | % Larges: | 65 | Small cobble (64-128mm): | | |
| % Pool: 20 | % Riff | le: 70 | % Run: 10 % Other | : 0 | Method: | GE | | | | | | | Large cobble (128-256mm): | | |
| % Side Channel: | | 0-10 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 10 | % Bedrock: | | 10 |
| Cover | | | | - | | | | | | | D90 (cm): | 35 | Compaction: | | High |
| Cover Total % : | | 25 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 15 L | .O.D.: | 15 | Boulder: 50 in Veg.: | 0 | Over Veg: | 20 | Cutba | nk: | | 0 | | | | | |
| Crown Closure %: | | 15 | Method Crown Closure: | GE | Aspect : | W | Metho | d Aspect | : | AE | Height (m): | 0.9 | % Unstable: | | 5 |
| | | | | | | | | | | | Textures Fines: | No | Gravel: No Larges: | Yes Bedrock: | Yes |
| Discharge | | | | | Specific Data | | | | | | Confinement: | 1 | | | |
| | | | | S | pecijic D e | ш | | 1 | Valley: Chan. Ratio: | 1 | | | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 1.5 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s | | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | | Method Discharge (m3/s): | | | | . <u>.</u> | | | | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symb | ol | _ | | | | | | | | | pH: | 8.0 | Method pH: | | PH |
| Syllo | vi | . (FISN) | | | | | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | | | (SP) | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | EC |
| | | | 8 A 25.0 | 126 | ı | _ | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope | (Be | d Material) | | | | | | Cond. (µmhos): | 60 | Method Conductivity: | | СМ |

26-Mar-97

Stream: HAGMAN C.

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 4 | F | 6.1 |
| 4 | F | 6.8 |

| CI | Fish observed in the top section of the lower reach (R1). Suspected SST, DV and BT. |
|----|---|
| C2 | Massive debris jam with ~ 1.5 m high drop is located at the base of the gorge, ~200 in d/s from the top of R1 (Photos B9/6, 7); potential inigration restriction. Fish of unknown species were observed just u/s from the debris jam. |
| C3 | 4.0 m falls and 3.5 m falls were observed in the middle section of R2; They are definite barriers to fish. |
| C4 | All tributaries flowing into R2 of Hagman C. are too steep to support fish. Based on the gradient and the sampling data obtained from sample sites 2, 3, 7, 8, 9, and 10, Hagman C. and inflowing tributaries u/s from the 4 m high falls (located ~100 m d/s from H10) are assumed to be barren of fish. |

26-Mar-97

Stream: HAGMAN C.

Watershed Code:

Stream Survey Report

460-6006-508-381-000-000-000-000-000-000-000

| Header Informati | on | | | | | | | | | | | | | |
|---------------------------|--------------|---------------------------------|----------|----------------|---------|------------|-----------|-----|------------|----------------------|----------|------------------------|-----------------|---------|
| Stream Name: HAGN | IAN C. | | | Stream "Le | ocal": | HAG | MAN (TH | 14) | | | | Access: | | Н |
| Watershed Code: 460-60 | 06-508- | 381-000-000-000-000-000-000-000 |) | | | | | | | Reach No.: | 3 | Reach Length (km): | 3.5 Method: | : MW |
| Location: UPPEI | R SECTI | ON ~9.4 km U/S FROM MOUTH | | Map # : | 093L034 | I | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | : НС |
| | | | | U.T.M.: | 9.6071 | .60177 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 Ti | ne: 16: | 30 Agency: C58 Su | rvey Cr | ew: SS\CP\ | 1 1 1 1 | ١١ | | | | Photos: | DB2/4, 5 | Air Photos: | BCB 91 | 180:133 |
| Channel Charact | eristi | cs | | ; İ | .5 | Specific L |)ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | 4.0 | Method Av. Chan. Width (m): | T | 4.1 | 4.4 | 3.9 | 3.9 | 4.2 | 3.4 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 4.0 | Method Av. Wet. Width (m): | T | 4.1 | 4.4 | 3.9 | 3.9 | 4.2 | 3.4 | % Gravels: | 10 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm): | 17 | Av. Max. Riffle Depth (cm): | MS | | | | | | | 76 Graveis: | 10 | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm): | 56 | Av. Max. Pool Depth (cm): | 17 | | | | | | | | | - • | | |
| Gradient (%): | 1.5 | Method Gradient: | CL | , | | | | | ' | % Larges: | 80 | Small cobble (64-128mr | | |
| % Pool: 20 % Ri | Me: 80 | % Run: 0 % Other | r: 0 | Method: | GE | | | | | | | Large cobble (128-256n | | |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256m | m): | |
| % Debris Area: | 0 | Method Debris Area: | GE | | | | | | | % Bedrock: | 5 | % Bedrock: | | 5 |
| Cover | | | | | | | | | | D90 (cm): | 23 | Compaction: | | Medium |
| Cover Total % : | 55 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 15 L.O.D.: | 0 | Boulder: 35 In Veg.: | 0 | Over Veg: | 50 | Cutba | ınk: | | 0 | | | | | |
| Crown Closure % : | 0 | Method Crown Closure: | GE | Aspect: | N | Meth | od Aspect | : | ΑE | lleight (m): | 0.3 | % Unstable: | | 0 |
| | | _ | | | | | | | | Textures Fines: | Yes | Gravel: No Larg | es: No Bedrock: | : No |
| Discharge | | | | | .C | pecific D | ata | | 1 | Confinement: | 2 | | | |
| Wetted Width (m) : | | Method Wetted Width (m): | | | ٠, | pecyle 2 | | | İ | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | ! | | | | | | Stage: | М | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | İ | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.99 | Method Discharge (m3/s) : | .5 | | | | | | | Braided: | N | Method Braided: | | GE |
| | | | | 1 | | | | | <u> </u> | Bars (%): | 0 | Method Bars: | | GF: |
| Reach Symbol | Reach Symbol | | | | | | pH: | | Method pH: | | | | | |
| , | | | (Fish) | | | | | | | 02 (թթու)։ | | Method Dissolved Oxy | gen: | |
| | | | NF | | | | | | | Water Temp. (°C): | 6.8 | Method Temperature: | | IC |
| | | 4 B 1. | .5 118 | 31 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | Gl: |
| | | (Width, Valley: Channel, Slop | e) (Be | d Material) | | | | | | Cond. (µmhos): | 47 | Method Conductivity: | | CM |

26-Mar-9*

Stream: HAGMAN C.

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

CI

Electrofished 35 m length of stream. No fish were caught. Assume upper reaches barren of fish (see stream survey form for R2). 4.0 m high falls and 3.5 m high falls observed in the middle of R2 are definite barriers to fish migration.

26-Mar-9

Stream: HAGMAN C.

Watershed Code:

Stream Survey Report

460-6006-508-381-000-000-000-000-000-000-000

| Header Info | rmation | t | | | | | | | | | | | | | |
|---------------------|-----------|--------|--|---------|------------|------------------|------------|-----------|-----|-----|----------------------|---|--------------------------|---------------|---------|
| Stream Name: | HAGMAN | IC. | | | Stream "Lo | cal": | HAG | MAN (TH | i4) | | | | Access: | | Н |
| Watershed Code: | 460-6006- | 508-38 | 1-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 3 | Reach Length (km): | 3.5 Method: | : MW |
| Location: | | | OF H24 AND H25, BELOW WETLANI | D | Мар #: | 093 L03 4 | 1 | | | | Site No.: | 3 | Length surveyed (m): | 100.0 Method: | : НС |
| | (PONDED |) COM | IPLEX. | | U.T.M. : | 9.6071 | .60177 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/20/96 | Time: | 9:30 | Agency: C58 Surve | ey Crew | v: RD\ CP\ | 1 1 1 1 | . \ \ | | | | Photos: | A4/23, 24 | Air Photos: | BCB 911 | 180:132 |
| Channel Ch | aracter | istic | s | 1 | | | Specific l | Data | | | Bed Material | | | | |
| Av. Chan. Width (m |): | 5.7 | Method Av. Chan. Width (m): | T | 4.8 | 6.5 | 4.6 | 4.8 | 7.1 | 6.1 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 4.0 | Method Av. Wet. Width (m): | T | | | | | | | % Gravels: | 85 | Small (2-16mm); | | 10 |
| Av. Max. Rif. Depth | (cm): | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | | 76 GIZVEIS. | • | Large (16-64mm): | | 75 |
| Av. Max. Pool Depth | ı (cm): | 50 | Av. Max. Pool Depth (cm): | 8 | | | | | | | | | | | |
| Gradient (%): | | 0.5 | Method Gradient: | CL | | | | | | | % Larges: | 10 | Small cobble (64-128mm): | | 10 |
| % Pool: 40 | % Riffle: | 20 | % Run: 40 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | • | 0 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm) | i. | U |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 6 | Compaction: | | High |
| Cover Total % : | | 40 | Method Cover Total %: | GE | | | | | | | Banks | _ | | | |
| Dp Pool: 20 i | O.D.: | 0 | Boulder: 0 In Veg.: | 0 | Over Veg: | 0 | Cutb | ank: | | 80 | | | | | |
| Crown Closure % : | | 0 | Method Crown Closure: | GE | Aspect : | NW | Meth | od Aspeci | : | AE | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges | No Bedrock: | : No |
| Discharge | | | | | | c | pecific D | lata | | | Confinement: | 5 | | | |
| N/ 1 N/: 14 / \ | | | Bd - ch - d 33/- ce - d 33/-deh () - | | | ٠, | pergit D | | | | Valley: Chan. Ratio: | 4 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m) : Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.35 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | | Method Discharge (m3/s): | ** | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | | Metilod Discharge (m3/s) : | | | | | | | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symb | ool | | | | | | | | | | pH: | | Method pH: | | |
| | | | • | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | 1: | |
| | | | | NF | | | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | TC |
|] | | | 6 D 0.5 | 1810 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| ł | | | (Width, Valley: Channel, Slope) | (Bed | Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9" Stream: HAGMAN C.

Stream Survey Report

460-6006-508-381-000-000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Electrofished 50 m length of stream, 1 pass (u/s and d/s) with a lower net. No fish were caught.
- Small, low gradient, stable creek containing fine gravel bed material: excellent resident DV spawning potential. Cover is primarily pool and cutbank. Creek meanders through a meadow.

26-Mar-9"

Stream: HAGMAN C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-381-118-000-000-000-000-000-000

| Header Informa | ion | | - | | | | - - | | | | | | | |
|---------------------------|---------------------|---------------------------------|---------|-------------|--------------------------|------------|----------------|----------|-----|----------------------|-----------|--------------------------|---------------|---------|
| Stream Name: HAG | MAN C. T | RIBUTARY | | Stream "Lo | cal": | Hi | | | | | | Access: | | Ff |
| Watershed Code: 460- | 60 06-508- : | 881-118-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.3 Method: | MW |
| Location: LOC. | ATED ~39 | m U/S FROM MOUTH. | | Map #: | 0 9 3 L034 | ļ | | | | Site No.: | 4 | Length surveyed (m): | 260.0 Method: | HC |
| | | | | U.T.M.: | 9.6085 | .60181 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/10/96 T | ime: 13: | OO Agency: C58 Sur | vey Cre | ew: JH\SS\\ | 111 | ١١ | | | | Photos: | B9/13, 14 | Air Photos: | BCB 911 | 180:137 |
| Channel Charac | teristi | cs | | ĺ | S | Specific L |)ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | 1.7 | Method Av. Chan. Width (m): | T | 2.2 | 1.6 | 1.6 | 1.7 | 1.6 | 1.5 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | 1.3 | Method Av. Wet. Width (m): | T | 1.2 | 1.8 | 1.2 | 1.3 | 1.3 | 1.1 | % Gravels: | 55 | | | |
| Av. Max. Rif. Depth (cm): | 11 | Av. Max. Riffle Depth (cm): | MS | 10 | 12 | 10 | | | | / Graveis: | ,, | Small (2-16mm): | | |
| Av. Max. Pool Depth (cm): | 47 | Av. Max. Pool Depth (cm): | 11 | 45 | 45 | 50 | | | | | | Large (16-64mm): | | |
| Gradient (%): | 5.0 | Method Gradient: | CL | | | | | | | % Larges: | 35 | Small cobble (64-128mm): | | |
| % Pool: 20 % F | iffle: 60 | % Run: 20 % Other: | 0 | Method: | GE | | | | | _ | | Large cobble (128-256mm | : | |
| % Side Channel: | 0-10 | Method Side Channel: | GE | | | | | | |] | | Boulder cobble (>256mm) | | |
| % Debris Area: | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | - | | <u>-</u> | | D90 (cm): | 12 | Compaction: | | High |
| Cover Total % : | 40 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 25 L.O.D.: | 20 | Boulder: 10 In Veg.: | 0 | Over Veg: | 20 | Cutba | ınk: | | 25 | Dunks | | | | |
| Crown Closure %: | 50 | Method Crown Closure: | GE | Aspect: | sw | Metho | od Aspect | : | ΑE | Height (m): | 0.6 | % Unstable: | | 15 |
| | | | | | | | | | | Textures Fines: | No | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | 1 | C- | pecific Da | -4- | | i | Confinement: | 3 | , - | | |
| | | | - | | Sp | ecijic Di | gra | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | 1.0 | Method Wetted Width (m): | T | | | | | | l | Stage: | М | | | |
| Mean Depth (m): | 0.2 | Method Mean Depth (m): | MS | | | | | | | Flood Signs 11t(m): | 0.15 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.50 | Method Mean Velocity (m/s | F | | | | | | | Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s) : | 0.01 | Method Discharge (m3/s) : | | | | | | | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pH: | 7.5 | Method pll: | | PH |
| | | • | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | : | |
| | | | DV | | | | | | | Water Temp. (°C): | 6.5 | Method Temperature: | | IC |
| | | 2 B 5.0 | 154 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µnihos): | 110 | Method Conductivity: | | СМ |

26-Mar-97

Stream: HAGMAN C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-381-118-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use I | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 5 | 70 - 110 | J | R | | | EL |

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | F | 0.1 |

- C1 Electrofished 110 m length of stream. DV were captured.
- C2 ~ 60 m u/s from mouth, a 0.7 m high falls was observed. No fish were captured in the 75 m which was electroshocked above the falls.
- C3 Air temp: 11 C.

26-Mar-97

Stream: HAGMAN C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-381-118-000-000-000-000-000-000

| Header Inforn | ation | | | | _ | | | | _ | | | | - | | |
|-------------------------|-------------|-------------------------|-----------------|-----------|------------|-----------------|-----------|-----------|-----|------------|----------------------|-----------|---------------------------|---------------|---------|
| • | | TRIBUTARY | | | Stream "Lo | cal": | HI | | | | | | Access: | | FT |
| Watershed Code: 4 | 60-6006-501 | -381-118-000-000-000-00 | 0-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 0.6 Method: | MW |
| Location: L | CATED ~ | 123 m U/S FROM MOUT | Н. | | Мар#: | 093 L034 | | | | | Site No.: | 5 | Length surveyed (m): | 163.0 Method: | HC |
| | | | | | U.T.M. : | 9.6085 | .60181 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/10/96 | Time: 1 | Agency: | C58 Surve | y Crev | w: JH\SS\ | . \ \ \ | ١١ | | | | Photos: | B9/15, 16 | Air Photos: | BCB 911 | 180:137 |
| Channel Char | acteris | ics | | ĺ | | | pecific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | i. | 9 Method Av. Chan. W | Vidth (m): | T | 2.3 | 2.3 | 1.5 | 1.8 | 1.6 | 1.8 | % Fines (<2mm): | 15 | % Fines (<2mm): | | 15 |
| Av. Wet. Width (m): | 1 | 5 Method Av. Wet. Wi | idth (m): | T | 1.5 | 2.2 | 1.4 | 1.3 | 1.2 | 1.2 | 1 | | , , | | |
| Av. Max. Rif. Depth (cn |): | 9 Av. Max. Riffle Dept | th (cm): | MS | 7 | 10 | 10 | | | | % Gravels: | 50 | Small (2-16mm): | | |
| Av. Max. Pool Depth (ci | a): 3 | Av. Max. Pool Depth | n (cm): | 9 | 40 | 35 | 25 | | | | 1 | | Large (16-64mm): | | |
| Gradient (%): | 12 | 0 Method Gradient: | | CL | | | | | | . ' | % Larges: | 35 | Small cobble (64-128mm): | | |
| % Paol: 10 | % Riffle: ₹ | 5 % Run: 5 | % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm): | | |
| % Side Channel: | | 0 Method Side Channe | el: | GE | | | | | | | | | Boulder cobble (>256mm): | | |
| % Debris Area: | 10-4 | 0 Method Debris Area | : | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | U |
| Cover | | | | | | | | | | | D90 (cm): | 15 | Compaction: | | High |
| Cover Total % : | 3 | 5 Method Cover Total | % ; | GE | | | | | | | Banks | | · | | |
| Dp Pool; 20 L.O. | D.; 2 | Boulder: 20 | In Veg.: | 0 | Over Veg: | 20 | Cutba | nk: | | 20 | Dunins | | | | |
| Crown Closure % : | 6 | Method Crown Clos | ure: | GE | Aspect : | sw | Metho | d Aspect: | | A E | Height (m): | 0.4 | % Unstable: | | 10 |
| | | | | | | | | | | | Textures Fines: | No | Gravel: No Larges: | es Bedrock: | No |
| Discharge | | | | ı | | c. | ecific Da | -4- | | | Confinement: | 3 | | | |
| | | Mark 1897 Acres 1897 ha | | | | Sp | ecyn Di | 414 | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | Method Wetted Widtl | - | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth | | | , | | | | | | Flood Signs IIt(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.0 | Method Mean Velocit | • ` | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.0 | Method Discharge (m | | l | | | | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | | ptl: | 7.9 | Method pll: | | PH |
| | | | | sh) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | | |)V | | | | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | 10 |
| | | | 2 B 12.0 | 1540 |) | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: 0 | Channel, Slope) | (Bed | Material) | | | | | | Cond. (µmhos): | 110 | Method Conductivity: | | CM |

26-Mar-9"

Stream: HAGMAN C. TRIBUTARY

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | | ~110 | j j | R | | | VO |

Obstructions

- C1 1 DV was visually observed at the bottom of R2 despite no catch in 75 m long site in R1.
- C2 R3 and R4 of tributary H1 were surveyed by air: suspect fish use to the top of R3 at 2400 m.
- H1.1, H1.2 and H1.3 were surveyed by air: tributary H1.1 is very steep and enters H1 in a very confined section of the creek (no fish access); tributary H1.2 suspected to have fish access in the lower 120 m of creek; tributary H1.3 suspected to have fish access in the lower 400 m of creek.
- C4 Air temp: 11 C

26-Mar-9"

Stream: HAGMAN C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-381-162-000-000-000-000-000-000

| Header Info | matio | n | | | | | | | | | | | | | |
|---------------------|----------------|--------|--------------------------------|-----------------|--------------|---------|------------|-----------|-----|-----|----------------------|-----------|--------------------------|---------------|---------|
| Stream Name: | HAGMA | N C. T | RIBUTARY | | Stream "Lo | cal": | H2 | | | | | | Access: | | FT |
| Watershed Code: | 460-6006 | -508-3 | 81-162-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.2 Method: | MW |
| Location: | LOCATE | D ~91 | 3 m U/S FROM HAGMAN C. BRIDGI | Е | Map#: | 093L034 | ļ | | | | Site No.: | 6 | Length surveyed (m): | 138.0 Method: | HC |
| | CROSSIN | IG. | | | U.T.M. : | 9.6092 | .60181 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/9/96 | Time | 16:4 | 5 Agency: C58 Sur | v ey Cre | ew: JH\SS\ \ | 1 1 1 | ١ ١ | | | | Photos: | B9/10, 12 | Air Photos; | BCB 911 | 180:137 |
| Channel Ch | racter | istic | es . | | | | Specific L | Data | - | 1 | Bed Material | _ | | _ | |
| Av. Chan. Width (m) | : | 2.0 | Method Av. Chan. Width (m): | T | 2.1 | 2.4 | 2.0 | 2.0 | 1.9 | 1.7 | % Fines (<2mm): | 40 | % Fines (<2mm): | | 40 |
| Av. Wet. Width (m): | | 1.5 | Method Av. Wet. Width (m): | T | 1.6 | 1.2 | 1.3 | 1.8 | 1.7 | 1.4 | % Gravels: | 55 | Small (2-16mm): | | 30 |
| Av. Max. Rif. Depth | (c m): | 7 | Av. Max. Riffle Depth (cm): | MS | 10 | 5 | 5 | | | | 78 GIAVEIS. | ,,, | Large (16-64mm): | | 25 |
| Av. Max. Pool Depth | (cm): | 28 | Av. Max. Pool Depth (cm): | 7 | 23 | 30 | 30 | | | | | | | | |
| Gradient (%): | | 4.0 | Method Gradient: | CL | • | | | | | · | % Larges: | 5 | Small cobble (64-128mm): | | 5 |
| % Pool: 15 | % Riffle | : 85 | % Run: 0 % Other: | 0 | Method: | GE | | | | | • | | Large cobble (128-256mm | | 0 |
| % Side Channel: | | >40 | Method Side Channel: | HC | | | | | | | | | Boulder cobble (>256mm) | : | 0 |
| % Debris Area: | | >40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | _ | - | | D90 (cm): | 2 | Compaction: | | High |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 5 L | .O.D.: | 20 | Boulder: 0 In Veg.: | 0 | Over Veg: | 60 | Cutba | ank: | | 15 | Dunns | | | | |
| Crown Closure %: | | 65 | Method Crown Closure: | GE | Aspect : | N | Meth | od Aspect | : | ΑE | Height (m): | 0.4 | % Unstable: | | 40 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | į | S | pecific D | ata | | · | Confinement: | 5 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | -, | | | | | Valley: Chan. Ratio: | 4 | | | |
| ` ' | | | Method Mean Depth (m): | | | | | | | | Stage: | L | | | |
| Mean Depth (m): | _ | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | 0.01 | Method Discharge (m3/s): | VO | | | | | | | Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s): | | 0.01 | Method Discharge (m3/s): | | | | | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 7.6 | Method pf1: | | PH |
| | | | | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | 1: | |
| | | | | DV * | | | | | | | Water Temp. (°C); | 5.5 | Method Temperature: | | TC |
| | | | 2 D 4.0 | 451 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | | | Cond. (µmhos): | 110 | Method Conductivity: | | CM |

26-Mar-97

Stream: HAGMAN C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-381-162-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 1 | 130 | A | S | | | vo |

Obstructions

- C1 3 DV redds were observed ~35 m w/s from H2 mouth. 3 DV redds were also observed ~50 m w/s from H2 mouth.
- C2 The distributaries around the base of the alluvial fan were included in the sidechannel percentage. The channel braids into the alluvial fan at 80 m u/s from the 112 mouth.
- C3 -138 m u/s from the mouth is the top of the alluvial fan, the base of the gully, the end of the reach, and the top of the fish distribution. Gradient of 20% is continuous u/s of this point.
- C4 Air temp at sample site: 11.5 C

26-Mar-97

Stream: HAGMAN C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-381-422-H15-.1 -000-000-000-000

| Header Informat | | | | | | | | | | | | | | |
|---------------------------|------------------|-----------------------------------|---------|-------------|----------|------------|-----------|-----|-----|----------------------|-------|--|---------------------------------------|---------|
| | | TRIBUTARY | | Stream "Lo | cal": | H15.1 | | | | | | Access: | | 11 |
| | | 381-422-H151 -000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.4 Method: | |
| Location: LOCA | TED AT | THE WETLAND OUTLET. | | Map #: | 093L034 | | | | | Site No.: | 7 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | U.T.M. : | 9.6130 | | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 T | me: 15: | 20 Agency: C58 Surv | еу Сге | w: RD\ \ \ | 111 | 1 1 | | | | Photos: | A4/20 | Air Photos: | BCB 91 | 180:133 |
| Channel Charac | teristi | cs | ĺ | | . | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | 0.4 | Method Av. Chan. Width (m): | T | 0.3 | 0.5 | 0.6 | 0.4 | 0.3 | 0.4 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 0.4 | Method Av. Wet. Width (m): | T | 0.3 | 0.5 | 0.6 | 0.4 | 0.3 | 0.4 | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (cm): | 7 | Av. Max. Riffle Depth (cm): | MS | | | | | | | 74 01111111 | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth (cm): | 20 | Av. Max. Pool Depth (cm): | 7 | | | | | | | #/ 1 | 80 | | | 70 |
| Gradient (%): | 5.0 | | CL | | | | | | | % Larges: | 80 | Small cobble (64-128mm) Large cobble (128-256mm | | 10 |
| | i Me : 50 | | 0 | Method: | GE | | | | | | | Boulder cobble (>256mm | | 0 |
| % Side Channel: | 0 | | GE | | | | | | | | | · · | • | |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 12 | Compaction: | · · · · · · · · · · · · · · · · · · · | Medium |
| Cover Total %: | 60 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 20 L.O.D.: | 0 | Boulder: 0 In Veg.: | 0 | Over Veg: | 10 | Cutba | nk: | | 70 | | | | | |
| Crown Closure %: | 0 | Method Crown Closure: | GE | Aspect : | NW | Metho | d Aspect: | | AE | Height (m): | 0.3 | % Unstable: | | O |
| | _ | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges | : No Bedrock : | No |
| Discharge | | | 1 | 1 | S. | pecific Da | ıta | | 1 | Confinement: | 3 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | ~, | - | | | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Stage: | М | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | į | | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.03 | Method Discharge (m3/s): | • | | | | | | | Braided: | N | Method Braided: | | GE |
| | 0.05 | | İ | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pf1: | 7.8 | Method pH: | | PH |
| | | · | ish) | | | | | | | 02 (ppni): | | Method Dissolved Oxyge | n: | |
| | | | NF T | | | | | | | Water Temp. (°C): | 10.0 | Method Temperature: | | IC |
| | | 0 B 5.0 | 1180 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed | l Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-97

Stream: HAGMAN C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-381-422-H15-,1-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Comments

- C1 Minnow trapped 100 m section of channel below the pond. Set 5 traps overnight and caught no fish.
- C2 Small, stable creek confined in narrow channel. Overstream grassed-in meadow d/s.

Obstructions

26-Mur-97

Stream: HAGMAN C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-381-422-606-335-000-000-000-000-000

| Header Info | rmation | | | | | | | - | | | |
|--|-------------|---|------------------|----------|----------------|----|----------------------|----------|-------------------------|---------------|---------|
| Stream Name: | HAGMAN (| C. TRIBUTARY | Stream "L | ocai": | H23.1 | | | | Access: | | H |
| Watershed Code: | 460-6006-50 | 8-381-422-606-335-000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 0.4 Method: | MW |
| Location: | SAMPLED I | BELOW THE SHALLOW LAKE OUTLET. | Map#: | 0931.024 | l . | | Site No.: | 8 | Length surveyed (m): | 100.0 Method: | HC |
| | | | U.T.M. : | 9.6148 | .60179 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 | Time: | 4:00 Agency: C58 Surv | ey Crew: RD\ \ \ | 111, | <u> </u> | | Photos: | no photo | Air Photos: | BCB 911 | 180:133 |
| Channel Cha | aracteris | tics | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m) Av. Wet. Width (m): | | Method Av. Chan. Width (m): Method Av. Wet. Width (m): | GE GE | | | | % Fines (<2mm): | 100 | % Fines (<2mm): | | 100 |
| Av. Max. Rif. Depth | | Av. Max. Riffle Depth (cm): | 92 | | | | % Gravels: | 0 | Small (2-16mm): | | 0 |
| Av. Max. Pool Depth | | Av. Max. Pool Depth (cm): | | | | | | | Large (16-64mm): | | 0 |
| Gradient (%): | | i.0 Method Gradient: | CL | | | 1 | % Larges: | 0 | Small cobble (64-128mm) | : | 0 |
| % Pool: 10 | % Riffle: | | 0 Method: | GE | | | | | Large cobble (128-256mm | 1): | 0 |
| % Side Channel: | | 0 Method Side Channel: | GE | | | | | | Boulder cobble (>256mm |): | 0 |
| % Debris Area: | 0- | 10 Method Debris Area: | GE | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | _ | | | D90 (cm): | 0 | Compaction: | | High |
| Cover Total %: | : | 60 Method Cover Total %: | GE | | | | Banks | · - | | | |
| Dp Pool: 10 L | .O.D.: | 0 Boulder: 0 In Veg.: | 30 Over Veg: | 30 | Cutbank: | 20 | | | | | |
| Crown Closure % : | | 0 Method Crown Closure: | GE Aspect: | SE | Method Aspect: | AE | lleight (m): | 0.1 | % Unstable: | | 0 |
| | | | | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | İ | Sį | pecific Data | 1 | Confinement: | 5 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | • | • | | Valley: Chan. Ratio: | 4 | | | |
| Mean Depth (m) : | | Method Mean Depth (m): | | | | } | Stage: | Ł | | | |
| Mean Velocity (m/s) | : | Method Mean Velocity (m/s | vo | | | | Flood Signs Ht(m): | 0 | Method Flood Signs: | | GE |
| Discharge (m3/s): | 0.0 | l Method Discharge (m3/s): | | | | j | Braided: | N | Method Braided: | | GE |
| | | | | | | 1 | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | (F | ish) | | | | pft: | | Method p11: | | |
| | | · | NF | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | 0 D 5.0 | T _F | | | | Water Temp. (°C): | | Method Temperature: | | |
| | | | 1 - | | | | Turb. (cm): | | Method Turbidity: | | |
| ĺ | | (Width, Valley: Channel, Slope) | (Ded Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9-Stream: HAGMAN C. TRIBUTARY

Stream Survey Report 460-6006-508-381-422-606-335-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Obstructions Fish Summary

- CI Minnow trapped section of stream using 5 traps set overnight. No fish were caught. Poor fish habitat.
- C2 No continuous defined channel with a trickle flow discharge. Stagnant water in stream sections with drops over forest / moss benches.
- C3 The gradient recorded is the average and does not accurately show the slope characteristics of the stream; the slope was 1% and only increased to ~9% when the stream passed over a meadow bench.

26-Mar-9"

Stream: HAGMAN C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-381-606-000-000-000-000-000-000

Header Information Stream Name: HAGMAN C. TRIBUTARY Stream "Local": H23 Access: Н Watershed Code: 460-6006-508-381-606-000-000-000-000-000-000 Reach No .: Reach Length (km): 1.3 Method: MW Location: SAMPLED BELOW THE LAKE OUTLET. Map #: 093L024 Site No.: Length surveyed (m): 100.0 Method: HC U.T.M.: 9.6148 .60179 Yes Fish Card: Field: Historical: No Time: 17:00 Date: 9/19/96 Agency: C58 Survey Crew: RD\ \ \ \ \ \ \ Photos: A4/21, 22 Air Photos: BCB 91180:133 Channel Characteristics **Bed Material** Specific Data T 1.0 Av. Chan. Width (m): 1.2 Method Av. Chan. Width (m): 1.3 1.4 1.0 1.3 1.1 % Fines (<2mm): % Fines (<2mm): 10 T 1.3 Av. Wet. Width (m): Method Av. Wet. Width (m): 1.3 1.4 1.0 1.1 1.0 % Gravels: 30 Small (2-16mm): 10 Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): MS 20 Large (16-64mm): Av. Max. Pool Depth (cm): 20 . Max. Pool Depth (cm): 5 % Larges: Small cobble (64-128mm): 55 Gradient (%): 0.5 Method Gradient: CL Large cobble (128-256mm): 5 % Pool: 10 % Riffle: 30 % Run: 60 % Other: 0 Method: GE 0 Boulder cobble (>256mm): Method Side Channel: GE % Side Channel: 0-10 Method Debris Area: GE % Debris Area: % Bedrock: % Bedrock: Û D90 (cm): 8 Compaction: High Cover GE Cover Total %: Method Cover Total %: Banks Dp Pool: 10 L.O.D.: Boulder: 30 In Veg.: 20 Over Veg: 20 20 Cutbank: GE Crown Closure %: Method Crown Closure: NE Aspect: Method Aspect: Height (m): 0 0.4 % Unstable: **Textures Fines:** Larges: No Bedrock: No Yes Gravel: Yes Discharge 3 Confinement: Specific Data Valley: Chan. Ratio: 2 Wetted Width (m): Method Wetted Width (m): Stage: L Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): 0.1 Method Flood Signs: MS Mean Velocity (m/s): Method Mean Velocity (m/s VO Braided: Method Braided: GE Discharge (m3/s): 0.03 Method Discharge (m3/s): Bars (%): Method Bars: GE pH: Method pH: Reach Symbol PH (Fish) 02 (ppni): Method Dissolved Oxygen: NF Water Temp. (°C): IC Method Temperature: 0.5 1 B 1360 GE 200 Method Turbidity: Turb. (cm): (Width, Valley: Channel, Slope) (Bed Material) Cond. (µmhos): Method Conductivity:

26-Mar-9 ~

Stream: HAGMAN C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-381-606-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Minnow trapped 60 m section of stream. Set 6 traps overnight and no fish were caught or observed.
- C2 Small, stable creek containing instream grass.
- C3 Easy fish access at lake outlet.
- C4 Bed material consists of large/fine gravel and small cobble: unsuitable for spawning.

26-Mar-9"

Stream: HAGMAN C. TRIBUTARY

The second of th

Watershed Code:

Stream Survey Report

460-6006-508-381-622-000-000-000-000-000-000

| Header Info | rmation | ı | | | | | | | - | | | | |
|--------------------------------|------------|----------|--|---------|---------------|------------------|----------------|----------|----------------------|-------|-------------------------|---------------------------------------|----------|
| Stream Name: | HAGMAN | IC. T | RIBUTARY | | Stream "Lo | cal": | H25 | | | | Access: | | Н |
| Watershed Code: | 460-6006- | 508-3 | 81-622-000-000-000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 3.6 Method: | MW |
| Location: | BEAVER | PONI | DED AREA ON H25; JUST ACROSS | FROM | Map#: | 093 L02 4 | 1 | | Site No.: | 0 | Length surveyed (m): | 100.0 Method: | GE |
| | MAIN HA | GMA | N C. | | U.T.M. : | 9.6149 | .60179 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 | Time: | 16:0 | 0 Agency: C58 Sur | vey Cre | w: DB\ \ \ | 1 1 1 | ١ ١ | | Photos: | DB2/2 | Air Photos: | BCB 911 | 180:132 |
| Channel Ch | aracter | istic | cs · | - | | | Specific Data | | Bed Material | | | · · · · · · · · · · · · · · · · · · · | |
| Av. Chan. Width (m) | : | 35.0 | Method Av. Chan. Width (m): | GE | | | | | % Fines (<2mm): | 100 | % Fines (<2mm): | | 100 |
| Av. Wet. Width (m): | | 7.5 | Method Av. Wet. Width (m): | GE | | | | | % Gravels: | 0 | Small (2-16mm): | | 0 |
| Av. Max. Rif. Depth | | 0 | Av. Max. Riffle Depth (cm): | MS | | | | | | | Large (16-64mm); | | 0 |
| Av. Max. Pool Depth | (cm): | 50 | Av. Max. Pool Depth (cm): Method Gradient: | 0 | | | | | % Larges: | 0 | Small cobble (64-128mm) | | 0 |
| Gradient (%): % Pool: 100 | % Riffle: | 0.0 0 | % Run: 0 % Other: | CL 0 | Method: | CF. | | | | _ | Large cobble (128-256mm | | 0 |
| % Fooi: 100 % Side Channel: | /o Killie: | . 0 | Method Side Channel: | GE | Method: | GE | | |] | | Boulder cobble (>256mm | | 0 |
| % Debris Area: | | 0 | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| 76 Debtis Alex. | | | | | · · · · · · · | | | | 1 | | | | _ |
| Cover. | | | | | | | | | D90 (cm): | 0 | Compaction: | | High |
| Cover Total % : | | 75 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: O L | .O.D.: | 0 | Boulder: 0 In Veg.: | 0 | Over Veg: | 100 | Cutbank: | 0 | | | | | |
| Crown Closure % : | | 10 | Method Crown Closure: | GE | Aspect: | W | Method Aspect: | AE | lleight (m): | 1.0 | % Unstable: | | 0 |
| | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | | ŀ | | nacifia Data | | Confinement: | 5 | | | |
| | | | No. 4 10/10 100/10 / 3 | | 1 | <u>ي</u> | pecific Data | | Valley: Chan. Ratio: | 4 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | vo | | | | } | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s) | | 0.07 | Method Mean Velocity (m/s Method Discharge (m3/s): | VU | į. | | | | Braided; | | Method Braided: | | |
| Discharge (m3/s) : | | | Method Distriarge (m3/s) : | | <u> </u> | | | <u> </u> | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | pH: | | Method pH: | | |
| | | | (| Fish) | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | · | NF | | | | | Water Temp. (°C): | 0.8 | Method Temperature: | | IC |
| | | | 35 D 0.0 | F | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| 1 | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

Stream: HAGMAN C. TRIBUTARY 26-Mar-9 -

Stream Survey Report 460-6006-508-381-622-000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- Sampling conducted in maze of beaver ponds/active dams ~0.5 m high. Unable to measure channel and wetted widths as water was too deep to cross; width estimates were made. CI The wetted widths varied based on the beaver dams.
- C2 Minnow trapped area using 5 traps set overnight. No fish were caught.
- Lat/Lon of helicopter landing site: 54 17.99 127 13.49 **C**3
- SHOULD BE SITE 10, but this program would not allow any more than 1 digit to be entered. C4

26-Mar-9^

Stream: THAUTIL R. TRIBUTARY

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Watershed Code:

Stream Survey Report

460-6006-508-392-000-000-000-000-000-000-000

| Header Information | | | | | | | _ | | | |
|--|--|---------------|-----------------|----------------|---------|----------------------|-----------|---|---------------|--------|
| | R. TRIBUTARY | Stream "Loc | cal": | TH15 | | | | Access: | | V2 |
| Watershed Code: 460-6006-5 | 08-392-000-000-000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 0.5 Method: | MW |
| Location: LOCATED | AT ROAD CROSSING. | Map#: | 093 L034 | | | Site No.: | 1 | Length surveyed (m): | 420.0 Method: | HC |
| | | U.T.M. : | 9.6070 | .60180 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/25/96 Time: | 10:00 Agency: C58 Survey Cr | :w: JII\SS\ \ | 111 | \ \ | | Photos: | B4/15, 16 | Air Photos: | BCB 9113 | 80:159 |
| Channel Characteris | tics | | S | pecific Data | | Bed Material | | | | |
| | 2.6 Method Av. Chan. Width (m): T | 1.8 | 1.4 | 2.3 4.4 | 2.9 3.1 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (cm): | 0.9 Method Av. Wet. Width (m): T 5 Av. Max. Riffle Depth (cm): MS | 1.5 | 0.4 | 0.9 | | % Gravels: | 65 | Small (2-16mm): | | |
| | 25 Av. Max. Pool Depth (cm): 5 7.0 Method Gradient: CL | | | | | % Larges: | 25 | Large (16-64mm): Small cobble (64-128mm): | | |
| Gradient (%): % Pool: 20 % Riffle: | | Method: | GE | | | | | Large cobble (128-256mm |): | |
| % Side Channel: | Method Side Channel: GE | | | | | | | Boulder cobble (>256mm) | : | |
| % Debris Area: 25 | Method Debris Area: GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | D90 (cm): | 13 | Compaction: | · | High |
| Cover Total %: | 35 Method Cover Total %: GE | | | | | Banks | | | | |
| Dp Pool: 15 L.O.D.: | 60 Boulder: 10 In Veg.: 0 | Over Veg: | 10 | Cutbank: | 5 | 2477113 | | | | |
| Crown Closure %: | 60 Method Crown Closure: GE | Aspect: | E | Method Aspect: | AE | Height (m): | 0.5 | % Unstable: | | 5 |
| | | | | | | Textures Fines: | No | Gravel: Yes Larges: | No Bedrock: | Nο |
| Discharge | | | Sp | ecific Data | | Confinement: | 2 | | | |
| Wetted Width (m): | Method Wetted Width (m): | | 7.5 | | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | Method Mean Depth (m): | | | | | Stage: | M | | | |
| Mean Velocity (m/s): | Method Mean Velocity (m/s VO | | | | ! | Flood Signs Ht(m): | 0.35 | Method Flood Signs: | | MS |
| Discharge (m3/s): 0. | | | | | i | Braided: | Y | Method Braided: | | GE |
| | | <u> </u> | | <u> </u> | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symbol | | | | | | pH: | 7.9 | Method pH: | | PH |
| • | (Fish) | | | | | 02 (ըրտ)։ | | Method Dissolved Oxyger | 1: | |
| | NF | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | IC |
| | 3 B 7.0 172 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | (Width, Valley: Channel, Slope) (Be | d Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-392-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Electrofished 125 m length of stream. No fish were caught.
- C2 Lower end of Th15 consists of stagnant water or dry channel. Stream may be flowing in old flood channel of Thautil R. and suspect possible fish use at peak flows. ~193 m and u/s from the mouth, channel is continuously wetted and fish habitat is present.
- C3 No channel or flow was observed for Th15.1.

26-Mar-9"

Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-392-TH -\5.-1 -000-000-000-000-000

| Header Infor | matic | on | | | | | | | | | | | | |
|--|---------|-----------------|---------------------------------|----------|-------------|------------------|---------------|------|-----------|----------------------|-------|-------------------------------------|---------------|---------|
| Stream Name: | THAUT | IL R TR | JBUTARY | | Stream "Lo | cal"; | TH15.1 | | | | | Access: | | V2 |
| Watershed Code: | 460-600 | 6-50 8-3 | 92-TH -151 -000-000-000-000-000 | | | | | | | Reach No.: | 2 | Reach Length (km): | 0.9 Method: | MW |
| Location: | LOCAT | ED ~50 | m D/S FROM ROAD CROSSING. | | Мар#: | 093L 0 34 | ļ | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | U.T.M.: | 9.6068 | .60185 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/25/96 | Tim | e: 12:0 | 0 Agency: C58 Su | rvey Cro | ew: JH\SS\\ | . 1 1 1 | \ \ | | | Photos: | B4/20 | Air Photos: | BCB 911 | 180:159 |
| Channel Cha | ıracte | ristic | es · | | | | Specific Data | | | Bed Material | | _ | | |
| Av. Chan, Width (m) | : | 0.6 | Method Av. Chan. Width (m): | T | 0.7 | 0.8 | 0.4 0.8 | 0.3 | 0.3 | % Fines (<2mm): | 70 | % Fines (<2mm): | | 70 |
| Av. Wet. Width (m): | | 0.2 | Method Av. Wet. Width (m): | Ť | | | | | | % Gravels: | 25 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (| cm): | 3 | Av. Max. Riffle Depth (cm): | MS | | | | | ļ | 76 Graveis: | 23 | Smail (2-10mm): Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 13 | Av. Max. Pool Depth (cm): | 3 | | | | | | | | | | |
| Gradient (%): | | 17.0 | Method Gradient: | CL | • | | | | | % Larges: | 5 | Small cobble (64-128mm) | | |
| % Pool: 20 | % Riff | 1e: 80 | % Run: 0 % Other | : 0 | Method: | GE | | | | | | Large cobble (128-256mm | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | Boulder cobble (>256mm) |) : | |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| | | | | | | | | | | D90 (cm): | 4 | Compaction: | | High |
| Cover Total % : | | 70 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 20 L | O.D.: | 5 | Boulder: 5 In Veg.: | 0 | Over Veg: | 50 | Cutbank: | | 20 | | | | | |
| Crown Closure %: | | 20 | Method Crown Closure: | GE | Aspect: | NE | Method Asp | ect: | AE | lleight (m): | 0.2 | % Unstable: | | 10 |
| | | | | | | | · | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | | 1 | S | pecific Data | | · · · | Confinement: | 3 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | | - 51 | occigic Dain | | | Valley: Chan. Ratio: | 2 | | | |
| 1 | | | Method Mean Depth (m): | | | | | | | Stage: | L | | | |
| Mean Depth (m): Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | | Flood Signs Ht(m): | 0.15 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | • | 0.01 | Method Discharge (m3/s): | 10 | | | | | | Braided: | N | Method Braided: | | GE |
| Discusi Re (1112/2): | | 0.01 | | | <u> </u> | | | | <u> </u> | Bars (%): | 80 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | pH: | 7.5 | Method pH: | | PH |
| | | | | (Fish) | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | | NS | | | | | | Water Temp. (°C): | 5.5 | Method Temperature: | | IC |
| | | | I B 17. | 0 721 | 0 | | | | | Turb. (cm): | | Method Turbidity: | | |
| | | | (Width, Valley: Channel, Stope | e) (Be | d Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9"

Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-392-TH-15.-1 -000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Channel is seasonally wetted. At this level, discharge consists of a trickle flow.
- C2 No fish habitat present in this creek; no electrofishing site was performed in this reach and no fish were observed.
- C3 R1 d/s contained no wetted channel and no fish habitat. Potential for lower section of R1 to form a high water refuge. Average gradient for R1: 3.5%.

2~-Mar-9~

Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-TH -16 -000-000-000-000-000-000

| Header Inforn | nation | | | | | | | | | | |
|---------------------------|--------------------|---|------------------|-----------------|----------------|----------|----------------------|----------|------------------------|----------------|---------------|
| Stream Name: T | HAUTIL R T | RIBUTARY | Stream "I | .ocal": | TH16 | | | | Access: | | V 2 |
| Watershed Code: 4 | 60-6006-508- | TH -16 -000-000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 1.5 Method; | : MW |
| Location: S | URVEY E D I | BELOW ROAD. | Map #: | 093L 0 3 | 4 | | Site No.: | 1 | Length surveyed (m): | 250.0 Method: | : НС |
| | | | U.T.M. : | 9.6073 | .60186 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/21/96 | Time: 10 | 00 Agency: C58 Sur | vey Crew: RD\CP\ | 111 | \ \ \ | | Photos: | A14/7, 8 | Air Photos: | BCB 91 | 180:159 |
| Channel Char | acterist | ics | [| | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | 0.5 | ` , | Т | | | | % Fines (<2mm): | 70 | % Fines (<2mm): | | 70 |
| Av. Wet. Width (m): | 0.3 | ` ' | T 0.2 | 0.3 | | | % Gravels: | 5 | Small (2-16mm): | | 0 |
| Av. Max. Rif. Depth (ca | | • , , | MS | | | | | | Large (16-64mm): | | 5 |
| Av. Max. Pool Depth (c | | •, | 2 | | | | % Larges: | 25 | Small cobble (64-128mm |): | 10 |
| Gradient (%): | 38.0 | | CL 0 Method | . CE | | | , a sanges. | | Large cobble (128-256m | • | 15 |
| % Pool: 5 % Side Channel: | % Riffle: 9: | | 0 Method GE | : GE | | | | | Boulder cobble (>256mr | • | 0 |
| % Debris Area: | (| | GE | | | | % Bedrock: | 0 | % Bedrock: | • | 0 |
| 76 Debris Area: | | Method Debris Area: | | | | | 4 | U | | | - |
| Cover | | | | | | | D90 (cm): | 14 | Compaction: | | Medium ——— |
| Cover Total % : | 10 | Method Cover Total %: | GE | | | | Banks | | | | |
| Dp Pool: 5 L.O | .D.: 0 | Boulder: 95 In Veg.: | 0 Over Veg | : 0 | Cutbank: | 0 | | | | | |
| Crown Closure %: | 20 | Method Crown Closure: | GE Aspect: | W | Method Aspect: | AE | Height (m): | 0.4 | % Unstable: | | O |
| | | | | | | | Textures Fines: | Yes | Gravel: Yes Large | s: No Bedrock: | : No |
| Discharge | | | 1 | | Specific Data | | Confinement: | 2 | | | |
| _ | | M . | | ۱. | specific Data | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | Stage: | L | | | |
| Mean Depth (m): | | Method Mean Depth (m): | νο | | | | Flood Signs Ht(m): | 0 | Method Flood Signs: | | GE |
| Mean Velocity (m/s): | 0.01 | Method Mean Velocity (m/s Method Discharge (m3/s): | VO | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | - | Memou Discharge (m3/s). | <u> </u> | | | <u>-</u> | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symbol | ! | | | | | | ρH: | | Method pH: | | |
| | | • | Fish) | | | | 02 (ppm)։ | | Method Dissolved Oxyg | en: | |
| | | | NS | | | | Water Temp. (°C): | 3.0 | Method Temperature: | | fC |
| | | 0 A 38.0 | L. | | | | Turb. (cm): | 15 | Method Turbidity: | | MS |
| | | (Width, Valley: Channel, Slope | (Bed Material) | | | | Cond. (µmhos): | 20 | Method Conductivity: | | CM |

2~-Mar-9~

Stream: THAUTIL R TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-TH -16 -000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

Comments

C1 Air temp: 1.5 C

C2

No defined channel above the road. Below the road, 30 · 45 % gradient for 100 m, sections with no defined channel, and bed material consisting of sand/silt. Tributary likely dewaters; suspect when surveyed, only wetted due to snow melt. Below 100 m, enters Thautil R. floodplain; channel is not defined but there is evidence of old Thautil R. flood channels which may no longer be used.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-414-000-000-000-000-000-000-000

| Header Information | | | | | | | | | | | |
|--|-----------------------|----------------|----------------|------------------|-----|---------|----------------------|-----------|--|---------------|----------|
| Stream Name: THAUTIL R. TRIBUTARY | Stream "Loc | al": | TH17 | | | | | | Access: | | V2 |
| Watershed Code: 460-6006-508-414-000-000-000-000-000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.5 Method: | MW |
| Location: SURVEYED BELOW ROAD NEAR BLK 611#1. | Map#: | 93 L034 | 1 | | | | Site No.: | 1 | Length surveyed (m): | 140.0 Method: | HC |
| | U.T.M. : | 9.6074 | .60187 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 3/13/96 Time: 14:00 Agency: C58 Survey (| rew: RD\DA \ | 111 | 11 | | | | Photos: | T1/15, 16 | Air Photos: | BCB 911 | .80:159 |
| Channel Characteristics | | S | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m): 0.8 Method Av. Chan. Width (m): T | \ \ | 0.7 | 0.9 | 0.8 | 0.8 | | % Fines (<2mm): | 40 | % Fines (<2mm): | | 40 |
| Av. Wet. Width (m): 0.8 Method Av. Wet. Width (m): T Av. Max. Rif. Depth (cm): 7 Av. Max. Riffle Depth (cm): MS | | 0.7 | 0.9 | 0.8 | 0.8 | | % Gravels: | 20 | Small (2-16mm): | | 10 |
| Av. Max. Pool Depth (cm): 25 Av. Max. Pool Depth (cm): 7 Gradient (%): 16.0 Method Gradient: CL | | | | | | } | % Larges: | 40 | Large (16-64mm): Small cobble (64-128mm) | | 10 40 |
| % Pool: 10 % Riffle: 90 % Run: 0 % Other: (| Method: (| GE | | | | Ì | - | | Large cobble (128-256mm Boulder cobble (>256mm) | | 0 |
| % Side Channel: 0 Method Side Channel: GE % Debris Area: 30 Method Debris Area: GE | | | | | | | % Bedrock: | 0 | % Bedrock: | • | 0 |
| Cover | | | | | | | D90 (cm): | 10 | Compaction: | N | Medium |
| Cover Total %: 30 Method Cover Total %: GE | | | | | | | Banks | | | | |
| Dp Pool: 30 L.O.D.: 70 Boulder: 0 In Veg.: 0 Crown Closure %: Method Crown Closure: | Over Veg: Aspect : | 0 W | Cutba Metho | nk: od Aspect | : | 0 AE | Height (m): | 5.0 | % Unstable: | | 0 |
| L | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | : No Bedrock: | Nο |
| Discharge | | | | | | | Confinement: | 103 | Glavei. 1cs Larges. | No Bediock. | 140 |
| G | | Sp | ecific Do | ıta | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): Method Wetted Width (m): | | | | | | | Stage: | М | | | |
| Mean Depth (m): Method Mean Depth (m): | | | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): Method Mean Velocity (m/s VC | | | | | | 1 | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : 0.08 Method Discharge (m3/s) : | | - <u></u> - | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | _ | | | | pf1: | | Method pH: | | |
| (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | 1: | |
| NF | | | | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | TC |
| 1 A 16.0 4 | 240 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| (Width, Valley: Channel, Slope) | Bed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-414-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- 7 minnow traps were set in a section of stream near the road crossing. No fish were caught, Suspect lower 30 m is used by fish moving up from Thautil R. Good off-channel rearing during high flow events on floodplain of Thautil R. Access restricted to high flow conditions.
- C2 Stable creek; moss covered rocks and LOD. Incised gully with 80% sideslopes. Moderate potential for debris transport.
- C3 Large amount of fill was required at road crossing; sediment transport is a concern.

2"-Mar-9"

Header Information

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-TH -18 -000-000-000-000-000-000

| Stream Name: | THAUTIL R. | TRIBUTARY | Stream "Local": | TH18 | | | Access: | F |
|---------------------------|--------------|-------------------------------------|-----------------|----------------|-------------------------------|-------|---------------------------------------|-----------------|
| Watershed Code: | 460-6006-508 | TH -18 -000-000-000-000-000-000 | | | Reach No.: | 1 | Reach Length (km): | 0.7 Method: M |
| oçation: | | NDARY OF PROPOSED BLK 611#1, ~150 m | Map #: 093L03 | 4 | Site No.: | 1 | Length surveyed (m): | 50.0 Method: Hi |
| | D/S FROM R | OAD CROSSING. | U.T.M.: 9.6074 | .60189 | Fish Card: | N | Field: Yes F | listorical: |
| Date: 6/14/96 | Time: 13 | .45 Agency: C58 Survey Cr | ew: RD\DA\ \ \ | <u> </u> | Photos: | T1/19 | Air Photos: | BCB 91180:15 |
| Channel Ch | aracterist | ics | | Specific Data | Bed Material | | | |
| Av. Chan. Width (m | n): 0.: | Method Av. Chan. Width (m): T | | | % Fines (<2mm): | 100 | % Fines (<2mm): | 10 |
| Av. Wet. Width (m) |); 0, | | | | % Gravels: | 0 | Small (2-16mm): | |
| Av. Max. Rif. Depth | - | Av. Max. Riffle Depth (cm): | | | | | Large (16-64mm): | |
| Av. Max. Pool Deptl | • | Av. Max. Pool Depth (cm): | | | % Larges: | 0 | Small cobble (64-128mm): | |
| Gradient (%): | 14. | | Marked OF | | , v Larges. | J | Large cobble (128-256mm): | |
| % Pool: 0 % Side Channel: | % Riffle: 0 | | Method: GE | | Ì | | Boulder cobble (>256mm); | |
| % Debris Area: | 0-1 | | | | % Bedrock: | 0 | % Bedrock: | |
| | | | | | D90 (cm): | 0 | Compaction: | Mediu |
| Cover | | | | | | | | |
| Cover Total % : | | Method Cover Total %: | | | Banks | | | |
| • | L.O.D.; | Boulder: In Veg.: | Over Veg: | Cutbank: | | | | |
| Crown Closure %: | • | Method Crown Closure: | Aspect : | Method Aspect: | Height (m): | | % Unstable: | |
| | | | | | Textures Fines: | No | Gravel: No Larges: | No Bedrock: I |
| Discharge | | | i s | Specific Data | Confinement: | 5 | | |
| Wetted Width (m): | • | Method Wetted Width (m) : | | | Valley: Chan. Ratio; | 5 | | |
| Mean Depth (m): | - | Method Mean Depth (m): | | | Stage: | l. | | |
| Mean Velocity (m/s | s): | Method Mean Velocity (m/s VO | | | Flood Signs Ht(m): | | Method Flood Signs: | |
| Discharge (m3/s) : | 0.01 | | | | Braided: | N | Method Braided: | (|
| | | | <u> </u> | | Bars (%): | | Method Bars: | |
| | L _ I | | | | pH: | | Method pH: | |
| Reach Syml | ooi | (Fish) | | | | | Method Dissolved Oxygen: | |
| Reach Symb | DOL | (Fish) NS | | | 02 (ppm): | | | |
| Reach Symb | 001 | • | | | Water Temp. (°C): Turb. (cm): | | Method Temperature: Method Turbidity: | |

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 Small seepage with no defined channel at the road crossing, trickle flow. ~150 m d/s from road crossing intermittent channel.
- C2 No debris transport capability, low sediment transport capability, no fish habitat.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

| Header Information | | | | | | | | | | |
|--|---|-----------------------------|-------------|---------------------------------------|----------------|--|---------------------|--|---|----------------|
| Stream Name: THAUTIL R Watershed Code: 460-6006-50 | 8-446-000-000-000-000-000-000-000 | Stream "Local": Map #: 093L | TH21 | | | Reach No.: Site No.: | 1 | Access: Reach Length (km): | 2.0 Method: | FT MW |
| Location: ATROAD (Date: 6/13/96 Time: | | - | 78 .60198 | | | Site No.: Fish Card: Photos: | 1 N T1/13, 14 | Length surveyed (m): Field: Yes Air Photos: | 730.0 Method: Historical: BCB 911 | No |
| Channel Characteris | tics | | Specific D | eta | | Bed Material | | | <u>-</u> | |
| . , | 9 Method Av. Chan. Width (m): T 9 Method Av. Wet. Width (m): T 7 Av. Max. Riffle Depth (cm): MS | 0.6 1.0 0.6 1.0 | | 1.8 | 0.9 0.9 | % Fines (<2mm): % Gravels: | 15 50 | % Fines (<2mm): Small (2-16mm): | | 15 20 |
| Av. Max. Pool Depth (cm): Gradient (%): | 5 Av. Max. Pool Depth (cm): 7 0 Method Gradient: CL | Mathata CF | | - | | % Larges: | 35 | Large (16-64mm): Small cobble (64-128mm): Large cobble (128-256mm) | | 30 30 5 |
| % Pool: 20 % Riffle: % Side Channel: % Debris Area: 20 | 60 % Run: 20 % Other: 0 0 Method Side Channel: GE Method Debris Area: GE | Method: GE | | | | % Bedrock: | 0 | Boulder cobble (>256mm): % Bedrock: | • | 0 |
| Cover | | | | | | D90 (cm): | 9 | Compaction: | | 1.ow |
| Dp Pool: 0 L.O.D.: | 60 Method Cover Total %: GE 60 Boulder: 0 In Veg.: 0 | • | 0 Cutba | | | Banks | | | | |
| Crown Closure %: Discharge | Method Crown Closure: GE | Aspect: | | od Aspect | · | Height (m): Textures Fines: Confinement: | 2.5 Yes | % Unstable: Gravel: Yes Larges: | No Bedrock: | 5 No |
| Wetted Width (m): Mean Depth (m): | Method Wetted Width (m) : Method Mean Depth (m) : | | Specific Do | ila | | Valley: Chan. Ratio: Stage: | 5 M | | | |
| Mean Velocity (m/s): Discharge (m3/s): 0.0 | Method Mean Velocity (m/s VO 8 Method Discharge (m3/s): | | | · · · · · · · · · · · · · · · · · · · | · - <u>-</u> - | Flood Signs Ht(m): Braided: Bars (%): | 0.1 N 2 | Method Flood Signs: Method Braided: Method Bars: | | MS GE GE |
| Reach Symbol | (Fish) NF | | | | | pH: 02 (ppm): Water Temp. (°C): | 7.0 | Method pH: Method Dissolved Oxygen Method Temperature: | | 1C |
| | (Width, Valley: Channel, Slope) (Bed | Material) | | | | Turb. (cm): Cond. (µmhos): | 200 | Method Turbidity: Method Conductivity: | | GE |

26-Mar-9 -

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 60 | F | 0.0 |

- C1 8 traps were set at road crossing; no fish were caught or observed. No fish habitat.
- C2 Stable creek. Upper section is a low energy system.
- C3 A 60 m high falls was observed at the confluence.
- In the lower 250 m of stream from the confluence, sidewalls range in slope from 50-80% for an average of 50 m and then the stream verges on being a gully in sections. Sidewalls are composed of fine, silty material and there is evidence of old slumps. ~250 m 730 m w/s of the confluence, stream parallels the northern boundary of block 611#1. Creek becomes progressively less incised moving w/s to the road crossing.

26-Mur-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-446-TH -21.-1 -000-000-000-000-000

| Header Info | rmation | | | | | _ | | | |
|---------------------|---------------|---|-------------------|---|----------------------|----------|-------------------------|---------------|---------|
| Stream Name: | THAUTIL R. T | RIBUTARY | Stream "Local" | : TH21.1 | | | Access: | | FT |
| Watershed Code: | 460-6006-508- | 146-TH -211 -000-000-000-000-000 | | | Reach No.: | 1 | Reach Length (km): | 0.5 Method: | MW |
| Location: | ~200 m U/S FR | OM CONFLUE NCE . | Map #: 0931 | .034 | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | GE |
| | | | U.T.M.: 9.60 | .60198 | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 6/13/96 | Time: 12: | OO Agency: C58 Surve | ey Crew: RD\DA\\\ | 1111 | Photos: | no photo | Air Photos: | BCB 911 | 180:161 |
| Channel Ch | aracteristi | cs | ! | Specific Data | Bed Material | | | | |
| Av. Chan. Width (m | - | • • • | т | - · · · · · · · · · · · · · · · · · · · | % Fines (<2mm): | 100 | % Fines (<2mm): | | 100 |
| Av. Wet. Width (m) | | Method Av. Wet. Width (m): | T | | % Gravels: | 0 | Small (2-16mm): | | 0 |
| Av. Max. Rif. Depth | | Av. Max. Riffle Depth (cm): | | | | | Large (16-64mm): | | 0 |
| Av. Max. Pool Dept | • • | Av. Max. Pool Depth (cm): | | | % Larges: | 0 | Small cobble (64-128mm) | | 0 |
| Gradient (%): | 10.0 | | CL | | / Larges. | U | Large cobble (128-256mm | | 0 |
| % Pool: 10 | % Riffle: 80 | % Run: 10 % Other: | 0 Method: GE | | | | Boulder cobble (>256mm | | 0 |
| % Side Channel: | 0 | | GE | | (,,,, | | • | <i>,</i> - | |
| % Debris Area: | 0- 10 | Method Debris Area: | GE | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | D90 (cm): | 0 | Compaction: | | High |
| Cover Total % : | | Method Cover Total %: | | | Banks | | | | |
| Dp Pool: | L.O.D.: | Boulder: In Veg.: | Over Veg: | Cutbank: | 22.000 | | | | |
| Crown Closure % : | | Method Crown Closure: | Aspect : | Method Aspect: | Height (m): | | % Unstable: | | |
| | | | | —————— | Textures Fines: | No | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | Carrida Data | Confinement: | | | | |
| | | N | Į Į | Specific Data | Valley: Chan. Ratio: | i | | | |
| Wetted Width (m): | | Method Wetted Width (m): | Ì | | Stage: | L | | | |
| Mean Depth (m): | | Method Mean Depth (m): | vo | | Flood Signs 11t(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s | 0.01 | Method Mean Velocity (m/s Method Discharge (m3/s): | VO | | Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s): | | Method Discharge (m3/s) : | | | Bars (%): | | Method Bars: | | |
| Reach Symi | bol | | | | pH: | | Method pH: | | |
| | | • | sh) | | 02 (թթու)։ | | Method Dissolved Oxyge | n: | |
| | | <u> </u> | IS | - | Water Temp. (°C): | | Method Temperature: | | |
| | | 0 A 10.0 | F | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mur-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-446-TH -21.-1 -000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

Comments

C3

C1 Seasonally wetted, intermittent seepage with trickle flow. The channel is undefined.

C2 No fish habitat present.

Road has no culvert; a culvert should be installed.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-468-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | |
|---|------------------|---------------------|--|---------------|------------------|----------------|---------|-----------------------------|-----------|---|---------------|----------|
| Stream Name: | THAUT | IL R. T | RIBUTARY | Stream "Lo | ocal"; | TH22 | | | | Access: | | V2 |
| Watershed Code: | 460-600 | 6-50 8-4 | 68-000-000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 0.3 Method: | MW |
| Location: | ~70 m U | /S FRO | M CONFLUENCE WITH THAUTIL R. | Map #: | 093 L03 4 | į. | | Site No.: | 1 | Length surveyed (m): | 300.0 Method: | HC |
| | | | | U.T.M. : | 9.6076 | .60205 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/25/96 | Time | e: 14:3 | 3 Agency: C58 Survey Cr | ew: SSVH\ | 1111 | \ \ \ | | Photos: | B4/24 | Air Photos: | BCB 911 | 80:159 |
| Channel Ch | aracte | ristic | cs | ! | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m | - | 2.5 | Method Av. Chan. Width (m): | 2.9 | 2.1 | 3.7 2.1 | 2.3 2.1 | % Fines (<2mm): | 35 | % Fines (<2mm): | | 35 |
| Av. Wet. Width (m) Av. Max. Rif. Depth | | 1.5 9 | Method Av. Wet. Width (m): T Av. Max. Riffle Depth (cm): MS | 1.0 | 2.0 | 1.4 | | % Gravels: | 55 | Small (2-16mm): | | |
| Av. Max. Pool Depti Gradient (%): % Pool: 30 % Side Channel: | h (cm): % RiM | 28 3.0 se: 40 | Av. Max. Pool Depth (cm): 9 Method Gradient: CL "A Run: 30 "Other: 0 Method Side Channel: GE | Method: | GE | | | % Larges: | 10 | Large (16-64mm): Small cobble (64-128mm): Large cobble (128-256mm) Boulder cobble (>256mm) | | |
| % Debris Area: | 20 | Ü | Method Debris Area: GE | | | | | % Bedrock: | 0 | % Bedrock: | | U |
| Cover | | | | - | <u>-</u> | | | D90 (cm): | 6 | Compaction: | | High |
| Cover Total %: Dp Pool: 5 | L.O.D.: | 40 60 | Method Cover Total %: GE Boulder: 10 In Veg.: 0 | Over Veg: | 15 | Cutbank: | 10 | Banks | | | | |
| Crown Closure % : | | 15 | Method Crown Closure: GE | Aspect: | SE | Method Aspect: | AE | Height (m): | 0.5 | % Unstable: | | 10 |
| n: / | | | | - | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | ! | S | pecific Data | | Confinement: | 4 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | | | | Valley: Chan. Ratio: | 4 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | İ | | | | Stage: | L | Made 151 16' | | k ac |
| Mean Velocity (m/s |): | | Method Mean Velocity (m/s VO | 1 | | | | Flood Signs Ht(m): Braided: | 0.5 Y | Method Flood Signs: Method Braided: | | MS |
| Discharge (m3/s): | | 0.01 | Method Discharge (m3/s): | 1 | | | | Bars (%): | Y 50 | Method Bars: | | GE GE |
| n 1 G | | | | | | _ | | pH: | 30 7.9 | Method pH: | | PH |
| Reach Syml | ool | | (Fish) | | | | | 02 (ppm): | 1.9 | Method Dissolved Oxyger | | 111 |
| | | | (SP) | | | | | Water Temp. (°C): | 5.5 | Method Temperature: | · | tC. |
| | | | 3 D 3.0 361 | 0 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | | d Material) | | | | Cond. (μπιhos): | 200 | Method Conductivity: | | Gi. |

26-Mar-9 ^ Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-468-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Comments

Cl No fish observed but recruitment from mainstem suspected; no apparent barriers to fish.

C2 Flood signs in the lower 150 m from the Thautil River.

Obstructions

26-Mar-9

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-468-000-000-000-000-000-000-000-000

| Header Infor | | | = | | | | | | | | | | | | | |
|------------------------|------------------|-------|---------------------|------------|--------|-------------|---------|----------------|-----------|-----|-----|----------------------|-------------|------------------------|--------------------|---------|
| _ | | 'en u | N 100 A 10 N / | | | 0 | | | | | | | | | | |
| Stream Name: | THAUTIL R | | | | | Stream "L | ocal": | TH22 | | | | | | Access: | | V2 |
| Watershed Code: | | | -000-000-000-00 | | | | | | | | | Reach No.: | 2 | Reach Length (km): | 0.9 Method: | |
| Location: | AT KOAD C | KO53 | SING, ~750 m U/S F | KUM MUUTH. | | Map#: | 093L034 | | | | | Site No.: | 2 | Length surveyed (m): | 495.0 Method: | |
| _ 0,0104 | are t | | | 050 0 | | U.T.M.: | 9.6076 | | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/25/96 | Time: 1 | 6:00 | Agency: | : C38 Surv | ey Cre | w: SSUH \ | | ' ' | | | | Photos: | B4/25; B5/I | Air Photos: | BCB 91 | 180:159 |
| Channel Cha | racteris | tics | | | | | S | pecific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | 2 | .6 | Method Av. Chan, V | Width (m): | Т | 2.5 | 3.0 | 2.5 | 3.0 | 2.8 | 2.0 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | 1 | .3 | Method Av. Wet. W | 'idth (m): | T | 1.3 | 1.7 | 0.7 | 1.4 | | | 1 | 20 | , , | | |
| Av. Max. Rif. Depth (c | cm): | 0 . | Av. Max. Riffle Dep | oth (cm): | MS | | | | | | | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Pool Depth (| (cm): 2 | 2 . | Av. Max. Pool Dept | h (cm): | 10 | | | | | | | | | Large (16-64mm): | | |
| Gradient (%): | 6 | .0 | Method Gradient: | | CL | • | | | | | | " % Larges: | 70 | Small cobble (64-128m | m): | |
| % Pool: 30 | % Riffle: | 50 ' | % Run: 10 | % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256) | mm): | |
| % Side Channel: | 0-1 | 0 | Method Side Chann | el: | GE | | | | | | | | | Boulder cobble (>256n | ım): | |
| % Debris Area: | 0-1 | 0 | Method Debris Are | a : | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | - | | | | | | | | | | | D90 (cm): | 20 | Compaction: | | Medium |
| Cover Total %: | 4 | 0 1 | Method Cover Tota | l %: | GE | | | | | | | Banks | | | | |
| | O.D.: 1 | 5 | Boulder: 40 | In Veg.: | 0 | Over Veg: | 5 | Cutba | nk: | | 20 | | | | | |
| Crown Closure %: | 2 | 0 | Method Crown Clo | sure: | GE | Aspect : | E | Metho | d Aspect: | : | AE | Height (m): | 0.6 | % Unstable: | | 5 |
| | | | | | | | | | | | | Textures Fines: | No.0 | | ges: No Bedrock: | |
| Discharge | | | | | | | | | | | | Confinement: | 2 | Glavel, 163 Lai | ges. 140 Belliver. | . 140 |
| Discharge | | | | | | | Sp | ecific Da | ata | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | N | lethod Wetted Wid | th (m): | | İ | | | | | | Stage: | - 1 | | | |
| Mean Depth (m): | | N | lethod Mean Depth | (m): | | į | | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) : | | N | lethod Mean Veloci | ity (m/s | vo | İ | | | | | | Braided: | N. | Method Braided: | | GE |
| Discharge (m3/s): | 0.0 | i N | lethod Discharge (n | n3/s) : | | | | | | | | Bars (%): | 50 | Method Bars: | | GE |
| Daniel Court | | | | | | | | | | | | pli: | 7.8 | Method pH: | | PH |
| Reach Symbo |) i | | | (I | Fish) | | | | | | | 02 (ppm): | 7.0 | Method Dissolved Oxy | /gen· | • • • |
| | | | | | DV | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature | - | TC |
| Ì | | | | 3 B 6.0 | 1270 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | • | GE |
| | | | (Width, Valley: | | 1 | | | | | | | Cond. (µmhos): | 230 | Method Conductivity: | | GI. |
| | | | ,,, | , 4(4) | 1 ,5 | | | | | | | - 21121 (- | | | | |

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | _ | 65 - 71 | J | R | | | EL |
| DV | 3 | 41 - 56 | F | R | | | EL _ |

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | CV | 0.8 |

- C1 Electrofished 27 m length of stream: 7 m d/s from culvert, 20 m u/s from cuvlert.
- C2 Culvert barrier: 1.0 m drop from culvert to pool, 0.6 m drop from culvert to floodsign level. Culvert is 28 m long with a 5% gradient. (Photo B5/1)
- C3 Char fry were recorded as DV fry.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-468-000-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | |
|---------------------|------------------|---------|--------------------------------|---------------|------------|---------|----------------|---------|----------------------|------|-------------------------|---------------|---------|
| Stream Name: | THAUT | ILR. T | RIBUTARY | | Stream "Lo | ocal": | TH22 | | | | Access: | | V2 |
| Watershed Code: | 460-600 | 6-508-4 | 68-000-000-000-000-000-000-000 | | | | | | Reach No.: | . 3 | Reach Length (km): | 1.7 Method: | MW |
| Location: | ~650 m | U/S FF | OM ROAD, ~1.4 km U/S FROM MO | U TH . | Map #: | 093L034 | 1 | | Site No.: | 3 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | U.T.M. : | 9.6076 | .60205 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/25/96 | Tim | e: 17: | O Agency: C58 Su | rvey Cr | ew: SSUH\ | 1111 | \ \ | | Photos: | B5/2 | Air Photos: | BCB 911 | 180:159 |
| Channel Ch | aracte | risti | cs . | | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m |): | 1.8 | Method Av. Chan. Width (m): | T | 1.5 | 1.8 | 1.9 2.0 | 2.3 1.5 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m) | : | 1.1 | Method Av. Wet. Width (m): | T | 0.8 | 1.4 | 1.0 | | | | • • | | •- |
| Av. Max. Rif. Depth | (cm): | 8 | Av. Max. Riffle Depth (cm); | MS | | | | ĺ | % Gravels: | 45 | Small (2-16mm): | | |
| Av. Max. Pool Dept | h (cm): | 22 | Av. Max. Pool Depth (cm): | 8 | | | | | | | Large (16-64mm): | | |
| Gradient (%): | | 9.0 | Method Gradient: | CL | ı | | * *** | | % Larges: | 45 | Small cobble (64-128mm) | | |
| % Pool: 20 | % Riff | le: 65 | % Run: 15 % Other | : 0 | Method: | GE | | | | | Large cobble (128-256mm |): | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | Boulder cobble (>256mm | : | |
| % Debris Area: | 20 | | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | - | | D90 (cm): | 13 | Compaction: | 1 | Medium |
| Cover Total % : | | 30 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 25 | L. O.D .: | 25 | Boulder: 25 In Veg.: | 0 | Over Veg: | 15 | Cutbank: | 10 | Junio . | | | | |
| Crown Closure % : | | 25 | Method Crown Closure: | GE | Aspect : | NE | Method Aspect: | AE | Height (m): | 0.5 | % Unstable: | | Ú |
| | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | No Bedrock: | No |
| Discharge | | | | | | | | í | Confinement: | 1 | | | |
| J | | | | | | 3, | pecific Data | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s |): | | Method Mean Velocity (m/s | vo | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.01 | Method Discharge (m3/s): | | 1 | | | | Bars (%): | 30 | Method Bars: | | GE |
| Reach Symi | hal | | | | | | | | pll: | | Method pH: | | |
| Meuch Symi | ,v: | | | (Fish) | | | | | 02 (ppm): | | Method Dissolved Oxyge | 1: | |
| | | | | NF | | | | | Water Temp. (°C): | 6.5 | Method Temperature: | | TC |
| | | | 2 A 9. | 0 145 | | - | | | Turb. (cm): | 200 | Method Turbidity: | | Gl: |
| | | | (Width, Valley: Channel, Slop | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-468-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

Comments

CI

Electrofished ~100 m length of stream. No fish were caught or observed. Suspect fish distribution is up to the Reach 3 boundary.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-468-TH -22.-1 -000-000-000-000-000

| Header Inforn | nation | | | | | | | | | | | | | |
|-------------------------|------------------------|----------------------------------|----------|-------------------|---------|------------|---------|-----|-----|----------------------|---------------|--------------------------|----------------|---------|
| Stream Name: | THAUTIL R. | TRIBUTARY | s | itream "Lo | cal"; | TH22.1 | | | | | | Access: | | V2 |
| Watershed Code: | 160 - 6006-508- | 468-TH -221 -000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.4 Method: | MW |
| | | OM TH22 MOUTH, ~160 m D/S FROM | N | Ла р#: | 093L034 | | | | | Site No.: | 4 | Length surveyed (m): | 160.0 Method: | HC |
| F | ROAD CROSS | SING. | t | J. T.M . : | 9.6072 | .60205 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/21/96 | Time: 12 | 30 Agency: C58 Surve | y Crew: | SSUH \ \ | 111 | ١١ | | | | Photos: | not available | Air Photos: | BCB 911 | 180:159 |
| Channel Char | acterist | ics | | | S | pecific Da | ta | | į | Bed Material | | | | |
| Av. Chan. Width (m): | 1.1 | , , | Т | 1.1 | 1.2 | 1.0 | 0.5 | 1.0 | 1.6 | % Fines (<2mm): | 25 | % Fines (<2mm): | | 25 |
| Av. Wet. Width (m): | 1.0 | , , | T | 0.9 | 1.2 | 1.0 | | | | % Gravels: | 60 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cr | • | | MS | 13 | 8 | 12 | | | | | | Large (16-64mm): | | |
| Av. Max. Pool Depth (c | • | • ` ` | 11 | 25 | 16 | 18 | | | | % Larges: | 15 | Small cobble (64-128mm): | | |
| Gradient (%): | 20.0 | | CL | | ar. | | | | | /• Larges. | ., | Large cobble (128-256mm) | 1 . | |
| | % Riffle: 70 | | 0 CE | Method: | GŁ | | | | | İ | | Boulder cobble (>256mm): | | |
| % Side Channel: | 0-10 | | GE GE | | | | | | | | 0 | , , | | 0 |
| % Debris Area: | 0-10 | niethod Debris Area: | GE | | | | | | _ | % Bedrock: | 0 | % Bedrock: | | U |
| Cover | | | | | | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total % : | 30 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 30 L.O | .D.: 15 | Boulder: 5 In Veg.: | 0 (| Over Veg: | 20 | Cutban | k: | | 30 | | | | | |
| Crown Closure % : | 60 | Method Crown Closure: | GE A | Aspect : | E | Method | Aspect: | | AE | Height (m): | 0.2 | % Unstable: | | 20 |
| | | | _ | | | | _ | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | Sn | ecific Dat | | | 1 | Confinement: | 3 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | Jp | ccyst Dus | • | | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Stage: | М | | | |
| Mean Velocity (m/s): | | • • • | vo | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.01 | | ' | | | | | | | Braided: | Y | Method Braided: | | GE |
| | | | | | | | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symbo | l | (57) | • . | | | | | | | pfl: | 7.0 | Method pH: | | PH |
| , | | (Fi | • | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | : | |
| | | | lF r | | | | | | | Water Temp. (°C); | 3.0 | Method Temperature: | | IC |
| | | 1 B 20.0 | 2620 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | Gŀ |
| | | (Width, Valley: Channel, Slope) | (Bed N | daterial) | | | | | | Cond. (µmhos): | 30 | Method Conductivity: | | CM |

26-Mar-97

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-468-TH -22.-1 -000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

- C1 20% gradient recorded was the average for the whole reach. At the confluence with Th22 the gradient was 5%; ~88 m u/s from the confluence the gradient was 15%; ~130 m and u/s to the culvert the gradient increased from >20% to >30%.
- C2 Air temp: 4.5 C
- C3 Suspect fish use only in the lower 88 m of Th22.1.

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-469-000-000-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | |
|-----------------------------------|-----------|-----------|--------------------------------------|---------|-------------|---------|----------------|---------|----------------------|-----------|---------------------------|-------------|---------|
| Stream Name: | THAUTII | R. TI | RIBUTARY | | Stream "Lo | cal": | TH23 | | | | Access: | | 11 |
| Watershed Code: | 460-6006 | -508-4 | 69-000-000-000-000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 2.3 Method: | MW |
| Location: | ~100 in U | /S FRO | OM TH23 - THAUTIL R. CONFLUEN | ICE. | Map #: | 093L034 | 4 | | Site No.: | 1 | Length surveyed (m): 55 | 0.0 Method: | нс |
| | | | | | U.T.M.: | 9.6076 | .60206 | | Fish Card: | N | Field: Yes Hi | storical: | No |
| Date: 9/24/96 | Time | 10:0 | O Agency: C58 Sur | vey Cre | w: RD\CP\ | 1 1 1 1 | . 1 1 | | Photos: | A5/22, 23 | Air Photos: | BCB 911 | 180:161 |
| Channel Ch | aracter | istic | es · | | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m | • | 1.7 | Method Av. Chan. Width (m): | T | 1.7 | 1.1 | 1.4 1.3 | 3.2 1.6 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m) | | 1.0 | Method Av. Wet. Width (m): | T | | | | | % Gravels: | 55 | Small (2-16mm): | | 15 |
| Av. Max. Rif. Depth | | 10 | Av. Max. Riffle Depth (cm): | MS | | | | | | | Large (16-64mnı): | | 40 |
| Av. Max. Pool Dept | th (cm): | 25 | Av. Max. Pool Depth (cm): | 10 | | | | | % Larges: | 40 | Small cobble (64-128mm): | | 5 |
| Gradient (%): | n/ Dien- | 8.0 | Method Gradient: % Run: 10 % Other: | CL 0 | | CF. | | | | .,, | Large cobble (128-256mm): | | 30 |
| % Pool: 10 % Side Channel: | % Riffle | . 8U 0 | Method Side Channel: | GE | Method: | GE | | | | | Boulder cobble (>256mm): | | 5 |
| % Side Channel: % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | U |
| 76 Debris Area. | | 0-10 | Method Debris Area. | GL. | | | | | 1 | • | | | |
| Cover | | | | | | | | | D90 (cm): | 25 | Compaction: | | Medium |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 0 | L.O.D.: | 10 | Boulder: 70 In Veg.: | 0 | Over Veg: | 0 | Cutbank: | 20 | 1 | | | | |
| Crown Closure %: | : | 50 | Method Crown Closure; | GE | Aspect : | W | Method Aspect: | AE | Height (m): | 0.8 | % Unstable: | | 0 |
| | | | | | | | _ | | Textures Fines: | Yes | Gravel: Yes Larges: No | Bedrock: | . No |
| Discharge | | | | | 1 | | pecific Data | | Confinement: | 3 | | | |
| · · | | | M. A. 100 1000 | | | 3 | pecijic Dala | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m) | : | | Method Wetted Width (m): | | | | | | Stage: | i. | | | |
| Mean Depth (m): | | | Method Mean Depth (m); | | | | | | Flood Signs 11t(m): | 0.4 | Method Flood Signs: | | MS |
| Mean Velocity (m/s | | 0.04 | Method Mean Velocity (m/s | vo | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.06 | Method Discharge (m3/s): | | ļ | | | | Bars (%): | 40 | Method Bars: | | GE |
| Reach Symi | bol | | | | | | | | pH: | 8.0 | Method pll: | | PH |
| | • | | | (Fish) | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | | | (SP) | | | | | Water Temp. (°C): | 2.0 | Method Temperature: | | TC |
| | | | 2 B 8.0 | 154 | 0 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | Cond. (µmbos): | | Method Conductivity: | | |

26-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C3

C1 Electrofished ~55 m length of stream with no lower net. No fish were caught or observed.

Although no fish were observed, suspect creek may contain residents. Habitat is suitable for fish; the lower 200 m of stream contains very limited areas suitable for spawning (bed material consists of cobble/fines).

Surveyed upper reaches of Th23 by air: creek is moderate to low gradient (est. 8%); suspect fish use up to 2.2 km (the reach break). Above this point the creek becomes quite steep.

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-TH -25 - 00-000-000-000-000-000-000

Header Information Stream Name: THAUTIL R. TRIBUTARY Stream "Local": TH25 FT Access: Watershed Code: 460-6006-508-TH -25 - 00-000-000-000-000-000 Reach No .: Reach Length (km): 0.8 Method: MW Location: ~100 in U/S FROM CONFLUENCE WITH THE THAUTIL R. Map #: 093L034 Site No .: Length surveyed (m): 200.0 Method: HC U.T.M.: 9.6075 .60208 Field: Yes Fish Card: Ν Historical: No Time: 13:00 Date: 9/24/96 Agency: C58 Survey Crew: RD\CP\\\\\\\\ Photos: A6/2, 3Air Photos: BCB 91180:159 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 1.0 Method Av. Chan. Width (m): Ţ 1.2 0.9 1.1 1.3 0.7 % Fines (<2mm): % Fines (<2mm): 80 T Av. Wet. Width (m): 0.2 Method Av. Wet. Width (m): % Gravels: Small (2-16mm): 10 Av. Max. Riffle Depth (cm): Av. Max. Rif. Depth (cm): Large (16-64mm): 10 Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): % Larges: Small cobble (64-128mm): 0 Gradient (%): CL 1.5 Method Gradient: Large cobble (128-256mm): 0 % Pool: 5 80 % Riffle: 15 0 % Other: Method: GE 0 Boulder cobble (>256mm): % Side Channel: 0 Method Side Channel: GE % Debris Area: 0-10 Method Debris Area: GE % Bedrock: % Bedrock: 0 D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks Dp Pool : 0 L.O.D.: Boulder: in Veg.: 0 Over Veg: Cutbank: Crown Closure %: Method Crown Closure: GE Aspect: Method Aspect: ΑE Height (m): % Unstable: 0 Textures Fines: Gravel: No Larges: No Bedrock: Nο Discharge Confinement: Specific Data Valley: Chan. Ratio: 3 Wetted Width (m): Method Wetted Width (m): Stage: Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): Method Flood Signs: 0.1 MS Mean Velocity (m/s): Method Mean Velocity (m/s VO Braided: Method Braided: GE Discharge (m3/s): 0.01 Method Discharge (m3/s): Bars (%): 70 Method Bars: GE Reach Symbol pH; Method pli: PH (Fish) 02 (ppm): Method Dissolved Oxygen: (SP) Water Temp. (°C): Method Temperature: IC. 1 C 1.5 8200 Turb. (cm): 200 GE Method Turbidity: (Width, Valley: Channel, Slope) (Bed Material) Cond. (unihos): Method Conductivity:

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Stream Survey Report

Watershed Code: 460-6006-508-T11 -25 - 00-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Dewatered in the lower 25 m; very small trickle flow u/s, mostly stagnant.
- C2 Small, stable seepage channel (in-channel debris covered with moss). Only accessible from the Thautil R. during high flow events. Suspect use in the lower 100 m during floods. Above 100 m, the gradient increases slightly not accessible or suitable for fish.
- C3 Stream has no overwintering potential and merely serves as a trap to fish.

26-Mar-9

Stream: GABRIEL C.

Watershed Code:

| Header Inform | matio | n | | | | | | | | | | | | |
|------------------------|----------|--------|--------------------------------|---------|--------------|-----------------|----------------|--------|------|----------------------|-----------|------------------------|----------------|---------|
| Stream Name: | GABRIE | LC. | | | Stream "Lo | cal": | GABRIEL C. (TI | H26) | | | | Access: | | FI |
| Watershed Code: | 460-6006 | -508-4 | 80-000-000-000-000-000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 3.1 Method: | MW |
| Location: | ~200-300 | m U/S | FROM CONFLUENCE WITH THAU | ITIL R. | Map #: | 093 L034 | ı | | | Site No.: | 1 | Length surveyed (m): | 250.0 Method: | HC |
| | | | | | U.T.M.: | 9.6075 | .60209 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/24/96 | Time | : 11:3 | O Agency: C58 Sur | rvey Cr | rew: RD\CP\ | . , , , | \ \ | | | Photos: | A5/24, 25 | Air Photos: | BCB 91 | 181:046 |
| Channel Cha | ractei | ristic | es | | i | .5 | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m): | | 5.9 | Method Av. Chan. Width (m): | T | 7.2 | 5.0 | 6.4 6.1 | 5.2 5. | .4 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 4.0 | Method Av. Wet. Width (m): | Т | | | | | - 11 | % Gravels: | 35 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth (c | :m): | 11 | Av. Max. Riffle Depth (cm): | MS | | | | | | 70 Graveis. | 33 | Large (16-64mm): | | 25 |
| Av. Max. Pool Depth (c | cm): | 40 | Av. Max. Pool Depth (cm): | 11 | | | | | | | | | | |
| Gradient (%): | | 1.5 | Method Gradient: | CL | • | | | | | % Larges: | 60 | Small cobble (64-128mm | • | 20 |
| % Pool: 20 | % RiM | e: 40 | % Run: 40 % Other: | . 0 | Method: | GE | | | | | | Large cobble (128-256m | - | 35 |
| % Side Channel: | | 0-10 | Method Side Channel: | GE | | | | | | | | Boulder cobble (>256mm | n): | 5 |
| % Debris Area: | 30 | | Method Debris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 22 | Compaction: | | Medium |
| Cover Total % : | | 80 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 10 L.C | D.D.: | 15 | Boulder: 75 in Veg.: | 0 | Over Veg: | 0 | Cutbank: | | 0 | | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect : | SE | Method Aspect: | | ΑE | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | | | _ | Textures Fines: | Yes | Gravel: Yes Large | s: No Bedrock: | No |
| Discharge | | | | | 1 | S | pecific Data | | - | Confinement: | 3 | | | |
| Ny mand Ny and Cash | | | Method Wetted Width (m): | | | ., | pecyle Dalu | | | Valley: Chan. Ratio: | i | | | |
| Wetted Width (m): | | | Method Mean Depth (m): | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Velocity (m/s | vo | | | | | i | Flood Signs Ht(m): | 0.9 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | | 0.50 | Method Discharge (m3/s): | VO | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.50 | Michiel Discharge (m3/s) . | | <u> </u> | | | | | Bars (%): | 30 | Method Bars: | | GE |
| Reach Symbo | ol | | | | | | | | | pli: | 8.2 | Method pH: | | PH |
| | | | | (Fish) | | | | | | 02 (ppm): | | Method Dissolved Oxyg | en: | |
| | | | (DV) (B | T) (SST | (CO) | | | | | Water Temp. (°C): | 3.5 | Method Temperature: | | 10 |
| | | | 6 A 1.5 | 5 13 | 60 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope | e) (B | ed Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |
| | | | | | | | | | | | | | | |

26-Mar-9~ Stream: GABRIEL C. **Stream Survey Report**

460-6006-508-480-000-000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Obstructions Fish Summary

- No sample site was performed in this reach but DV, RB and BT were caught ~1.4 km u/s from the Thautil R. confluence. Coho have also been found to be abundant in lower C1Gabriel C. (Carswell and Witt, 1979).
- C2 No spawning potential in the lower 100 m; bed material consists of cobble/boulder. Further u/s, some spawning potential present.
- Easy fish access from the confluence. Creek flows into a Thautil R. sidechannel. C3
- Large unstable banks were observed along the creek. C4

26-Mar-9^

Stream: GABRIEL C.

Watershed Code:

| Header Infor | matic | m | | | | | | | | | | | | | |
|---------------------------------|--------|---------|--------------------------------|------------|-------------|----------|----------------|------|----------------|-------------|-----------|---------------------|------------|----------|---------|
| • | GABRI | | | | C | | CARRIEL C. (T | 1737 | | | | | | | |
| Stream Name: Watershed Code: | | | 80-000-000-000-000-000-000-000 | 000 | Stream "Le | ocai"; | GABRIEL C. (T. | H26) | Donah Na | | | Access: | 2.1 | | FT |
| | | | | 000 | N 4# | 0031.034 | | | Reach No. | : | 1 | Reach Length (km) | | Method: | |
| Location: | ~300 m | U/2 FK | OM G2 CONFLUENCE. | | Map #: | 093L034 | | | Site No.: | | 2 | Length surveyed (n | • | | |
| - am//a/ | an: | | | | U.T.M. : | 9.6075 | | | Fish Card: | | N | Field: Yes | Histor | | No |
| Date: 9/26/96 | Tim | e: 13:0 | O Agency: C58 | Survey Cr | ew: RD\SS \ | 1111 | | | Photos: | | B5/15, 16 | Air Photos: | | BCB 911 | 181:046 |
| Channel Cha | aracte | ristic | es · | | | | Specific Data | | Bed M | laterial | | | | | |
| Av. Chan. Width (m): | : | 7.2 | Method Av. Chan. Width (m): | Т | 7.0 | 6.2 | 6.8 8.3 | 7.6 | % Fines (< | <2mm): | 10 | % Fines (<2mm): | | | 10 |
| Av. Wet. Width (m): | | 3.8 | Method Av. Wet. Width (m): | Ţ | 4.1 | 3.6 | | | % Gravels | | 25 | Small (2-16mm): | | | 10 |
| Av. Max. Rif. Depth (| (cm): | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | | | Large (16-64mm): | | | 15 |
| Av. Max. Pool Depth | (cm): | 40 | Av. Max. Pool Depth (cm): | 8 | į | | | | ∐ | | | | | | |
| Gradient (%): | | 2.0 | Method Gradient: | CL | | | | | % Larges: | 1 | 65 | Small cobble (64-12 | | | 40 |
| % Pool: 20 | % Riff | | % Run: 30 % Ot | | Method: | GE | | | | | | Large cobble (128-2 | • | | 25 |
| % Side Channel: | | 0-10 | Method Side Channel: | GE | | | | | | | | Boulder cobble (>2 | oomm): | | 0 |
| % Debris Area: | 40 | | Method Debris Area: | GE | | | | | % Bedroc | k: | 0 | % Bedrock: | | | 0 |
| Cover | | | | | | | | | D90 (cm): | | 15 | Compaction: | | | High |
| Cover Total % : | | 80 | Method Cover Total %: | GE | | | | | Bank | S | | | | | |
| Dp Pool: 15 L. | .O.D.; | 20 | Boulder: 40 In Veg | .: 0 | Over Veg: | 10 | Cutbank: | | 15 | | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect : | SE | Method Aspect: | | AE Height (1 | n): | 2.2 | % Unstable: | | | () |
| | | | | | | | | | Textures | Fines: | Yes | Gravel: Yes I | .arges: No | Bedrock: | No |
| Discharge | | | | | ı | S | pecific Data | | Confinen | nent: | 4 | | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | -7 | ,y | | Valley: C | han. Ratio: | ì | | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | Stage: | | L | | | | |
| Mean Velocity (m/s) : | | | Method Mean Velocity (m/s | vo | | | | | Flood Sig | gns Ht(m): | 0.9 | Method Flood Sign | is: | | MS |
| Discharge (m3/s) : | | 0.35 | Method Discharge (m3/s): | •• | | | | | Braided: | | N | Method Braided: | | | GE |
| | | 0.52 | | | | | | | j Bars (%) |): | 30 | Method Bars: | | | GE |
| Reach Symbo | ol | | | (ELL) | | | | | pH: | | 7.7 | Method pH: | | | PH |
| | | | | (Fish) | | | | | 02 (թթու) |): | | Method Dissolved | Oxygen: | | |
| | | | | BT RB (SST |) (CO) | | | | Water To | emp. (°C); | 8.0 | Method Temperatu | ure: | | rc |
| | | | 7 A | 2.0 127 | 0 | | | | Turb. (ci | ın): | 200 | Method Turbidity: | | | GE |
| | | | (Width, Valley: Channel, S. | lope) (Be | d Material) | | | | Cond. (μ | mhos): | | Method Conductiv | ity: | | |

26-Mar-97 Stream: GABRIEL C.

Watershed Code:

Stream Survey Report

460-6006-508-480-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| BT | 1 | 106 | J | R | | | EL |
| DV | 4 | 72 - 109 | J | R | | | EL |
| DV | 1 | 123 | A | s | İ | ĺ | EL |
| CHF | | 42 - 47 | F | R | | | EL |
| RB | 10 | 62 - 140 | J | R | 1 | | EL |
| RB | i | nr | F | R | | | EL |

Obstructions

- C1 Electroshocked 35 m length of stream with no lower net. Suspect the RB caught at this site are residents, and they were recorded as RB. SST may also be present. CO are suspected to be present in lower Gabriel C. (Carswell and Witt, 1979). Char fry were recorded as CHF due to the inability to distinguish between DV and BT fry.
- C2 Habitat provides good rearing for trout in the cobble and debris found along the margins. Pockets of good SST/CO spawning are present in this section.
- C3 G1 was ground surveyed; the tributary is classed as suspected S4 habitat to the top of R1 and S6 habitat u/s from the reach break.

26-Mar-9"

Stream: GABRIEL C.

Watershed Code:

Stream Survey Report

460-6006-508-480-000-000-000-000-000-000-000

| Head <mark>er Inf</mark> or | matio | n | | | | | | | | | | | | | |
|-----------------------------|----------|--------|---------------------------------|---------|-------------|---------|-------------|------------|------|-----|----------------------|-----------|-------------------------|---------------|---------|
| Stream Name: | GABRIE | LC. | | | Stream "L | ocal": | GABR | IEL C. (TI | 126) | | | | Access: | | V2 |
| Watershed Code: | 460-6006 | -508-4 | 80-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.8 Method: | MW |
| Location: | INDEX S | ITE In | 1; D/S FROM ROAD CROSSING, ~3 | .6 km | Map #: | 093L03 | 4 | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | HC |
| | U/S FRO | м мо | UTH. | | U.T.M. : | 9.6075 | .60209 | | | | Fish Card: | Y | Field: Yes | Historical: | No |
| Date: 9/27/96 | Time | : 12:0 | OO Agency: C58 Sur | vey Cre | ew: JH\SS\ | , , , , | \ \ | | | | Photos: | B5/17, 18 | Air Photos: | BCB 91 | 181:046 |
| Channel Cha | ıractei | istic | cs | | <u> </u> | | Specific Da | ata | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 5.3 | Method Av. Chan. Width (m): | T | 5.6 | 5.1 | 4.4 | 6.0 | 5.9 | 5.1 | % Fines (<2mm): | 15 | % Fines (<2mm): | | 15 |
| Av. Wet. Width (m): | | 2.2 | Method Av. Wet. Width (m): | T | 2.6 | 2.1 | 1.5 | 2.4 | 3.3 | 1.3 | . , | | | | |
| Av. Max. Rif. Depth (| (cm): | 13 | Av. Max. Riffle Depth (cm): | MS | | | | | | 1 | % Gravels: | 80 | Small (2-16mm): | | |
| Av. Max. Pool Depth | (cm): | 25 | Av. Max. Pool Depth (cm): | 13 | | | | | | | | | Large (16-64mm): | | |
| Gradient (%): | | 1.0 | Method Gradient: | CL | 1 | | | | | 1 | % Larges: | 5 | Small cobble (64-128mm) | : | |
| % Pool: 40 | % Riffe | : 45 | % Run: 15 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | 1): | |
| % Side Channel: | | | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | 15 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 4 | Compaction: | | High |
| Cover Total % : | | 25 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 L | .O.D.: | 50 | Boulder: 0 In Veg.: | 0 | Over Veg: | 20 | Cutbar | nk: | | 20 | Dunns | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect : | E | Method | d Aspect: | | AE | Height (m): | 0.8 | % Unstable: | | 30 |
| | | | | | | | | _ | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | | | | | | | | Confinement: | 2 | | | |
| | | | | | i | 3 | pecific Da | la | | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | 1.3 | Method Wetted Width (m): | T | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | 0.1 | Method Mean Depth (m): | MS | ! | | | | | ļ | Flood Signs 11t(m): | 0.4 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | 0.25 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.02 | Method Discharge (m3/s): | | i | | | | | | Bars (%): | 75 | Method Bars: | | GE |
| Reach Symb | al | | | | | | | | | | pH: | 6.8 | Method pH: | | PH |
| Acach Symb | | | (I | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | | DV | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | £C. |
| | | | 5 C 1.0 | 1816 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | | J M - 4 1 \ | | | | | | Cond. (µmhos): | 19 | Method Conductivity: | | CM |

26-Mar-97

Stream: GABRIEL C.

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | | 121, 131 | Α | S | М | | EL |
| DV | | 76 - 91 | J | R | | | EL |

Comments

C1 Electrofished 63 m length of stream, 3 passes with a lower net. The DV with a fork length of 91 mm was approaching maturity.

C2 Site was complex with abundant cover. Habitat structure is well suited for fish production.

C3 The conductivity of the water was low.

26-Mar-9"

Stream: GABRIEL C.

Watershed Code:

Stream Survey Report

460-6006-508-480-000-000-000-000-000-000-000

| Header Informat | ion | | | | | | | | | | |
|---------------------------|------------------|--|-----------------|---------|-------------------|----|----------------------|------------|-------------------------|----------------|---------|
| Stream Name: GAB | RIEL C. | | Stream "L | ocal": | GABRIEL C. (TH26) | | | | Access: | | FI |
| Watershed Code: 460-6 | 006-5 08- | 480-000-000-000-000-000-000-000 | | | | | Reach No.: | 2 | Reach Length (km): | 1.7 Method: | MW |
| Location: LOCA | ATED ~10 | 000 m U/S FROM BRIDGE IN R2. | Map #: | 093L034 | ı | | Site No.: | 3 | Length surveyed (m): | 1100.0 Method: | HC |
| | | | U.T.M. : | 9.6075 | .60209 | | Fish Card: | N | Field: Yes | Historical: | Nο |
| Date: 10/4/96 T | ime: 11: | OO Agency: C58 Surv | ey Crew: RD\CP\ | 1 1 1 1 | \ \ | | Photos: | A10/14, 15 | Air Photos: | BCB 911 | 181:047 |
| Channel Charac | teristi | cs | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | 5.5 | ` , | T 5.6 | 6.2 | 4.3 4.9 6. | 7 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 2.4 | ` ' | T | | | | % Gravels: | 60 | Small (2-16mm): | | 20 |
| Av. Max. Rif. Depth (cm): | 8 | | MS | | | | | | Large (16-64mm): | | 40 |
| Av. Max. Pool Depth (cm): | 35 | Av. Max. Pool Depth (cm): | 8 | | | į | % Larges: | 35 | Small cobble (64-128mm) | | 30 |
| Gradient (%): | 4.0 | | CL | | | | / Larges. | 33 | Large cobble (128-256mm | | 5 |
| | iMe: 40 | | 0 Method: | GE | | | | | Boulder cobble (>256mm) | | 0 |
| % Side Channel: | 0-10 | | GE | | | | l., s | | | • | _ |
| % Debris Area: | 10-40 | Method Debris Area: | GE | | | | % Bedrock: | 0 | % Bedrock: | | Ú. |
| Cover | | | | | | | D90 (cm): | 12 | Compaction: | | High |
| Cover Total % : | 70 | Method Cover Total %: | GE | | | | Banks | | | | |
| Dp Pool: 5 L.O.D.: | 30 | Boulder: 45 In Veg.: | 0 Over Veg: | 0 | Cutbank: | 20 | | | | | |
| Crown Closure %: | 30 | Method Crown Closure: | GE Aspect: | NE | Method Aspect: | AE | Height (m): | 1.1 | % Unstable: | | 5 |
| | | | _ | | | | Textures Fines: | No | Gravel: No Larges | Yes Bedrock: | No |
| Discharge | | | | c | pecific Data | | Confinement: | 4 | | | |
| Ü | | Markad Wassad Widek () | | 3 | pecijic Daia | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): Method Mean Velocity (m/s | vo | | | | Flood Signs 11t(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.23 | Method Discharge (m3/s): | VO | | | | Braided: | N | Method Braided: | | Gb |
| Discharge (m3/s): | 0.23 | Method Discharge (m3/s) : | <u> </u> | - | | | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symbol | | | | | | | pH: | 8.0 | Method pH: | | PH |
| | | | ish) | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | DV) | | | | Water Temp. (°C): | 3.0 | Method Temperature: | | н |
| | | 6 A 4.0 | 1630 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | Cond. (jumhos): | | Method Conductivity: | | |

26-Mar-9" Stream: GABRIEL C.

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

... ... _ .

- C1 No fish sampling was conducted in this section. A sample site was conducted d/s at the road. DV were caught and it is suspected that DV are also present u/s in this section.
- C2 The upper 500 m of Reach 2 lies on the edge of Block 601#4. A one tree leave strip or cutting to the creek occurred along this block.
- C3 Dynamic creek with mainly stable banks. A section of creek was detwatered for ~ 400 m d/s.
- C4 Reach 2 is accessible to fish in higher flows. Habitat is suitable for fish and there are sections of good DV spawning.
- C5 Tributaries G6 and G7 were not observed.

26-Mar-9"

Stream: GABRIEL C.

Watershed Code:

Stream Survey Report 460-6006-508-480-000-000-000-000-000-000-000-000

| Header Inform | matio | n | | | | | | | | | | | | |
|------------------------|---------|------------------|--------------------------------|----------|-----------------|---------|----------------|------|-----|----------------------|------------|-------------------------|----------------|---------|
| Stream Name: | GABRIE | LC. | | | Stream "Lo | cal": | GABRIEL C. (T. | H26) | | | | Access: | | FΓ |
| Watershed Code: | 460-600 | 6-50 8- 4 | 80-000-000-000-000-000-000-000 | | | | | · | | Reach No.: | 3 | Reach Length (km): | 1.7 Method: | MW |
| Location: | ~ 300 m | U/S FF | OM G8 CONFLUENCE, LOWER 300 | m IN | Map #: | 093L034 | • | | | Site No.: | 4 | Length surveyed (m): | 800.0 Method: | HC |
| | R3. | | | | U.T.M. : | 9.6075 | .60209 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/4/96 | Time | : 12:0 | O Agency: C58 Sur | rvey Cre | ew: RD\CP\ | \ \ \ \ | . \ \ | | | Photos: | A10/18, 19 | Air Photos: | BCB 911 | 181:047 |
| Channel Cha | racte | risti | es | | i | | Specific Data | | | Bed Material | _ | | | |
| Av. Chan. Width (m): | | 5.0 | Method Av. Chan. Width (m): | T | 4.2 | 5.8 | 6.3 4.7 | 3.9 | | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 1.8 | Method Av. Wet. Width (m): | T | | | | | | 1 | | , , | | |
| Av. Max. Rif. Depth (c | cm): | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | % Gravels: | 25 | Small (2-16mm): | | 15 |
| Av. Max. Pool Depth (| cm): | 35 | Av. Max. Pool Depth (cm): | 8 | | | | | ĺ |] | | Large (16-64mm): | | 10 |
| Gradient (%): | | 7.0 | Method Gradient: | CL | ' | | | - | . , | % Larges: | 70 | Small cobble (64-128mm |): | 60 |
| % Pool: 20 | % Riff | e: 60 | % Run: 20 % Other: | . 0 | Method: | GE | | | | | | Large cobble (128-256m) | n): | 10 |
| % Side Channel: | | | Method Side Channel: | GE | | | | | | | | Boulder cobble (>256mm | 1): | 0 |
| % Debris Area: | 40 | | Method Debris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | () |
| Cover | | | | | | | | | | D90 (cm): | 14 | Compaction: | | High |
| Cover Total % : | | 75 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 30 L.C | O.D.: | 30 | Boulder: 40 In Veg.: | 0 | Over Veg: | 0 | Cutbank: | | 0 | | | | | |
| Crown Closure % : | | 50 | Method Crown Closure: | GE | Aspect: | NE | Method Aspect: | | ΑE | Height (m): | 2.0 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Ye | Gravel: Yes Large | s: No Bedrock: | No |
| Discharge | | | | | | c | nasifia Data | | | Confinement: | 3 | | | |
| | | | | | | ၁ | pecific Data | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | | 0.00 | Method Mean Velocity (m/s | vo | ! | | | | | Braided: | ١ | Method Braided: | | GE |
| Discharge (m3/s): | | 0.08 | Method Discharge (m3/s): | | | | | | | Bars (%): | 50 | Method Bars: | | GE |
| Reach Symbo | ol | | | | | | | | | pH: | | Method pll: | | |
| | | | | (Fish) | | | | | | 02 (ppm): | | Method Dissolved Oxyge | en: | |
| | | | | (DV) | | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | 1C |
| | | | 5 A 7.0 | 127 | 0 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope | (Be | d Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |
| | _ | | (width, Valley: Channel, Slope | .) (Be | a Material) | | | | | C ond. (µmhos); | | Method Conductivity: | | |

26-Mar-97

Stream: GABRIEL C.

Watershed Code:

Stream Survey Report

460-6006-508-480-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Type | Location |
|-------------------|------|----------|
| 2 | F | 5.6 |

Comments

No sample site was performed here. Suitable fish habitat is present in the lower section of R3. Suspect DV present in R3 up to 725 m u/s from the G8 confluence - the location of impassable 1.2 m high bedrock falls.

C2 Gradient increased from an average of 7% to an average of 12 - 17% at ~650 m u/s from the G8 confluence. At ~700 m, the channel changed from gravel/cobble to confined bedrock. Further u/s, the channel becomes a very steep, confined canyon.

C3 Large dynamic creek. Very unstable sideslopes present in sections. Lots of LOD with small drops.

26-Mar-9⁻

Stream: GABRIEL C.

Watershed Code:

| Header Infor | rmatio | n | | | | | | | | | | | | | | | |
|--|----------|--------|---|--------|----------|----------|-----------------|------------|------------|------|----|----------------------|----------|---------------------|------------|----------|--------|
| Stream Name: | GABRIE | LC. | | | St | ream "Lo | ocal"; | GABR | CIEL C. (1 | H26) | | | | Access: | | | Н |
| Watershed Code: | | | 80-000-000-000-000-000-000 | -000 | | | | | | | | Reach No.: | 4 | Reach Length (km) |): 2.3 | Method: | MW |
| Location: | ~100 m l | J/S FR | OM G10 CONFLUENCE. | | | ap #: | 093L033 | | | | | Site No.: | 5 | Length surveyed (r | m): 100.0 | Method: | HC |
| | | | | | | .T.M. : | 9. 60 75 | | | | | Fish Card: | N | Field: Yes | Histor | | No |
| Date: 9/26/96 | Time | : 13:4 | 0 Agency: C58 | Survey | Crew: | RD\SS\ | 1111 | 11 | | | | Photos: | B5/9, 10 | Air Photos: | | BCB 911 | 80:157 |
| Channel Cha | aracte | ristic | es · | | | | .5 | Specific D | ata | | - | Bed Material | | | | | |
| Av. Chan. Width (m): | : | 2.0 | Method Av. Chan. Width (m) | | T | 2.6 | 2.1 | 1.7 | 1.5 | 1.9 | | % Fines (<2mm): | 5 | % Fines (<2mm): | | | 5 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (| (cm): | 1.5 | Method Av. Wet. Width (m): Av. Max. Riffle Depth (cm): | | T | 1.5 | 1.3 | 1.7 | 1.5 | 1.7 | | % Gravels: | 35 | Small (2-16mm): | | | 15 |
| Av. Max. Pool Depth | . , | 20 | Av. Max. Pool Depth (cm): | | 5 | | | | | | | 1 | | Large (16-64mm): | | | 20 |
| Gradient (%): | | 6.0 | Method Gradient: | (| cL 1 | | - | | | | | % Larges: | 60 | Small cobble (64-1) | 28mm): | | 55 |
| % Pool: 20 | % RiM | e: 70 | % Run: 10 % O | ther: | 0 | Method: | GE | | | | | | | Large cobble (128- | 256mm): | | 5 |
| % Side Channel: | | 0 | Method Side Channel: | (| GE G | | | | | | | | | Boulder cobble (>2 | 256mm): | | 0 |
| % Debris Area: | 10 | | Method Debris Area: | (| GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | | 0 |
| Cover | | | | | | | | | | | | D90 (cm): | 10 | Compaction: | | Ν | Mednun |
| Cover Total %: | | 60 | Method Cover Total %: | (| GE. | | | | | | | Banks | | | | | |
| Dp Pool: 30 L. | .O.D.: | 30 | Boulder: 20 In Ve | g.: | 0 0 | ver Veg: | 0 | Cutba | nk: | | 20 | | | | | | |
| Crown Closure % : | | 5 | Method Crown Closure: | (| GE A | spect : | NE | Metho | d Aspect | : | AE | Height (m): | 1.0 | % Unstable: | | | 0 |
| | | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes | Larges: No | Bedrock: | No |
| Discharge | | | | | | | Sį | pecific Da | ıta | | | Confinement: | 2 | | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | : | | | | | | | Valley: Chan. Ratio: | l | | | | |
| Mean Depth (m) : | | | Method Mean Depth (m): | | ; | | | | | | | Stage: | L | | | | |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s | , | /o | | | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Sign | ns: | | MS |
| Discharge (m3/s): | | 0.06 | Method Discharge (m3/s): | | i | | | | | | | Braided: | N | Method Braided: | | | GE |
| | | | | | <u> </u> | | | | | | | Bars (%): | 20 | Method Bars: | | | GE |
| Reach Symbo | ol | | | (Fis | h\ | | | | | | | pll: | 8.0 | Method pH: | | | PH |
| | | | | NI | • | | | | | | | 02 (ppm): | | Method Dissolved | | | |
| | | | | | | | | | | | | Water Temp. (°C): | 7.0 | Method Temperat | | | IC |
| | | | 2 A | 6.0 | 1360 | | | | | | | Turb. (cm): | 200 | Method Turbidity | | | Gł: |
| | | | (Width, Valley: Channel, | Slope) | (Bed M | aterial) | | | | | | Cond. (µmhos): | | Method Conductiv | vity: | | |

6-Mar-9" Stream: GABRIEL C.

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Electrofished 75 m length of stream, 1 pass u/s with no lower net. No fish were caught or observed. Habitat is suitable for fish and pockets of spawning gravels are present between log steps. Suspect barrier d/s in R3 (1.2 m high falls) prevents fish access into R4.
- C2 Very small confined creek. U/S from sample site and below the lake, there is no continuous channel.
- C3 Lat/Lon of landing site: 54 18.96 127 25.24
- C4 Tributaries G9 and G10 were surveyed: G9 is a very small/steep creek with no potential for fish use; G10 consists of a seepage trickle in a stagnant marsh with no potential for fish use.

26-Mar-9"

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-480-195-000-000-000-000-000-000-000

| Header Informat | ion | | | | | | | | | | | | |
|---------------------------|-----------------------------|---------------------------------|-------------|-------------|----------|--------------|-----|----------|----------------------|---------|------------------------|-----------------|--------|
| Stream Name: GABI | RIEL C. T | RIBUTARY | Strea | m "Local": | G2 | | | | | | Access: | | н |
| Watershed Code: 460-6 | 0 06 -50 8- 4 | 80-195-000-000-000-000-000-000 | | | | | | | Reach No.: | 2 | Reach Length (km): | 3.0 Method: | |
| Location: ~1000 | ın U/S FI | ROM GABRIEL C. CONFLUENCE. | Мар | #: 093L0 | 034 | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | |
| | | | U.T. | M.: 9.607 | 4 .6021 | 5 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/26/96 T | me: 10:0 | 0 Agency: C58 Sur | ey Crew: RE |)\SS\ \ \ \ | 1 1 1 | | | | Photos: | B5/3, 4 | Air Photos: | BCB 911 | |
| Channel Charac | eristi | cs . | | | Specifi | c Data | | 1 | Bed Material | | | | |
| Av. Chan. Width (m): | 1.3 | Method Av. Chan. Width (m): | T | 1.3 1.5 | 0.9 | 1.2 | 1.4 | | % Fines (<2mm): | 20 | % Fines (<2mm): | | 20 |
| Av. Wet. Width (m): | 0.4 | Method Av. Wet. Width (m): | Т | | | | | | % Gravels: | 40 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth (cm): | 3 | Av. Max. Riffle Depth (cm): | MS | | | | | - | 76 GIAVEIS. | 40 | , | | |
| Av. Max. Pool Depth (cm): | 10 | Av. Max. Pool Depth (cm): | 3 | | | | | - 11 | | | Large (16-64mm): | | 30 |
| Gradient (%): | 6.5 | Method Gradient: | CL | | | | | ʻl | % Larges: | 40 | Small cobble (64-128m) | • | 40 |
| % Pool: 15 % R | ffle: 60 | % Run: 25 % Other: | 0 Me | thod: GE | | | | - [| | | Large cobble (128-256r | • | Ú |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | Į | | | Boulder cobble (>256m | m): | 0 |
| % Debris Area: 30 | | Method Debris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | D90 (cm): | 11 | Compaction: | 1 | Medium |
| Cover Total % : | 40 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 0 L.O.D.: | 40 | Boulder: 30 In Veg.: | 0 Over | · Veg: 30 | Cu | tbank: | | 0 | Dunks | | | | |
| Crown Closure % : | 70 | Method Crown Closure: | GE Aspe | ect: S | S Me | thod Aspect: | | AE | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | | \dashv | Textures Fines: | Yes | Gravel: Yes Larg | es: No Bedrock: | No |
| Discharge | | | | | C:6:- | D-4- | | ا، | Confinement: | 3 | • | | |
| | | | | | Specific | Dala | | - il | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | Stage: | 1. | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | Flood Signs 11t(m): | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.02 | Method Mean Velocity (m/s | vo . | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.03 | Method Discharge (m3/s) : | | | | | | . 1 | Bars (%): | 40 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | pH: | 7.9 | Method pll: | | PH |
| | | (1 | ish) | | | | | | 02 (ppm): | | Method Dissolved Oxy | gen: | |
| | | | NF | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | ГC |
| | | I A 7.0 | 2440 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed Mate | rial) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9" Stream: GABRIEL C. TRIBUTARY

Stream Survey Report

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Electrofished 62 m length of channel, 1 pass u/s with no lower net. No fish were caught or observed.
- C2 No channel is present at the creek mouth. Creek appears to be only wetted at the top of R1 and the bottom of R2. Alder swales line the creek providing ample cover.
- C3 Small, steep creek with several 30 cm high drops within the sample site. Suspect no fish access due to the small size of the creek.
- C4 Lat/Lon of helicopter landing site (~500 m d/s from sample site): 54 20.47 127 21.03

26-Mar-9^

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-364-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | | | |
|---------------------------------|---------|----------|-------------------|---------------|----------------|---------|-------------|--------|---------------|-----|-----|-----|----------------------|----------|-------------------------|---------------|---------|
| Stream Name: | GABRI | EL C. T | RIBUTARY | , | | | Stream "L | ocal": | G3 | | | | | | Access: | | FT |
| Watershed Code: | 460-600 | 6-508-4 | 80-364-000 | -000-000-000 | -000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.4 Method: | MW |
| Location: | ~200 in | D/S FR | ом G 3.1 С | ONFLUENC | E. | | Map#: | 093L03 | 4 | | | | Site No.: | ı | Length surveyed (m): | 400.0 Method: | HC |
| | | | | | | | U.T.M. : | 9.6068 | .60219 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/9/96 | Tim | e: 16:0 | 0 | Agency: | C58 Sui | vey Cre | w: RD\CP\ | 1 1 1 | \ \ \ | | | | Photos: | A12/7, 8 | Air Photos: | BCB 911 | 181:046 |
| Channel C h | aracte | ristic | es . | | | | i | | Specific Date | | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.9 | Method A | Av. Chan. W | idth (m): | 7 | 1.7 | 1.9 | 2.1 | 2.3 | 1.6 | 1.9 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 1.6 | Method A | Av. Wet. Wi | dth (m): | T | | | | | | 1 | % Gravels: | 60 | Small (2-16mm): | | 20 |
| Av. Max. Rif. Depth | (cm): | 8 | Av. Max. | Riffle Dept | h (cm): | MS | | | | | | | | | Large (16-64mm): | | 40 |
| Av. Max. Pool Depth | (cm): | 35 | Av. Max. | . Pool Depth | (cm): | 8 | | | | | | | | 14 | | | |
| Gradient (%): | | 8.5 | Method (| | | CL | | | | | | | % Larges: | 35 | Small cobble (64-128mm | • | 20 |
| % Pool: 30 | % Riff | le: 60 | % Run: | 10 | % Other: | | Method: | GE | | | | | | | Large cobble (128-256m) | • | 15 |
| % Side Channel: | | | | Side Channel | l: | GE | | | | | | | | | Boulder cobble (>256mm | 1): | 0 |
| % Debris Area: | 10 | | Method I | Debris Area: | | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | U |
| Cover | | | | | | | | | | | | | D90 (cm): | 14 | Compaction: | | High |
| Cover Total %: Dp Pool: 20 L | .O.D.: | 60 40 | Method (| Cover Total | %: In Veg.: | GE 0 | Over Veg: | 20 | Cutbank | | | 10 | Banks | | | | |
| Crown Closure %: | .0.2 | | | Crown Closu | - | · | Aspect : | E | Method | | | AE | lfeight (m): | 0.2 | % Unstable: | | 0 |
| | | | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Large | : No Bedrock: | No |
| Discharge | | | | | | | | | | | | | Confinement: | 2 | | | |
| | | | | | | | 1 | | pecific Data | | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | | etted Width | | | i | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | | lean Depth (| • | | | | | | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s) | : | | | lean Velocity | | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.04 | Method D | ischarge (m | 5/s) : | | | | | | | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symb | al | | | | | | | | | | | | l pH: | 7.4 | Method pH: | | PH |
| Teach Symu | v. | | | | (| Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyg | en: | |
| | | | | | | (SP) | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | 10 |
| | | | | | 2 A 9.0 | 1630 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Wid | th, Valley: C | hannel, Slope |) (Bed | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9" Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Fish sampling was not conducted in R1. Assume DV present in the lower 200 m of the reach. ~200 m 400 m u/s from mouth, gradient is 8 9%; suspect gradient may be passable to fish.
- C2 R1 channel is confined with numerous small drops (20 cm). Bed material consists primarily of cobble/fines. Suspect DV could have accessed this creek in the past.
- G3.1 confluence is located ~100 m u/s from the G3 Gabriel C. confluence. Gradient is 15% above the confluence with a flow of ~0.5 cfs and an average channel width of 1.2 m. Bed material onsists of gravel/moss. No fish access. Further u/s, the gradient increases to ~18%, channel width decreases slightly, and channel becomes confined in a gully. Class S6 habitat throughout this creek.

26-Mar-9^

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-364-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | | | |
|---------------------|--------|---------|----------|---------------------------|----------------|----------|-------------|------------------|---------------------|-----------|-----|-----|----------------------|------|------------------------|-------------|----------------------|
| Stream Name: | | | RIBUTARY | 1 | | | Stream "Lo | ocal": | G3 | | | | | | Access: | | V2 |
| Watershed Code: | | | | | 00-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 0.8 Met | |
| Location: | ~450 m | D/S FR | OM ROAD | CROSSING | 3. | | Map #: | 093 L03 4 | 1 | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Met | |
| | | | | | | | U.T.M. : | 9.6068 | | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/27/96 | Tim | e: 15:4 | 5 | Agency: | C58 Sui | rvey Cre | w: ЛН\SS\ | | | | | | Photos: | B6/1 | Air Photos: | | 3 911 81:04 6 |
| Channel Ch | aracte | ristic | es | | | | | | Specific L | eta | | - | Bed Material | | | • | |
| Av. Chan. Width (m |): | 1.6 | Method A | Av. Chan. V | Vidth (m): | τ | 2.1 | 2.3 | 0.9 | 1.3 | 1.6 | 1.6 | % Fines (<2mm): | 45 | % Fines (<2mm): | | 45 |
| Av. Wet. Width (m): | | 0.8 | Method / | Av. Wet. W | idth (m): | T | 0.6 | 0.4 | 0.8 | 1.2 | | | % Gravels: | 45 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | | 6 | | . Riffle Dep | | MS | | | | | | | 7 Graveis. | 4,5 | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 18 | | . Pool Dept | h (cm): | 6 | | | | | |] | % Larges: | 10 | Small cobble (64-128mn | ٠١. | |
| Gradient (%): | n/ n:m | 3.5 | | Gradient: | a. a. | CL | | ~= | | | | | / Larges. | 10 | Large cobble (128-256m | , | |
| % Pool: 40 | % Riff | le: 30 | % Run: | 30 Side Channel | % Other | | Method: | GE | | | | | | | Boulder cobble (>256mi | • | |
| % Side Channel: | 15 | | | Side Chann Debris Area | | GE GE | | | | | | | | | | ,. | 4 |
| % Debris Area: | | | | ———— | l: | -GE | | | _ | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | | | D90 (cm): | 6 | Compaction: | | High |
| Cover Total % : | | 25 | Method (| Cover Tota | 1%: | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 L | O.D.: | 50 | Boulder: | 0 | In Veg.: | 0 | Over Veg: | 20 | Cutba | nk: | | 20 | | | | | |
| Crown Closure %: | | 70 | Method (| Crown Clos | are: | GE | Aspect: | E | Metho | od Aspect | : | AE | Height (m): | 1.0 | % Unstable: | | 0 |
| <u> </u> | | | | _ | | | | | | | _ | _ | Textures Fines: | Yes | Gravel: No Large | es: No Bedr | ock: No |
| Discharge | | | | | | | i | S | p e cific Da | nta | | | Confinement: | 2 | | | |
| Wetted Width (m): | | | Method W | etted Widt | h (m) • | | | - | pecigic Di | | | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | | | lean Depth | | | | | | | | | Stage: | L | | | |
| Mean Velocity (m/s) | | | | lean Veloci | | vo | | | | | | | Flood Signs 11t(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | • | 0.01 | | ischarge (n | • | ••• | 1 | | | | | | Braided: | Y | Method Braided: | | GĿ |
| | | | | | | | | | | | | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symb | ol | | | | | are to | | | | | | | pH: | 7.0 | Method pH: | | PH |
| ľ | | | | | | (Fish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxyg | gen: | |
| | | | | | | (SP) | | | | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | 10 |
| | | | | | 2 B 4.0 | 451 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | Cil- |
| | | | (Wid | th, Valley: | Channel, Slope | e) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9~

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-480-364-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 R2 was not sampled and no fish were visually observed; it may be accessible to fish or it may have had fish access at some time in the past. Suspect fish present in R2, and that fish use is to the top of R2.
- C2 Channel is intermittent. Habitat is marginally capable of supporting fish. Good potential resident DV habitat in the lower section of R2; The channel is low gradient and meandering with sections of potential DV spawning.

26-Mar-9"

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-364-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | | | | |
|---------------------|----------|---------|------------------------|-------------|---------------|---------|-------------|---------|------------|-----------|-----|-----|----------------------|------|---|----------|----------|--------|
| Stream Name: | GABRIE | L C. TI | UBUTARY | | | | Stream "Lo | cal": | G3 | | | | | | Access: | | | V2 |
| Watershed Code: | 460-600 | 5-508-4 | 80-36 4-000-0 0 | 0-000-000 | -000-000-000 | | | | | | | | Reach No.: | 3 | Reach Length (km): | 1.5 | Method: | MW |
| Location: | ~100 m I |)/S FR | OM ROAD CU | JLVERT. | | | Map#: | 093L034 | | | | | Site No.: | 3 | Length surveyed (m): | 300.0 | Method: | HC |
| | | | | | | | U.T.M.: | 9.6068 | .60219 | | | | Fish Card: | N | Field: Yes | Histori | cal: | No |
| Date: 9/27/96 | Time | : 15:4 | 5 | Agency: | C58 Sur | vey Cre | w: SS\ \ \ | 1 1 1 1 | ١ | | | _ | Photos: | B6/3 | Air Photos: | | BCB 911 | 81:046 |
| Channel Ch | aracte | ristic | es | | | | | | Specific L |)ata | | | Bed Material | | | | | |
| Av. Chan. Width (m) | : | 0.9 | Method Av. | Chan. Wi | dth (m): | T | 0.9 | 1.1 | 1.0 | 0.5 | 0.9 | 0.8 | % Fines (<2mm): | 10 | % Fines (<2mm): | | | 10 |
| Av. Wet. Width (m): | | 0.9 | Method Av. | Wet. Wid | th (m): | T | 0.9 | 1.1 | 1.0 | 0.5 | 0.9 | 0.8 | % Gravels: | 30 | Small (2-16mm): | | | |
| Av. Max. Rif. Depth | (cm): | 7 | Av. Max. R | iffle Depth | (cm): | MS | | | | | | | 70 010100 | | Large (16-64mm): | | | |
| Av. Max. Pool Depth | (cm): | 23 | Av. Max. Po | ool Depth (| (cm): | 7 | | | | | | _ | | | • | >- | | |
| Gradient (%): | | 9.0 | Method Gra | adient: | | CL | | | | | | | % Larges: | 60 | Small cobble (64-128mm | • | | |
| % Pool: 35 | % RiM | e: 65 | % Run: | 0 | % Other: | | Method: | GE | | | | | | | Large cobble (128-256n Boulder cobble (>256m | | | |
| % Side Channel: | | 0 | Method Side | | : | GE | | | | | | | | | • | m). | | |
| % Debris Area: | 15 | | Method Det | bris Area: | | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | | 0 |
| Cover | | | | | | | | | | | | | D90 (cm): | 12 | Compaction: | | N | Medium |
| Cover Total %: | | 65 | Method Cov | ver Total ? | %: | GE | | | | | | | Banks | | | | | |
| Dp Poof: 15 L | O.D.: | 30 | Boulder: | 10 | In Veg.: | 35 | Over Veg: | 5 | Cutba | ink: | | 5 | D 5 | | | | | |
| Crown Closure % : | | 20 | Method Cre | own Closu | re: | GE | Aspect : | NE | Meth | od Aspect | | AE | Height (m): | 0.4 | % Unstable: | | | 0 |
| | | | | | | | | | | | | | Textures Fines: | No | Gravel: Yes Larg | es: No I | Bedrock: | No |
| Discharge | | | | | | | i | | pecific D | ata | | | Confinement: | 2 | | | | |
| ľ | | | | | | | 1 | 3 | pecyt D | uru. | | | Valley: Chan. Ratio: | 2 | | | | |
| Wetted Width (m): | | | Method Wet | | | | | | | | | | Stage: | М | | | | |
| Mean Depth (m): | | | Method Mea | • • | • | | | | | | | | Flood Signs Ht(m): | 0.15 | Method Flood Signs: | | | MS |
| Mean Velocity (m/s) | : | • • • | Method Mea | • | • | vo | | | | | | | Braided: | N | Method Braided: | | | GE |
| Discharge (m3/s) : | | 0.01 | Method Disc | narge (m3 | /s): | | 1 | | | | | | Bars (%): | 0 | Method Bars: | | | GE |
| Reach Symb | ool | | | | | | | | | | | | pH: | 7.0 | Method pH: | | | PH |
| Symb | ••• | | | | (| (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxy | gen: | | |
| | | | | | | NF | | | | | | | Water Temp. (°C): | 6.5 | Method Temperature: | | | TC |
| | | | | | 1 B 9.0 | 136 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | | GE |
| | | | (Width, | , Valley: C | hannel, Slope | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | | |

26-Mar-9" Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-364-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 No fish were caught or observed at sample site.
- C2 Adjacent cutblock for 50 m section of stream from the road culvert.
- C3 Stream channel disappears ~50 m d/s from road culvert. Flow is subsurface for ~20 m and then a defined channel reforms.
- C4 G3 is class S6 habitat throughout R3.

DFO/MoELP Stream Survey Form 26-Mar-9

Stream Survey Report 460-6006-508-480-364-G3,-2 -000-000-000-000-000

Watershed Code:

Stream: GABRIEL C. TRIBUTARY

| a u | | | | | | | | | |
|------------------------------|---|-------------------|-----------------|-----------------|------------------------------|----------|---------------------------|---------------|--------|
| i Code: | TARY | Stream | Stream "Local": | G3.2 | | | Access: | | ٧2 |
| Š | 460-6006-508-480-364-G3,-2 -000-000-000-000-000 | | | | Reach No.: | - | Reach Length (km): | 0.5 Method: | Μ |
| | GHOUT REACH 1. | Map#: | 093L034 | | Site No.: | 4 | Length surveyed (m): | 500.0 Method: | Э |
| | | U.T.M.: | 9.6062 .60219 | \$0219 | Fish Card: | z | Field: Yes | Historical: | ž |
| Date: 9/27/96 11me: 14:45 | Agency: C58 Survey | Survey Crew: SSUH | SSUH | 1 | Photos: | B5/24 | Air Photos: | BCB 91181:046 | 1.046 |
| Channel Characteristics | | L | Ş | Specific Data | Bed Material | | | | |
| : 1.9 | Method Av. Chan. Width (m): | T 2.1 | | 1.6 2.3 1.9 1.9 | % Fines (<2mm): | 40 | % Fines (<2mm): | | 40 |
| 8.0 | Method Av. Wet. Width (m): | T 20 | 8.0 | 0.7 | % Gravels: | 35 | Small (2-16mm): | | |
| | | - O | | | | | Large (16-64mm): | | |
| 4.0 | | - G | | | Larges: | 25 | Small cobble (64-128mm): | | |
| % Pool: 20 % Riffle: 65 % Re | % Run: 15 % Other: | 0 Metho | Method: GE | | | | Large cobble (128-256mm): | ~ | |
| % Side Channel: 0 Meth | Method Side Channel: | GE | | | | | Boulder cobble (>256mm): | | |
| % Debris Area: 20 Meth | Method Debris Area: | GE | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | D90 (cm): | | Compaction: | Ÿ | Medium |
| Cover Total %: 30 Meth | Method Cover Total %: | GE | | | Banks | | | | |
| Dp Pool: 0 L.O.D.: 50 Bouk | Boulder: 20 In Veg.: | 0 Over Veg: | 0 <u>1</u> | Cutbank: 20 | | | | | |
| Crown Closure %: 0 Meth | Method Crown Closure: | GE Aspect: | Ä | Method Aspect: | | 0.7 | % Unstable: | | 0 |
| Discharge | | | Spe | Specific Data | Textures Fines: Confinement: | Yes 2 | Gravel: No Larges: No | No Bedrock: | ž |
| | Method Wetted Width (m): | | | | Valley: Chan. Ratio: | | | | |
| Mean Depth (m): Metho | Method Mean Depth (m) : | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | M.S. |
| 0.01 | | | | | Braided: | z | Method Braided: | | :B |
| | | | | | Bars (%): | 01 | Method Bars: | | 3 |
| Reach Symbol | (Fish) | 2 | | | pil: | 7.5 | Method pf1: | | Ξ |
| | | · " | | | 02 (ppm): | | Method Dissolved Oxygen: | ä | |
| | | | | | Water Temp. (°C): | 0.6 | Method Temperature: | | 2 |
| | 2 A 4.0 | 4330 | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | (Width, Valley: Channel, Slope) | (Bed Material) | • | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-97

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-364-G3.-2 -000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 No fish access at mouth; creek drops over a bench and in the lower 50 m of creek, flows are subsurface. Channel is intermittent in the lower 100 m.
- No fish were observed during the survey. In R2 below the road, no fish were caught via electrofishing. Suspect creek is too small for resident fish. Class 6 habitat throughout G3.2.
- C3 Stream channel forms the boundary of large cutblock, 601#1, in the upper half of R1.

26-Mar-9⁻

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-480-364-G3.-2 -000-000-000-000-000

| ation | o | IDUT ADV | | | | | | | | | | |
|-----------|--|---|--|---|--|---|---|---|--|------------------------|-------------------|--|
| | | | | Stream "Lo | cal"; | G3.2 | | | | | | |
| | | | | | | | | | | • | | |
| 00 m D/S | FRO | M ROAD CULVERT. | | • | | | | | 5 | Length surveyed (m): | | |
| | | | | | | | | | | | | |
| Time: | 14:30 | Agency: C58 Surv | ey Cre | w: SSUH \ \ | | <u> </u> | | Photos: | B5/23 | Air Photos: | BCB 91181:046 | |
| acteris | stic | 5 | | _ | s | Specific Data | | Bed Material | | | | |
| | | Method Av. Chan. Width (m): | T | 1.8 | 1.7 | 2.3 1.4 | 1.2 1.6 | % Fines (<2mm): | 15 | % Fines (<2mm): | 15 | |
| | | * , | | 1.7 | 1.7 | 0.8 | | % Gravels: | 50 | Small (2-16mm): | | |
| | | . , , | | | | | | | | Large (16-64mm): | | |
| • | | • • • | | | | | | | 36 | | ١. | |
| | 8.0 | | CL | | | | | % Larges: | 35 | • | • | |
| & Riffle: | 60 | % Run: 0 % Other: | 0 | Method: | GE | | | | | • | • | |
| | 0 | Method Side Channel: | GE | | | | | | | Boulder cobble (>256mm | 1): | |
| 5 | | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | 0 | |
| | | | | | | | | D90 (cm): | 12 | Compaction: | Medium | |
| | 35 | Method Cover Total %: | GE | | | | | Ranks | | | | |
| D.: | 25 | Boulder: 45 In Veg.: | 0 | Over Veg: | 20 | Cutbank: | | | | | | |
| | 10 | Method Crown Closure: | GE | Aspect : | NE | Method Aspec | t: A | E Height (m): | 1.0 | % Unstable: | 0 | |
| | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | s: No Bedrock: No |) |
| | | | | i | \$ | necific Data | | Confinement: | 1 | | | |
| | | Mark ad Warrand Widek (an) a | | | 3, | ecyle Dala | | Valley: Chan. Ratio: | 2 | | | |
| | | • • | | | | | | Stage: | L | | | |
| | | , | | İ | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | MS | |
| | | • ` | VO | | | | | Braided: | N | Method Braided: | GŁ. | |
| 0. | UI | Method Discharge (m3/s) : | | | | | | Bars (%): | 10 | Method Bars: | GE | |
| | | | | | | | | pH: | 7.5 | Method pH: | PH | |
| | | (1 | Fish) | | | | | ' | | • | | |
| | | | NF | | | | | | 9.0 | | | |
| | | 2 B 8.0 | 1540 | 0 | | | | 1 | | • | | |
| | | | | | | | | Cond. (µmhos): | 230 | Method Conductivity: | GE. | |
| | 50-6006-5 100 m D/S Time: acteris 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: | 60-6006-508-486 600 m D/S FROM Time: 14:30 Acteristics 1.7 1.4 1: 6 1: 20 8.0 4 Riffle: 60 0 5 D.: 25 10 | 1.7 Method Av. Chan. Width (m): 1.4 Method Av. Wet. Width (m): 1.5 6 Av. Max. Riffle Depth (cm): 1.6 8.0 Method Gradient: 1.7 Method Gradient: 1.8 Method Gradient: 1.9 Method Side Channel: 1.0 Method Debris Area: 1.10 Method Cover Total %: 1.10 Method Crown Closure: 1.10 Method Wetted Width (m): 1.10 Method Mean Depth (m): 1.10 Method Mean Velocity (m/s 1.10 Method Discharge (m3/s): 1.11 Method Discharge (m3/s): 1.12 Method Discharge (m3/s): 1.13 Method Discharge (m3/s): 1.14 Method Mean Velocity (m/s 1.15 Method Discharge (m3/s): | 1.7 Method Av. Chan. Width (m): T 1.4 Method Av. Wet. Width (m): T 1.4 Method Av. Wet. Width (m): T 1.4 Method Av. Wet. Width (m): T 1.5 6 Av. Max. Riffle Depth (cm): 6 8.0 Method Gradient: CL 4 Riffle: 60 % Run: 0 % Other: 0 0 Method Debris Area: GE Method Debris Area: GE Method Crown Closure: GE Method Mean Depth (m): Method Mean Velocity (m/s VO 0.01 Method Discharge (m3/s): (Fish) NF 2 B 8.0 1544 | Map #: U.T.M. : Time: 14:30 Agency: C58 Survey Crew: SSUH Variety Cteristics | 100 m D/S FROM ROAD CULVERT. Map #: 093L034 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 9.6062 U.T.M.: 1.4 Method Av. Chan. Width (m): T | 1.7 Method Av. Chan. Width (m): T 1.7 1.7 0.8 | 14.30 Agency: C58 Survey Crew: SSUH | Reach No.: Site No.: Sit | | | 10-6006-508-480-364-G3-2000-000-000-000-000-000-000-000-00 |

26-Mar-9" Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-364-G3.-2 -000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Electrofished 100 m length of channel; no fish were caught or observed. There is no fish access into G3.2 due to drop over bench at its confluence. Creek too small to support residents. Entire creek is class S6.
- C2 Stream channel forms a boundary to massive cutblock 601#1.
- C3 Poor development of deeper pool habitat. Generally low quality fish habitat.

26-Mar-9

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-364-G3.-3 -000-000-000-000-000

| Header Infor | matio | n | | | | | | | | | | | | | | |
|---------------------|----------|--------|----------------------------|-------------------|---------|-------------|---------|------------|-----------|-----|-----|----------------------|-------|------------------------|----------------|------------|
| Stream Name: | GABRIEI | C. TI | RIBUTARY | | | Stream "Lo | cal": | G3.3 | | | | | | Access: | | V2 |
| Watershed Code: | 460-6006 | -508-4 | 80-364-G33 -000-0 | 000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.5 Method: | MW |
| Location: | ~200 m U | /S FRO | OM THE CONFLUE | NCE WITH G3. | | Map #: | 093L034 | ļ | | | | Site No.: | 6 | Length surveyed (m): | 50.0 Method: | HC |
| | | | | | | U.T.M.: | 9.6057 | .60217 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/27/96 | Time | 15:3 | 0 Agend | cy: C58 Sur | vey Cre | w: SSVH\ | 111 | ١ ١ | | | | Photos: | B5/25 | Air Photos: | BCB 911 | 181:046 |
| Channel Cha | aracter | istic | es | | | 1 | Š | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 0.9 | Method Av. Chan | , | T | 0.6 | 0.8 | 1.4 | 1.4 | 0.6 | 0.7 | % Fines (<2mm): | 80 | % Fines (<2mm): | | 80 |
| Av. Wet. Width (m): | | 0.4 | Method Av. Wet. | | T | 0.2 | 0.4 | 0.6 | 0.4 | | | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | | 6 | Av. Max. Riffle D | • ` ' | MS | | | | | | | | | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 10 | Av. Max. Pool De | • | 6 | | | | | - | | % Larges: | 0 | Small cobble (64-128mm | ١. | |
| Gradient (%): | #/ D:00 | 3.5 | Method Gradient | | CL | | or. | | | | | 70 Larges. | Ü | Large cobble (128-256m | - | |
| % Pool: 20 | % Riffle | : 40 | % Run: 40 Method Side Char | % Other: | 0 GE | Method: | GE | | | | | 1 | | Boulder couble (>256mm | | |
| % Side Channel: | 15 | U | Method Debris A | | GE | | | | | | | % Bedrock: | 0 | · | -,- | |
| % Debris Area: | | | | | -GE | | | | | | | % Bedrock: | U | % Bedrock: | | O |
| Cover | | | | | | | | | | | | D90 (cm): | 3 | Compaction: | | High —— |
| Cover Total % : | | 15 | Method Cover To | tal %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L | .O.D.: | 60 | Boulder: 0 | in Veg.: | 0 | Over Veg: | 20 | Cutba | nk: | | 20 | Dunks | | | | |
| Crown Closure %: | | 35 | Method Crown C | losure: | GE | Aspect : | NE | Metho | d Aspect: | | ΑE | Height (m): | 0.4 | % Unstable: | | 0 |
| | | | | | | | _ | | | | _ | Textures Fines: | Yes | Gravel: No Large | s: No Bedrock: | No |
| Discharge | | | | | | 1 | c | pecific Da | ta | | | Confinement: | 2 | | | |
| Wetted Width (m): | | | Method Wetted W | idah (m) . | | | 3/ | vecijie Du | ıu | | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | | Method Mean Dep | | | | | | | | | Stage: | L | | | |
| Mean Velocity (m/s) | | | Method Mean Velo | • • | vo | | | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s): | | 0.01 | Method Discharge | • . | VO | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m5/8): | | 0.01 | | (1113/3) . | | 1 | | | | | | Bars (%): | 0 | Method Bars: | | GI: |
| Reach Symb | ol | | | | | | | | | | | pH: | 7.8 | Method pH: | | PH |
| | | | | (| Fish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxyg | en: | |
| | | | | | NS | | | | | | | Water Temp. (°C): | 7.5 | Method Temperature: | | TC |
| | | | | 1 B 4,0 | 820 | 0 | | | | | | Turb. (cm); | | Method Turbidity: | | |
| | | | (Width, Valle) | y: Channel, Slope |) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-97 Stream: GABRIEL C. TRIBUTARY

Stream Survey Report

Watershed Code: 460-6006-508-480-364-G3.-3 -000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 Gradient of 3.5% was for the lower 35 m of G3.3. Above 35 m, flow goes subsurface through steep steps with a gradient of ~20%.
- Habitat structure is too small to support fish; channel is discontinuous in sections. Potential fish access is in to the lower 35 m of G3.3 and some fish use is possible in this lower section. Creek is classed as S6 habitat.

26-Mar-9^

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-707-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | _ | | | |
|--|----------|----------|-------------------------|-------------|---------------|---------|-------------|---------|------------|------------|-----|-----|----------------------|-----------|-------------------------|---------------|----------|
| Stream Name: | | | UBUTARY | | | | Stream "Lo | cal": | G4 | | | | | | Access: | | V2 |
| Watershed Code: | 460-6006 | -508-4 | 80-707 -000 -0 | 00-000-000 | -000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 0.8 Method: | : MW |
| Location: | SAMPLE | D ~50 | m BELOW R | OAD CRO | SSING. | | Map #: | 093L034 | 1 | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | : HC |
| | | | | | | | U.T.M.: | 9.6057 | .60224 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/27/96 | Time | : 11:0 | D | Agency: | C58 Sur | vey Cre | ew: RD\CP\ | \ \ \ \ | 1.1 | | | | Photos: | A8/20, 21 | Air Photos: | BCB 91 | .181:046 |
| Channel Ch | aracte | ristic | es . | | | | 1 | | Specific D |)ata | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.1 | Method Av | | ` ' | T | 1.1 | 1.3 | 1.4 | 0.7 | 1.2 | | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): Av. Max. Rif. Depth | (cm): | 0.9 4 | Method Av Av. Max. R | | ` ' | T MS | 1.1 | 1.3 | 0.7 | 0.4 | | | % Gravels: | 65 | Small (2-16mm): | | 25 |
| Av. Max. Pool Depth | | 20 | Av. Max. P | | | 4 | | | | | | İ | | | Large (16-64mm): | | 40 |
| Gradient (%): | , | 2.0 | Method Gr | | | CL | l | | | | | - 1 | % Larges: | 30 | Small cobble (64-128mm) | : | 30 |
| % Pool: 20 | % Riffl | e: 40 | % Run: | 40 | % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | 1): | 0 |
| % Side Channel: | | | Method Sid | le Channel: | : | GE | | | | | | | | | Boulder cobble (>256mm |): | 0 |
| % Debris Area: | 20 | | Method De | bris Area: | | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | | | D90 (cm): | 9 | Compaction: | | High |
| Cover Total % : | | 60 | Method Co | ver Total % | / 6: | GE | | | | | | | Banks | | | | |
| Dp Pool: 20 L | .O.D.: | 40 | Boulder: | 0 | In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 40 | Dunks | | | | |
| Crown Closure %: | | | Method Cr | own Closu | re: | | Aspect: | s | Metho | od Aspect: | | ΑE | Height (m): | 1.1 | % Unstable: | | 0 |
| | | | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges | : No Bedrock: | ; No |
| Discharge | | | | | | | ļ. | | pecific De | ata | | | Confinement: | 4 | | | |
| Wetted Width (m) : | | | Method We | end Width | (m) . | | | , | pecyle Di | -1.0 | | | Valley: Chan. Ratio: | i i | | | |
| ` ' | | | Method Me | | | | | | | | | | Stage: | I. | | | |
| Mean Depth (m): | _ | | Method Me | • • | | vo | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | GF |
| Mean Velocity (m/s) Discharge (m3/s): | • | 0.02 | Method Dise | • | • | VO | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.02 | Method Dis | charge (mo | 75): | | 1 | | | | | | Bars (%): | 2 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | | | pH: | | Method pH: | | |
| | | | | | | (Fish) | | | | | | | 02 (թթա)։ | | Method Dissolved Oxyge | n: | |
| | | | | | | DV* | | | | | | | Water Temp. (°C): | 6.7 | Method Temperature: | | 10 |
| | | | | | 1 A 2.0 | 163 | 30 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width | , Valley: C | hannel, Slope |) (Be | d Material) | | | | | | Cond. (µmhos): | 58 | Method Conductivity: | | CM |

26-Mar-9" Stream: GABRIEL C. TRIBUTARY

Stream Survey Report

Watershed Code: 460-6006-508-480-707-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 1 | 80 | J | R | | | EL |
| DV | | 117, 175 | A | S | | | EL |

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| | CV | 1.4 |

- C1 Electrofished 52 m length of stream. 2 adult DV's captured at this site; one was a spawned-out male and the other was a spawned-out female.
- C2 Culvert at road is impassable to fish; 60 cm diameter culvert is 13 m long with a 0.7 m high drop at its outlet. (Photo A8/22) Should consider bridging this stream?
- C3 Small, low gradient, meandering creek. Sections of good resident spawning habitat is present.

26-Mar-97

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

| Header Infor | matio | n | | | | | | | | | | | | | |
|-----------------------|-----------|-----------------|---|--------------|------------|---------|------------------|---------------|-------------|---------|----------------------|------------|--------------------------|---------------|--------|
| Stream Name: | | | RIBUTARY | | Str | eam "Lo | cal": | G4 | | | | | Access: | | FT |
| Watershed Code: | 460-6006 | 5-50 8-4 | 30 -7 07 -000-000-000-000-0 0 | 00-000-000 | | | | | | | Reach No.: | 3 | Reach Length (km): | 0.6 Method: | MW |
| Location: | SAMPLE | ED ~100 | m U/S FROM ROAD CUI | LVERT. | Ma | ıp#: | 093 L0 34 | 1 | | 5 | Site No.: | 2 | Length surveyed (m): | 600.0 Method: | HC |
| | | | | | U.1 | г.м. : | 9.6057 | .60224 | | • | Fish Card: | N | Field: Yes | Historical: | Nο |
| Date: 10/4/96 | Time | : 15:0 | Agency: C | 58 Surve | y Crew: P | RD\CP \ | 1 1 1 | . 1 1 | | | Photos: | A10/20, 21 | Air Photos: | BCB 911 | 81:046 |
| Channel Cha | racte | ristic | S | | 1 | | | Specific Data | | ~ }_ | Bed Material | | | | |
| Av. Chan. Width (m): | | 1.3 | Method Av. Chan. Widt | | Т | 1.3 | 1.9 | 0.9 1.2 | 0.1 | $\ \ $ | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 0.9 | Method Av. Wet. Width | ` ' | T | | | | | - | % Gravels: | 30 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth (| | 2 | Av. Max. Riffle Depth (c | - | AS | | | | | | | | Large (16-64mm): | | 20 |
| Av. Max. Pool Depth (| (cm): | 28 | Av. Max. Pool Depth (cr | • | 2 | | | | | Щ. | 4/] asgon | 60 | Small cobble (64-128mm) | | 60 |
| Gradient (%): | | 5.0 | Method Gradient: | | CL | | | | | | % Larges: | OU | Large cobble (128-256mm) | | 0 |
| % Pool: 10 | % RiM | | % Run: 20 | % Other: | | Method: | GE | | | - { | | | Boulder cobble (>256mm | - | 0 |
| % Side Channel: | | 0 | Method Side Channel: | | GE | | | | | - 1 | | | • | ,. | |
| % Debris Area: | | 10-40 | Method Debris Area: | (| GE | | | | | - ' | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 10 | Compaction: | | High |
| Cover Total % : | | 60 | Method Cover Total %: | ; (| GE | | | | | | Banks | | | | |
| Dp Pool: 40 L. | O.D.: | 40 | Boulder: 0 | In Veg.: | 0 Ov | er Veg: | 10 | Cutbank: | 1 | 10 | Duning | | | | |
| Crown Closure %: | | 60 | Method Crown Closure | : | GE As | pect : | S | Method Aspec | t: A | AE | Height (m): | 0.4 | % Unstable: | | ø |
| | | | | | | | | | | - | Textures Fines: | Yes | Gravel: Yes Larges | : No Bedrock: | No |
| Discharge | | | | | | | S | pecific Data | | | Confinement: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (# | n) • | į | | | | | | Valley: Chan. Ratio: | 1 | | | |
| 1 | | | Method Mean Depth (m) | | | | | | | - | Stage: | l. | | | |
| Mean Depth (m): | | | Method Mean Velocity (n | | vo | | | | | | Flood Signs IIt(m): | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 3 | 0.02 | • | | V O | | | | | - 11 | Braided: | N | Method Braided: | | GĿ |
| Discharge (m3/s): | | 0.03 | Method Discharge (m3/s) | ·· | | | | | | _1 | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symbo | ol | | | | | | | | | | pH: | | Method pli: | | |
| | | | | (Fis | • | | | | | - | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | | D | v | | | | | | Water Temp. (°C); | 4.0 | Method Temperature: | | TC |
| I | | | 1 | A 5.0 | 1360 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Cha | nnel, Slope) | (Bed Ma | terial) | | | | 1 | Cond. (µmhos): | | Method Conductivity: | | |
| | | | | ······ | | | | <u>-</u> - | | \perp | | | | | |

26-Mar-9"

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-480-707-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use I | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 5 | 60 - 92 | J | R | | | EL |

Obstructions

| CI | Electrofished 75 in length of stream, I pass with no lower net. Resident DV were caught. |
|----|--|
| C2 | In the lower 100 m u/s from the road, three 0.5 m high drops over debris were observed and are probable restrictions. |
| СЗ | Sections of good DV spawning potential were observed. Pools and debris are abundant. |
| C4 | G4.3 was not observed; consists of dry meadow in block 602#5. Seepage G4.4 was observed but it has no defined channel; stream is intermittent and it has an average wetted width of 10 cm; not accessible to fish. G4.4 drains along cutblock 602#3. |
| C5 | G4 is accessible to fish to the top of R3. Channel is too steep to support fish in R4. |

26-Mur-97

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-707-G4.-2 -000-000-000-000-000

| Header Info | rmatic | on | | | | | | | | | | | | - | |
|---------------------|------------------|-------------|---|----------|-------------|---------|------------|-----------|-----|-----|----------------------|-------|--------------------------|---------------|---------|
| Stream Name: | GABRI | EL C. T | RIBUTARY | | Stream "Lo | cal": | G4.2 | | | | | | Access: | | V2 |
| Watershed Code: | 460-600 | 6-508-4 | 80-707-G42 -000-000-000-000-000 | | | | | | | | Reach No.: | i | Reach Length (km): | 0.8 Method: | MW |
| Location: | D/S FR | OM RO | AD CROSSING. | | Мар#: | 093L034 | ļ | | | | Site No.: | 3 | Length surveyed (m): | 200.0 Method: | HC |
| | | | | | U.T.M.: | 9.6059 | .60232 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/27/96 | Tim | ie: 10:0 | OO Agency: C58 Su | rvey Cre | w: RD\CP\ | 1 1 1 1 | \ \ | | | | Photos: | A8/19 | Air Photos: | BCB 911 | 181:046 |
| Channel Ch | aracte | risti | cs | | | | Specific L |)ata | - | | Bed Material | | | - | |
| Av. Chan. Width (m | | 0.3 | ` ' | T | 0.4 | 0.4 | 0.3 | 0.2 | 0.3 | | % Fines (<2mm): | 20 | % Fines (<2mm): | | 20 |
| Av. Wet. Width (m) | | 0.3 | Method Av. Wet. Width (m): | T | 0.4 | 0.4 | 0.3 | 0.2 | 0.3 | | % Gravels: | 80 | Small (2-16mm): | | 70 |
| Av. Max. Rif. Depth | | 4 | Av. Max. Riffle Depth (cm): | MS | ļ | | | | | | | | Large (16-64mm): | | 10 |
| Av. Max. Pool Dept | h (cm): | 12 | Av. Max. Pool Depth (cm): | 4 | | | | | | - 1 |] % Larges: | 0 | Small cobble (64-128mm): | | 0 |
| Gradient (%): | | 5 .0 | Method Gradient: | CL | | | | | | | /o Darges. | v | Large cobble (128-256mm | | 0 |
| % Pool: 20 | % Riff | le: 50 | % Run: 30 % Other | - | Method: | GE | | | | | | | Boulder cobble (>256mm) | | 0 |
| % Side Channel: | | 0 | | GE | | | | | | | | | | • | - |
| % Debris Area: | 50 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | • | D90 (cm): | 2 | Compaction: | · | t ligh |
| Cover Total %: | L. Q.D .: | 50 40 | Method Cover Total %: Boulder: 0 In Veg.: | GE 0 | Over Veg: | 0 | Cutba | ınk• | | 50 | Banks | | | | |
| Crown Closure %: | | | Method Crown Closure: | v | Aspect : | sw | | od Aspect | : | ΑE | lleight (m): | 0.3 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | 1 | c | pecific D | 410 | | | Confinement: | 4 | | | |
| | | | Machael Wassel Wideh (as) | | | ړد | pecific D | MICE | | 1 | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | L | | | |
| Mean Depth (m): | ٠. | | Method Mean Depth (m): Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s | <i>,</i> . | 0.01 | • • | ٧U | | | | | | | Braided: | N | Method Braided: | | GĿ |
| Discharge (m3/s): | | 0.01 | Method Discharge (m3/s) : | | <u> </u> | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Sym | bol | | | | | | | | | | pH: | | Method pH: | | |
| | . J. | | | (Fish) | | | | | | | 02 (ըրտ)։ | | Method Dissolved Oxyger | ı: | |
| 1 | | | | NF | | | | | | | Water Temp. (°C): | 7.4 | Method Temperature: | | TC |
| 1 | | | 0 A 5. | 280 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| 1 | | | (Width, Valley: Channel, Slope | e) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9⁻ Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-707-G4,-2 -000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Very small, stable creek with a trickle flow. Channel is steep and dewatered u/s. ~130 m d/s from road, creek flows over a 1 m high drop and over a bank impassable. The G4 confluence is ~150 m d/s from the road. Assume fish access in the lower 20 m of stream.
- C2 Electrofished 75 m length of channel. No fish were caught or observed.

26-Mar-9"

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

| Header Informati | on | | | | | | | | | | | | |
|---------------------------|--------------------|--------------------------------|---------|------------|--------|------------|------------|----|--------------------------------|---------|--|----------------|----------|
| Stream Name: GABR | IEL C. TR | UBUTARY | | Stream "l. | ocai": | G5 | | | | | Access: | | V2 |
| Watershed Code: 460-60 | 06-50 8-4 8 | 80-767-000-000-000-000-000-000 | | | | | | | Reach No.: | ł | Reach Length (km): | 2.8 Method: | : MW |
| | | M MAIN ROAD CULVERT CROSSIN | IG, | Map #: | 093L03 | 4 | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | : HC |
| U/S FF | ROM G5.1 | | | U.T.M. : | 9.6055 | .60225 | | | Fish Card: | Y | Field: Yes | Historical: | No |
| Date: 9/27/96 Ti | ne: 15:00 | Agency: C58 Surv | vey Cre | w: RD\CP\ | 1.1.1 | 1 1 1 | | | Photos: | A9/5, 6 | Air Photos: | ВСВ 91 | 1181:046 |
| Channel Charact | eristic | S | | | | Specific L | Data | İ | Bed Material | | , | | |
| Av. Chan. Width (m): | 3.1 | Method Av. Chan. Width (m): | T | 2.7 | 3.3 | 3.3 | 3.1 | | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 2.3 | Method Av. Wet. Width (m): | T | 2.5 | 2.9 | 2.2 | 1.4 | | % Gravels: | 45 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (cm): | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | 7. Graveis. | 7,7 | Large (16-64mm): | | 40 |
| Av. Max. Pool Depth (cm): | 30 | Av. Max. Pool Depth (cm): | 8 | | | | | | | | 5 , , | | |
| Gradient (%): | 4.0 | Method Gradient: | CL | | | | | | % Larges: | 50 | Small cobble (64-128mm | | 40 |
| | Me: 70 | % Run: 10 % Other: | 0 | Method: | GE | | | | | | Large cobble (128-256m) Boulder cobble (>256m) | • | 10 |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | | | 1). | |
| % Debris Area: | 10-40 | Method Debris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | Û |
| Cover | | | | | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total % : | 70 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 20 L.O.D.: | 20 | Boulder: 10 In Veg.: | 0 | Over Veg: | | Cutba | | 30 | | | | | |
| Crown Closure % : | 20 | Method Crown Closure; | GE | Aspect : | S | Meth | od Aspect: | AE | Height (m): | 0.7 | % Unstable: | | O |
| | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Large | s: No Bedrock: | : No |
| Discharge | | | | * | | specific D | ata | | Confinement: | 4 | | | |
| Wetted Width (m) : | | Method Wetted Width (m): | | | | : : . | | | Valley: Chan. Ratio: | | | | |
| Mean Depth (m) : | | Method Mean Depth (m): | | ļ | | | | | Stage: | L | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | | | | | | Flood Signs 11t(m): | 0.5 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | 0.10 | Method Discharge (m3/s): | | l | | | | | Braided: | N | Method Braided: | | GE |
| | | | | <u> </u> | | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symbol | | (f | Fish) | | | | | | pH: | | Method pH: | | |
| | | , | ov • | | | | | | 02 (ppm): Water Temp. (°C): | 8.0 | Method Dissolved Oxygo Method Temperature: | :II. | FC |
| | | | | | | | | | water reinp. (°C.): | 0.0 | riemou remperature: | | 1(|
| | | 3 B 4.0 | 145 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | Gl |

26-Mar-9 -

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-767-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| | | • | | | | | |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
| DV | 18 | 68 - 121 | J | R | S | M | EL |
| CHF | 6 | 35 - 53 | F | R | 1 | | EL |

Obstructions

- C1 Electroshocked 43 m length of channel, I pass with no lower net. Two of the DV caught and recorded as juveniles were maturing (121 mm and 108 mm fork lengths). The char fiy were recorded as CHF due to the inability to dinstinguish between DV fry and BT fry. This site was mapped as containing spawning DV (DV *) due to the ripe DV and fry present.
- C2 Creek is stable with moss covering LOD, rocks and banks of the channel. The creek is large enough to transport debris.
- C3 Complex habitat with potential for SST and CO spawning, and a large amount of cobble and vegetation cover suitable for DV and RB rearing. Small pockets of suitable DV spawning habitat are also present.

26-Mar-9"

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-767-000-000-000-000-000-000

| Header Infor | mation | | | | | | • | | | | | | |
|-----------------------|--------------|-------------------------------------|-------------|--------|---------------|---------|-----|-----|----------------------|---------|--------------------------|---------------|-------------|
| Stream Name: | GABRIEL C. | TRIBUTARY | Stream "L | ocal": | G5 | | | | | | Access: | | FT |
| Watershed Code: | 460-6006-508 | -480-767-000-000-000-000-000-000 | | | | | | | Reach No.: | 2 | Reach Length (km): | 0.3 Method: | MW |
| Location: | | FROM MOUTH, ~100 m U/S FROM G5.4 | Map #: | 093L03 | 4 | | | | Site No.: | 2 | Length surveyed (m): | 250.0 Method: | HC |
| | CONFLUEN | CE; ALONG BLOCK 206#2. | U.T.M. : | 9.6055 | .60225 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/9/96 | Time: 1 | Agency: C58 Survey Cre | ew: RD\CP\ | 1 1 1 | 1 1 1 | | | | Photos: | A12/3-6 | Air Photos: | BCB 911 | 181:056 |
| Channel Cha | racteris | ics | | | Specific Da | 'a | | | Bed Material | | | | |
| Av. Chan. Width (m): | 1. | | 2.1 | 1.8 | 2.3 | 0.9 | 1.4 | 1.8 | % Fines (<2mm): | 15 | % Fines (<2mm): | | 15 |
| Av. Wet. Width (m): | | 6 Method Av. Wet. Width (m): T | | | | | | İ | % Gravels: | 55 | Small (2-16mm): | | 15 |
| Av. Max. Rif. Depth (| | 7 Av. Max. Riffle Depth (cm): MS | | | | | | 1 | | | Large (16-64mm): | | 40 |
| Av. Max. Pool Depth | | • • • | | | | | | | % Larges: | 30 | Small cobble (64-128mm): | | 30 |
| Gradient (%): | | 5 Method Gradient: CL | | O.E. | | | | | " Larges. | 30 | Large cobble (128-256mm | | 0 |
| % Pool: 30 | % Riffle: | | Method: | GE | | | | | | | Boulder cobble (>256mm) | * | 0 |
| % Side Channel: | 10.4 | 0 Method Side Channel: GE | | | | | | | e/ Dadali | 0 | · | - | 0 |
| % Debris Area: | 10-4 | 0 Method Debris Area: GE | | | | | | | % Bedrock: | U | % Bedrock: | | |
| Cover | | | | | | | | | D90 (cm): | | Compaction: | | High ——— |
| Cover Total % : | 5 | Method Cover Total %: GE | | | | | | | Banks | | | | |
| Dp Pool: 35 L. | O.D.: | 5 Boulder: 10 In Veg.: 0 | Over Veg: | 5 | Cutban | k: | | 45 | | | | | |
| Crown Closure %: | | 5 Method Crown Closure: GE | Aspect: | S | Method | Aspect: | | ΑE | Height (m): | | % Unstable: | | |
| | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | ì | S | Specific Date | , | | i | Confinement: | 5 | | | |
| Wetted Width (m) : | | Method Wetted Width (m) : | į | _ | specific Dail | | | | Valley: Chan. Ratio: | 4 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | İ | Stage: | L | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s VO | | | | | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Discharge (m3/s): | 0.0- | • ` | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/3): | | | <u> </u> | | | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symbo | ol | | | | | | | | pti: | 7.0 | Method pH: | | PH |
| | | (Fish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxyger | 1: | |
| | | DV | | | | | | | Water Temp. (°C): | 6.5 | Method Temperature: | | IC |
| | | 2 D 1.5 163 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) (Be | d Material) | | | | | | Cond. (µnihos); | | Method Conductivity: | | |

26-Mar-9

Stream: GABRIEL C TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-767-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 1 | 71 | J | R | | | EL |

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | BD _ | 2.8 |
| i1 | BD | 2.8 |
| 1 | BD | 2.9 |
| 1 | BD | 3.0 |

- Electrofished 35 m length of creek at bottom of R2. The DV was caught at the bottom of the shock site. No fish were caught above the second beaver dam. Also electrofished a section at the top of R2 to where the creek dewatered; no fish were caught. Suspect fish may access this upper section of R2 during high flow events; classed as suspected fish to the top of R2 and confirmed fish presence up to the second beaver dam.
- Excellent fish habitat below the meadow (bottom of R2); low gradient gravel channel. U/S in marsh, gradient increased slightly and a number of beaver dams were present. Channel flowed over several small drops through the marsh. Pockets of spawning were present in the 30 m d/s from where the creek dewatered.
- Electrofishing was conducted on G5.5 from its confluence with G5. A 40 m length of stream was electrofished; no fish were caught. ~50 m u/s from the confluence, G5.5 channel is a seepage trickle and has an average wetted width of 0.5 m with sand /silt bed material from the u/s meadow; end of fish potential. The channel becomes undefined in the meadow, continues to an old beaver dam and forms a nearly dry pond just above the dam.

26-Mar-97

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-767-000-000-000-000-000-000

| Header Info | | | | | | | | | | | | | | | |
|------------------------------|------------------------|-------|------------------------------------|------------|-------------|---------|-------------|----------|-----|------|----------------------|--------|--------------------------|---------------|---------|
| Stream Name: | GABRIEL (| | | | Stream "L | ocal": | G5 | | | | | | Access: | | V4 |
| Watershed Code: | | | 0-767-000-000-000-000-000-000 | | | | | | | | Reach No.: | 3 | Reach Length (km): | 0.5 Method: | MW |
| Location: | ~300 m U/S ALONG BL | | M G5.5 CONFLUENCE; LOCATE | D | Map#: | 093L034 | | | | | Site No.: | 3 | Length surveyed (m): | 300.0 Method: | HC |
| | | | | | U.T.M. : | 9.6055 | | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/4/96 | Time: | 16:30 | Agency: C58 Su | rvey Cro | w: RD\CP\ | 1 1 1 1 | | | | | Photos: | A10/23 | Air Photos: | BCB 911 | 181:056 |
| Channel Ch | aracteris | tics | 3 | | ĺ | | Specific Do | ita | | | Bed Material | | | | |
| Av. Chan. Width (m) | | | Method Av. Chan. Width (m): | T | 5.6 | 3.3 | 3.9 | 4.8 | 4.1 | | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | | Method Av. Wet. Width (m): | GE | | | | | | -]] | % Gravels: | 85 | Small (2-16mm): | | 55 |
| Av. Max. Rif. Depth | | | Av. Max. Riffle Depth (cm): | GE | { | | | | | | | | Large (16-64mm): | | 30 |
| Av. Max. Pool Depth | | | Av. Max. Pool Depth (cm): | 0 | | | | | | IJ | % Larges: | 5 | Small cobble (64-128mm): | | 5 |
| Gradient (%): % Pool: 0 | % RiMe: | | Method Gradient: % Run: 0 % Other | CL :: 0 | Method: | CF | | | | | , - 1.1. ges. | - | Large cobble (128-256mm | | 0 |
| % Pool: 0 % Side Channel: | % Killie; | | Method Side Channel: | GE | Meinog; | GE | | | | | | | Boulder cobble (>256mm) | • | 0 |
| % Debris Area: | 40 | U | Method Debris Area: | GE | | | | | | ı | % Bedrock: | 0 | % Bedrock: | | 0 |
| 76 Debits Area. | | | | | | | | | | | | • | | | |
| Cover | | | | | | | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | | - (| Banks | | | | |
| Dp Pool: 20 1 | .O.D.: | 50 | Boulder: 20 In Veg.: | 0 | Over Veg: | 0 | Cutbar | | | 10 | 1 | | | | |
| Crown Closure %: | | 60 | Method Crown Closure: | GE | Aspect : | SE | Metho | d Aspect | | AE | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | | | | _ | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | ļ. | S | pecific Da | a | | ı | Confinement: | 4 | | | |
| Wetted Width (m): | | , | Method Wetted Width (m): | | | | , , | | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Stage: | Dry | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Discharge (m3/s): | | | Method Discharge (m3/s): | | | | | | | | Braided: | N | Method Braided: | | GE |
| | | | | | <u> </u> | | · · · | | | | Bars (%): | 100 | Method Bars: | | GE |
| Reach Symb | ol | | | (Phata) | | | | | | | pH: | | Method pH: | | |
| , | | | | (Fish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxyger | ı: | |
| | | | | NS T | | | | | | ļ | Water Temp. (°C): | | Method Temperature: | | |
| | | | 4 A 7 | | | | | | | | Turb. (cm); | | Method Turbidity: | | |
| | | | (Width, Valley: Channel, Slop | e) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9"

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-480-767-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C2

C1 Channel was dry with only the 20 m w/s from the marsh wetted.

Suspect Reach 3 is accessible to fish during extreme high flow events.

26-Mar-9"

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-480-767-000-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | - | | |
|--------------------------|----------|-----------------|---------------------------------|--------|------------|---------|-----------------|------------|-----|----|----------------------|-----------|--------------------------|---------------|---------|
| Stream Name: | GABRIE | LC. T | RIBUTARY | | Stream "Lo | cal": | G5 | | | | | | Access: | | Н |
| Watershed Code: | 460-600 | 6- 508-4 | 80-767-000-000-000-000-000-000 | | | | | | | | Reach No.: | 5 | Reach Length (km): | 0.5 Method: | MW |
| Location: | 100 m Si | ECTIO | D/S FROM HEADWATER LAKE. | | Map #: | 093L033 | | | | | Site No.: | 4 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | U.T.M. : | 9.6055 | .60225 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/26/96 | Time | e: 10:0 | 0 Agency: C58 Surve | y Crev | r: RD\SS\ | 1 1 1 1 | 1.1 | | | | Photos: | B5/11, 12 | Air Photos: | BCB 911 | 181:056 |
| Channel Ch | aracte | ristic | es | [| | S | - Specific L | Data | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 0.4 | Method Av. Chan. Width (m): | т | 0.5 | 0.3 | 0.3 | 0.4 | 0.6 | ļ | % Fines (<2mm): | 0 | % Fines (<2mm): | | 0 |
| Av. Wet. Width (m): | | 0.4 | Method Av. Wet. Width (m): | T | 0.5 | 0.3 | 0.3 | 0.4 | 0.6 | | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | (cm): | 3 | Av. Max. Riffle Depth (cm): | MS | | | | | | | 70 Graveis. | ., | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth | (cm): | 20 | Av. Max. Pool Depth (cm): | 3 | | | | | | | | | - | | |
| Gradient (%): | | 4.0 | Method Gradient: | CL | | | | | | | % Larges: | 85 | Small cobble (64-128mm): | | 80 |
| % Pool: 30 | % Riff | le: 60 | % Run: 10 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm) | | 5 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | 0 |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 8 | Compaction: | ı | Medium |
| Cover Total % : | | 80 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 1 | .O.D.: | 10 | Boulder: 40 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 40 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect: | NE | Meth | od Aspect: | | ΑE | Height (m): | 0.3 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | 1 | | Ç, | ecific D | ata | | | Confinement: | 3 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | | | regic D | 414 | | : | Valley: Chan. Ratio: | ı | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | Ì | | | | | | | Stage: | Ł | | | |
| Mean Velocity (m/s) | | | • • • | vo | | | | | | İ | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | • | 0.03 | Method Discharge (m3/s): | •• | | | | | | Ì | Braided: | N | Method Braided: | | GE |
| | | | | | | | | | | i | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 7.9 | Method pH: | | PH |
| , | | | • | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | ; | |
| | | | <u></u> | VF | | | | | | | Water Temp. (°C): | 10.0 | Method Temperature: | | IC. |
| | | | 0 A 4.0 | 0280 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed | Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mur-9° Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Cl | Electrofished 85 m length of stream, I pass with no lower net; No fish were caught. Easy fish access in outlet creek. Steep section in R4 d/s may present a barrier for fish migration u/s. |
|----|--|
| C2 | Lake is small and tannic in color. Channel d/s of lake is stable with pockets of potential resident spawning habitat present (large gravel bed material). Creek flows through a meadow area. |
| C3 | Lat/Lon of helicopter landing site: 54 21.84 127 25.07 |

Stream: GABRIEL C. TRIBUTARY 26-Mar-9"

Stream Survey Report Watershed Code:

460-6006-508-480-767-Ci5.-1 -000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary **Obstructions**

- Small, moss/algae covered seepage in brushy bog area. Discharge is a trickle flow and water is tannic. Cliannel is not defined and suspect it is seasonally-wetted. Creek is stable CI with limited LOD.
- C2 Electrofished 50 m length of stream (10 m u/s from road and 40 m d/s from road), 1 pass with no lower net. No fish were caught or observed. Assume no fish use in G5.1.
- C3 G5.1.1 and G5.1.2 were surveyed: both tributaries were small seepages in bog areas with intermittent flows and no defined channels. No fish habitat was present and it was conluded that there is no fish use in G5.1.1 and G5.1.2.

26-Mar-9"

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-480-767-G5.-1 -000-000-000-000-000-000

| Header Inform | ation | | | | | | | | | | |
|--------------------------------|---------------------|------------------------------------|--------------|-----------------|----------------|----|----------------------|-----------|-------------------------|---------------|---------|
| Stream Name: G | ABRIEL C. | TRIBUTARY | Stream "L | o cal ": | G5.1 | | | | Access: | | V2 |
| Watershed Code: 4 | 60-600 6-508 | -480-767-G51 -000-000-000-000 | | | | | Reach No.: | ! | Reach Length (km): | 1.5 Method: | MW |
| Location: S. | AMPLED U | S AND D/S FROM ROAD CULVERT. | Map #: | 093L03 | 4 | | Site No.: | 5 | Length surveyed (m): | 100.0 Method: | HC |
| | | | U.T.M. : | 9.6055 | .60227 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/27/96 | Time: 12 | :00 Agency: C58 Survey Ci | ew: RD\CP\ | 1 1 1 1 | . 1 1 | | Photos: | A8/23, 24 | Air Photos: | BCB 911 | .81:046 |
| Channel Char | acterist | ics | : I | | Specific Data | 1 | Bed Material | | | | |
| Av. Chan. Width (m): | 0. | | | | | Ì | % Fines (<2mm): | 100 | % Fines (<2mm): | | 100 |
| Av. Wet. Width (m): | 0. | | 0.4 | 0.4 | 0.3 0.4 | | % Gravels: | 0 | Small (2-16mm): | | 0 |
| Av. Max. Rif. Depth (cm | • | Av. Max. Riffle Depth (cm): MS | | | | : | | | Large (16-64mm): | | 0 |
| Av. Max. Pool Depth (cr | | | | | | | % Larges: | 0 | Small cobble (64-128mm) | | 0 |
| Gradient (%): | 1. 1. Dim 1 | | Method: | CF. | | | 70 Eurges. | | Large cobble (128-256mn | | 0 |
| % Pool: 20 ' % Side Channel: | % Riffle: 3 | Method Side Channel: GE | Memod: | GE | | | | | Boulder cobble (>256mm | | 0 |
| % Side Channel: % Debris Area: | 10-4 | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| | | | | | | | | | | | |
| Cover | | | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total % : | 80 | Method Cover Total %: GE | | | | | Banks | | | | |
| Dp Pool: 0 L.O. | D.: 10 | Boulder: 0 In Veg.: 0 | Over Veg: | 90 | Cutbank: | 0 | | | | | |
| Crown Closure % : | : | Method Crown Closure: GE | Aspect: | SE | Method Aspect: | AE | Height (m): | 0.2 | % Unstable: | | 0 |
| | | | | | | | Textures Fines: | Yes | Gravel: No Larges | No Bedrock: | No |
| Discharge | | | | (| pecific Data | | Confinement: | 5 | | | |
| 17 1 17 1 | | Made of Ward Wilds () | | , | pecific Daia | 11 | Valley: Chan. Ratio: | 4 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | [| Stage: | L | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | 1 | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.01 | Method Mean Velocity (m/s VO | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.01 | Method Discharge (m3/s) : | 1 | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | | | | | pH: | | Method pH: | | |
| | | (Fish) | | | | | 02 (ppm)։ | | Method Dissolved Oxyge | 1: | |
| | | NFNF | | | | | Water Temp. (°C): | 7.7 | Method Temperature: | | TC |
| | | 0 A 1.0 F | | | | | Turb. (cm): | 100 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) (B | ed Material) | | | ١ | Cond. (µmhos); | | Method Conductivity: | | |

26-Mar-9^

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-767-G5.-2 -000-000-000-000-000

| Header Info | rmatio | on - | | | | | | | | | | | |
|-----------------------------------|---------|-----------------|--|------------------------|----------------|---------------|-------------|----|----------------------|---------|--------------------------|--------------|---------|
| Stream Name: | GABRII | EL.C. TI | RIBUTARY | Stream "L | ocal": | G5.2 | | | | | Access: | | V2 |
| Watershed Code: | 460-600 | 6-50 8-4 | 80-767-G52 -000-000-000-000-000 | | | | | | Reach No.: | 2 | Reach Length (km): | 1.0 Method: | MW |
| Location: | ~125 m | U/S FRO | OM G5.2 CONFLUENCE. | Map #: | 093 L03 | 4 | | | Site No.: | 6 | Length surveyed (m): | 90.0 Method: | HC |
| | | | | U.T.M. : | 9.6052 | .60241 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/27/96 | Tim | e: 13:0 | O Agency: C58 Survey | Crew: RD\CP\ | 111 | 111 | | _ | Photos: | A9/3, 4 | Air Photos: | BCB 911 | 181:056 |
| Channel Ch | aracte | ristic | es . | 1 | | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m |): | 1.1 | . , | Γ 1.0 | 0.8 | 0.4 0.9 | 2.2 | | % Fines (<2mm): | 40 | % Fines (<2mm): | | 40 |
| Av. Wet. Width (m): | | 0.3 | | Г | | | | | % Gravels: | 55 | Small (2-16mm): | | 40 |
| Av. Max. Rif. Depth | | 2 | Av. Max. Riffle Depth (cm): M | | | | | | | | Large (16-64mm): | | 15 |
| Av. Max. Pool Depth | (cm): | 15 | • ', ' | 2 . | | | | | % Larges: | 5 | Small cobble (64-128mm): | | 5 |
| Gradient (%): | | 13.0 | Method Gradient: C | | | | | | /# Larges. | J | Large cobble (128-256mm) | | 0 |
| % Pool: 10 | % Riff | | | 0 Method: | GE | | | | | | Boulder cobble (>256mm): | • | 0 |
| % Side Channel: | 20 | 0 | Method Side Channel: G | | | | | | | | | | |
| % Debris Area: | 20 | _ | Method Debris Area: G | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | _ | | | | · | | _ | | D90 (cm): | 6 | Compaction: | | High |
| Cover Total %: | 0.5 | 70 | Method Cover Total %: G | | • | 0 | | _ | Banks | | | | |
| Dp Pool: 20 I Crown Closure %: | O.D.: | 65 | Boulder: 10 In Veg.: (Method Crown Closure: | | 0 | Cutbank: | | 5 | | | | | |
| Crown Closure %: | | | Method Crown Cibsure: | Aspect : | E | Method Aspo | ect: | ΑĖ | Height (m): | 0.4 | % Unstable: | | 0 |
| D | _ | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | į | \$ | Specific Data | | 1 | Confinement: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | İ | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | Stage: | L | | | |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s V | 0 | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | | 0.01 | Method Discharge (m3/s): | | | | | İ | Braided: | N 10 | Method Braided: | | GE |
| | | | | | | | | | Bars (%): | 30 | Method Bars: | | GE |
| Reach Symb | ol | | (Fish | 1 | | | | | ptt: | | Method plf: | | |
| 1 | | | NS | • | | | | | 02 (ppm): | , , | Method Dissolved Oxygen | | 107.7 |
| | | | | | | | | | Water Temp. (°C): | 6.6 | Method Temperature: | | TC |
| | | | | 4510 (Bad Maturial) | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Deu Material) | | | | | Cand. (µmhos): | 27 | Method Conductivity: | | CM |

26-Mar-9"

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-767-G5.-2 -000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 Channel is confined in a narrow gully with a trickle flow discharge. The lower section of R2 has ~10% gradient which continuously increases going u/s. The gradient is ~13-15% at the road culvert and steepens above the road.
- R1 of G5.2 was surveyed u/s from the mouth: a 0.5 m high drop over a bank is located at the mouth of the tributary. The slope is ~13% and the creek consists of a trickle flow over moss benches with the majority of the water flowing subsurface. ~60 m u/s from the mouth, the channel becomes more defined and is bedded with fine gravel and moss. Several 30 40 cm high drops over debris were observed up to R2. Assume no fish use in R1 and R2 of G5.2 based on unsuitable fish habitat and steep gradient.

26-Mar-9"

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-480-767-G5.-4 -000-000-000-000-000-000

Header Information GABRIEL C. TRIBUTARY Stream Name: Stream "Local": G5.4 Access: V2 Watershed Code: 460-6006-508-480-767-G5,-4 -000-000-000-000-000 Reach No .: 1.9 Method: MW Reach Length (km): Location: AT ROAD CROSSING. Map #: 093L034 Site No.: Length surveyed (m): 100.0 Method: HC U.T.M.: 9.6050 .60248 Historical: Fish Card: Field: Yes Nο Survey Crew: RD\CP\\\\\\\\ Date: 9/27/96 Time: 13:00 Agency: C58 Photos: A9/1, 2 Air Photos: BCB 91181:056 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 2.5 Method Av. Chan. Width (m): T 2.2 2.0 2.7 2.8 2.9 % Fines (<2mm): % Fines (<2mm): 5 GE Av. Wet. Width (m): Method Av. Wet. Width (m): % Gravels: Small (2-16mm): 5 GE Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): Large (16-64mm): 20 Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 0 % Larges: Small cobble (64-128mm): 50 CLGradient (%): 11.0 Method Gradient: Large cobble (128-256mm): 20 % Pool: 0 % Riffle: 0 0 % Other: 0 Method: GE Boulder cobble (>256mm): () % Side Channel: GE 0 Method Side Channel: % Debris Area: 50 Method Debris Area: GE % Bedrock: % Bedrock: 0 D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: Banks Dp Pool: L.O.D.: Roulder: In Veg.: Over Veg: Cutbank: Crown Closure %: Method Crown Closure: GE Aspect: Method Aspect: ΑE Height (m): 2.0 % Unstable: Ü Textures Fines: Yes Gravel: Yes Larges: Yes Bedrock: No Discharge Confinement: 3 Specific Data 2 Valley: Chan. Ratio: Wetted Width (nn): Method Wetted Width (m): Stage: Dry Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): 0.5 Method Flood Signs: MS VO Mean Velocity (m/s): Method Mean Velocity (m/s Braided: Method Braided: GĿ Discharge (m3/s): 0.00 Method Discharge (m3/s): Bars (%): 100 Method Bars: GE pH: Reach Symbol Method pli: (Fish) 02 (ppm): Method Dissolved Oxygen: NS Water Temp. (°C): Method Temperature: 3 B 11.0 1270 Turb. (cm): Method Turbidity: (Width, Valley: Channel, Slope) [Bed Material] Cond. (umhos): Method Conductivity:

26-Mar-9⁻

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C1 Creek dewatered.

- C2 Dynamic, steep tributary, with mainly cobble and with a large amount of debris lying in the channel. Gradient steepens u/s from the road.
- C3 The top of R1 is located ~50 m d/s from the road. There is no defined channel throughout R1 and the creek drops over a bench at the confluence with G5.0. An average gradient of 8% is consistent throughout R1. No fish access to G5.4 based on gradient.

26-Mar-9⁻

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-767-G5,-6 -000-000-000-000-000

Header Information GABRIEL C. TRIBUTARY Stream Name: Stream "Local": G5.6 Access: Н Watershed Code: 460-6006-508-480-767-G5.-6 -000-000-000-000 Reach No .: Reach Length (km): 0.6 Method: MW CHANNEL BELOW SHALLOW POND, ~1.2 km U/S 093L033 100.0 Method: Location: Site No.: Length surveyed (m): HC FROM G5.6 CONFLUENCE. U.T.M.: 9.6038 .60254 Fish Card: Field: Yes Historical: No Survey Crew: RD\SS\\\\\\\\ Date: 9/26/96 Time: 16:00 Agency: C58 Photos: B5/13, 14 Air Photos: BCB 91181:056 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 0.3 Method Av. Chan. Width (m): T 0.3 0.3 0.4 0.3 % Fines (<2mm): % Fines (<2mm): 20 T Av. Wet. Width (m): Method Av. Wet. Width (m): 0.3 0.3 0.4 0.3 % Gravels: Small (2-16mm): Av. Max. Rif. Depth (cm): 2 Av. Max. Riffle Depth (cm): MS Large (16-64mm): Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 2 % Larges: Small cobble (64-128mm): 60 CL7.0 Method Gradient: Gradient (%): Large cobble (128-256mm): 10 % Pool: 10 % Riffle: 70 20 % Other: 0 Method: GE Boulder cobble (>256mm): 0 % Side Channel: Method Side Channel: GE GE % Debris Area: 0 Method Debris Area: % Bedrock: % Bedrock: D90 (cm): Compaction: High Cover Cover Total % : Method Cover Total %: GE Banks 20 L.O.D.: Boulder: 30 In Veg.: Over Veg: Cutbank: 50 Dp Pool: Crown Closure %: Method Crown Closure: NE Aspect: Method Aspect: ΑE Height (m): % Unstable: Û Textures Fines: Gravel: No Larges: No Bedrock: No Discharge Confinement: Specific Data Valley: Chan. Ratio: 2 Wetted Width (m): Method Wetted Width (m): Stage: Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): Method Flood Signs: MS Mean Velocity (m/s): Method Mean Velocity (m/s VO Method Braided: Braided: GE Discharge (m3/s): 0.01 Method Discharge (m3/s): Bars (%): Method Bars: GE ρH: Method pH: PH Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: NF Water Temp. (°C): Method Temperature: TC 0 B 7.0 2170 Turb. (cm): Method Turbidity: GE (Width, Valley: Channel, Slope) | (Bed Material) Cond. (umhos): Method Conductivity:

26-Mar-9" Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-767-(15.-6 -000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 Electroshocked 80 m length of stream below the pond. No fish were caught or observed. A Western Spotted frog was caught at the sample site.
- C2 Sampled below shallow pond. No outlet channel on small lake above. (The map showed G5.6 flowing out of the lake.)
- C3 Restricted access to outlet channel of the pond due to gradient. -200 m d/s, the channel becomes very steep.
- C4 Bed material of creek consists of cobble/fines; areas suitable for spawning are limited.
- C5 Lat/Lon of helicopter landing site: 54 22.09 127 25.06

26-Mar-9"

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-480-G8 -000-000-000-000-000-000-000

| Header Info | rmatio | on | | _ | | | | | | | <u> </u> | | | |
|--|---------|------------------|--|---------|---|-------------|---------------|------|----------|----------------------|-------------|-------------------------|---------------|---------|
| Stream Name: | GABRI | EL C. T | RIBUTARY | | Stream "Le | cal": | G8 | | | | | Access: | | FT |
| Watershed Code: | 460-600 | %- 508 -4 | 000-000-000-000-000-000-000 | | | | | | | Reach No.: | l | Reach Length (km): | 0.6 Method: | MW |
| Location: | ~250 m | U/S FR | OM G8 CONFLUENCE. | | Map #: | 093L03 | 4 | | | Site No.: | 1 | Length surveyed (m): | 400.0 Method: | HC |
| | | | | | U.T.M.: | 9.6043 | .60214 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/4/96 | Tim | ie: 12:0 | OO Agency: C58 Sur | vey Cr | ew: RD\CP\ | 1 1 1 1 | . 1 1 | | | Photos: | A10/17 | Air Photos: | BCB 911 | 180:158 |
| Channel Ch | aracte | risti | cs | | | | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m) |): | 4.3 | Method Av. Chan. Width (m): | T | 3.8 | 4.9 | 3.1 5.2 | 4.7 | | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 2.1 | Method Av. Wet. Width (m): | T | | | | | | % Gravels: | 20 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth | | 2 | . , , | MS | | | | | 1 | | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth | (cm): | 30 14.0 | Av. Max. Pool Depth (cm): Method Gradient: | 2 CL | | | | • | 1 | % Larges: | 75 | Small cobble (64-128mm) | : | 40 |
| Gradient (%): % Pool: 10 | o/ D:W | 14.0 Ne: 70 | | | Method: | CE. | | | | | | Large cobble (128-256mm | | 15 |
| % Side Channel: | /o Kui | iie: 70 | Method Side Channel: | GE | wieniog. | GE. | | | | | | Boulder cobble (>256mm | | 20 |
| % Debris Area: | 30 | | Method Debris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | - | | | D90 (cm): | 30 | Compaction: | | Hìgh |
| COVE | | | | | | | | | | <u> </u> | | | | |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 20 L | O.D.: | 60 | Boulder: 20 In Veg.: | 0 | Over Veg: | 0 | Cutbank: | | 0 | | | | | |
| Crown Closure %: | | 35 | Method Crown Closure: | GE | Aspect : | NW | Method Asp | ect: | ΑE | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges | : No Bedrock: | No |
| Discharge | | | | | i | c | pecific Data | | 1 | Confinement: | 3 | | | |
| | | | Mark - 4 33/assa 4 33/ideb () - | | | | pecijic Dulu | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): Method Mean Velocity (m/s | vo | | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) Discharge (m3/s): | • | 0.07 | Method Discharge (m3/s): | VO | i I | | | | ļ | Braided: | N | Method Braided: | | GE |
| Discharge (m3/5) . | | | | | <u>i </u> | | | | <u>l</u> | Bars (%): | 30 | Method Bars: | | Gb |
| Reach Symb | ol | | | | | | | | | pH: | | Method pH: | | |
| | - | | • | Fish) | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | | (DV) | | | | | | Water Temp. (°C): | 3.0 | Method Temperature: | | FC |
| | | | 4 A 14.0 | 127 | 0 | | | | | Turb. (cm): | 200 | Method Turbidity: | | Gl: |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-97

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C2

C1 DV were caught d/s at the bridge. Suspect DV presence in the lower 400 m of R1.

Creek channel is confined with very steep sideslopes. Gradient is 12 - 15 % and several 0.5 m high drops over debris were observed. The upper limit of fish distribution is -380 m u/s from the G8 confluence due to the steep gradient, the confined canyon, and the numerous 1+ m high drops over bedrock that are present in this u/s section.

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26-Mar-9^

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

- - - - - -

Stream Survey Report

460-6006-508-480-G8 -000-000-000-000-000-000

| Header Info | mation | ! | | | | | | _ | | | | | | | |
|----------------------|-----------|-------|--------------------------------|----------|-------------|---------|------------|-----------|-----|-----|----------------------|---------|--------------------------|---------------|---------|
| Stream Name: | GABRIEL | C. TI | RIBUTARY | | Stream "Lo | cal": | G8 | | | | | | Access: | | 11 |
| Watershed Code: | 460-6006- | 508-4 | 80-G8 -000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.8 Method: | MW |
| Location: | AT MEAT | WO | AREA ALONG CREEK, ~200 m U/S | FROM | Map #: | 093L034 | | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | HC |
| | G8.3 CON | FLUE | NCE. | | U.T.M.; | 9.6043 | .60214 | | | | Fish Card: | N | Field: Yes | Historical: | Nο |
| Date: 9/26/96 | Time: | 11:0 | O Agency: C58 Sur | rvey Cre | :w: RD\SS \ | 1 1 1 1 | 1-1 | _ | | | Photos: | B5/5, 6 | Air Photos: | BCB 911 | 180:158 |
| Channel Cho | ıracter | istic | es | | i | S | Specific D | ata | | | Bed Material | | • | | |
| Av. Chan. Width (m) | : | 2.7 | Method Av. Chan. Width (m): | T | 2.3 | 2.2 | 3.3 | 2.4 | 2.7 | 3.2 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 1.6 | Method Av. Wet. Width (m): | T | 1.8 | 0.9 | 1.9 | 1.7 | 1.4 | 2.0 | , , | | | | |
| Av. Max. Rif. Depth | cm): | 5 | Av. Max. Riffle Depth (cm): | MS | | | | | | | % Gravels: | 45 | Small (2-16mm): | | 15 |
| Av. Max. Pool Depth | (cm): | 25 | Av. Max. Pool Depth (cm): | 5 | | | | | | | | | Large (16-64mm): | | 30 |
| Gradient (%): | | 5.0 | Method Gradient: | CL | l | | | | | ' | % Larges: | 45 | Small cobble (64-128mm): | | 40 |
| % Pool: 20 | % Riffle: | 40 | % Run: 30 % Other | : 10 | Method: | GE | | | | | | | Large cobble (128-256mm) | : | 5 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | 0 |
| % Debris Area: | 20 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 11 | Compaction: | 1 | Medium |
| Cover Total % : | | 75 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 20 L | .O.D.: | 30 | Boulder: 40 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 10 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect : | N | Metho | d Aspect: | | AE | Height (m): | 1.0 | % Unstable: | | 0 |
| | | | | | | | | _ | | | Textures Fines: | Yes | Gravel: Yes Larges; | No Bedrock: | No |
| Discharge | | | | | i | St | ecific Da | ıta | • | · | Confinement: | 3 | | | |
| | | | Method Wetted Width (m): | | i | -7 | | | | | Valley: Chan. Ratio: | 1 | | | |
| ` , | | | Method Mean Depth (m): | | | | | | | | Stage: | L | | | |
| Mean Depth (m) : | | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs (ft(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (nn/s) | | 0.06 | Method Discharge (m3/s): | ٧٥ | Ì | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 7.00 | Michiod Discharge (m3/s): | | ! | | | | | | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 7.4 | Method pH: | | PH |
| | | | | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | : | |
| | | | | NF | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | IC |
| | | | 3 A 5.0 | 1450 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GŁ. |
| | | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9~ Stream: GABRIEL C. TRIBUTARY

Stream Survey Report Watershed Code:

460-6006-508-480-G8 -000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Obstructions Fish Summary

- Cl Electrofished 70 m length of stream, 1 pass with no lower net. No fish were caught or observed. Suspect canyon below is impassable and R2 is classed as S5/S6 habitat.
- C2 Creek contains good fish habitat. Bed material is too large for resident DV spawning (pockets of suitable DV spawning) but is suitable for CO spawning if fish were present.
- C3Creek has a high potential to move small debris.

26-Mar-9"

Stream: GABRIEL C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-480-G8 -000-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | | | | | | |
|---------------------|------------|---------------|----------------------|---------------|--------|-------------|---------|------------|------------|-----|-----|---|---------|-------------------------|---------------|---------|
| Stream Name: | GABRIEL (| . TR | IBUTARY | | | Stream "Le | ocal": | G8 | | | | | | Access: | | н |
| Watershed Code: | 460-6006-5 | 08 -48 | 0-G8 -000-000-000-00 | 0-000-000-900 | | | | | | | | Reach No.: | 3 | Reach Length (km); | 1.0 Method: | MW |
| Location: | | | W ON G8, ~850 m U/ | S FROM G8.3 | | Map #: | 093L034 | I | | | | Site No.: | 3 | Length surveyed (m): | 100.0 Method: | HC |
| | CONFLUE | NCE. | | | | U.T.M.; | 9.6043 | .60214 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/26/96 | Time: | 12:00 | Agency: | C58 Sur | vey Cr | ew: RD\SS\ | 1 1 1 1 | 1.1 | | | | Photos: | B5/7, 8 | Air Photos: | BCB 911 | 180:158 |
| Channel Ch | aracteris | tic | 5 | | | | | Specific L |) Data | | | Bed Material | | | | |
| Av. Chan. Width (m |): | 1.1 | Method Av. Chan. V | Vidth (m): | Ŧ | 1.2 | 1.6 | 0.9 | 1.2 | 1.1 | 0.8 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 1.1 | Method Av. Wet. W | idth (m): | T | 1.2 | 1.6 | 0.9 | 1.2 | 1.1 | 0.8 | % Gravels: | 90 | Small (2-16mm): | | 70 |
| Av. Max. Rif. Depth | (cm): | 0 | Av. Max. Riffle Dep | th (cm): | MS | | | | | | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | ,, | Large (16-64mm): | | 20 |
| Av. Max. Pool Depth | (cm): | 30 | Av. Max. Pool Depti | (cm): | 0 | | | | | | j | a | 0 | | | |
| Gradient (%): | | 0.5 | Method Gradient: | | CL | | | | | | | % Larges: | 0 | Small cobble (64-128mm) | | 0 |
| % Pool: 20 | % Riffle: | 0 | % Run: 80 | % Other: | | Method: | GE | | | | | | | Large cobble (128-256mm | | 0 |
| % Side Channel: | | 0 | Method Side Channe | d: | GE | | | | | | | | | Boulder cobble (>256mm) | : | 0 |
| % Debris Area: | 5 | | Method Debris Area | : | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | _ | | <u> </u> | | | | | | _ | _ | | D90 (cm): | 3 | Compaction: | | High |
| Cover Total % : | | 60 | Method Cover Total | % : | GE | | | | | | | Banks | _ | | _ | |
| Dp Pool: 0 1 | O.D.: | 0 | Boulder: 0 | In Veg.: | 0 | Over Veg: | 10 | Cutba | ınk: | | 90 | Dunns | | | | |
| Crown Closure %: | | 5 | Method Crown Clos | иге: | GE | Aspect : | NE | Metho | od Aspect: | | ΑE | Height (m): | 0.4 | % linstable: | | 0 |
| | | | _ _ | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | No Bedrock: | No |
| Discharge | | | | | | | | | | - | | Confinement: | 5 | • | | |
| • | | | | | | | S | pecific D | ata | | | Valley: Chan. Ratio: | 4 | | | |
| Wetted Width (m): | | | Method Wetted Widt | 1.1 | | | | | | | | Stage: | l. | | | |
| Mean Depth (m): | | | Method Mean Depth | | | | | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | | Hethod Mean Velocit | • | vo | | | | | | ļ | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.0 |)3 | Method Discharge (m | 3/s) : | | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | | | | | | | | | | | | pH: | 8.0 | Method pH: | | PH |
| Keuch Symb | VI | | | (| Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | | | NF | | | | | | | Water Temp. (°C): | 90 | Method Temperature: | | IC |
| | | | | I D 0.5 | 190 | 0 | | | | | | Turb. (cm); | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: (| hannel Slone | \ | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

26-Mar-9" Stream: GABRIEL C. TRIBUTARY

Stream Survey Report Watershed Code:

460-6006-508-480-G8 -000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Obstructions Fish Summary

| Cl | Electrofished 73 m length of stream (at lower end of the meadow), I pass with no lower net. No fish were caught or observed. |
|----|--|
| C2 | Small, stable meandering creek. Gradient is very low (~1%) and no potential spawning is present (very brackish bottom). |
| C3 | R2 d/s of the meadow is steep (~10% gradient) with cobble bed material, the tributary flows along a recent cutblock. |
| C4 | Lat/Lon of helicopter landing site: 54 18.71 127 24.10 |

2^-Mar-9^

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

| Header Info | rmatio | n | | | | | - | | | | | |
|-------------------------------|----------|-----------------|---|---------------|----------------|----------------|-----|-----------------------------|---------|--------------------------|---------------|---------|
| Stream Name: | THAUT | L R. TI | RIBUTARY | Stream "L | .ocal": | TH27 | | | | Access: | | FT |
| Watershed Code: | 460-600 | 5-5 08-4 | 93-000-000-000-000-000-000-000 | | | | | Reach No.: | ı | Reach Length (km): | 0.2 Method: | MW |
| Location: | ~80 in U | S FRO | M MOUTH. | Мар #: | 093L 03 | 14 | | Site No.: | 1 | Length surveyed (m): | 178.0 Method: | HC |
| | | | | U.T.M.; | 9.6078 | .60212 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/24/96 | Tim | : 14:0 | O Agency: C58 Survey | Crew: RD\CP\ | 1 1 1 | 111 | | Photos: | A6/6, 7 | Air Photos: | BCB 911 | 181:044 |
| Channel Ch | aracte. | ristic | es | | | Specific Data | | Bed Material | | | | _ |
| Av. Chan. Width (m) | : | 1.8 | | Γ 2.1 | 1.6 | 1.1 2.3 | 1.8 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 1.2 | | Γ | | | | % Gravels: | 60 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth | (cm): | 4 | Av. Max. Riffle Depth (cm): M | 8 | | | | | | Large (16-64mm): | | 50 |
| Av. Max. Pool Depth | (cm): | 20 | , | 4 | | | | | 20 | | | |
| Gradient (%): | | 4.5 | Method Gradient: C | | | | | % Larges: | 30 | Small cobble (64-128mm): | | 30 |
| % Pool: 10 | % Riff | e: 60 | % Run: 30 % Other: | 0 Method | : GE | | | | | Large cobble (128-256mm) | | 0 |
| % Side Channel: | 5 | | Method Side Channel: G | Ξ | | | | | | Boulder cobble (>256mm): | | 0 |
| % Debris Area: | 40 | | Method Debris Area: G | Ē | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | D90 (cm): | 10 | Compaction: | | High |
| Cover Total %: Dp Pool: 10 L | .O.D.: | 60 50 | Method Cover Total %: G Boulder: 0 In Veg.: | | : 0 | Cutbank: | 3 | Banks | - | | | |
| Crown Closure %: | | | Method Crown Closure: | Aspect : | w | Method Aspect: | А | E Height (m): | 1.1 | % Unstable: | | 0 |
| | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | | | | Confinement: | 5 | Graver. 105 Larges. | no bedicen | |
| Discharge | | | | | 3 | Specific Data | | Valley: Chan. Ratio: | 4 | | | |
| Wetted Width (111): | | | Method Wetted Width (m): | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | Flood Signs 11t(m): | 0.4 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s V |) | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.06 | Method Discharge (m3/s): | | | | | Bars (%): | 30 | Method Bars: | | GE |
| D / C / | | | | | | | | pH: | ,0 | Method pH: | | ()L |
| Reach Symb | 0l | | (Fish |) | | | | 1 ' | | Method Dissolved Oxygen | | |
| | | | (SP) | | | | | 02 (ppm): Water Temp. (°C): | 3.0 | Method Temperature: | • | TC |
| | | | | 1630 | | | | 1 | 200 | • | | GE |
| | | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | Ded Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-493-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C! Th27 flows into a dry sidechannel of the Thautil R. The lower 70 m of the tributary is a fan; gradient is -5% and there is easy fish access in slightly higher flows. Sections of suitable spawning are present.
- C2 -70 m 114 in u/s from the mouth, the gradient increases to 15% and numerous 40 50 cm high drops are present. Channel becomes confined. -180 m u/s from mouth gradient is 20% and continues u/s (reach break).
- C3 Reach 1 is easily accessible to fish from the main Thantil River and is classified as S3 habitat.

2~-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-493-000-000-000-000-000-000-000-000

Header Information Stream Name: THAUTIL R. TRIBUTARY Stream "Local": TH27 FT Access: Watershed Code: 460-6006-508-493-000-000-000-000-000-000-000 Reach No .: Reach Length (km): 1.7 Method: MW093L034 Location: ~200 -250 m U/S FROM MOUTH. Map#: Site No.: 250.0 Method: HC Length surveyed (m): U.T.M.: 9.6078 .60212 Fish Card: Field: Yes Historical: Nο Date: 9/24/96 Time: 14:00 Agency: C58 Survey Crew: RD\CP\ \ \ \ \ \ Photos: A6/4.5 Air Photos: BCB 91181:044 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 1.7 Method Av. Chan. Width (m): T 0.9 2.7 2.6 1.8 1.6 % Fines (<2mm): 15 % Fines (<2mm): T Av. Wet. Width (m): Method Av. Wet. Width (m): % Gravels: Small (2-16mm): 15 Av. Max. Rif. Depth (cm): 6 Av. Max. Riffle Depth (cm): MS Large (16-64mm): 15 Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 6 % Larges: Small cobble (64-128mm): 10 Gradient (%): 16.0 Method Gradient: CLLarge cobble (128-256mm): 40 % Pool: 15 % Riffle: 80 5 % Other: 0 Method: GE Boulder cobble (>256mm): 5 2 % Side Channel: GE Method Side Channel: % Debris Area: GÉ 0 25 Method Debris Area: % Bedrock: % Bedrock: D90 (cm): High 21 Compaction: Cover Cover Total %: Method Cover Total %: GE Banks Dp Pool: 0 L.O.D.: In Veg.: 20 Boulder: 80 Over Veg: Cutbank: Crown Closure %: Method Crown Closure: Aspect: Method Aspect: Height (m): % Unstable: 0 Textures Fines: Yes Gravel: Yes Larges: No Bedrock: Nο Discharge Confinement: 2 Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): Stage: L Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): 0.2 **Method Flood Signs:** MS Mean Velocity (n1/s): Method Mean Velocity (m/s VO GĿ Braided: Ν Method Braided: Discharge (m3/s): 0.06 Method Discharge (m3/s): GE Bars (%): Method Bars: Method pH: PH Reach Symbol pH: 8.2 (Fish) 02 (ppm): Method Dissolved Oxygen: (SP) Water Temp. (°C): Method Temperature: 102 A 16.0 1360 200 GE Method Turbidity: Turb. (cm): (Width, Valley: Channel, Slope) (Bed Material) Method Conductivity: Cond. (unthos):

2~-Mar-9" Stream: THAUTIL R. TRIBUTARY

Stream Survey Report Watershed Code:

460-6006-508-493-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary **Obstructions**

Comments

C4

- C1 No fish observed in Th27. Numerous juvenile salmonids were observed in the Thautil R. sidechannel,
- C2 Very steep and confined channel in the lower end of R2. No fish access from d/s sections. Further u/s, the gradient decreases and habitat is suitable for fish.
- C3 R2 is classed as suspected S3 habitat; possible fish use but due to the gradient obstruction d/s, the fish must be residents. Should sample u/s to determine the presence of resident fish in the upper section of R2. R3 is steep and with no fish use; classified as S6 habitat. Poor access into the mid-reach of this system with no landing sites. This will change with recent road construction.

 - Th27.1 was surveyed: gradient was ~25% above the confluence; no fish access. Channel width was ~70 cm wide with a trickle flow, and bed material consisted of cobble/boulder/moss. Should sample u/s to determine if resident fish are present.

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-513-000-000-000-000-000-000-000

| Header Info | matio | n | | | | | | | | | | |
|-----------------------------------|-------------------|----------------|--|-------------|---------|----------------|---------|----------------------|----------|--------------------------|---------------|---------|
| Stream Name: | THAUT | IL R. T | RIBUTARY | Stream "L | ocal": | TH28 | | | | Access: | | H |
| Watershed Code: | 460-600 | 6-508-5 | 13-000-000-000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 0.3 Method: | MW |
| Location: | ~2 8 0 m 1 | u/ s fr | ОМ МОИТН. | Map#: | 093L034 | | | Site No.: | 1 | Length surveyed (m): | 300.0 Method: | HC |
| | | | | U.T.M. : | 9.6080 | .60218 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/20/96 | Time | e: 16: | 5 Agency: C58 Survey Cr | ew: DB\CP\ | 1 1 1 1 | 1 1 | | Photos: | DB2/7, 8 | Air Photos: | BCB 911 | 181:044 |
| Channel Ch | racte | risti | cs . | ; | S | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 6.2 | Method Av. Chan. Width (m): T | 6.9 | 5.1 | 5.2 6.4 | 7.1 6.5 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 4.0 | Method Av. Wet. Width (m): T | | | | | % Gravels: | 65 | Small (2-16mm): | | 30 |
| Av. Max. Rif. Depth | . , | 9 | Av. Max. Riffle Depth (cm): MS | | | | | | | Large (16-64mm): | | 35 |
| Av. Max. Pool Depth | (cm): | 35 | Av. Max. Pool Depth (cm): 9 | | | | | % Larges: | 30 | Small cobble (64-128mm): | | 20 |
| Gradient (%): | #/ D:00 | 5.0 | Method Gradient: CL | | C.F. | | | , saiges. | 30 | Large cobble (128-256mm) | ı: | 10 |
| % Pool: 10 | % RiM | e: /U 0 | % Run: 20 % Other: 0 Method Side Channel: GE | Method: | GE | | | | | Boulder cobble (>256mm): | | Ü |
| % Side Channel: % Debris Area: | 30 | U | Method Debris Area: GE | | | | | % Bedrock: | 0 | % Bedrock: | | υ |
| | | | Method Debris Area: GE | | | _ | | | 0 | | | |
| Cover | | | | | | | | D90 (cm): | 13 | Compaction: | | High |
| Cover Total % ; | | 80 | Method Cover Total %: GE | | | | | Banks | | | | |
| Dp Pool: 0 L | .O.D.: | 60 | Boulder: 30 In Veg.: 0 | Over Veg: | ı | Cutbank: | 9 | | | | | |
| Crown Closure %: | | 80 | Method Crown Closure: GE | Aspect: | sw | Method Aspect: | AE | Height (m): | 0.4 | % Unstable: | | 0 |
| | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | i | c. | ecific Data | | Confinement: | 5 | | | |
| lw waa c | | | M | | | ecijic Dala | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | Stage: | M | | | |
| Mean Depth (in): | | | Method Mean Depth (m): | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.20 | Method Mean Velocity (m/s VO | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.20 | Method Discharge (m3/s) : | 1 | | | | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | pH: | 8.2 | Method pH: | | PH |
| Syllio | •• | | (Fish) | | | | | 02 (ppm): | | Method Dissolved Oxygen | : | |
| | | | SST DV• | | | | | Water Тетр. (°С): | 5.0 | Method Temperature: | | IC |
| | | | 6 C 5.0 163 | 0 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) (Be | d Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| | ions |
|--|------|
| | |
| | |
| | |

Watershed Code:

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| SST | 3 | 86 - 113 | J | R | | | EL |
| ĎΫ | 40 | <150 | Ā | S | M | | vo |

- C1 Electrofished 35 m length of stream, 1 pass with no lower net.
- C2 40 DV actively spawning adults (<150 mm) and ~25 DV redds were visually observed ~170 200 m u/s from Th28 confluence with the Thautil R. mainstem.
- C3 Heavy alder overstory provides excellent cover for Th28.

2~-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-513-000-000-000-000-000-000-000

| Header Info | rmatio | on | | | | | | | | | | | | |
|---------------------|---------|----------|---------------------------------|---------|-------------|--------|---------------|-----|-----|----------------------|---------|--------------------------|---------------|---------|
| Stream Name: | THAUT | TIL R. T | RIBUTARY | | Stream "Le | ocal": | TH28 | | | | | Access: | | Н |
| Watershed Code: | 460-600 | 06-508-5 | 13-000-000-000-000-000-000-000 | | | | | | | Reach No.: | 2 | Reach Length (km): | 0.9 Method: | MW |
| Location: | ~500 m | U/S FR | ОМ МОСТН. | | Map #: | 093L03 | 4 | | | Site No.: | 2 | Length surveyed (m): | 200.0 Method: | HC |
| | | | | | U.T.M. ; | 9.6080 | .60218 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/20/96 | Tim | ie: 16:1 | 5 Agency: C58 Surv | vey Cre | ew: RD\ \ \ | 1.1.1 | \ \ | | | Photos: | A5/8, 9 | Air Photos: | BCB 91 | 181:044 |
| Channel Ch | aracte | risti | es | | <u> </u> | | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m | | 6.3 | Method Av. Chan. Width (m): | T | 7.1 | 5.4 | 4.9 6.5 | 7.0 | 6.6 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 4.0 | Method Av. Wet. Width (m): | T | | | | | | % Gravels: | 40 | Small (2-16mm); | | 01 |
| Av. Max. Rif. Depth | | 11 | Av. Max. Riffle Depth (cm): | MS | | | | | | | | Large (16-64mm): | | 30 |
| Av. Max. Pool Depti | (cm): | 38 | Av. Max. Pool Depth (cm): | 11 | | | | | | % Larges: | 50 | Small cobble (64-128mm): | | 10 |
| Gradient (%): | | 5.0 | Method Gradient: | CL | | | | | | 76 1.41gcs. | 50 | Large cobble (128-256mm | 1. | 30 |
| % Pool: 20 | % Riff | Ne: 30 | % Run: 40 % Other: | | Method: | GE | | | | | | Boulder cobble (>256mm) | | 10 |
| % Side Channel: | | 0-10 | Method Side Channel: | GE | | | | | | | | • | | |
| % Debris Area: | 50 | | Method Debris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | () |
| Cover | | | | | | | | | | D90 (cm): | 24 | Compaction: | | Low |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 10 I | .O.D.; | 45 | Boulder: 30 In Veg.: | 0 | Over Veg: | 0 | Cutbank: | | 15 | | | | | |
| Crown Closure % : | | 25 | Method Crown Closure: | GE | Aspect : | sw | Method Aspe | :t: | ΑE | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | No | Gravel: Yes Larges: | Yes Bedrock: | Nο |
| Discharge | | | | | | | | | } | Confinement: | 2 | | | |
| • | | | | | | 3 | pecific Data | | 1 | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | 1 | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s | vo | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.20 | Method Discharge (m3/s): | | | | | | | Bars (%): | 20 | Method Bars: | | Gh |
| Reach Syml | al | | | | | | | | | pH: | | Method pH: | | |
| Tienen Symu | | | (I | Fish) | | | | | | 0 2 (ppm): | | Method Dissolved Oxyger | : | |
| | | | (SS | T) (DV) |) | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | TC |
| | | | 6 B 5.0 | 145 | 0 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Stream Survey Report Watershed Code:

460-6006-508-513-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary **Obstructions**

- C1 R2 was not sampled. Assume DV and SST are present due to their presence d/s in R1.
- C2 Dynamic creek; channel contains large amounts of LOD. Bed material consists primarily of cobble/fines; limited spawning potential.
- **C**3 R3 was surveyed by air: habitat is suitable for fish and suspect fish use. No landing sites in the mid-reach areas. Should be road access into this section within the year,
- C4 Th28.1 to Th28.4 were surveyed by air: suspect Th28.1 may have fish use based on gradient; Th28.2 to Th28.4 tributaries all flow into Th28 over a steep enbankment, so are suspected to be barren due to no fish access and due to the steep gradient and small size of each creek.

2~-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-513-000-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | _ | | | | | | | | | | | |
|---------------------|---------|---------|--------------|--------------|----------------|----------|-------------|-------------|------------------|-----------|-----|-----|----------------------|---------|-----|-------------------------|---------------|----------|
| Stream Name: | | | RIBUTARY | | | | Stream "L | ocal": | TH28 | | | | | | | Access: | | н |
| Watershed Code: | 460-600 | 6-508-5 | 13-000-000-0 | 000-000-000 | 0-000-000-000 | | | | | | | | Reach No.: | | 4 | Reach Length (km): | 2.2 Method: | . MW |
| Location: | TOP EN | D OF T | H28, ~3300 r | n U/S FRO | м моитн. | | Map #: | 093L034 | 1 | | | | Site No.: | | 3 | Length surveyed (m): | 200.0 Method: | : НС |
| | | | | | | | U.T.M. ; | 9.6080 | .60218 | | | | Fish Card: | | N | Field: Yes | Historical: | No |
| Date: 10/22/96 | Tim | e: 13:0 | 00 | Agency: | C58 Sui | rvey Cre | ew: RD\CP\ | 1 1 1 1 | . \ \ | | | | Photos: | A14/17, | 18 | Air Photos: | BCB 911 | 181:044 |
| Channel Ch | aracte | ristic | cs | | _ | | i i | | Specific I | Data | | | Bed Material | | | - | | |
| Av. Chan. Width (m |): | 1.9 | Method A | v. Chan. W | idth (m): | T | 1.6 | 2.4 | 1.8 | 1.1 | 2.6 | 1.9 | % Fines (<2mm): | | 60 | % Fines (<2mm): | | 60 |
| Av. Wet. Width (m): | | 1.9 | Method A | v. Wet. Wi | dth (m): | T | 1.6 | 2.4 | 1.8 | 1.1 | 2.6 | 1.9 | % Gravels: | | | Small (2-16mm): | | 25 |
| Av. Max. Rif. Depth | (cm): | 6 | Av. Max. i | Riffle Dept | h (cm): | MS | | | | | | | 76 Graveis: | | 40 | , , | | 25 15 |
| Av. Max. Pool Depti | (cm): | 24 | Av. Max. I | Pool Depth | (cm): | 6 | | | | | | | | | | Large (16-64mm): | | |
| Gradient (%): | | 3.0 | Method G | radient: | | CL | 1 | | • | | | | % Larges: | | 0 | Small cobble (64-128mm) | | 0 |
| % Pool: 20 | % Riff | le: 40 | % Run: | 40 | % Other | : 0 | Method: | GE | | | | | | | | Large cobble (128-256mn | | 0 |
| % Side Channel: | | 0-10 | Method Si | de Channe | l: | GE | | | | | | | | | | Boulder cobble (>256mm |): | 0 |
| % Debris Area: | | 0-10 | Method Do | ebris Area: | | GE | | | | | | | % Bedrock: | | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | | _ | D90 (cm): | | 3 | Compaction: | | High |
| Cover Total % : | | 50 | Method Co | over Total | % : | GE | | | | | | | Banks | | | | | |
| Dp Pool: 15 I | O.D.: | 15 | Boulder: | 0 | In Veg.: | 30 | Over Veg: | 30 | Cutba | nk: | | 10 | | | | | | |
| Crown Closure %: | | 20 | Method C | rown Clost | ıre: | GE | Aspect : | sw | Meth | od Aspect | • | AE | Height (m): | | 0.3 | % Unstable: | | 0 |
| <u> </u> | | | | | | | | | | | _ | | Textures Fines: | | Yes | Gravel: Yes Larges | : No Bedrock: | No |
| Discharge | | | | | | | ı | c | pecific D | | | | Confinement: | | 4 | | | |
| _ | | | | | | | | S | pecijic <i>D</i> | ata | | | Valley: Chan. Ratio: | | 3 | | | |
| Wetted Width (m): | | | Method We | | | | | | | | | | Stage: | | Ł | | | |
| Mean Depth (m): | | | Method Me | | • | VO. | | | | | | | Flood Signs Ht(m): | | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.04 | Method Me | | | VO | | | | | | | Braided: | | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.04 | Method Dis | cnarge (m. | 5/5) : | | <u> </u> | | <u> </u> | <u></u> | | | Bars (%): | | 0 | Method Bars: | | GE |
| Reach Symb | ool | | | | | | | | | | | | pH: | | | Method pH: | | |
| meden Syme | | | | | | (Fish) | | | | | | | 02 (ppm): | | | Method Dissolved Oxyge | n: | |
| | | | | | | NF | | | | | | | Water Temp. (°C): | | 3.0 | Method Temperature: | | TC |
| | | | | | 2 C 3.0 | 640 | 0 | _ | | | | | Turb. (cm): | : | 200 | Method Turbidity: | | GF: |
| | | | (Width | h, Valley: C | Channel, Slope | e) (Be | d Material) | | | | | | Cond. (µmhos): | | 60 | Method Conductivity: | | CM |

2°-Mar-97 Stream: THAUTIL R. TRIBUTARY

Watershed Code: 46

Stream Survey Report

460-6006-508-513-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 Electroshocked 120 m length of stream, 1 pass with no lower net. No fish were caught or observed although habitat appears to be suitable for fish.
- C2 Small, stable creek. Abundant instream grass/weeds. Bed material consists primarily of sand/silt and fine gravels; no potential spawning areas were observed.
- C3 Old beaver dams and shallow ponded sections are present in this area, -0.3 in high drops were observed below the ponds.
- C4 Based on the sample site and air observations, R4 and all creeks entering it were classed as S6 habitat.

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-513-818-000-000-000-000-000-000

| Header Info | ormation | | | | | | | | |
|---------------------------|------------------------|--|-------------------|----------------|----------------------|-------|-------------------------|---------------|---------|
| Stream Name: | THAUTIL R. T | RIBUTARY | Stream "Local" | : TI128.8 | | | Access: | | H |
| Watershed Code: | 460-6006-5 08-5 | 13-818-000-000-000-000-000-000 | | | Reach No.: | 1 | Reach Length (km): | Method: | MW |
| Location: | SMALL HEAD | WATER POND. | Map #: 093 | L034 | Site No.: | 4 | Length surveyed (m): | 100.0 Method: | HC |
| | | | U.T.M.: 9.6 | 016 .60233 | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 | Time: 15:0 | O Agency: C58 Surve | y Crew: DB\ \ \ \ | . 1 1 1 | Photos: | DB2/1 | Air Photos: | BCB 911 | 181:044 |
| Channel Cl | haracteristic | 2S | | Specific Data | Bed Material | | | | |
| Av. Chan. Width (1 | • | Method Av. Chan. Width (m): | | | % Fines (<2mm): | | % Fines (<2mm): | | |
| Av. Wet. Width (m | • | Method Av. Wet. Width (m): | | | % Gravels: | | Small (2-16mm): | | |
| Av. Max. Rif. Dept | | Av. Max. Riffle Depth (cm): | | | | | Large (16-64mm): | | |
| Av. Max. Pool Dep | th (cm): | Av. Max. Pool Depth (cm): Method Gradient: | ļ | | % Larges: | | Small cobble (64-128mm) | | |
| Gradient (%): % Pool: | % Riffle: | % Run: % Other: | Method: | | | | Large cobble (128-256mm | | |
| % Side Channel: | /a Rane: | Method Side Channel: | Method: | | ł | | Boulder cobble (>256mm | | |
| % Debris Area: | | Method Debris Area: | | | % Bedrock: | | % Bedrock: | | |
| TO DEDITIS AICE. | | | | | | | | | |
| Cover | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total % : | | Method Cover Total %: | | | Banks | | | | |
| Dp Pool : | L.O.D.: | Boulder: In Veg.: | Over Veg: | Cutbank: | | | | | |
| Crown Closure % | : | Method Crown Closure: | Aspect : | Method Aspect: | Height (m): | | % Unstable: | | |
| | | | | | Textures Fines: | No | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | Confinement: | | • | | |
| | | | | Specific Data | Valley: Chan. Ratio: | | | | |
| Wetted Width (m) | : | Method Wetted Width (m): | | | Stage: | Ĺ | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/ | s): | Method Mean Velocity (m/s | | | Braided: | | Method Braided: | | |
| Discharge (m3/s) : | | Method Discharge (m3/s): | | | Bars (%): | | Method Bars: | | |
| Reach Sym | hal | | - | | pH: | 7.7 | Method pH: | | PH |
| | | (Fig | sh) | | 02 (ppm)։ | | Method Dissolved Oxyger |); | |
|) | | N | F | _ | Water Temp. (°C): | 10.5 | Method Temperature: | | TC |
| l | | | | _ | Turb. (cm): | | Method Turbidity: | | |
| Ī | | (Width, Valley: Channel, Slope) | (Bed Material) | | Cond. (µmhos): | | Method Conductivity: | | |

2^-Mar-9⁻ Strea

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-513-818-000-000-000-000-000-000-000-000

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Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

- C1 Set 5 minnow traps in pond overnight; no fish were caught. Aquatic leeches and beetles were observed.
- C2 Pond dimensions: ~50 m x 75 m. No outflow of Th28.8 channel was observed.
- C3 Pond lilies and sedges lined the edge of the pond and conifers grew where the pond had dried out.

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-TH -30 -000-000-000-000-000-000-000

| Header Infor | mation | | | | | | | | | | | |
|-----------------------|---------------|---------------------------------------|----------|--------------|----------|---------------------------------------|-----|----------------------|---------|---------------------------|---------------|-------------|
| Stream Name: | THAUTIL R. T | RIBUTARY | | Stream "Loc | al": | TH30 | | | | Access: | | Н |
| Watershed Code: | 460-6006-508- | TH -30 -000-000-000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 1.0 Method: | MW |
| Location: | ~40 m U/S FR | OM CONFLUENCE WITH THE THAU | ΓIL R. | Мар#: (| 0931,034 | 1 | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | нс |
| | | | | U.T.M. ; | 9.6080 | .60238 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/24/96 | Time: 17: | OO Agency: C58 Surv | vey Cres | w: CP\ \ \ \ | 1 1 1 1 | ١١ | | Photos: | A6/8, 9 | Air Photos: | BCB 911 | 181:045 |
| Channel Cha | racteristi | cs | 1 | | .5 | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | | | T | 0.4 | 0.3 | 0.8 0.5 | 0.4 | / % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 0.4 | Method Av. Wet. Width (m): | T | | | | | % Gravels: | 50 | Small (2-16mm): | | 20 |
| Av. Max. Rif. Depth (| | . , , | MS | | | | | | | Large (16-64mm); | | 30 |
| Av. Max. Pool Depth (| | Av. Max. Pool Depth (cm): | 5 | | | | | % Larges: | 45 | Small cobble (64-128mm): | | 35 |
| Gradient (%): | 15.0 | Method Gradient: | CL | | | | | / Larges. | 4) | Large cobble (128-256mm). | . . | 5 |
| % Pool: 10 | % Riffle: 80 | % Run: 10 % Other: | 0 | Method: (| GE | | | | | Boulder cobble (>256mm) | | 5 |
| % Side Channel: | 0-10 | Method Side Channel: | GE | | | | | 1 | | , , | | |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | _ | | | _ | | | | D90 (cm): | 12 | Compaction: | | High ——— |
| Cover Total % : | 60 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 0 L.0 | O.D.: 10 | Boulder: 60 In Veg.: | 0 | Over Veg: | 5 | Cutbank: | 25 | 1 | | | | |
| Crown Closure % : | 40 | Method Crown Closure: | GE | Aspect: | SE | Method Aspect | AI | Height (m): | 0.8 | % Unstable: | | 0 |
| | | | | | | · · · · · · · · · · · · · · · · · · · | | l'extures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | 1 | | S | pecific Data | | Confinement: | 3 | | | |
| Wetted Width (m) : | | Method Wetted Width (m): | | | -, | , , , , , , , , , , , , , , , , , , , | | Valley: Chan. Ratio; | l | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | Stage: | L | | | |
| Mean Velocity (m/s) : | | Method Mean Velocity (m/s | vo | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.01 | - ' | V | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.01 | | | | | | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symbo | ol | | | | | | | pH: | 7.3 | Method pli: | | PH |
| | | · · · · · · · · · · · · · · · · · · · | Fish) | | | | | 02 (ppm): | | Method Dissolved Oxygen | : | |
| | | | NS | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | TC |
| | | 1 A 15.0 | 1 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed | Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2~-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Stream Survey Report

460-6006-508-TH -30 -000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Comments

- 5 m drop at the confluence of Th30; inaccessible to fish. CI
- Th30 was not sampled; no fish habitat was present due to the creek's steep gradient. C2
- Th30 flows into a sidechannel of the Thautil R. C3

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 5 | F | 0.0 |

2"-Mar-9"

Stream: DENYS C.

Watershed Code:

Stream Survey Report

460-6006-508-584-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|---------------------------------|----------|---------|--------------------------------|--------|-------------|---------|---|-----------|------|------|------------------------------|---------|-------------------------|-----------------|---------|
| Stream Name: | DENYS | C. | | | Stream "L | ocal": | DEN | S C. (TH | 31) | | | | Access: | | Н |
| Vatershed Code: | 460-600 | 6-508-5 | 84-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | ι | Reach Length (km): | 5.1 Method: | MW |
| Location: | ~350 m | U/S FRO | OM D7 CONFLUENCE. | | Map #: | 093L034 | ļ | | | | Site No.: | 1 | Length surveyed (m): | 5100.0 Method: | HC |
| | | | | | U.T.M.: | 9.6105 | .60256 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Tim | e: 9:25 | Agency: C58 Sur | vey Cr | ew: JH\ \ \ | 1 1 1 1 | . \ | _ | | | Photos: | B1/21 | Air Photos: | BCB 911 | 181:060 |
| Channel Ch | aracte | ristic | es — — | | İ | _ | Specific I | Data | | .] | Bed Material | | | | |
| Av. Chan. Width (m | n): | 15.9 | Method Av. Chan. Width (m): | T | 18.0 | 14.8 | 15.7 | 18.4 | 16.0 | 12.7 | % Fines (<2mm): | 5 | % Fines (<2mm): | | ŝ |
| Av. Wet. Width (m) |): | 11.8 | Method Av. Wet. Width (m): | T | 8.4 | 13.3 | 15.6 | 9.8 | | 1 | % Gravels: | 10 | Small (2-16mm); | | |
| Av. Max. Rif. Depth | h (cm): | 42 | Av. Max. Riffle Depth (cm): | MS | | | | | | | 76 Graveis. | | Large (16-64mm): | | |
| Av. Max. Pool Dept | th (cm): | 72 | Av. Max. Pool Depth (cm): | 42 | | | | | | | | | • . | _ | |
| Gradient (%): | | 1.5 | Method Gradient: | CL | | | | - | | | % Larges: | 85 | Small cobble (64-128mm | • | |
| % Pool: 20 | % Riff | le: 80 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256m) | * | |
| % Side Channel: | | 10-40 | Method Side Channel: | GE | | | | | | | Ì | | Boulder cobble (>256mn | 1): | |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | _ | D90 (cm): | 21 | Compaction: | 1 | Medium |
| | | •0 | Method Cover Total %: | GE | | | | | | | | _ | | | |
| Cover Total %: | L.O.D.: | 50 5 | Boulder: 55 In Veg.: | 0 | Over Veg: | 20 | Cutb | ank: | | 10 | Banks | | | | |
| Dp Pool: 10 Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect: | SW | | od Aspect | • | AE | 1 | | Br Kleinachter | | ñ |
| Crown Closure 26 | • | , | Memod Crown Closure. | OL. | лэрссі. | 3** | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | oo Aspeel | • | | Height (m): | 1.2 | % Unstable: | V D. Imadi. | • |
| Discharge | | _ | | | | | | | | | Textures Fines: Confinement: | No 2 | Gravel: No Large | s: Yes Bedrock: | inu |
| Discharge | | | | | | S | pecific D | ata | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | : | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs 11t(m): | 0.5 | Method Flood Signs: | | MS |
| Mean Velocity (m/s | i): | | Method Mean Velocity (m/s | | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | | Method Discharge (m3/s): | | | | | | | | Bars (%): | 25 | Method Bars: | | GE |
| | | | | | | | | | - | | pll: | 8 1 | Method pH: | | PH |
| Reach Sym | bol | | | (Fish) | | | | | | | 02 (ppm): | ٠. | Method Dissolved Oxyg | en: | |
| | | | CODV | BT RB | (SST) | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | TC |
| | | | 16 B 1.5 | | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| ı | | | (Width, Valley: Channel, Slope | | | | | | | | Cond. (µmhos): | 230 | Method Conductivity: | | |

2"-Mar-9"

Stream: DENYS C.

Watershed Code:

Stream Survey Report

460-6006-508-584-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 This site was not fish sampled; an index site located in R1 ~250 m d/s from this site indicated the presence of CO, DV, BT, and RB. Suspect SST are also present.
- Eroding banks were observed in R1: 50 m high x 30 m wide eroding bank at bend ~1390 m u/s from Denys confluence (Photo B1/21); 30 m high x 20 m wide eroding bank ~612 m u/s from D5 confluence.
- C3 Well-used animal trails were observed along the benches on both sides of Denys C, for much of R1.
- Tributaries D2 and D3 were surveyed; no defined channels were present in the dry gullies. Tributary D8 was surveyed and had no defined channel and no potential fish habitat. There is no fish access to D8 from Denys C.

2"-Mar-9"

Stream: DENYS C.

Watershed Code:

Stream Survey Report 460-6006-508-584-000-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|--|----------|---------|--|-------------|--------------|--------|-------------|-----------|------|------|----------------------|---------------|---|-----------------|----------|
| Stream Name: | DENYS (| ۵. | | | Stream "L | ocal": | DENY | 'S C. (TH | 31) | | | | Access: | | Н |
| Watershed Code: | 460-6006 | -508-58 | 4-000-000-000-000-000-000-000 | -000 | | | | | | | Reach No.: | 2 | Reach Length (km): | 4.5 Method | J: MW |
| Location: | | | M D15, ~1800 m U/S FROM LO | LJUH C. | Map #: | 093L03 | 4 | | | | Site No.: | 2 | Length surveyed (m): | 4500.0 Method | I: HC |
| | CONFLU | JENCE. | | | U.T.M.; | 9.6105 | .60256 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 | Time | : 17:00 | Agency: C58 | Survey Cr | rew: ЛН\ \ \ | 1.1.1 | \ \ | | | _ | Photos: | B 3/17 | Air Photos: | BCB 9 | 1181:173 |
| Channel Ch | aractei | ristic | s | | | | Specific L |)ata | | | Bed Material | | | | - |
| Av. Chan. Width (m) |): | 11.3 | Method Av. Chan. Width (m): | T | 13.5 | 11.6 | 10.6 | 9.5 | 10.2 | 12.4 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 8.6 | Method Av. Wet. Width (m): | T | 9.1 | 9.8 | 7.0 | | | | % Gravels: | 10 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 32 | Av. Max. Riffle Depth (cm): | MS | | | | | | | } | | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 68 | Av. Max. Pool Depth (cm): | 32 | | | | | | | 9/ 1 | 80 | • , | | |
| Gradient (%): | | 1.0 | Method Gradient: | CL | | | | | | | % Larges: | 80 | Small cobble (64-128m) Large cobble (128-256) | • | |
| % Pool: 10 | % Riffle | | % Run: 0 % O | | Method: | GE | | | | | | | Boulder cobble (>256m | • | |
| % Side Channel: | | 10-40 | Method Side Channel: | GE | | | | | | | | | • | m, | |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | · | | | | | | | | | D90 (cm): | 35 | Compaction: | | Medium |
| Cover Total % : | | 40 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 L | O.D.: | 10 | Boulder: 60 In Veg | .: 0 | Over Veg: | 15 | Cutba | nk: | | 5 | | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect : | sw | Metho | d Aspect | : | ΑE | Height (m): | 1.5 | % Unstable: | | 10 |
| | | | | | | | | | | | Textures Fines: | No | Gravel: No Larg | es: Yes Bedrock | i; No |
| Discharge | | | | | 1 | | Specific De | rta. | | - | Confinement: | 3 | | | |
| W 44-4 W:44-(). | | | Machael Wassel Wideh (m) | | | | pecyn Di | | | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | l | Stage: | M | | | |
| Mean Depth (m): Mean Velocity (m/s) | | | Method Mean Depth (m): Nethod Mean Velocity (m/s | | | | | | | | Flood Signs Ht(m): | 1.5 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | • | | Method Discharge (m3/s): | | | | | | | | Braided: | Y | Method Braided: | | GE |
| Discharge (m5/s): | | | | | <u> </u> | | | | | | Bars (%): | 25 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | | Method pH: | | |
| | | | | (Fish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxy | gen: | |
| | | | | (DV) (BT | <u> </u> | | | | | | Water Temp. (°C); | 6.0 | Method Temperature: | | ГC |
| | | | li C | 1.0 114 | B 0 | | | | | | Turb. (cm): | | Method Turbidity: | | |
| 1 | | | (Width, Valley: Channel, S | lope) (B | ed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mur-9" Stream: DENYS C.

Stream Survey Report
Watershed Code: 460-6006-508-584-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 Evidence of very high flows in R2; floodsigns extended up to 60 m over from the stream edge.
- C2 Unstable banks were observed in R2: 45 m high x 20 m wide unstable bank ~133 m u/s from D19 (Photos B4/8, 9); 60 m high x 30 m wide eroding bank ~100 m u/s from D20B.
- C3 Well-used animal trails were observed on the floodplain.
- No stream channels were found for tributaries D13, D14, D16, and D21. D18 and D19 were observed but did not have defined channels, showed no evidence of surface flow, and contained no fish habitat.

2"-Mar-9"

Stream: DENYS C.

Watershed Code:

Stream Survey Report 460-6006-508-584-000-000-000-000-000-000-000-000

| Header Informat | ion | | | | | | | | | _ | | | _ |
|--|--------------------|---|---------------|-----------|------------|--------------------|------|-----|----------------------|----------|--------------------------|---------------|---------|
| Stream Name: DENY | | | Stream "1 | .ocal": | DENY | / S C . (TH | 131) | | | | Access: | | 11 |
| Watershed Code: 460-6 | 006-5 08 -5 | 84-000-000-000-000-000-000-000 | | | | | | | Reach No.: | 3 | Reach Length (km): | 3.5 Method: | MW |
| Location: ~140 s | n U/S FR | OM D24 CONFLUENCE. | Map #: | 093L044 | 4 | | | | Site No.: | 3 | Length surveyed (m): | 500.0 Method: | HC |
| | | | U.T.M. : | 9.6105 | .60256 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 Ti | me: 16:0 | O Agency: C58 Survey C | Crew: RD\CP\ | . 1 1 1 1 | 1.1 | | | _ | Photos: | A14/5, 6 | Air Photos: | BC 73 | 326:242 |
| Channel Characi | eristi | es . | 1 | | Specific D | Data | | 1 | Bed Material | | | | |
| Av. Chan. Width (m): | 10.9 | Method Av. Chan. Width (m): | | 10.2 | 10.5 | 12.6 | 10.3 | | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (cm): | 7.5 19 | Method Av. Wet. Width (m): Av. Max. Riffle Depth (cm): MS | | 7.9 | 8.1 | 6.4 | 4.9 | | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Pool Depth (cm): | 45 | Av. Max. Pool Depth (cm): 19 | , | | | | | | | | Large (16-64mm): | | 10 |
| Gradient (%): | 1.5 | Method Gradient: CI | | | | | | . ! | % Larges: | 80 | Small cobble (64-128mm): | | 30 |
| % Pool: 10 % Ri | Me : 70 | % Run: 20 % Other: 0 | Method: | : GE | | | | | | | Large cobble (128-256mm) | | 40 |
| % Side Channel: | 0-10 | Method Side Channel: GE | į | | | | | | | | Boulder cobble (>256mm): | | 10 |
| % Debris Area: | 0-10 | Method Debris Area: GE | ; | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | _ | _ | | D90 (cm): | 26 | Compaction: | 1 | Medium |
| Cover Total % : | 70 | Method Cover Total %: GE | : | | | | | | Banks | | | | |
| Dp Pool: 25 L.O.D.: | 5 | Boulder: 65 In Veg.: 0 | Over Veg | : 0 | Cutba | nk: | | 5 | Dunis | | | | |
| Crown Closure % : | 5 | Method Crown Closure: GI | Aspect: | sw | Metho | od Aspec | t: | ΑE | Height (m): | 1.0 | % Unstable: | | 5 |
| | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | . No |
| Discharge | | | i | S | pecific Da | nta | | | Confinement: | 3 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | 5, | pecyte Di | | | İ | Valley: Chan. Ratio: | 2 | | | |
| , . | | * * | | | | | | | Stage: | M | | | |
| Mean Depth (m) : | | Method Mean Depth (m): | | | | | | | Flood Signs Ht(m): | 0.8 | Method Flood Signs: | | MS |
| Mean Velocity (rn/s): | 0.06 | Method Mean Velocity (m/s VC | ' | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0.85 | Method Discharge (m3/s) : | | | _ | | | | Bars (%): | 30 | Method Bars: | | GE |
| Reach Symbol | | - | | | | - | | | ρH: | 7.6 | Method pH: | | PH |
| Tienen Byrnooi | | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | DV B | ľ | | | | | | Water Temp. (°C); | 2.0 | Method Temperature: | | fC |
| | | 11 B 3.5 1 | 170 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) (| Bed Material) | | | | | | Cond. (µmhos): | 60 | Method Conductivity: | | CM |

2"-Mur-9" Stream: DENYS C.

Stream Survey Report

Watershed Code: 460-6006-508-584-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

| Cl | Air Temp: 0.5 C. |
|----|---|
| C2 | This site was not sampled; assume BT and DV are present due to their presence at index site In2, located ~1400 m d/s from this site, and due to easy fish access throughout this reach. |
| C3 | Bed material consists primarily of boulder/cobble, but isolated pockets of good BT spawning are present. No redds were observed. |
| C4 | Large gravel banks and unstable sift-gravel banks were observed in R3 |

2"-Mar-9"

Stream: DENYS C.

Watershed Code:

Stream Survey Report

460-6006-508-584-000-000-000-000-000-000-000

| Header Infor | mation | | | | | | | | | | | | | | |
|-----------------------|------------|-------|---------------------------------|--------|-------------|---------|-----------|-----------|-----|------|----------------------|------------|-------------------------|-----------------|----------|
| Stream Name: | DENYS C. | | | | Stream "Lo | cal": | DENY | S C. (TH3 | i) | | | | Access: | | Н |
| Watershed Code: | 460-6006-5 | 08-58 | 4-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 5 | Reach Length (km): | 4.6 Method: | : MW |
| Location: | ~300 m U/S | S FRO | M D26 CONFLUENCE. | | Map #: | 093L044 | | | | | Site No.: | 4 | Length surveyed (m): | 4600.0 Method: | : HC |
| | | | | | U.T.M. : | 9.6105 | .60256 | | | | Fish Card: | N | Field: Yes | Historical: | Nο |
| Date: 10/16/96 | Time: | 9:00 | Agency: C58 Surv | ey Cre | w: SSUH\\ | . \ \ \ | ١ ١ | _ | | | Photos: | B11/19, 20 | Air Photos: | BC 7. | 7326:152 |
| Channel Cha | ıracteri | stic | S | | | S | pecific D | ala | | | Bed Material | | | | |
| Av. Chan. Width (m) | : 1 | 10.5 | Method Av. Chan. Width (m): | T | 15.4 | 12.8 | 7.8 | 6.5 | 9.5 | 10.9 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 8.0 | Method Av. Wet. Width (m): | T | 9.1 | 9.8 | 7.0 | 6.5 | 5.4 | 10.3 | l ' | | | | |
| Av. Max. Rif. Depth (| cm): | 23 | Av. Max. Riffle Depth (cm): | MS | 25 | 25 | 20 | | | | % Gravels: | 15 | Small (2-16mm): | | |
| Av. Max. Pool Depth | (cm): | 48 | Av. Max. Pool Depth (cm): | 23 | 50 | 45 | 50 | | | | | | Large (16-64mm): | | |
| Gradient (%): | | 1.0 | Method Gradient: | CL | • | | | | | ' | % Larges: | 75 | Small cobble (64-128mm | | |
| % Pool: 25 | % Riffle: | 70 | % Run: 5 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256m) | • | |
| % Side Channel: | (| 0-10 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mn | i): | |
| % Debris Area: | (| 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 5 | % Bedrock: | | 5 |
| Cover | _ | | | | | | _ | _ | | | D90 (cm): | 52 | Compaction: | I | Medium |
| Cover Total % : | | 35 | Method Cover Total %: | GE | | | | | | | Banks | | | · - | |
| Dp Pool: 15 L | O.D.: | 5 | Boulder: 70 In Veg.: | 0 | Over Veg: | 5 | Cutba | nk: | | 5 | | | | | |
| Crown Closure % : | | 5 | Method Crown Closure; | GE | Aspect: | sw | Metho | d Aspect: | | AE | Height (m): | 0.7 | % Unstable: | | 5 |
| | | _ | | | | | | | | | Textures Fines: | No | Gravel: No Large | s: Yes Bedrock: | : No |
| Discharge | | | | | i | c. | ecific Da | uta. | - | | Confinement: | 3 | | | |
| ŭ | | | ** | | | Sp | ecyk Da | 144 | | į | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | 110 | } | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | | | Method Mean Velocity (m/s | vo | İ | | | | | | Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s): | | .40 | Method Discharge (m3/s) : | | <u> </u> | | | | | | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH; | 7.9 | Method pH: | | PH |
| | | | • | ish) | | | | | | | 02 (թթտ)։ | | Method Dissolved Oxyg | en: | |
| | | | DV | * BT* | | | | | | | Water Temp. (°C): | 1.0 | Method Temperature: | | TC |
| | | | 11 B 1.0 | 117 | l . | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | 60 | Method Conductivity: | | CM |

2"-Mar-9" Stream: DENYS C.

Stream Survey Report

460-6006-508-584-000-000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 2 | X | 15.0 |

| Cl | Air Temp: - 1 C. |
|----|--|
| C2 | A log jam was observed ~300 m u/s from D27, 2 m high x 20 m wide x 7 m long. |
| C3 | This site was not sampled; suspect spawning DV and BT are present in R4 due to the DV redd observed ~600 m u/s from D27 and the BT redd observed ~400 m u/s from D26. DV and BT were also caught at the index site in R4, located ~1500 m further u/s. |
| C4 | 30 m high x 30 m long eroding bank was observed ~ 420 m u/s from D26. |

2"-Mar-9"

Stream: DENYS C.

Watershed Code:

Stream Survey Report

| Stream Name: DENYS C. Stream "Local": DENYS C (1131) Stream "Local": DENYS | Header Inform | matio | | | | | | | | _ | | | _ | | | | | |
|--|--------------------|--------|--------|-------------|-------------|-------------|-----------|--------------|----------|--------------|----------|-----|-----|----------------------|-----|-------------------------|----------------|------|
| Watershed Code | | | | | | | | Straam "1 | ocal": | DENVC | c (Tu | 111 | | | | Aggann | | н |
| Decision: BETWEEN D35 CONFLUENCE AND D36 CONFLUENCE Map #: 0731.044 Sile No.: 5 Length surveyed (m): 100.0 Method: | | | | 84-000-000- | -000-000-00 | | 100 | Stream E | ocai . | DLIVIS | C. (11). | ,1, | | Reach No · | 5 | | 5.4 Method: | |
| Date: 10/15/96 Time: 16/00 Agency: C58 Survey Crew: DB/CP\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | | | | | | | | Man #: | 0931.044 | ļ | | | | | 5 | • • • | | |
| Date: 10/15/96 Time: 16/00 Agency: C58 Survey Crees: DB/CP\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | | | | | | | | | | | | | | | N | • • • • | | . No |
| Av. Chan. Width (m): 4.1 Method Av. Chan. Width (m): T 4.4 3.3 4.4 3.7 3.8 5.1 Av. Wet. Width (m): 3.8 Method Av. Wet. Width (m): T 4.4 3.3 3.7 3.7 3.8 3.7 Av. Max. Rif. Depth (cm): 21 Av. Max. Rif. Depth (cm): 21 Av. Max. Rif. Depth (cm): 21 Av. Max. Rif. Depth (cm): 21 Av. Max. Rif. Depth (cm): 21 Av. Max. Rif. Depth (cm): 21 Av. Max. Rif. Depth (cm): 21 Av. Max. Rif. Depth (cm): 37 Av. Max. Pool Depth (cm): 21 Av. Max. Rif. Depth (cm): 21 Av. Max. Pool Depth (cm): 21 Av. Max. Rif. Depth (cm): 21 Av. Max. Pool Depth (cm): CL. Va. Pool: 10 Kindle: GE Va. Method Gradient: CL. Va. Pool: 10 Method Gradient: CL. Va. Pool: 10 Method Gradient: GE Va. Debris Area: O-10 Method Debris Area: GE Cover Cover Cover Cover Total Va.: 70 Method Cover Total Va.: GE Dp Pool: 5 L.O.D.: 0 Boulder: 75 In Veg.: 0 Over Veg: 0 Cutbank: 20 Cornor Closure: Va.: 5 Method Crown Closure: GE Aspect: SW Method Aspect: AE Discharge Wetted Width (m): Method Wetted Width (m): Method Wetted Width (m): Method Mean Depth (m): Method Mean Depth (m): Method Mean Depth (m): Method Discharge (m3/6): WO Discharge (m3/6): 0.40 Nethod Discharge (m3/6): WO Discharge (m3/6): Wo Cornor Closure: A Cor | Date: 10/15/96 | Time | : 16:0 | 0 | Agency: | C58 | Survey Ci | | | | | | | | | | | |
| Av. Chan. Width (m): Av. Chan. Width (m): Av. Chan. Width (m): Av. Chan. Width (m): Av. Chan. Width (m): Av. Max. Rif. Depth (cm): 38 | Channel Chai | racter | istic | <u></u> | | | | | | Specific Da | ta | | | Bed Material | | | | |
| Av. Wet, Width (m): Av. Wet, Width (m): Av. Max. Rif. Depth (cm): 21 | Av Chan Width (m): | | 4 1 | Method A | Av. Chan. V | Vidth (m): | т | 44 | | | | 3.8 | 5.1 | | _ | | | |
| Av. Max. Rif. Depth (cm): 21 | | | | | | | | | | | | | 1 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Max. Pool Depth (cm): 37 | ` ′ | m): | | | | ` ' | | | | | 3.1 | 3.0 | 5., | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Small cobble (64-128mm): Large cobble (128-256mm): Large cobble (128-256mm): Large cobble (128-256mm): Large cobble (128-256mm): Boulder cobble | | • | | | - | ` ' | | 1 | | | | | } | | | Large (16-64mnı); | | 10 |
| % Pool: 10 | • • | ,- | | | • | (, | | 1 | | | | | İ | % Larges: | 80 | Small cobble (64-128mm |); | 40 |
| ## Side Channel: 0 Method Debris Area: GE | ` · | % RiMe | : 80 | % Run: | 10 | % Ott | | Method: | GE | | | | | | | Large cobble (128-256m) | n): | 30 |
| D90 (cm); 25 Compaction; Hz | 1 | | | Method S | ide Channe | | | | | | | | | | | Boulder cobble (>256mm | n): | 10 |
| Cover Total %: 70 Method Cover Total %: GE Dp Pool: 5 L.O.D.: 0 Boulder: 75 In Veg.: 0 Over Veg: 0 Cutbank: 20 Crown Closure %: 5 Method Crown Closure: GE Aspect: SW Method Aspect: AE Discharge Wetted Width (m): Method Wetted Width (m): Method Mean Depth (m): Method Mean Depth (m): Method Mean Depth (m): Method Mean Velocity (m/s): Nlethod Mean Velocity (m/s): Nlethod Discharge (m3/s): 0.40 Method Discharge (m3/s): Reach Symbol (Fish) NF (Fish) NF (AE BankS BankBan BankS BankBan | % Debris Area: | | 0-10 | Method [| Debris Area | 1: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover Total %: 70 Method Cover Total %: GE Dp Pool: 5 L.O.D.: 0 Boulder: 75 In Veg.: 0 Over Veg: 0 Cutbank: 20 Crown Closure %: 5 Method Crown Closure: GE Aspect: SW Method Aspect: AE Discharge Wetted Width (m): Method Wetted Width (m): Method Mean Depth (m): Method Mean Depth (m): Method Mean Depth (m): Method Mean Velocity (m/s): Nlethod Mean Velocity (m/s): Nlethod Discharge (m3/s): 0.40 Method Discharge (m3/s): Reach Symbol (Fish) NF (Fish) NF (AE BankS BankBan BankS BankBan | _ | | | | | | - | | | | | | | D90 (cm): | 25 | Compaction | | High |
| Dp Pool: 5 L.O.D.: 0 Boulder: 75 In Veg.: 0 Over Veg: 0 Cutbank: 20 Crown Closure %: 5 Method Crown Closure: GE Aspect: SW Method Aspect: AE Height (m): 0.5 % Unstable: Textures Fines: Yes Gravel: No Larges: Yes Bedrock: Confinement: 4 Valley: Chan. Ratio: 3 Stage: M Flood Signs: Ht(m): 0.3 Method Flood Signs: 1 Method Mean Depth (m): Mean Depth (m): Method Mean Velocity (m/s): Method Discharge (m3/s): 0.40 Method Discharge (m3/s): Braided: N Method Bars: Method Bars: Method Bars: Method Discharge (m3/s): Method Discharge (m3/s): Method Discharge (m3/s): Turb. (cm): 200 Method Turbidity: M | Cover | | | | | | | | | | | | | Dyo (City). | | | | |
| Dp Pool: 5 L.O.D.: 0 Boulder: 75 In Veg.: 0 Over Veg: 0 Cutbank: 20 Crown Closure %: 5 Method Crown Closure: GE Aspect: SW Method Aspect: AE Discharge Wetted Width (m): | Cover Total %: | | 70 | Method C | Cover Total | %: | GE | | | | | | | Ranks | | | | |
| Discharge Wetted Width (m): Mean Depth (m): Mean Depth (m): Mean Velocity (rm/s): Discharge (m3/s): Reach Symbol (Fish) NF A C 3.0 1180 Specific Data Textures Fines: Yes Gravel: No Larges: Yes Bedrock: Confinement: 4 Valley: Chan. Ratio: 3 Stage: M Flood Signs Ht(m): 0.3 Method Flood Signs: N Flood Signs Ht(m): Braided: N Method Braided: Bars (%): PH: 8.0 Method Dissolved Oxygen: Method Dissolved Oxygen: Water Temp. (°C): 2.5 Method Temperature: Turb. (cm): 200 Method Turbidity: | Dp Pool: 5 L.C |).D.: | 0 | Boulder: | 75 | In Veg. | . 0 | Over Veg: | 0 | Cutban | k: | | 20 | Dunns | | | | |
| Discharge Wetted Width (m): Method Wetted Width (m): Mean Depth (m): Method Mean Depth (m): Mean Velocity (m/s): Method Mean Velocity (m/s) VO Discharge (m3/s): 0.40 Method Discharge (m3/s): Reach Symbol (Fish) (Fish) NF (Fish) NF Water Temp. (°C): 2.5 Method Turbidity: Confinement: 4 Valley: Chan. Ratio: 3 Stage: M Flood Signs Ht(m): 0.3 Method Flood Signs: Braided: N Method Braided: N Method Braided: Bars (%): 1 Method Bars: PH: 8.0 Method pH: 02 (ppm): Method Dissolved Oxygen: Water Temp. (°C): 2.5 Method Temperature: Turb. (cm): 200 Method Turbidity: | Crown Closure % : | | 5 | Method C | Crown Clos | шге: | GE | Aspect: | sw | Method | Aspect | | AE | Height (m): | 0.5 | % Unstable: | | 0 |
| Wetted Width (m): Method Wetted Width (m): Stage: M | | | | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Large: | : Yes Bedrock: | : No |
| Wetted Width (m): Method Wetted Width (m): Valley: Chan. Ratio: 3 Mean Depth (m): Method Mean Depth (m): Method Mean Depth (m): Method Signs Ht(m): 0.3 Method Flood Signs: Method Flood Signs: Method Braided: Discharge (m3/s): 0.40 Method Discharge (m3/s): Braided: N Method Braided: Bars (%): 1 Method Bars: pH: 8.0 Method pH: 02 (ppm): Method Dissolved Oxygen: Water Temp. (°C): 2.5 Method Temperature: Turb. (cm): 200 Method Turbidity: | Discharge | | | | | | | 1 | S | necific Date | , | | | Confinement: | 4 | | | |
| Mean Depth (m) : Method Mean Depth (m) : Mean Velocity (m/s) : Method Mean Velocity (m/s) : Method Mean Velocity (m/s) : Method Discharge (m3/s) : Method Discharge (m3/s) : Method Discharge (m3/s) : Braided: N Method Braided: | Watted Width (m) | | | Mathad W | attad Widt | h (m) : | | } | -7 | very to Dail | | | | Valley: Chan. Ratio: | 3 | | | |
| Mean Velocity (m/s): Method Mean Velocity (m/s VO Discharge (m3/s): 0.40 Method Discharge (m3/s): | i ` ' | | | | | ` ' | | | | | | | | Stage: | M | | | |
| Discharge (m3/s): 0.40 Method Discharge (m3/s): Braided: N Method Braided: Bars (%): 1 Method Bars: PH: 8.0 Method pH: | | | | | - | • | VΩ | | | | | | l | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Bars (%): 1 Method Bars: pH: 8.0 Method pH: | | | 0.40 | | | • • | •• | | | | | | | Braided: | N | Method Braided: | | GF |
| Company Comp | Discharge (at5/5). | | | Wichiod D | | | | <u>l </u> | | _ | | | | Bars (%): | ŀ | Method Bars: | | GE |
| | Reach Symbo | l | | | | | | | | | | | | рН: | 8.0 | Method pH: | | PH |
| 4 C 3.0 1180 Turb. (cm): 200 Method Turbidity: | | | | | | | . , | | | | | | | 02 (ppm): | | Method Dissolved Oxygo | en: | |
| | | | | | | | NF | | | | | | | Water Temp. (°C): | 2.5 | Method Temperature: | | 10 |
| (Width Valley Channel Clans) (Red Material) | ! | | | | | 4 C | 3.0 11 | 3 0 | | | | | | Turb. (cm); | 200 | Method Turbidity: | | GE |
| (Width, Valley: Channel, Slope) (Bed Material) Cond. (µmhos): 40 Method Conductivity: | 1 | | | (Widi | th, Valley: | Channel, Sl | ope) [(B | ed Material) | | | | | | Cond. (µmhos): | 40 | Method Conductivity: | | CM |

2"-Mar-9" Stream: DENYS C.

Watershed Code:

Stream Survey Report 460-6006-508-584-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Type | Location |
|-------------------|------|----------|
| 2 | F | 17.9 |
| 4 | C | 18.1 |
| 4 | F | 18.4 |

- Obstructions were observed d/s from the sample site; The 1.5 m high falls is a restriction to fish; the 4 m high chute may be impassable to fish; the 3.5 m high falls is a definite barrier to fish and marks the end of fish distribution in R5.
- C2 Air Temp: 1 C.
- C3 Electrofished 59 m length of stream, 1 pass with no lower net. No fish were caught. Habitat is excellent for fish; suspect upper reach is barren.
- C4 Lat/Lon of helicopter landing site: 54 26.77 127 10.75
- C5 Tributaries D31 and D32 were not observed during the Denys C. ground survey. Tributary D35 was observed and is classed as S6 habitat

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-D1 -000-000-000-000-000-000

| Header Informa | ttion | | | | | | | | | | | | | |
|--|----------------------------------|---|---------------------|-------------|------------------|----------------|-----------|-----|-----|----------------------|-------|---|---------------|--------|
| Stream Name: DE | NYS C. TR | BUTARY | | Stream "Lo | cal": | DI | | | | | | Access: | | H |
| Watershed Code: 460 | -6006-5 08- | 584-D1 -000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.1 Method: | MW |
| Location: ~30 | m U/S FR | OM DI CONFLUENCE. | | Map #: | 093L 03 4 | \$ | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | U.T.M.: | 9.6084 | .60242 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/16/96 | Time: 11: | 30 Agency: C58 Surv | еу Сте | :w: SSUH\\ | 111 | ١١ | | | | Photos: | B1/20 | Air Photos: | BCB 911 | 81:060 |
| Channel Chara | cteristi | cs | | | | Specific D |)ata | | 1 | Bed Material | | | | |
| Av. Chan. Width (m): | 1.8 | , , | T | 1.8 | 2.1 | 1.5 | 1.6 | 2.2 | 1.7 | % Fines (<2mm): | 30 | % Fines (<2mm): | | 30 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (cm): | 1.0 | | T | 1.0 | 1.0 | 0.4 | 0.9 | 1.8 | | % Gravels: | 30 | Small (2-16mm): | | |
| Av. Max. Pool Depth (cm) Gradient (%): % Pool: 0 % | : 0 22.0 Riffie: 99 | | 6 CL 0 | Method: | GE | | | | | % Larges: | 40 | Large (16-64mm): Small cobble (64-128mm): Large cobble (128-256mm | | |
| % Side Channel: % Debris Area: 50 | 0 | | GE GE | wiction. | OL. | | | | | % Bedrock: | 0 | Boulder cobble (>256mm) *Bedrock: | : | 0 |
| Cover | | | | | | | | | | D90 (cm): | 20 | Compaction: | | High |
| Cover Total %; Dp Pool: 0 L.O.D | 70 : 70 | Method Cover Total %: Boulder: 20 In Veg.: | GE 0 | Over Veg: | 10 | Cutba | nk: | | 0 | Banks | | | | |
| Crown Closure % : | 60 | Method Crown Closure: | GE | Aspect : | w | Metho | d Aspect: | | AE | Height (m): | 2.0 | % Unstable: | | 0 |
| | | | | | | _ | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | i | .s. | pecific De | nta | | : | Confinement: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | -, | peen, ac D | | | i | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Stage: | M | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | İ | | | | | j | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.01 | Method Discharge (m3/s): | | | | | | | | Braided: | N | Method Braided: | | GE |
| | | | | <u>i</u> | | | | _ | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symbol | | - | | | | | | | | pH: | 8.3 | Method pH: | | PH |
| | | · | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | : | |
| | | | vs T | | | | | | | Water Temp. (°C): | 5.5 | Method Temperature: | | TC |
| | | 2 A 22.0 | 334 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-D1 -000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Fish Summary

Comments

C2

C1 40% gradient from mouth of D1; no fish access.

2 m + high banks with soft eroding sections were observed along D1.

Obstructions

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-D4 -000-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | |
|----------------------|------------------------|---------------------------------|----------------|----------------|---------------|---------|----------------------|-------|---------------------------|---------------|---------|
| Stream Name: | DENYS C. TRI | BUTARY | Stream "i | Local": | D4 | | | | Access: | | Н |
| Watershed Code: | 460-6006-5 08 - | 584-D4 -000-000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 0.8 Method: | MW |
| Location: | ~20 m U/S FRC | ом моитн. | Map#: | 0 93L03 | 34 | | Site No.: | ı | Length surveyed (m): | 100.0 Method: | HC |
| | | | U.T.M. : | 9.6091 | .60250 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/16/96 | Time: 13: | Agency: C58 Surve | y Crew: SSUH\ | 1 1 1 1 | . \ \ | | Photos: | B1/22 | Air Photos: | BCB 911 | 181:030 |
| Channel Ch | aracteristi | cs | 1 | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m | | Method Av. Chan. Width (m): | T 1.0 | 1.0 | 1.1 0.5 | 0.4 1.1 | % Fines (<2mm): | 80 | % Fines (<2mm): | | 80 |
| Av. Wet. Width (rn): | | Method Av. Wet. Width (m): | GE | | | | % Gravels: | 5 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | | • • • | GE | | | | | | Large (16-64mm): | | |
| Av. Max. Pool Depth | ' ' | Av. Max. Pool Depth (cm): | 0 | | | | % Larges: | 15 | Small cobble (64-128mm): | | |
| Gradient (%): | 25.0 | Method Gradient: | CL | | | | 70 Laiges. | 15 | Large cobble (128-256mm): | | |
| % Pool: 0 | % Riffle: 0 | % Run: 0 % Other: | 0 Method | : GE | | | | | Boulder cobble (>256mm): | | |
| % Side Channel: | 0 | | GE GE | | | | 1 | • | | | |
| % Debris Area: | >40 ————— | Method Debris Area: | GE | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | D90 (cm): | 9 | Compaction: | | Low |
| Cover Total % : | | Method Cover Total %: | | | | | Banks | | | | |
| Dp Pool: I | O.D.: | Boulder: In Veg.: | Over Veg | ; | Cutbank: | | | | | | |
| Crown Closure %: | 0 | Method Crown Closure: | GE Aspect: | S | Method Aspect | : AE | Height (m): | 1.5 | % Unstable: | | O |
| | | _ | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | Specific Data | | Confinement: | 1 | | | |
| _ | | Marked Wise 1997 det (a) | | | specific Daia | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | Stage: | Dгу | | | |
| Mean Depth (m): | | Method Mean Depth (m): | vo | | | | Flood Signs Ht(m): | 0.15 | Method Flood Signs: | | MS |
| Mean Velocity (m1/s) | | Method Mean Velocity (m/s | vo | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0.00 | Method Discharge (m3/s): | i | | | | Bars (%): | 100 | Method Bars: | | GE |
| Reach Symb | ool | | | | | | pH: | | Method pH: | | |
| | • | | sh) | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | <u></u> | is | | | | Water Temp. (°C): | | Method Temperature: | | |
| | | l A 25.0 | 8110 | | | | Turb. (cm): | | Method Turbidity: | | |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2⁻-Mar-9⁻ Stream

Stream: DENYS C. TRIBUTARY Watershed Code:

Stream Survey Report

460-6006-508-584-D4 -000-000-000-000-000-000

Stream/Valley Cross-Section

Fish Summary

Comments

- C1 Dry channel; bed material has sections covered with moss and forest floor material.
- C2 Low potential to move debris.
- C3 No fish habitat present.

Obstructions

27-Mar-97

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-039-000-000-000-000-000-000

| Header Info | rmatic | n | | | | | | | | | | | | | |
|---------------------|---------|---------|--|--------|-------------|---------|------------|-----------|-----|-----|----------------------|-------|-------------------------------------|-----------|--------|
| Stream Name: | DENYS | C. TRI | BUTARY | | Stream "Lo | cal": | D 5 | | | | | | Access: | | Н |
| Watershed Code: | 460-600 | 6-508-5 | 84-039-000-000-000-000-000-000 | | | | | | | | Reach No.: | i | Reach Length (km): 0. | Method: | MW |
| Location: | ~20 m U | J/S FRO | м моитн. | | Map #: | 093L034 | ļ | | | | Site No.: | 1 | Length surveyed (m): 90. | 0 Method: | HC |
| | | | | | U.T.M.: | 9.6095 | .60252 | | | | Fish Card: | N | Field: Yes Histo | orical: | No |
| Date: 9/16/96 | Tim | e: 15:0 | 0 Agency: C58 Surv | ey Cre | :w: SSUH\\ | 111 | 1-1 | | | | Photos: | B1/23 | Air Photos: | BCB 9118 | 81:060 |
| Channel Ch | aracte | risti | es | | | | Specific D | ata | | | Bed Material | | • | | |
| Av. Chan. Width (m) |): | 0.7 | Method Av. Chan. Width (m): | T | 0.5 | 0.5 | 0.8 | 1.0 | 0.6 | 0.6 | % Fines (<2mm): | 90 | % Fines (<2mm): | | 90 |
| Av. Wet. Width (m): | | 0.6 | Method Av. Wet. Width (m): | T | 0.5 | 0.5 | 0.6 | 0.8 | 0.6 | 0.5 | , , | | , , | | ,, |
| Av. Max. Rif. Depth | (cm): | 0 | Av. Max. Riffle Depth (cm): | GE | | | | | | | % Gravels: | 10 | Small (2-16mm): Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 0 | Av. Max. Pool Depth (cm): | 0 | | | | | | | | | | | |
| Gradient (%): | | 4.0 | Method Gradient: | CL | | | | | ** | • | % Larges: | 0 | Small cobble (64-128mm): | | |
| % Pool: 0 | % Riff | le: 0 | % Run: 100 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm): | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | |
| % Debris Area: | 15 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | , | D90 (cm): | I | Compaction: | | High |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: O L | O.D.: | 30 | Boulder: 0 In Veg.: | 0 | Over Veg: | 70 | Cutba | nk: | | 0 | Dunks | | | | |
| Crown Closure % : | | 10 | Method Crown Closure: | GE | Aspect : | NW | Metho | d Aspect: | | ΑE | Height (m): | 0.2 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: No | Bedrock: | No |
| Discharge | | | | | 1 | c. | necific Da | ** | | | Confinement: | 5 | | | |
| · · | | | A. J. A. W. J. A. W. J. A. C. | | | SĮ | vecijic Da | ıu | | | Valley: Chan. Ratio: | 4 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.25 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.01 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.01 | Method Discharge (m3/s): | | | | | | | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | ptł: | 8.3 | Method pH: | | PH |
| | | | | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | | (| SP) | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | TC |
| | | | 1 D 4.0 | 9100 | D | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2~-Mar-9~

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Comments

CI

Possible fish access at higher flows into the lower 100 m of D5.

Obstructions

2~-Mar-9~

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

| Header Infor | -matic | on | - | | | _ | | | | _ | | | | | | |
|-----------------------|--------|--------------|---------------------------------|--------|------------|---------|------------|-----------|-----|-----|----------------------|-------|---------------------|-----------|----------|--------|
| Stream Name: | DENYS | C. TRI | BUTARY | | Stream "Lo | cal": | D5 | | | | | | Access: | | | н |
| Watershed Code: | | | 84-039-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | | Method: | MW |
| Location: | ~150 m | U/S FR | OM MOUTH. | | • | 093L034 | | | | | Site No.: | 2 | Length surveyed (m | 1): 100.0 | Method: | HC |
| | | | | | U.T.M. : | 9.6095 | | | | | Fish Card: | N | Field: Yes | Histor | ical: | No |
| Date: 9/16/96 | Tim | e: 15:0 | 0 Agency: C58 Sur | ey Cre | ew: SSUH\\ | 111 | 1 1 | | | | Photos: | B1/24 | Air Photos: | | BCB 9118 | 81:060 |
| Channel Cha | racte | risti | es | | | | Specific L | Data | - | | Bed Material | | | | | |
| Av. Chan. Width (m): | 1 | 1.0 | Method Av. Chan. Width (m): | T | 0.9 | 1.1 | 1.3 | 0.9 | 0.9 | 1.2 | % Fines (<2mm): | 10 | % Fines (<2mm): | | | 10 |
| Av. Wet. Width (m): | | 0.8 | Method Av. Wet. Width (m): | T | 0.6 | 0.6 | 1.1 | | | 1 | % Gravels: | 15 | Small (2-16mm): | | | |
| Av. Max. Rif. Depth (| | 9 | Av. Max. Riffle Depth (cm): | | | | | | | 1 | | | Large (16-64mm): | | | |
| Av. Max. Pool Depth | (cm): | | Av. Max. Pool Depth (cm): | 9 | [| | | | | | % Larges: | 75 | Small cobble (64-12 | (Rmm): | | |
| Gradient (%): | | 24.0 | Method Gradient: | CL | | | | | | | 76 Larges. | 73 | Large cobbie (128-2 | • | | |
| % Pool: 0 | % Riff | | % Run: 1 % Other: | 0 | Method: | GE | | | | | } | | Boulder cobble (>2: | | | |
| % Side Channel: | | 0 | | GE | | | | | | |] | | | Sommy. | | |
| % Debris Area: | 15 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 20 | Compaction: | | | Medium |
| Cover Total % : | | 50 | Method Cover Total %: | GE | | | | | | | Banks | | | | | |
| Dp Pool: 0 L. | O.D.; | 20 | Boulder: 40 In Veg.: | 0 | Over Veg: | 30 | Cutba | ınk: | | 10 | | | | | | |
| Crown Closure %: | | 20 | Method Crown Closure: | GE | Aspect : | NW | Meth | od Aspect | : | AE | Height (m): | 0.4 | % Unstable: | | | 0 |
| | | | | | | | | | | | Textures Fines: | No | | arges: No | Bedrock: | No |
| Discharge | | | | | I | | :a- n | _4_ | | ŀ | Confinement: | | | • | | |
| Ū | | | | | | S | pecific D | ala | | - | Valley: Chan. Ratio: | 1 | | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | ļ | Stage: | М | | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.15 | Method Flood Sign | s: | | MS |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | | GE |
| Discharge (m3/s): | | 0 .01 | Method Discharge (m3/s): | | | | | | | } | Bars (%): | 0 | Method Bars: | | | GE |
| Reach Symb | | | | | | | | | | | pil: | 8.3 | Method pH: | | | PH |
| Reach Symbo | vi | | (1 | Fish) | | | | | | | 02 (ppm): | | Method Dissolved (| Oxygen: | | |
| | | | | NS | | | | | | | Water Temp. (°C): | 6.5 | Method Temperatu | | | rc |
| | | | 1 A 24.0 | 127 | 0 | | | | | | Turb. (cm); | 200 | Method Turbidity: | | | GE |
| | | | (Width, Valley: Channel, Slope) | 1 | | | | | | | Cond. (µmhos): | - • | Method Conductivi | | | |

2"-Mar-9" Stream: DENYS C. TRIBUTARY

Stream Survey Report 460-6006-508-584-039-000-000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 R2 lower boundary is at the base of a gully. The gradient continually increases u/s from ~17-35%.
- C2 End of potential fish use at the lower R2 boundary.

2^-Mar-9^

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-128-000-000-000-000-000-000

| Header Info | rmatior | 1 | | | | | | | | | | | | | | |
|--|-----------|--------|--|---------|-------------|---------|------------|----------|-----|-----|----------------------|-------|----------------|--------------|------------|--------|
| Stream Name: | DENYS C | TRI | BUTARY | | Stream "Lo | cal": | D6 | | | | | | Access: | | | н |
| Natershed Code: | 460-6006- | ·508-5 | 84-128-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length | (km): (| .2 Method: | MW |
| Location: | ~100 m U | /S FR | OM MOUTH. | | Map #: | 093L034 | 1 | | | | Site No.: | ì | Length survey | ed (m): 158 | 0 Method: | НC |
| | | | | | U.T.M. : | 9.6102 | .60254 | | | | Fish Card: | N | Field: Yes | | torical: | Nο |
| Date: 9/16/96 | Time: | 17:0 | O Agency: C58 Sur | vey Cre | w: SSUH\ | 111 | \ \ | | | | Photos: | B1/25 | Air Photos: | | BCB 911 | 81:060 |
| Channel Ch | aracter | istic | s | | į | | Specific D | Pata | | i | Bed Material | | | | | |
| Av. Chan. Width (m) | | 2.1 | Method Av. Chan. Width (m): | T | 1.9 | 2.2 | 1.7 | 3.0 | 2.2 | 1.8 | % Fines (<2mm): | 15 | % Fines (<2m | m): | | 15 |
| Av. Wet. Width (m): Av. Max. Rif. Depth | | 1.0 | Method Av. Wet. Width (m): Av. Max. Riffle Depth (cm): | T MS | 1.0 | 1.0 | 0.9 | | | | % Gravels: | 30 | Small (2-16mm | n): | | |
| Av. Max. Pool Depth | - | 18 | Av. Max. Pool Depth (cm); | 8 | Ì | | | | | 1 | | | Large (16-64n | ını): | | |
| Gradient (%): | ()- | 6.0 | Method Gradient: | CŁ | ì | | | | | 1 | % Larges: | 55 | Small cobble (| 64-128mm): | | |
| % Pool: 50 | % Riffle: | 50 | % Run: 0 % Other: | 0 | Method: | GE | | | | | ļ | | Large cobble (| 128-256mm): | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | ļ | | Boulder cobbi | e (>256mm): | | |
| % Debris Area: | 15 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | | 0 |
| Cover | | | | | | | - | | | | D90 (cm): | 11 | Compaction: | | N | Medium |
| Cover Total %: | | 50 | Method Cover Total %: | GE | | | | | | | Banks | | | | | |
| Dp Pool: 0 L | .O.D.; | 10 | Boulder: 25 In Veg.; | 0 | Over Veg: | 60 | Cutba | ınk: | | 5 | <i>Dan</i> iks | | | | | |
| Crown Closure %: | | 10 | Method Crown Closure: | GE | Aspect : | SE | Metho | d Aspect | : | AE | Height (m): | 0.3 | % Unstable: | | | 30 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel; No | Larges: No | Bedrock: | No |
| Discharge | | | | | | | pecific De | ~** | | - | Confinement: | 4 | | | | |
| • | | | M. d. 1891 at 1892 ld (c.) | | | SĮ | ecijic Di | atu | | | Valley: Chan. Ratio: | 4 | | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | | |
| Mean Depth (m): | _ | | Method Mean Depth (m): | 1/() | | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood | Signs: | | MS |
| Mean Velocity (m/s) | | 10.0 | Method Mean Velocity (m/s | VO | | | | | | | Braided: | Y | Method Braid | ed: | | GE |
| Discharge (m3/s): | | | Method Discharge (m3/s) : | | | | <u> </u> | | | | Bars (%): | 20 | Method Bars: | | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 8.1 | Method pf1: | | | PH |
| | - • | | • | Fish) | | | | | | | 02 (ppm)։ | | Method Disso | lved Oxygen: | | |
| | | | | (SP) | | | | | | | Water Temp. (°C); | 7.0 | Method Temp | erature: | | TC |
| | | | 2 D 6.0 | 136 | 0 | | | | | | Turb. (cm): | 200 | Method Turb | idity: | | GI: |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Cond | uctivity: | | |

27-Mar-9" Stream: DENYS C. TRIBUTARY

Stream Survey Report

Watershed Code:

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

Comments

C1

D6 disappears into a dry channel through slide alder. During high flow, possible access into the lower 325 m of this creek.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-128-000-000-000-000-000-000-000-000

| | | | | _ | - | | | _ | | | | | | _ |
|-------------------------|-------------------------------|----------------------------------|----------|-----------|---------|-------------|-----------|-----|-----|----------------------|---------------|-------------------------|----------------|--------|
| Header Inform | nation | | | | | | | | | | | | | |
| Stream Name: [| DENYS C. TI | RIBUTARY | | Stream "L | ocal": | D6 | | | | | | Access: | | Ħ |
| Watershed Code: | 46 0- 6006-5 08 | -584-128-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.2 Method: | MW |
| Location: | ~240 m U/S F | ROM MOUTH. | | Map #: | 093L034 | ŀ | | | | Site No.: | 2 | Length surveyed (m): | 175.0 Method: | HC |
| | | | | U.T.M. : | 9.6102 | .60254 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/16/96 | Time: 16 | :15 Agency: C58 Surv | vey Crev | w: SS\JH\ | 1111 | ١١ | | _ | | Photos: | not available | Air Photos: | BCB 9118 | 11:060 |
| Channel Char | racterist | ics | | | S | Specific Da | ıta | | Ì | Bed Material | | | | |
| Av. Chan. Width (m): | 1.9 | Method Av. Chan. Width (m): | τ | 1.4 | 1.4 | 1.5 | 1.5 | 2.6 | 3.2 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 0. | Method Av. Wet. Width (m): | T | 0.7 | 0.7 | 8.0 | 1.0 | | | % Gravels: | 10 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cr | m): i | 4 Av. Max. Riffle Depth (cm): | MS | | | | | | | /a Graveis. | 10 | Large (16-64mm): | | |
| Av. Max. Pool Depth (c | :m): 29 | Av. Max. Pool Depth (cm): | 14 | | | | | | | | | | | |
| Gradient (%): | 17. | Method Gradient: | CL | | | | | | | % Larges: | 75 | Small cobble (64-128mm) | | |
| % Pool: 15 | % RiMe: 8 | 5 % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | • | |
| % Side Channel: | (| Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | 10 | Method Debris Area: | HC | | | | | | | % Bedrock: | 10 | % Bedrock: | | 10 |
| Cover | | | | | | | | | | D90 (cm): | 35 | Compaction: | M | ledium |
| Cover Total % : | 40 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 5 L.O |).D.; 25 | Boulder: 50 In Veg.: | 0 | Over Veg: | 20 | Cutban | ık: | | 0 | Dunns | | | | |
| Crown Closure %: | 25 | Method Crown Closure: | GE | Aspect : | SE | Method | l Aspect: | | ΑE | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | No | Gravel: No Larges | : Yes Bedrock: | Νο |
| Discharge | | | | | C- | ecific Dat | 15 | | | Confinement: | 1 | | | |
| | | | | | Sp | ecyic Dai | и | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | ,,, | | | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.01 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | Ν | Method Braided: | | GE |
| Discharge (m3/s) : | 0.01 | Method Discharge (m3/s): | | | | : | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | 1 | | | | | | | | | pH: | 8.1 | Method pll: | | PH |
| Sylvion Sylvion | - | | fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n; | |
| | | | (SP) | | | | | | | Water Temp. (°C): | 6.5 | Method Temperature: | | 10 |
| | | 2 A 17.0 | 1171 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed | Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |
| | | | <u> </u> | | | | _ | | | | | | | |

2~-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-128-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

Comments

C2

C1 Gradient gradually increases from ~12% to a continuous 20%+ from the base of R2 to ~175 m u/s.

175 in w/s from the base of R2 is the end of possible fish distribution, based on gradient.

27-Mar-97

Stream: DENYS C TRIBUTARY

Watershed Code:

Stream Survey Report

Header Information Stream Name: DENYSIC TRIBUTARY Stream "Local": **D**7 н Access: Watershed Code: 460-6006-508-584-134-000-000-000-000-000-000 Reach No.: Reach Length (km): 0.1 Method: MW Location: ~35 m U/S FROM D7 MOUTH. 0931.034 Man #: Site No.: Length surveyed (m): 80.0 Method: HC U.T.M.: 9.6103 .60254 Fish Card: Field: Yes Historical: No Date: 9/16/96 Time: 17:30 Agency: C58 Survey Crew: SSUII \ \ \ \ \ \ Photos: B2/1 Air Photos: BCB 91181:060 Channel Characteristics Red Material Specific Data T Av. Chan. Width (m): 0.8 Method Av. Chan. Width (m): 0.7 0.6 0.8 % Fines (<2mm): % Fines (<2mm): 25 Av. Wet. Width (m): Method Av. Wet. Width (m): Т 0.7 0.6 0.8 % Gravels: Small (2-16mm): Av. Max. Riffle Depth (cm): Av. Max. Rif. Depth (cm): MS Large (16-64mm): 5 Av. Max. Pool Depth (cm): Av. Max. Pool Denth (cm): % Larges: Small cobble (64-128mm): Gradient (%): Method Gradient: CL. Large cobble (128-256mm): % Pool: 25 % Riffle: 75 % Run: % Other: Method: GE Boulder cobble (>256min): % Side Channel: 0 Method Side Channel: GE. % Debris Area: 20 Method Debris Area: GE 0 % Bedrock: % Bedrock: D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks Dp Pool : 15 L.O.D.: 15 Boulder: In Veg.: 0 Over Veg: 35 Cutbank: 35 Crown Closure %: Method Crown Closure: GE NW Method Aspect: ΑE Aspect: Height (m): % Unstable: 0 No Textures Fines: Yes Gravel: No Larges: No Bedrock: Discharge Confinement: 5 Specific Data Valley: Chan. Ratio; Wetted Width (m): Method Wetted Width (m): Stage: М Mean Depth (m): Method Mean Depth (m): 0.5 Method Flood Signs: MS Flood Signs Ht(m): Mean Velocity (m/s): Method Mean Velocity (m/s VO Braided: Method Braided: GE Discharge (m3/s): 0.02 Method Discharge (m3/s): Method Bars: GE Bars (%): pH: Method pH: PH Reach Symbol (Fish) Method Dissolved Oxygen: 02 (ppm): NS Water Temp. (°C): Method Temperature: TC 1 D 3.0 2710 GE Turb. (cni): Method Turbidity: (Width, Valley: Channel, Slope) [Bed Material] Cond. (µmhos): Method Conductivity:

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-134-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1. | F | 0.0 |

Comments

C1 -0.9 m drop into a plunge pool -3.9 m u/s from D7 mouth was observed. Drop is above the high water mark; probable barrier to fish.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-134-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|---------------------|---------|------------------|------------------------------------|--------|-------------|-----------------|------------|-----------|-----|-----|----------------------|------|-------------------------|---------------|---------|
| Stream Name: | DENYS | C. TRI | BUTARY | | Stream "Lo | cal": | D7 | | | | | | Access: | | 11 |
| Watershed Code: | 460-600 | 6-5 08- 5 | 84-134-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.0 Method: | MW |
| Location: | ~100 m | U/S FR | OM D7 MOUTH. | | Map#: | 093 L034 | | | | | Site No.: | 2 | Length surveyed (m): | 130.0 Method: | HC |
| | | | | | U.T.M.: | 9.6103 | .60254 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/16/96 | Tim | e: 17:1 | O Agency: C58 Sur | vey Cr | ew: SSUH\ \ | \ \ \ \ | \ \ | | | | Photos: | B2/2 | Air Photos: | BCB 911 | 181:060 |
| Channel Ch | aracte | risti | es | | i | S | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 0.9 | Method Av. Chan. Width (m); | T | 0.7 | 1.1 | 1.0 | 0.9 | 0.8 | 0.7 | % Fines (<2mm): | 20 | % Fines (<2mm): | | 20 |
| Av. Wet. Width (m): | | 0.9 | Method Av. Wet. Width (m): | T | 0.7 | 1.1 | 1.0 | 0.9 | 0.8 | 0.7 | % Gravels: | 40 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 10 | Av. Max. Riffle Depth (cm): | | I | | | | | | 7 Oracis. | 40 | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | | Av. Max. Pool Depth (cm): | 10 | | | | | | | | | | | |
| Gradient (%): | | 17.0 | Method Gradient: | CL | | | | | | | % Larges: | 40 | Small cobble (64-128mm) | | |
| % Pool: 0 | % Riff | le: 99 | % Run: 1 % Other: | 0 | Method: | GE | | | | | } | | Large cobble (128-256mn | | |
| % Side Channel: | | 0 | Method Side Channel: | HC | | | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | 15 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 9 | Compaction: | | High |
| Cover Total %: | | 40 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L | .O.D.; | 40 | Boulder: 15 In Veg.: | 0 | Over Veg: | 30 | Cutba | nk: | | 15 | Dunks | | | | |
| Crown Closure %: | | 20 | Method Crown Closure: | GE | Aspect : | NW | Metho | d Aspect: | | AE | lleight (m): | 0.4 | % Unstable: | | o |
| | | | | | | | | | | | Textures Fines: | No | Gravel: Yes Larges | : No Bedrock: | No |
| Discharge | | | | | 1 | c. | ecific Da | uta. | | , | Confinement: | 1 | | | |
| | | | Biford and Million and Million () | | | .sp | ecgic Du | 1144 | | } | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | _ | | Method Mean Depth (m): | NO. | | | | | | 1 | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.02 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.02 | Method Discharge (m3/s): | | <u> </u> | <u> </u> | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | al | | | | | | | | | | ptt: | 8.2 | Method pH: | | PH |
| i | •• | | (| Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | | NS | | | | | | | Water Temp. (°C): | 8.5 | Method Temperature: | | 1C |
| | | | I A 17.0 | 244 | 0 | _ | | | | | Turb. (cm): | 200 | Method Turbidity: | | GI: |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-134-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

Comments

C1 Steady gradient in the lower 50 m of R2, ~16 -19%. Suspect no fish use based on high gradient and the 0.9 m high barrier found at the base of R1.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-134-000-000-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | | |
|-----------------------------------|---------------|--------------------------------------|-------------|-----------------|----------------|---------|----------------------|--------|---------------------|---------------------------------------|----------|--------|
| Stream Name: | DENYS C. TR | BUTARY | Stream "Le | ocal": | D7 | | | | Access: | | | н |
| Watershed Code: | 460-6006-508- | 584-134-000-000-000-000-000-000 | | | | | Reach No.: | 2 | Reach Length (km) | : 1.0 | Method: | MW |
| Location: | | LAKE AT THE TOP OF D7; LANDED IN | Map #: | 09 3L034 | | | Site No.: | 3 | Length surveyed (m | 1): 100.0 | Method: | GE |
| | MEADOW ON | WEST SIDE. | U.T.M.: | 9.6105 | .60243 | | Fish Card: | N | Field: Yes | Histor | rical: | No |
| Date: 9/19/96 | Time: 143 | OO Agency: C58 Survey Cr | ew: DB\ \ \ | 1111 | . 1 | | Photos: | DB1/25 | Air Photos: | | BCB 9118 | 81:060 |
| Channel Ch | aracteristi | cs | | s | Specific Data | | Bed Material | | | | | |
| Av. Chan. Width (m) | • | Method Av. Chan. Width (m): | | | | | % Fines (<2mm): | | % Fines (<2mm): | | | |
| Av. Wet. Width (nn): | | Method Av. Wet. Width (m): | | | | | % Gravels: | | Small (2-16mm): | | | |
| Av. Max. Rif. Depth | - | Av. Max. Riffle Depth (cm): | | | | | | | Large (16-64mm): | | | |
| Av. Max. Pool Depth | h (cm): | Av. Max. Pool Depth (cm): | | =+ + | | | % Larges: | | Small cobble (64-12 | Rmm): | | |
| Gradient (%): | n/ Dies | Method Gradient: | | | | | 70 Dailges. | | Large cobble (128-2 | • | | |
| % Pool: | % Riffle: | % Run: % Other: Method Side Channel: | Method: | | | | | | Boulder cobble (>2 | • | | |
| % Side Channel: % Debris Area: | | Method Debris Area: | | | | | % Bedrock: | | % Bedrock: | · · · · · · · · · · · · · · · · · · · | | |
| 76 Debits Area: | | Method Deblis Alea. | | | | _ | | | | | | |
| Cover | | | | | | | D90 (cm): | | Compaction: | | | High |
| Cover Total %: | | Method Cover Total %: | | | | | Banks | | | | | |
| Dp Pool: | L.O.D.: | Boulder: In Veg.: | Over Veg: | | Cutbank: | | | | | | | |
| Crown Closure %: | | Method Crown Closure: | Aspect: | NE | Method Aspect: | AE | Height (m): | | % Unstable: | | | |
| | | | | | | | Textures Fines: | No | Gravel: No 1 | arges: No | Bedrock: | No |
| Discharge | | | | Sm | ecific Data | | Confinement: | | | | | |
| Wetted Width (m) : | | Method Wetted Width (m): | | | cegie butu | ļ | Valley: Chan. Ratio: | | | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | Stage: | M | | | | |
| Mean Velocity (m/s) | ١. | Method Mean Velocity (m/s | | | | | Flood Signs Ht(m): | | Method Flood Sign | s: | | |
| Discharge (m3/s): | · • | Method Discharge (m3/s): | | | | ĺ | Braided: | | Method Braided: | | | |
| Discharge (ms/s) : | | Method Discharge (mora). | - | | <u> </u> | <u></u> | Bars (%): | | Method Bars: | | | |
| Reach Symb | bol | (Fish) | | | | | pH: | 8.0 | Method pH: | | | PH |
| | | (FISH) NF | | | | | 02 (ppm): | | Method Dissolved (| Oxygen: | | |
| | | | | | | | Water Temp. (°C): | 9.0 | Method Temperatu | | | ГC |
| | | | | | | | Turb. (cm): | | Method Turbidity: | | | |
| | | (Width, Valley: Channel, Slope) (Be | d Material) | | | | Cond. (µmhos): | | Method Conductivi | ity: | | |
| | | | | | | | | _ | | | | |

2"-Mar-9" Stream: DENYS C. TRIBUTARY

Stream Survey Report

Watershed Code: 460-6006-508-584-134-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 Lake dimensions: ~75 m wide x 300 m long. No significant inflows were observed. Unable to get to outlet channel.
- C2 Set 5 minnow traps overnight on the North end of the lake; no rises were observed and no fish were caught. Assume this lake is barren.
- C3 Conifer timber growing right up to the edge of the lake no landing sites on lake edge. Sedges and water lilies grow along the shoreline; edges are shallow but look deeper in mid
- C4 Lat/Lon of helicopter landing site: 52 21.26 127 18.13

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

The second secon

Watershed Code:

Stream Survey Report 460-6006-508-584-D9-000-000-000-000-000-000-000

| Header Informatio | on | | | | | | | | | | | |
|---------------------------|------------------|---|---------|-------------|---------|----------------|---------|----------------------|-------|-------------------------|---------------|---------|
| Stream Name: DENYS | C. TRI | BUTARY | | Stream "Lo | cal": | D9 | | | | Access: | | H |
| Watershed Code: 460-600 | 6-50 8- 5 | 84-D9 -000-000-000-000-000-000 | | | | | | Reach No.; | 1 | Reach Length (km): | 0.6 Method: | MW |
| Location: ~50 m l | J/S FRC | M MOUTH. | | Мар #: | 093L034 | ļ. | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | GE |
| | | | | U.T.M.: | 9.6110 | .60258 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 Tim | e: 10:4 | Agency: C58 Sur | vey Cr | ew: JH\ \ \ | 1 1 1 1 | . \ | | Photos: | B2/22 | Air Photos: | BCB 911 | 181:060 |
| Channel Characte | risti | cs | | i | S | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | 0.5 | Method Av. Chan. Width (m): | T | 0.5 | 0.7 | 0.5 0.4 | 0.4 0.4 | % Fines (<2mm): | 60 | % Fines (<2mm): | | 60 |
| Av. Wet. Width (m): | 0.2 | Method Av. Wet. Width (m): | T | 0.2 | 0.3 | 0.1 | | % Gravels: | 40 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm): | 2 | • • • | MS | | | | | J Glarcis. | 40 | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm): | 7 | Av. Max. Pool Depth (cm): | 2 | | | | | . | | | | |
| Gradient (%): | 4.0 | Method Gradient: | CL | | | | | % Larges: | 0 | Small cobble (64-128mm) | | |
| % Pool: 60 % Riff | le: 40 | % Run: 0 % Other: | | Method: | GE | | | | | Large cobble (128-256mm | • | |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | Boulder cobble (>256mm |); | |
| % Debris Area: | 0 | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | _ | | D90 (cm): | 2 | Compaction: | | High |
| Cover Total % : | 80 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 0 L.O.D.: | 0 | Boulder: 0 in Veg.: | 0 | Over Veg: | 85 | Cutbank: | 15 | | | | | |
| Crown Closure %: | 5 | Method Crown Closure: | GE | Aspect: | S | Method Aspects | Al | E Height (m): | 0.3 | % Unstable: | | Ü |
| | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | ì | Ç. | vecific Data | | Confinement: | 2 | | | |
| Wassad Widsh () | | Method Wetted Width (m): | | Ì | ., | occyse Dana | | Valley: Chan. Ratio: | 4 | | | |
| Wetted Width (m): | | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | Method Mean Depth (m): Method Mean Velocity (m/s | vo | | | | | Flood Signs 11t(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.01 | Method Discharge (m3/s): | VU | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.01 | Tremon Discusi Re (m3/2) . | | i | | <u></u> | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | pli: | 8.2 | Method pH: | | PH |
| | | (| Fish) | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | NS | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | TC |
| | | I D 4.0 | 640 | 0 | | | | Turb. (cm): | 200 | Method Turbidity: | | Gl: |
| | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: DENYS C. TRIBUTARY

Stream Survey Report

460-6006-508-584-D9 -000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Fish Summary Obstructions

Comments

C1 Stream channel disappears completely near the mainstem Denys C.; no channel is present at the confluence and all flow is subsurface. Suspect no juvenile fish access even at high flows.

C2 FSZ classification for the lower 70 m of D9 (to the base of the gully).

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-179-000-000-000-000-000-000

| Header Inforn | ation | | | | | | | | _ | | | | |
|---------------------------------------|--------------|--|----------------|---------|-------------|----------|-----|-----|---------------------|-----------------|-------------------------|---------------|---------|
| Stream Name: D | ENYS C. TR | IBUTARY | Stream "L | ocal": | D10 | | | | | | Access: | | Н |
| Watershed Code: 4 | 60-6006-508 | 584-179-000-000-000-000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.9 Method: | MW |
| Location: ~ | 400 m U/S FI | ROM MOUTH. | Map #: | 093L034 | 1 | | | | Site No.: | 1 | Length surveyed (m): | 860.0 Method: | HC |
| | | | U.T.M.: | 9.6112 | .60259 | | | | Fish Card: | N | Field: Yes | Historical: | Nο |
| Date: 9/18/96 | Time: 1:4 | 5 Agency: C58 Survey | Crew: JH\ \ \ | 1 1 1 1 | ١ ١ | | | _ | Photos: | B2/23, 24; B3/1 | Air Photos: | BCB 911 | 181:062 |
| Channel Ch ar | acterist | ics | 1 | 2 | Specific De | ata | | | Bed Materia | I | | | |
| Av. Chan. Width (m): | 3.6 | Method Av. Chan. Width (m): | T 4.8 | 4.5 | 3.5 | 2.4 | 2.9 | 3.3 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (nn): | 3.2 | Method Av. Wet. Width (m): | T 3.6 | 2.6 | 3.3 | | | | ` ′ | | , , | | |
| Av. Max. Rif. Depth (cn | ı): 18 | Av. Max. Riffle Depth (cm): | is | | | | | | % Gravels: | 40 | Small (2-16mm): | | |
| Av. Max. Pool Depth (cr | n): 32 | Av. Max. Pool Depth (cm): | 18 | | | | | | | | Large (16-64inm): | | |
| Gradient (%): | 4.0 | Method Gradient: | CL 1 | | | | | , | % Larges: | 50 | Small cobble (64-128mm) | | |
| % Pool: 25 | % Riffle: 6: | % Run: 10 % Other: | 0 Method: | GE | | | | | | | Large cobble (128-256mm | i): | |
| % Side Channel: | 0-10 | Method Side Channel: | E | | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | 10-40 | Method Debris Area: | iΕ | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | - | | | | | | | D90 (cm): | 20 | Compaction: | | High |
| Cover Total % : | 50 | Method Cover Total %: | E | | | | | | Banks | | - | | |
| Dp Pool: 20 L.O. | D.: 20 | Boulder: 30 In Veg.: | 0 Over Veg: | 20 | Cutba | nk: | | 10 | | | | | |
| Crown Closure %: | 15 | Method Crown Closure: | E Aspect : | ИW | Metho | d Aspect | : | AE | Height (m): | 1.0 | % Unstable: | | 0 |
| | | | | | _ | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | Nο |
| Discharge | | | ı | S | pecific Da | ta | | | Confinement: | 3 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | ~, | , | | | [| Valley: Chan. Ratio | o: 3 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | ì | Stage: | М | | | |
| Mean Velocity (m/s): | | • • • | o | | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.06 | Method Discharge (m3/s): | | | | | | | Braided: | Y | Method Braided: | | GE |
| Discharge (ma/s) . | 0.00 | —————————————————————————————————————— | Į . | | | | | - 1 | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | pH: | 8.1 | Method pH: | | PH |
| · · · · · · · · · · · · · · · · · · · | | (Fish | • | | | | | | 02 (թթա)։ | | Method Dissolved Oxyge | n: | |
| | | (D\ | ') | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | 10 |
| | | 4 C 4.0 | 1450 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-179-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1. | х | 0.1 |

Comments

C2

C1 ~80 m w/s from the D10 mouth, a 0.7 m high debris drop was observed (Photo B2/24); barrier to fry. Suspect fish use throughout R1 based on the presence of DV u/s at Site 4.

-15 m high eroding bank on river right was observed 481 m u/s from the mouth (Photo B3/1).

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-179-000-000-000-000-000-000-000

| Header Informati | on | · · · · · · · · · · · · · · · · · · · | | | _ | | | | | | | _ |
|---|--------------------|--|----------|-------------|------------------|---------------|-----|----------------------|--------------|-------------------------|---------------|---------|
| Stream Name: DENY | S C. TRI | BUTARY | | Stream "Lo | cal": | D10 | | | | Access: | | н |
| Watershed Code: 460-66 | 006-5 08- 5 | 84-179-000-000-000-000-000-000 | | | | | | Reach No.: | 2 | Reach Length (km): | 1.4 Method: | MW |
| Location: ~305 n | u/S FR | OM D10.1 CONFLUENCE WITH D10. | | Мар#: | 093 L0 34 | 1 | | Site No.: | 2 | Length surveyed (m): | 640.0 Method: | НС |
| | | | | U.T.M. : | 9.6112 | .60259 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 Ti | me: 17:2 | 20 Agency: C58 Surv | ey Cre | :w: JH\ \ \ | , , , , | . 1 | | Photos: | B 3/6 | Air Photos: | BCB 911 | 181:062 |
| Channel Charact | eristi | cs | | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | 2.6 | Method Av. Chan. Width (m): | T | 2.6 | 3.0 | 2.5 2.2 | 2.6 | % Fines (<2mm): | 15 | % Fines (<2mm): | | 15 |
| Av. Wet. Width (m): | 2.1 | Method Av. Wet. Width (m): | T | 2.0 | 2.0 | 2.3 | | % Gravels: | 15 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm): | 14 | • , , | MS | | | | | | | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm): Gradient (%): | 28 6.0 | Av. Max. Pool Depth (cm): Method Gradient: | 14 CL | | | | | % Larges: | 70 | Small cobble (64-128mm) | : | |
| • • | 0.0 Me: 85 | % Run: 0 % Other: | 0 | Method: | GE | | | • | | Large cobble (128-256mm | | |
| % Side Channel: | 0 | Method Side Channel: | GE | Memou. | OL. | | | . | | Boulder cobble (>256mm |): | |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| W Detris Area. | | | | | | | | | _ | | | |
| Cover | | | | | | · | | D90 (cm): | | Compaction: | | High |
| Cover Total %: | 6 0 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 5 L.O.D.: | 5 | Boulder: 30 In Veg.: | 0 | Over Veg: | 50 | Cutbank: | 1 |) | | | | |
| Crown Closure %: | 5 | Method Crown Closure: | GE | Aspect : | W | Method Aspec | : А | E | 1.5 | % Unstable: | | 0 |
| | | | | | | | | Textures Fines: | No | Gravel: No Larges | Yes Bedrock: | No |
| Discharge | | | | l . | Sr. | pecific Data | | Confinement: | 2 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | İ | | octyn Daid | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | Stage: | M | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.06 | Method Discharge (m3/s): | •• | 1 | | | | Braided: | N | Method Braided: | | GE |
| | | The industrial ge (in | | <u> </u> | | <u> </u> | | Bars (%): | 2 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | pH: | 8.1 | Method pH: | | PH |
| | | | ish) | | | | | 02 (թթա)։ | | Method Dissolved Oxyge | n: | |
| | | (| DV) | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | 1C |
| | | 3 B 6.0 | 1270 | 0 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | Cond. (µmhos); | | Method Conductivity: | | |

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

- Habitat is suitable for fish production and there are no fish barriers in the lower 650 m of R2. Assume fish use in the lower 650 m of R2 based on the presence of DV u/s at Site 4. The upper 600 m of R2 and R3 was surveyed by air; suspect fish use in the upper 600 m of R2; suspect no fish use in R3 based on high gradient.
- C2 20 m high x 30 m long eroding bank was observed on D10, 400 m u/s from the D10.1 confluence.
- C3 D10.2, D10.3, and D10.4, located 300 m, 500 m and 600 m u/s from the base of R2 respectively, were surveyed; each tributary had no defined channel with subsurface flow. No fish habitat.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-179-143-000-000-000-000-000

| Header Inform | ation | | | | | | | | | | | | | |
|--------------------------|----------------------|---------------------------------|---------|-------------|---------|------------|------------|----------|-----|-----------------------|---------|------------------------|-----------------|-----------|
| Stream Name: DE | NYS C. TR | IBUTARY | | Stream "Le | ocal": | D10.1 | | | | | | Access: | | Н |
| Watershed Code: 46 | 0-60 06-508 - | 584-179-143-000-000-000-000-000 | | | | | | | | Reach No.: | ì | Reach Length (km): | 2.5 Method | մ։ MW |
| Location: ~2 | 60 m U/S FI | ROM CONFLUENCE WITH D10. | | Map#: | 093L034 | 1 | | | | Site No.: | 3 | Length surveyed (m): | 250.0 Method | d: HC |
| | | | | U.T.M. : | 9.6117 | .60252 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Time: 13 | 30 Agency: C58 Surv | vey Cre | :w: JH\ \ \ | 1111 | ١ ١ | | | | Photos: | B3/3, 4 | Air Photos: | BCB 9 | 01181:062 |
| Channel Chara | cteristi | ics | |] | | Specific L | Data | | 1 | Bed Material | | | | |
| Av. Chan. Width (m): | 3.0 | Method Av. Chan. Width (m): | T | 2.9 | 3.0 | 4.3 | 2.8 | 2.3 | 2.9 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | 1.9 | Method Av. Wet. Width (m): | T | 2.3 | 1.9 | 1.6 | | | - | % Gravels: | 15 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm) | : 17 | Av. Max. Riffle Depth (cm): | MS | l | | | | | | 76 Graveis. | ,,, | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm | 33 | Av. Max. Pool Depth (cm): | 17 | | | | | | | ļ. | | , , | | |
| Gradient (%): | 6 .0 | Method Gradient: | CL | | | | | | | % Larges: | 75 | Small cobble (64-128m | • | |
| % Pool: 20 % | Riffle: 80 | | 0 | Method: | GE | | | | | | | Large cobble (128-256) | • | |
| % Side Channel: | 0 | | GE | | | | | | | | | Boulder cobble (>256n | ini): | |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | O |
| Cover | | | | | | | | | | D90 (cm): | 19 | Compaction: | | Medium |
| Cover Total % : | 35 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Op Pool: 5 L.O.D | .: 5 | Boulder: 35 In Veg.: | 0 | Over Veg: | 30 | Cutha | nk: | | 25 | Duning | | | | |
| Crown Closure %: | 10 | Method Crown Closure: | GE | Aspect: | NW | Metho | od Aspect: | | AE | Height (m): | 0.8 | % Unstable: | | 10 |
| | | | | | | | | | | Textures Fines: | No | Gravel: Yes Larg | ges: No Bedrock | k: No |
| Discharge | | | ! | | , C. | iG- D | | | i | Confinement: | 2 | | | |
| | | | | } | SI | pecific De | ua | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | NO. | | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.04 | Method Mean Velocity (m/s | vo | | | | | | ĺ | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.04 | Method Discharge (m3/s): | | | | | | <u> </u> | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pH: | 8.2 | Method pH: | | PH |
| | | (1) | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxy | gen: | |
| | | (| DV) | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | TC |
| } | | 3 B 6.0 | 1180 |) | _ | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed | l Material) | | | | | | Cond. (µnihos): | | Method Conductivity: | | |

2"-Mar-9" Stream: DENYS C. TRIBUTARY

Stream Survey Report

Watershed Code: 460-6006-508-584-179-143-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | X | 0.4 |

- C1 Discharge and channel characteristics of the stream are suitable to support fish. Assume DV present in R1 based on DV caught <450 m further u/s.
- C2 1.2 m debris/rock jam was observed ~390 m u/s from mouth (Photo B3/3); barrier to u/s migration. May be passable during very high flows. Other smaller debris jams were observed in the vicinity; caused by ~70 m long x 20 m high bank failure located immediately u/s (Photo B3/4).
- C3 D10.1.1 confluence is located ~80 u/s on D10.1 from the mouth D10.1.1 has no defined channel and no fish habitat is present.

2^-Mar-9

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-179-143-000-000-000-000-000

| Header Info | rmatio | n | | | _ | | | | | _ | | | | | |
|---------------------|------------|---------|---|-----------|--------------|---------|------------|------------|-----|-----|----------------------|----------|-------------------------|---------------|------------|
| Stream Name: | DENYS | C. TRI | BUTARY | | Stream "Le | ocal": | D10.1 | | | | | | Access: | | н |
| Watershed Code: | 460-600 | 6-508-5 | 84-179-143-000-000-000-000-00 | 0-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 2.5 Method: | MW |
| Location: | ~700 m | U/S FR | OM CONFLUENCE WITH DIO | | Мар #: | 093L034 | 4 | | | | Site No.: | 4 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | U.T.M.; | 9.6117 | .60252 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Tim | e: 9:15 | Agency: C58 | Survey Cı | rew: DB\ \ \ | 1 1 1 | \ \ | | _ | | Photos: | DB1/6, 7 | Air Photos: | BCB 911 | 181:060 |
| Channel Ch | aracte | risti | es · | | | | Specific D | Data | | · . | Bed Material | | | | |
| Av. Chan. Width (m |) : | 2.7 | Method Av. Chan. Width (m |): Т | 2.7 | 2.2 | 2.8 | 3.0 | 2.2 | 3.3 | % Fines (<2mm): | 0 | % Fines (<2mm): | | Ü |
| Av. Wet. Width (m): | | 2.7 | Method Av. Wet. Width (m): | T | 2.7 | 2.2 | 2.8 | 3.0 | 2.2 | 3.3 | % Gravels: | 30 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth | | 12 | Av. Max. Riffle Depth (cm): | MS | | | | | | ! | 70 Graveis. | 30 | Large (16-64mm): | | 20 |
| Av. Max. Pool Depth | (cm): | 35 | Av. Max. Pool Depth (cm): | 12 | | | | | | | | | | | |
| Gradient (%): | | 7.0 | Method Gradient: | CL | | | | | | | % Larges: | 70 | Small cobble (64-128mm) | | 30 |
| % Pool: 5 | % Riff | | | Other: 0 | Method: | GE | | | | | | | Large cobble (128-256mm | • | 30 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm) | : | 10 |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | _ | D90 (cm): | 25 | Compaction: | | High |
| Cover Total % : | | 80 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 l | O.D.: | 10 | Boulder: 20 In Vo | eg.: 10 | Over Veg: | 30 | Cutba | ınk: | | 30 | Danks | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect: | NW | Metho | od Aspect: | : | AE | fleight (m): | 0.3 | % Unstable: | | 0 |
| | | | _ | | | | | | | _ | Textures Fines: | No | Gravel: No Larges | Yes Bedrock: | No |
| Discharge | | | | | | | pecific Da | nta | | i | Confinement: | 3 | | | |
| • | | | Mark - J. Waran J. Wildelman . | | | إد | pecyn Di | 414 | | İ | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | ł | Stage: | М | | | |
| Mean Depth (m): | _ | | Method Mean Depth (m): | VO | | | | | | | Flood Signs 11t(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | • | 0.10 | Method Mean Velocity (m/s Method Discharge (m3/s): | ٧٥ | | | | | | 1 | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.10 | Method Discharge (m3/s) . | _ | <u> </u> | <u></u> | | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | | Method pH: | | |
| | - | | | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | 1: | |
| | | | | DV | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | ${\it uc}$ |
| | | | 3 B | 7.0 03 | 70 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, | Slope) (B | ed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-179-143-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

| [s | pecies | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|-----|--------|--------|-----------------|------------|-------|-------|-------|------------------|
| DΛ | , | 7 | 107 - 126 | J | R | | | MT |

Obstructions

| Cl | 5 minnow traps were set overnight; DV were caught. |
|----|---|
| C2 | Landed in a meadow above the creek. Lat/Lon of helicopter landing site: 54 21.32 127 16.56 |
| сз | D10 was surveyed by air above Site 4: assume fish use up to 1350 in from mouth, suspected fish use between 1350 m and 2450 m from mouth, and no fish use u/s of 2450 m due to steep gradient. |
| C4 | D10.1.2 was ground surveyed; No fish habitat was present and channel was not defined. |
| C5 | D10.1.3, D10.1.4, D10.1.5 and D10.1.6 were all surveyed by air; there was no possibletential fish use in each tributary |

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-179-D10-.5 -000-000-000-000-000

Header Information Stream Name: DENYS C. TRIBUTARY Stream "Local": D10.5 Access: 11 Watershed Code: 460-6006-508-584-179-D10-.5 -000-000-000-000-000 Reach No .: Reach Length (km): 0.6 Method: MW Location: LOCATED ~100 m U/S FROM D10.5 MOUTH. Map#: 093L034 Site No.: Length surveyed (m): 100.0 Method: GE U.T.M.: 9.6124 .60252 Fish Card: Field: Yes Historical: No Date: 9/18/96 Time: 16:15 Agency: C58 Survey Crew: JH\ \ \ \ \ \ Photos: Air Photos: BCB 91181:062 Channel Characteristics **Bed Material** Specific Data T Av. Chan. Width (m): 0.5 Method Av. Chan. Width (m): 0.7 0.7 0.5 0.3 0.3 % Fines (<2mm): % Fines (<2mm): 90 Av. Wet. Width (m): Method Av. Wet. Width (m): T 0.6 0.7 0.5 0.3 0.3 % Gravels: Small (2-16mm): Av. Max. Rif. Depth (cm): 2 Av. Max. Riffle Depth (cm): MS Large (16-64mm): Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 2 % Larges: Small cobble (64-128mm): Gradient (%): 7.0 Method Gradient: CLLarge cobble (128-256mm): % Pool: 80 % Riffle: 20 % Run: 0 % Other: 0 Method: GE Boulder cobble (>256mm): 0 Method Side Channel: GE % Side Channel: GE % Debris Area: 25 Method Debris Area: % Bedrock: % Bedrock: 0 D90 (cm): High Compaction: Cover GE Cover Total %: Method Cover Total %: Banks 35 0 L.O.D.: Boulder: Over Veg: 40 Op Pool: In Veg.: Cutbank: Method Crown Closure: Crown Closure %: GE Aspect: Method Aspect: ΑE Height (m): % Unstable: Û **Textures Fines:** Yes Gravel: No Larges: No Bedrock: No Discharge Confinement: 2 Specific Data 2 Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): L Stage: Mean Depth (m): Method Mean Depth (m): MS Flood Signs Ht(m): 0.1 Method Flood Signs: vo Mean Velocity (m/s): Method Mean Velocity (m/s Braided: Method Braided: GE Discharge (m3/s): 0.01 Method Discharge (m3/s): Bars (%): Method Bars: GE PH pH: Method pH: Reach Symbol (Fish) Method Dissolved Oxygen: 02 (ppm): NS Water Temp. (°C): Method Temperature: 10 1 B 7.0 9100 200 Method Turbidity: GE Turb. (cm): (Width, Valley: Channel, Slope) [(Bed Material) Cond. (unihos): Method Conductivity:

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-179-D10-.5 -000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

Comments

CI

Discontinuous, small channel with very low discharge. Tributary is too small to support fish and there is no access for fry during flooding (8% gradient, pool-stepping). Creek is classed as S6 habitat.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-210-000-000-000-000-000-000-000

| Header Infor | matio | 1 | | | | | | | | | | | | | |
|---|----------|----------------|--|---------|-------------|------------------|------------|-----------|----------|-----|----------------------|-------|------------------------|-----------------|-------------|
| Stream Name: | DENYS C | . TRII | BUTARY | | Stream "Lo | cal"; | DII | | | | | | Access: | | н |
| Watershed Code: | 460-6006 | -50 8-5 | 84-210-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.1 Method: | MW |
| Location: | SITE LOC | ATE | ~950 m U/S FROM MOUTH. | | Мар #: | 093 L0 34 | ı | | | | Site No.: | 1 | Length surveyed (m): | 1100.0 Method: | HC |
| | | | | | U.T.M.: | 9.6115 | .60261 | | | | Fish Card: | N | Field: Yes | Historical: | Nο |
| Date: 9/19/96 | Time: | 10:3 | O Agency: C58 Sur | vey Cro | ew: JH\ \ \ | 1 1 1 1 | . \ | | | | Photos: | B3/10 | Air Photos: | BCB 911 | 181:062 |
| Channel Cha | racter | istic | es | | | | Specific D | ata . | | | Bed Material | | | | |
| Av. Chan. Width (m): | | 1.4 | Method Av. Chan. Width (m): | T | 1.2 | 1.3 | 1.5 | 1.5 | 1.6 | 1.2 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 1.0 | Method Av. Wet. Width (m): | T | 0.9 | 1.2 | 0.9 | 0.7 | 1.1 | 1.1 | % Gravels: | 55 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (| | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | | | | Large (16-64mm): | | |
| Av. Max. Pool Depth (| cm): | 15 | Av. Max. Pool Depth (cm): | 8 | 1 | | - | | | 1 | % Larges: | 40 | Small cobble (64-128mm | ۸۰ | |
| Gradient (%): | | 8.0 | Method Gradient: | CL | | ~= | | | | | /o l'aigcs. | 70 | Large cobble (128-256m | | |
| % Pool: 15 | % Riffle | | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Boulder cobble (>256mm | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | • | , | | 0 |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | | Compaction; | | High ——— |
| Cover Total % : | | 25 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L. | D.D.: | 15 | Boulder: 35 In Veg.: | 0 | Over Veg: | 35 | Cutba | nk: | | 15 | | | | | |
| Crown Closure % : | | 70 | Method Crown Closure: | GE | Aspect : | NW | Metho | d Aspect: | | ΑE | Height (m): | 0.8 | % Unstable: | | o |
| | | _ | - | | | | | | | | Textures Fines: | No | Gravel: No Large | s: Yes Bedrock: | No |
| Discharge | | | | | i | | pecific Da | | | | Confinement: | 2 | | | |
| | | | 20 d 120 d 120 d 1 | | | .si | vecijic Da | 14 | | 1 | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | ļ | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | VO | 1 | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): Discharge (m3/s): | | 0.01 | Method Mean Velocity (m/s Method Discharge (m3/s): | VO | | | | | | İ | Braided: | N | Method Braided: | | GE |
| Discharge (m5/s) : | <u> </u> | J.OI | Method Discharge (m3/s) . | | 1 . | | <u></u> | | <u> </u> | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symbo | ı | | | | | | | | | | pH: | | Method pH: | | |
| | | | • | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyg | en: | |
| | | | | (DV) | | | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | TC |
| | | | 1 B 8.0 | 154 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | ĞĿ |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2~-Mar-9~

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

Comments

C1 The top of R1 is the end of fish distribution based on habitat suitability (pools are few and most are < 15 cm deep). D11 is classed as S4 habitat to the top of R1 and S6 habitat above R1.

C2 Inaccessible to fry due to steep gradient. Residents are assumed to be presence of DV in similar habitat as adjacent stream (D10).

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

| | | | | | | - | | | | | | | | | |
|---------------------|---------|-----------------|----------------------------------|---------|-------------|---------|------------|-----------|-----|-----|----------------------|--------|------------------------|----------------|---------|
| Header Info | rmatio | n | | | | | | | | | | | | | |
| Stream Name: | DENYS | C. TRI | BUTARY | | Stream "Lo | cal": | D11.1 | | | | | | Access: | | 11 |
| Watershed Code: | 460-600 | 6-5 08-5 | 84-210-D111 -000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.6 Method: | MW |
| Location: | SITELO | CATE | D ~100 in U/S FROM MOUTH. | | Map #: | 093L034 | l | | | | Site No.: | 2 | Length surveyed (m): | 50.0 Method: | GE |
| | | | | | U.T.M. : | 9.6123 | .60256 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 | Tim | e: 11:0 | O Agency: C58 Sur | vey Cre | ew: JH\ \ \ | 1111 | ١ | | | | Photos: | B3/11 | Air Photos: | BCB_911 | 181:062 |
| Channel Ch | aracte | risti | es | | | | Specific D |)ata | | 1 | Bed Material | | | | |
| Av. Chan. Width (m | 1): | 0.3 | Method Av. Chan. Width (m): | T | 0.6 | 0.3 | 0.3 | 0.0 | 0.4 | 0.2 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m) | : | 0.3 | Method Av. Wet. Width (m): | T | 0.5 | 0.2 | 0.3 | | | l | % Gravels: | 70 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | ı (cm): | 1 | Av. Max. Riffle Depth (cm): | MS | | | | | | - | 70 Graveis. | 70 | Large (16-64mm): | | |
| Av. Max. Pool Depti | h (cm): | 8 | Av. Max. Pool Depth (cm): | 1 | | | | | | | | | • | | |
| Gradient (%): | | 7.0 | Method Gradient: | CL | | | | | | ' | % Larges: | 20 | Small cobble (64-128mm | | |
| % Pool: 25 | % Riff | le: 75 | % Run: 0 % Other: | 0 | Method: | GE | | | | | 1 | | Large cobble (128-256m | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm | 1): | |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | _ | | | | | | | D90 (cm): | 8 | Compaction: | | High |
| Cover Total % : | | 0 | Method Cover Total %: | GE | | | | | | | D 1 | | | | |
| | L.O.D.: | 0 | Boulder: 0 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk. | | 0 | Banks | | | | |
| Crown Closure %: | | 50 | Method Crown Closure: | GE | Aspect : | SW | | od Aspect | : | ΑE | Height (m): | 0.6 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | | s: No Bedrock: | Νο |
| Disabaras | | | | | | | | | | | Confinement: | 2 | Gravei: No Large | s. No begrock. | NO |
| Discharge | | | | | | S | pecific De | ata | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | L L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s |): | | Method Mean Velocity (m/s | vo | | | | | | ĺ | Braided: | N. | Method Braided: | | GE |
| Discharge (m3/s): | | 0.01 | Method Discharge (m3/s): | | į | | | | | i | Bars (%): | 0 | Method Bars: | | GE |
| D / C | | | | | | | | <u></u> | ·· | | pH: | J | Method pH: | | 0., |
| Reach Syml | DOI | | (| Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyg | en: | |
| | | | | NS | | | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | 10 |
| | | | 0 B 7.0 | 172 | 20 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope | | | | | | | | Cond. (µmhos): | 230 | Method Conductivity: | | 4.25 |

Survey Form
Stream: DENYS C. TRIBUTARY
Stream: DENYS C. TRIBUTARY
Stream: DENYS C. TRIBUTARY
Stream: DENYS C. TRIBUTARY
Stream: DENYS C. TRIBUTARY
Stream: DENYS C. TRIBUTARY
Stream: DENYS C. TRIBUTARY

| Stream | N_{α} | llev | Cross- | Sec | tion |
|--------|--------------|--------|---------|-----|---|
| Sucano | ' | IIIC V | C/ U33- | ひしし | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |

Planimetric View

2~-Mar-97

Fish Summary Obstructions

Comments

C1 Channel is discontinuous and discharge is a trickle flow. No fish habitat present due to the small size of the tributary.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-208-000-000-000-000-000-000

| Header Informa | tion_ | | | _ | | | | | | | | <u> </u> | | |
|---------------------------|-------------------|---------------------------------|----------|-------------|---------|-----------------|----------|-----|-----|----------------------|------------|-------------------------|----------------|---------|
| Stream Name: DEN | YS C. TR | BUTARY | | Stream "Lo | cal": | D12 | | | | | | Access: | | Ħ |
| Watershed Code: 460- | 6006-5 08- | 584-208-000-000-000-000-000-000 | 1 | | | | | | | Reach No.: | ı | Reach Length (km): | 0.6 Method: | MW |
| Location: SITE | LOCATE | D ~200 m U/S FROM MOUTH. | | Map #: | 093L034 | | | | | Site No.: | 1 | Length surveyed (m): | 900.0 Method: | HC |
| | | | | U.T.M. : | 9.6116 | . 602 62 | | | | Fisb Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 | ime: 13: | 00 Agency: C58 Su | rvey Cre | :w: DB\CP\ | 1 1 1 1 | 1.1 | | | | Photos: | DB4/23, 24 | Air Photos: | BCB 911 | 181:174 |
| Channel Charac | teristi | cs | | | .5 | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | 3.8 | Method Av. Chan. Width (m): | T | 4.2 | 5.7 | 4.0 | 3.3 | 2.9 | 2.6 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 1.4 | Method Av. Wet. Width (m): | T | 1.4 | 0.9 | 1.9 | 1.7 | 1.8 | 1.0 | % Gravels: | 35 | Small (2-16mm): | | 15 |
| Av. Max. Rif. Depth (cm): | 12 | Av. Max. Riffle Depth (cm): | MS | 15 | 10 | 10 | | | | , or areas. | 33 | Large (16-64mm): | | 20 |
| Av. Max. Pool Depth (cm): | 28 | Av. Max. Pool Depth (cm): | 12 | 25 | 30 | 30 | | | ĺ | | | , | | |
| Gradient (%): | 9.0 | Method Gradient: | CL | | | | | | ı | % Larges: | 60 | Small cobble (64-128mm) | : | 20 |
| % Pool: 5 % F | kiffle: 95 | % Run: 0 % Other | : 0 | Method: | GE | | | | | | | Large cobble (128-256mr | 1): | 30 |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |): | 10 |
| % Debris Area: | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrack: | 0 | % Bedrock: | | 0 |
| Cover | | | · | | | | | | | D90 (cm): | 30 | Compaction: | | High |
| Cover Total % : | 80 | Method Cover Total %: | GE | | | | | | | Banks | | | | _ |
| Dp Pool: 0 L.O.D.: | 30 | Boulder: 60 In Veg.: | 0 | Over Veg: | 10 | Cutba | nk: | | 0 | Bunns | | | | |
| Crown Closure % : | 35 | Method Crown Closure: | GE | Aspect : | SE | Metho | d Aspect | : | ΑE | Height (m): | 0.6 | % Unstable: | | u |
| | _ | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | : Yes Bedrock: | No |
| Discharge | | | | | | ecific Da | | | | Confinentent: | 3 | | | |
| J | | | | ! | .j | ecyte Da | ita | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | , | | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | () (| | | | | | Flood Signs (1t(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0.07 | Method Discharge (m3/s): | | | | | | | | Bars (%): | 30 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | _ | | pH: | 8.0 | Method pH: | | PH |
| neuch Symbol | | | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygo | n: | |
| | | Ε | V RB* | | | | | | | Water Temp. (°C): | 3.0 | Method Temperature: | | IC |
| | | 4 A 9.0 | 0 136 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | ĞE |
| | | (Width, Valley: Channel, Slope | e) (Be | d Material) | | | | | | Cond. (µmhos): | 80 | Method Conductivity: | | CM |

2"-Mar-9" Stream: DENYS C. TRIBUTARY

Stream Survey Report

Watershed Code:

460-6006-508-584-208-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 3 | 71 - 123 | 3 | R | | | EL |
| DV | 3 | 35 - 38 | F | R | | | EL |
| RB | 6 | 27 - 29 | F | R | | | EL |

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 2 | Х | 0.9 |

- C1 Electrofished 65 m length of stream, 1 pass with no lower net. The char fry caught were recorded as DV fry. Suspect RB fry caught are residents due to their small size. RB spawning must occur u/s from the sample site for RB fry to be present here.
- C2 Dynamic creek based on extensive bar development and large amounts of debris present.
- C3 —600 m u/s from the mouth, numerous small debris jams are present (Photo B3/13). ~890 m u/s from mouth, a 2 m high debris jam in 2 steps was observed; currently a migration barrier but not a permanent barrier (Photo B3/14).
- C4 Lat/Lon of helicopter landing site: 54 22.45 127 16.92
- C5 Air Temp 1 C

2~-Mur-9^

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

| Header Inforn | ation | | | | | | | · | | | | |
|--|---------------------|----------------------------------|----------|----------------------|----------|--------------------------|--------------------|-----------------------------------|----------|---|----------------|---------|
| Stream Name: I | ENYS C. TR | IBUTARY | | Stream "L | ocal": | D12 | | | | Access: | | H |
| Watershed Code: 4 | 60-600 6-508 | -584-208-000-000-000-000-000-000 | | | | | | Reach No.: | 2 | Reach Length (km): | 2.2 Method: | MW |
| Location: S | ITE LOCATI | ED ~1200 in U/S FROM MOUTH. | | Map #: | 093L034 | 4 | | Site No.: | 2 | Length surveyed (m): | 150.0 Method: | HC |
| | | | | U.T.M. : | 9.6116 | .60262 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 | Time: 13 | 30 Agency: C58 Sur | vey Cre | w: JH\ \ \ | 111 | \ \ | | Photos: | B3/15 | Air Photos: | BCB 91 | 181:174 |
| Channel Char | acterist | ics | | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | 2.1 | ` , | T | 1.8 | 1.8 | 2.2 2.6 | 1.8 2.4 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (cn | 1.5 1): 10 | , , | T MS | 1.3 | 1.7 | 1.4 | | % Gravels: | 30 | Small (2-16mm): | | |
| Av. Max. Pool Depth (c) Gradient (%): | n): 16 | • ` ′ | 10 CL | | | | ~ | % Larges: | 65 | Large (16-64mm): Small cobble (64-128mm) | : | |
| % Pool: 15 | % Riffle: 8: | 5 % Run: 0 % Other: | 0 GE | Method: | GE | | | | | Large cobble (128-256mm Boulder cobble (>256mm | • | |
| % Side Channel: % Debris Area: | 0-10 | | GE | | | | | % Bedrock: | 0 | % Bedrock: | ,. | 0 |
| Cover | | | | | | | | D90 (cm): | 25 | Compaction: | 1 | Medium |
| Cover Total % : | 40 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 0 L.O. Crown Closure %: | D.: 10 | • | 0 GE | Over Veg: Aspect: | 20 SE | Cutbank: Method Aspec | 20 : A E | | | | | |
| Clown Closuit 70 . | | Method Clown Closure. | - GL | | | | - AL | rteight (m). | 0.7 | % Unstable: | | 0 |
| Dischange | | | | | _ | | | Textures Fines: | No | Gravel: No Larges | : Yes Bedrock: | No |
| Discharge | | | | | S | pecific Data | | Confinement: Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | Stage: | L L | | | |
| Mean Depth (m) : | | Method Mean Depth (m): | | į | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | - | | | | Braided: | 0.2 N | Method Braided: | | GŁ |
| Discharge (m3/s): | 0.02 | Nethod Discharge (m3/s): | | | | | | Bars (%): | 15 | Method Bars: | | GE |
| Daniel Constant | , | | | | | | | pll: | | Method pH: | | PH |
| Reach Symbol | | (I | Fish) | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | ••• |
| | | | (SP) | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | - | ic |
| | | 2 B 7.0 | 1360 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | | | | | | Cond. (µmhos): | 200 | Method Conductivity: | | |

2~-Mar-9~

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-208-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

No complete barriers to fish between Site 2 and D12 mouth. D12 is classed as having fish up to 400 m u/s in R2; above this, the creek gradient is a continuous 20% and cannot support fish.

C2 D12.1 was surveyed and has no defined channel (enters D12 as a seepage). No fish habitat present.

2"-Mar-9"

Stream: LOLJUH C.

Watershed Code:

Stream Survey Report

460-6006-508-584-214-000-000-000-000-000-000

| Stream Name: | LOLJUH C. | | | | Stream "Lo | cal": | LOLJUH C. | | | | Access: | | FΤ |
|--|-------------|------|--|---------|-------------|---------|----------------|---------|----------------------|-----------|---------------------------|---------------|---------|
| Watershed Code: | 460-6006-56 | 8-58 | 4-214-000-000-000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 6.2 Method: | MW |
| Location: | SITE LOCA | TED | ~3200 m U/S FROM LOLJUH C. | | Map#: | 093L034 | , | | Site No.: | ı | · · · | 200.0 Method: | HC |
| | CONFLUE | ICE. | | | U.T.M. ; | 9.6118 | .60262 | | Fish Card: | Y | Field: Yes I | listorical: | No |
| Date: 9/16/96 | Time: | 4:00 | Agency: C58 Sur | vey Cr | ew: RD\CP\ | 1 1 1 1 | \ \ | | Photos: | A1/18, 19 | Air Photos: | BCB 911 | 181:173 |
| Channel Ch | aracteris | tics | 5 | | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m |): | 3.7 | Method Av. Chan. Width (m): | T | 8.3 | 8.3 | 10.4 9.6 | 7.5 8.1 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet, Width (m): | | 5.4 | Method Av. Wet. Width (m): | T | | | | | % Gravels: | 30 | Small (2-16mm): | | 15 |
| Av. Max. Rif. Depth | (cm): | 20 | Av. Max. Riffle Depth (cm): | MS | | | | | | | Large (16-64mm): | | 15 |
| Av. Max. Pool Depth | (cm): | 55 | Av. Max. Pool Depth (cm): | 20 | | | : | | 9/ 1 | 65 | Small cobble (64-128mm): | | 40 |
| Gradient (%): | | | Method Gradient: | CL | | | | | % Larges: | 0.5 | Large cobble (128-256mm): | | 23 |
| % Pool: 25 | % Riffle: | | % Run: 25 % Other: | | Method: | GE | | | | | Boulder cobble (>256mm): | | 2.5 |
| % Side Channel: | 10- | | Method Side Channel: | GE | | | | | J., | | • | | |
| % Debris Area: | | 10 | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | D90 (cm): | 18 | Compaction: | | Medium |
| Cover Total % : | | 80 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 10 1 | O.D.: | 10 | Boulder: 75 In Veg.: | 0 | Over Veg: | 5 | Cutbank: | 0 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect: | sw | Method Aspect: | AE | Height (m): | 1.0 | % Unstable: | | U |
| | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | | c | pecific Data | | Confinement: | 4 | | | |
| · · | | | Made 3 Was Assistant Cons | | į | SĮ. | ecyc Data | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | Stage: | М | | | |
| Mean Depth (m): Mean Velocity (m/s) | | | Method Mean Depth (m) : Method Mean Velocity (m/s | vo | 1 | | | | Flood Signs Ht(m): | 0.7 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | 1.0 | | Method Discharge (m3/s): | VO | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) . | | | | | 1 | | | | Bars (%): | 25 | Method Bars: | | GE |
| Reach Symb | ool | | | | | | | | pH: | 8.3 | Method pH: | | PH |
| | | | , | Fish) | n. | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | | | DV (R. | ช) | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | IC. |
| | | | 9 C 1.0 | 136 | 0 | | | | Turb. (cm): | 200 | Method Turbidity: | | Gl: |
| | | | (Width, Valley: Channel, Slope) |) (Be | d Material) | | | | Cond. (µmhos); | | Method Conductivity: | | |

2"-Mar-9" Stream: LOLJUHC

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 4 | 112 - 150 | A | S | | | MT |
| вт | i | 92 | J | R | | | MT |

Obstructions

| (| 21 | Set 5 minnow traps overnight at site card location. DV caught were mature males suspected to be spawning or to be already spawned-out. A juvenile BT was also caught at the trapsite. |
|---|----|---|
| (| C2 | Suspected BT redds were observed: 1BT redd ~500 m u/s from the Loljuh confluence; 1 BT redd ~500 m u/s from L5 confluence. Suspect this is a significant area for BT spawning in the Thautil R, watershed. |
| • | С3 | Numerous char fry and juvenile salmonids were observed throughout R1. |
| 1 | C4 | Dynamic creek with a high potential to transport debris. Debris jams were observed on this creek. |
| 1 | C5 | Bed material consists primarily of cobble; sections suitable for CO/RB/BT spawning are present. |
| | C6 | · 2500 m u/s from the Loljuh confluence, an unstable bank was observed on river left4200 m u/s from the Loljuh confluence, a slump on R. right was noted (Photo A3/8). 5100 m u/s from the Loljuh confluence, another unstable bank was observed. |
| | C7 | 1.1 and 1.4 were not observed during Loljuh C. survey. |

Stream: LOLJUH C.

Watershed Code:

Stream Survey Report

460-6006-508-584-214-000-000-000-000-000-000-000

| Stream Name: | LOLJUH C. | | | Straam UI | | 101.11 | | | | | | | | |
|--|---------------|--|----------|-------------------|------------|--------------|------------|------------|----------|----------------------------------|---------|--|------------------------------|--------|
| Watershed Code: | 460-6006-508 | -584-214-000-000-000-000-000-000 | n | Stream "L | ocai~; | LOLJU | HC. | | | | | Access: | | FT |
| Location: | | ED~1000 m U/S FROM BASE OF R2. | | Map#: U.T.M. : | 093L03 | .60262 | | | | Reach No.: Site No.: | 2 | Reach Length (km): Length surveyed (m): | 1.2 Method: 200.0 Method: | MW |
| Date: 9/18/96 | Time: 17 | :00 Agency: C58 Su | irvey Cr | 'ew: RD\ \ \ | | | | | | Fish Card: Photos: | N | | Historical: | No |
| Channel Cha | racterist | | | | | | | | | Т | A4/8, 9 | Air Photos: | BCB 911 | 81:170 |
| Av. Chan. Width (m) | _ | | | ! | | Specific Dat | a | | | Bed Material | | | | |
| v. Wet. Width (m): | 3.: | Method Av. Wet. Width (m): | T T | 4.1 4.1 | 4.3 4.3 | 2.8 2.8 | 2.5 2.5 | 2.7 2.7 | | % Fines (<2n1m): | 0 | % Fines (<2mm): | | 0 |
| Av. Max. Rif. Depth (| • | Av. Max. Riffle Depth (cm): | MS | | | | | | ĺ | % Gravels: | 30 | Small (2-16mm): | | 10 |
| Av. Max. Pool Depth | ` , | to the contract of the contrac | 8 | | | | | | | 1 | | Large (16-64mm): | | 20 |
| Gradient (%): | 4.0 | | CL | , | | | | | . | % Larges: | 70 | Small cobble (64-128mm): | | 30 |
| 6 Pool: 20 6 Side Channel: | % Riffle: 7: | 70 Other | | Method: | GE | | | | | ĺ | | Large cobble (128-256mm): | | 35 |
| 6 Debris Area: | 0-10 10-40 | same chamie. | GE | | | | | | | | | Boulder cobble (>256mm): | | 5 |
| —————————————————————————————————————— | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 15 | Compaction; | | High |
| over Total % : | 80 | Method Cover Total %: | GE | | | | | | | | | | | |
| p Pool: O L. | O.D.: 10 | Boulder: 90 In Veg.: | 0 | Over Veg: | 0 | Cabal | | | | Banks | | | | |
| rown Closure %: | 20 | Method Crown Closure: | GE | Aspect: | NW | Cutbank | | | 0 | | | | | |
| | | | | | 14.44 | Method A | vsbect: | | AE | Height (m): | 0.8 | % Unstable: | | () |
| Discharge | | | | | | | | | _ | Textures Fines: | Yes | Gravel: Yes Larges: h | No Bedrock: | No |
| · · | | | | | Sp | ecific Data | | | ;] | Confinement: | 3 | | | |
| etted Width (m): | | Method Wetted Width (m): | | | | | | | | Valley: Chan. Ratio: | 1 | | | |
| ean Depth (m) : | | Method Mean Depth (m): | ì | | | | | | | Stage: | М | | | |
| can Velocity (m/s) : scharge (m3/s) : | 0.60 | Method Mean Velocity (m/s | VO | | | | | | 1 | Flood Signs 11t(m): | 0.2 | Method Flood Signs: | | MS |
| | 0.60 | Method Discharge (m3/s): | | | | | | | | Braided: | N | Method Braided: | | GE |
| each Symbo | l | | | | | | • • • • • | | \dashv | Bars (%): | 0 | Method Bars: | | GE |
| - 5 | - | (I | Fish) | | | | | | ĺ | pH: | 8.0 | Method pH: | | PH |
| | | | DV | _ | | | | | ľ | 02 (ppm): | 4.0 | Method Dissolved Oxygen: | | |
| | | 3 A 4.0 | 0370 | | _ | | | | - 1 | Water Temp. (°C): Turb. (cm): | 6.0 | Method Temperature: | | H |
| | | (Width, Valley: Channel, Slope) | (Bed | Material) | | | | | - 1 | Cond. (µmhos): | 200 | Method Turbidity: Method Conductivity: | | GE |

2"-Mar-9"

Stream: LOLJUH C.

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference | |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|---|
| DV | 1 | 250 | Α | S | | | VO | _ |
| DV | 1 | | Ī | Ř | | | vo | |
| DV | 2 | | F | R | li | | vo | |

Obstructions

- C1 The DV visually observed in R2 were confirmed as DV once sampling results showed that R2 and u/s exclusively contain DV.
- C2 Channel is more stable in R2 than in R1. Debris steps were also present in R2; may be restrictions to BT migration at certain flows.
- C3 Limited spawning potential present in this section of R2.
- C4 -500 m u/s from base of R2, an unstable bank on river left was observed.
- C5 L11 and L12 enter Loljub C, mainstem over a steep embankment; no defined channels were observed for both tributaries, and no fish habitat is present. L14, L15, and L16 were not observed during Loljub C, survey.

2"-Mar-9"

Stream: LOLJUH C.

Watershed Code:

Stream Survey Report

460-6006-508-584-214-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | |
|---------------------|---------|------------------|--|--------------------|--------|----------------|-----|-----|----------------------|-----------|--|----------------|---------|
| Stream Name: | LOLJU | IC. | | Stream "Lo | ocal": | LOLJUH C. | | | | | Access: | | н |
| Watershed Code: | 460-600 | 6 -508 -5 | 84-214-000-000-000-000-000-000-000 | | | | | | Reach No.: | 3 | Reach Length (km): | 0.3 Method: | MW |
| Location: | SITE LO | CATE | D~150 m U/S FROM THE R3 BOUNDA | RY. Map #: | 093L03 | 5 | | | Site No.: | 3 | Length surveyed (m): | 300 0 Method: | : HC |
| | | | | U.T.M. : | 9.6118 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 | Tim | e: 13:0 | O Agency: C58 Surve | y Crew: RD\ \ \ | 111 | \ \ \ | | | Photos: | A4/15, 16 | Air Photos: | BCB 911 | 181:170 |
| Channel Ch | aracte | risti | es | : | | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m) |): | 1.4 | Method Av. Chan. Width (m): | T 1.4 | 2.1 | 1.1 1.3 | 0.9 | 1.3 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 1.4 | Method Av. Wet. Width (m): | T 1.4 | 2.1 | 1.1 1.3 | 0.9 | 1.3 | % Gravels: | 30 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth | (cm): | 7 | | AS | | | | | | | Large (16-64mm): | | 20 |
| Av. Max. Pool Depth | (cm): | 2 5 | Av. Max. Pool Depth (cm): | 7 | | | | | l | | | | |
| Gradient (%): | | 5.0 | | CL | | | | | % Larges: | 60 | Small cobble (64-128mm | | 25 |
| % Pool: 20 | % Riff | | % Run: 25 % Other: | 0 Method: | GE | | | | | | Large cobble (128-256m Boulder cobble (>256mn | • | 35 0 |
| % Side Channel: | | 0 | | GE | | | | | | | · | 1): | U |
| % Debris Area: | 5 | | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | U |
| Cover | _ | | | | | | | | D90 (cm): | 15 | Compaction: | | Medium |
| Cover Total % : | | 75 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 10 L | .O.D.: | 5 | Boulder: 25 In Veg.: | 0 Over Veg: | 20 | Cutbank: | | 40 | | | | | |
| Crown Closure % : | | | Method Crown Closure: | Aspect: | NW | Method Aspect: | | ΑE | lleight (m): | 2.0 | % Unstable: | | 0 |
| | | <u> </u> | | | | | | | Textures Fines: | Yes | Gravel: Yes Large | s: No Bedrock: | No |
| Discharge | | | | | c | pecific Data | • | | Confinement: | 2 | | | |
| _ | | | Method Wetted Width (m): | Ì | ٠, | pecijie Daia | | ļ | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | | Ì | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): Method Mean Velocity (m/s | vo . | | | | | Flood Signs 11t(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | • | 0.20 | Method Discharge (m3/s): | VO . | | | | | Braided: | N | Method Braided: | | GE: |
| Discharge (m3/s) : | | 0.20 | | <u> </u> | | <u> </u> | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ool | | | | | | | | pH: | 7.8 | Method pH: | | PH |
| | | | (Fi | | | | | | 02 (թթու)։ | | Method Dissolved Oxyg | en: | |
| | | | D | / * ———— | | | | | Water Temp. (°C): | 9.0 | Method Temperature: | | 10 |
| | | | 1 A 5.0 | 1360 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GI: |
| | | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2~-Mar-9~

Stream: LOLJUH C.

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 2 | 147 - 150 | Α | S | М | | MT |
| DV | 2 | 102 - 122 | J | R | | | MT |

Obstructions

- C1 5 minnow traps were set for 24 hours; the DV adults caught were ripe males. A spawning pair of DV ~250 300 mm long were visually observed; this confirms that DV are spawning in R3. Numerous juvenile fish were also observed in this reach.
- C2 Stable lake outlet (ie. the lower take) with cobble bed material and sections of gravel suitable for spawning. The lower 100 m of R1 contains excellent small fish spawning gravels.
- The lower lake is very shallow with a muddy bottom and weeds surround the edge of the lake. The channel between the two lakes is heavily weeded with small cobble bed material and has no spawning potential. Gradient is <1%. The upper lake outlet consists of a breached 1.5 m high beaver dam presently a restriction to juveniles with a 30 cm high drop at outlet and estimated 5 cfs flow.
- C4 Tributaries L21 and L22 were not observed during the Loljuh C. survey.

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-224-000-000-000-000-000-000

| Header Info | rmati | on | | | | | | | | | | |
|----------------------------|----------------|-----------------------|--|-------------|-----------------|----------------|----------|----------------------|-----------|---------------------------|--------------|---------|
| Stream Name: | | | IBUTARY | Stream "L | ocal"; | L2 | | | | Access: | | Fi |
| Watershed Code: | | | 884-214-224-000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 0.7 Method: | MW |
| Location: | SITE L | OCATE | D~150 m U/S FROM L2 MOUTH. | Map #: | 09 3L034 | | | Site No.: | ì | Length surveyed (m): 2 | 00.0 Method: | HC |
| | | | | U.T.M. : | 9.6134 | | | Fish Card: | N | Field: Yes H | istorical: | No |
| Date: 9/16/96 | Tin | ne: 12:3 | Agency: C58 Survey Cr | ew: RD\CP\ | 1111 | 1 1 | | Photos: | A1/16, 17 | Air Photos: | BCB 911 | 181:173 |
| Channel Ch | aracte | eristi | cs | • | .5 | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m | | 1.4 | Method Av. Chan. Width (m): T | 1.8 | 1.7 | 1.3 1.1 | 1.3 1.4 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 1.3 | Method Av. Wet. Width (m): T | | | | | % Gravels: | 20 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth | | 4 | Av. Max. Riffle Depth (cm): MS | | | | | | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth | (cm): | 8 | Av. Max. Pool Depth (cm): 4 Method Gradient: CL | į | | | | % Larges: | 70 | Small cobble (64-128mm): | | 30 |
| Gradient (%): % Pool: 10 | 0/ D:6 | 16.0 Ne: 90 | Method Gradient: CL % Run: 0 % Other: 0 | Makada | CF | | | , a surgest | | Large cobble (128-256mm): | | 40 |
| % Pool: 10 % Side Channel: | 70 KII | 11 e : 90 | Method Side Channel: GE | Method: | GE | | | | | Boulder cobble (>256mm): | | 0 |
| % Debris Area: | 5 | U | Method Debris Area: GE | | | | | 9/ 10-1-0-1 | 0 | | | 0 |
| / Debris Arex: | ر | | Method Debris Area: GE | | | | | % Bedrock: | 0 | % Bedrock: | | Û |
| Cover | | | | | | | | D90 (cm): | 16 | Compaction: | ٨ | Medium |
| Cover Total % ; | | 70 | Method Cover Total %: GE | | | | | Banks | | | | |
| Dp Pool: 0 I | O. D .: | 0 | Boulder: 100 In Veg.: 0 | Over Veg: | 0 | Cutbank: | 0 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | Aspect: | NW | Method Aspect: | Al | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | <u> </u> | | | _ | | Textures Fines: | No | Gravel: Yes Larges: Y | es Bedrock: | No |
| Discharge | | | | | Ç, | pecific Data | - | Confinement: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | ; | J. | vecijie Dula | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | ! | | | | Stage: | М | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s VO | | | | | Flood Signs Ht(m): | 0.12 | Method Flood Signs: | | MS |
| Discharge (m3/s): | • | 0.06 | Method Discharge (m3/s): | 1 | | | | Braided: | N | Method Braided: | | GE |
| Discharge (mors) . | | 0,00 | Tremou Discharge (m3/3). | <u> </u> | | | <u> </u> | Bars (%): | 2 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | pH: | 8.5 | Method pH: | | PH |
| | | | (Fish) | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | | NS | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | łt |
| | | | i A 16.0 127 | 0 | | | | Turb. (cm): | 200 | Method Turbidity: | | Gŀ |
| | | | (Width, Valley: Channel, Slope) (Be | d Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: LOLJUH C. TRIBUTARY

Stream Survey Report

460-6006-508-584-214-224-000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Stable system potential to move small debris in flood events.
- C2 Gradient ~24% in the lower 30 in of tributary; D2 not accessible to fish due to small size of creek and high gradient.

2"-Mar-9" Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-285-000-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | |
|---------------------|--------------|-----------------------------------|-----------------|------------|----------------|---------|----------------------|-----------|-------------------------|---------------|---------|
| Stream Name: | LOLJUH C. | TRIBUTARY | Stream "L | cal": | L3 | | | | Access: | | FT |
| Watershed Code: | 460-6006-50 | 8-584-214-285-000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 0.5 Method: | . MW |
| Location: | ~300 m U/S I | FROM L3 CONFLUENCE. | Map #: | 093L034 | | | Site No.: | ı | Length surveyed (m): | 500.0 Method: | : НС |
| | | | U.T.M. : | 9.6137 .60 | 0271 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/16/96 | Time: 1 | 4:30 Agency: C58 Surv | ey Crew: RD\CP\ | 1111 | ١ | | Photos: | A1/20, 21 | Air Photos: | BCB 91 | 181:173 |
| Channel Ch | aracteris | tics | | Spe | cific Data | · | Bed Material | | | | |
| Av. Chan. Width (m | • | l Method Av. Chan. Width (m); | T 4.5 | 4.6 | 4.4 5.3 | 6.1 5.5 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 5 Method Av. Wet. Width (m): | T | | | | % Gravels: | 20 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | | 8 Av. Max. Riffle Depth (cm): | MS | | | | | | Large (16-64mm): | | 15 |
| Av. Max. Pool Depti | , , | • • • • | 8 | | | | % Larges: | 75 | Small cobble (64-128mm) | • | 40 |
| Gradient (%): | | .0 Method Gradient: | CL | O.F. | | | / Larges. | 73 | Large cobble (128-256mr | | 30 |
| % Pool: 20 | % Riffle: | | 0 Method: | GE | | | | | Boulder cobble (>256mm | • | 5 |
| % Side Channel: | 0-1 | | GE GE | | | | e/ Dadasaka | 0 | | ,. | 0 |
| % Debris Area: | U-1 | o Method Debris Area: | UE | | | | % Bedrock: | 0 | % Bedrock: | | U |
| Cover | | | | | | | D90 (cm): | 22 | Compaction: | i | Medium |
| Cover Total % : | 6 | 0 Method Cover Total %: | GE | | | | Banks | | | | |
| Dp Pool: 20 l | O.D.: | 0 Boulder: 70 In Veg.: | 0 Over Veg: | 0 | Cutbank: | 0 | | | | | |
| Crown Closure % : | | Method Crown Closure: | Aspect : | NW | Method Aspect: | Al | E Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges | : No Bedrock: | No |
| Discharge | | | | S | rific Data | | Confinement: | 3 | | | |
| | | | | Spec | tyte Data | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | i | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | vo | | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s) | | Method Mean Velocity (m/s | vo | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.14 | Method Discharge (m3/s) : | ! | | | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symb | ool | | | | | | pH: | 8.4 | Method pli: | | PH |
| | | | ish) | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| 1 | | | SP | <u>_</u> | | | Water Temp. (°C): | 5.0 | Method Temperature: | | IC |
| | | 5 A 9.0 | 1270 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-285-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | Х | 0.5 |

Comments

C2

C1 Small, stable stream with moderate gradient. Bed material consists of cobble; no potential spawning.

Numerous -0.3 m high drops over stops logs were observed in R1; barriers to fry and may be barriers to juveniles. -500 m u/s from the mouth and at the top of R1, a 1.2 m high drop over a debris jam was noted; barrier to fry and juveniles, restriction to adults.

2~-Mar-9~

Stream: LOLIGH C TRIBLITARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-285-000-000-000-000-000

Header Information Stream Name: LOLJUH C. TRIBUTARY Stream "Local": 1.3 Access: FI Watershed Code: 460-6006-508-584-214-285-000-000-000-000-000-000 Reach No.: Reach Length (km): 1.3 Method: MW Map#: Location: ~650 m U/S FROM L3 CONFLUENCE, ~150 m U/S FROM 0931.034 Site No.: Length surveyed (m): 150.0 Method: HC REACH BREAK. U.T.M.: 9.6137 .60271 Fish Card: Field: Yes Historical: No Date: 9/16/96 Time: 15:00 Agency: C58 Survey Crew: RD\CP\\\\\\\\\ Photos: A1/22, 23 Air Photos: BCB 91181:173 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 4.6 Method Av. Chan. Width (m): T 5.0 4.8 % Fines (<2mm): % Fines (<2mm): Av. Wet. Width (m): Method Av. Wet. Width (m): τ % Gravels: Small (2-16mm): 5 Av. Max. Rif. Depth (cm): 7 Av. Max. Riffle Depth (cm): MS Large (16-64mm): 10 7 Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): % Larges: Small cobble (64-128mm): 25 Gradient (%): Method Gradient: CLLarge cobble (128-256mm): 40 % Pool: 15 % Riffle: 80 % Run: 5 % Other: 0 Method: GE 15 Boulder cobble (>256mm): % Side Channel: Method Side Channel: GE 10-40 Method Debris Area: GE % Debris Area: % Bedrock: % Bedrock: 0 D90 (cm): Compaction: Medium Cover Cover Total % : Method Cover Total %: GE Banks Over Veg: Dp Pool: 10 L.O.D.: Boulder: 80 In Veg.: 0 Cutbank: 0 Crown Closure %: Method Crown Closure: Method Aspect: Aspect: Height (m): % Unstable: 0 Textures Fines: Gravel: Yes Larges: No Bedrock: No Discharge 3 Confinement: Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): М Stage: Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): Method Flood Signs: MS vo Mean Velocity (m/s): Method Mean Velocity (m/s Braided: Method Braided: GE: Discharge (m3/s): 0.10 Method Discharge (m3/s): Bars (%): Method Bars: GE. pH: Method pH: PH Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: (SP) Water Temp. (°C): Method Temperature: 10 5 A 12.0 1180 GF Turb. (cm): Method Turbidity: (Width, Valley: Channel, Slope) (Bed Material) Cond. (µmhos): Method Conductivity:

2~-Mar-9~

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 Gradient is ~16% for the lower 20 m of R2 and then decreases to an average of 12% for the remainder of R2. Suspect no fish above 1.2 m debris jam (top of R1) and 16% section, but fish presence is possible. R2 is classed as suspected S3 based on the presence of fish above large falls in L10 and L17.
- C2 Bed material in R2 consists of boulder/cobble; very limited potential spawning.

2~-Mar-9~

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-363-000-000-000-000-000-000

| Header Infor | mation | | | | | | | <u> </u> |
|-----------------------|---------------|---------------------------------|------------------|------------------|----------------------|---------|--------------------------|------------------|
| Stream Name: | LOLJUH C. TE | RIBUTARY | Stream "Loca | at": L5 | | | Access: | F3 |
| Watershed Code: | 460-6006-508- | 584-214-363-000-000-000-000-000 | | | Reach No.: | ı | Reach Length (km): | 0.2 Method: MW |
| Location: | ~100 m U/S FR | OM L5 CONFLUENCE. | Map #: 0 | 93L034 | Site No.: | 1 | Length surveyed (m): | 235.0 Method: HC |
| | | | U.T.M.: 9 | 9.6143 .60273 | Fish Card: | N | Field: Yes | Historical: No |
| Date: 9/16/96 | Time: 17: | 10 Agency: C58 Surve | y Crew: RD\CP\ \ | 1111 | Photos: | A2/2, 3 | Air Photos: | BCB 91181:173 |
| Channel Cha | ıracteristi | cs | | Specific Data | Bed Material | | | |
| Av. Chan. Width (m): | 2.5 | ` ' | Т | 5 5 | % Fines (<2mm): | 5 | % Fines (<2mm): | 5 |
| Av. Wet. Width (m): | 2.5 | ` , | T | | % Gravels: | 40 | Small (2-16mm): | 15 |
| Av. Max. Rif. Depth (| cm): 8 | Av. Max. Riffle Depth (cm): | MS | | | | Large (16-64mnı): | 25 |
| Av. Max. Pool Depth | (cm): 25 | Av. Max. Pool Depth (cm): | 8 | | | | - | |
| Gradient (%): | 3.0 | | CL | | % Larges: | 55 | Small cobble (64-128mm): | 35 |
| % Pool: 15 | % Riffle: 75 | | 0 Method: G | GE . | | | Large cobble (128-256mm) | |
| % Side Channel: | 0 | | GE | | | | Boulder cobble (>256mm): | 0 |
| % Debris Area: | 10-40 | Method Debris Area: | GE | | % Bedrock: | 0 | % Bedrock: | 0 |
| Cover | | | | | D90 (cm): | 13 | Compaction: | Mediun |
| Cover Total % : | | Method Cover Total %: | | | Banks | | | |
| Dp Pool : L. | O.D.: | Boulder: In Veg.: | Over Veg: | Cutbank: | Dunns | | | |
| Crown Closure % : | 10 | Method Crown Closure: | GE Aspect: | S Method Aspect: | AE Height (m): | 0.5 | % Unstable: | U |
| | | | | _ | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: No |
| Discharge | | | T. | Specific Data | Confinement: | 4 | | • |
| _ | | Made Allica Allica (a) | | эресук Риш | Valley: Chan. Ratio: | 2 | | |
| Wetted Width (m): | | Method Wetted Width (m): | · | | Stage: | М | | |
| Mean Depth (in) : | | Method Mean Depth (m): | | | Flood Signs Ht(m): | 0.15 | Method Flood Signs: | MS |
| Mean Velocity (m/s): | | • ` | vo | | Braided: | N | Method Braided: | GL |
| Discharge (m3/s): | 0.06 | Method Discharge (m3/s): | i | | Bars (%): | 0 | Method Bars: | Gl |
| Reach Symbo | | | · | | pH: | 8.4 | Method pH: | Pi |
| Seach Dymbe | <i>.</i> | (Fi | | | 92 (ppm): | | Method Dissolved Oxygen: | |
| | | SP (DV | ') (BT) | | Water Temp. (°C): | 6.0 | Method Temperature: | 10 |
| | | 3 B 3.0 | 1450 | _ | Turb. (cm); | 200 | Method Turbidity: | GF |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | Cond. (µmhos): | | Method Conductivity: | · |

27-Mur-9" Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-363-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference | SP | J | VO

Obstructions

- C1 Observed juvenile salmonids in the lower 120 m; suspect DV/BT are present.
- C2 Small creek. Easy fish access in lower R1. Potential spawning gravels were noted; no fry were observed. Fish distribution ends at the top of R1 based on the 1 m high drop at the reach break and the steep gradient in R2.
- C3 Moderate potential for trib, to move small debris.

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-363-000-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | | | | |
|--|-------------|---|----------|-------------------|---------|------------|-----------|-----|----|----------------------|-----------|--------------------------|---------------|--------|
| Stream Name: | LOLJUH C. | TRIBUTARY | S | Stream "Lo | cal": | L.5 | | | | | | Access: | | FT |
| Watershed Code: | 460-6006-50 | 3-584-214-363-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.0 Method: | : MW |
| Location: | ~350 m U/S | ROM L5 CONFLUENCE, ~120 m U/S FR | ROM N | lap#: | 093L034 | ļ | | | | Site No.: | 2 | Length surveyed (m): | 150.0 Method: | : HC |
| | REACH BRI | AK. | ι | J. T.M . : | 9.6143 | .60273 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/16/96 | Time: 1 | 6:50 Agency: C58 Surv | ey Crew: | RD\CP\ | \ \ \ \ | ١ ١ | | | | Photos: | A1/24, 25 | Air Photos: | BCB 91 | |
| Channel Cha | aracteris | tics | i | | | Specific L | Data | | | Bed Material | | | | |
| Av. Chan. Width (m) | | , | т | 1.9 | 2.4 | 3.7 | 3.1 | 2.2 | ĺ | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (| 2 (cm): | 7 Method Av. Wet. Width (m): 6 Av. Max. Riffle Depth (cm): | T MS | 1.9 | 2.4 | 3.7 | 3.1 | 2.2 | | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Pool Depth | | • • • | 6 | | | | | | |] | | Large (16-64mm): | | 10 |
| Gradient (%): | 12 | • | CL | | | | | | i | % Larges: | 80 | Small cobble (64-128mm): | | 20 |
| % Pool: 10 | % Riffle: | | 0 | Method: | GE | | | | | | | Large cobble (128-256mm |) : | 40 |
| % Side Channel: | | 0 Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm) | : | 20 |
| % Debris Area: | 10-4 | 0 Method Debris Area: | HC | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 29 | Compaction: | ı | Medium |
| Cover Total % : | 7 | 0 Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L | .O.D.: | Boulder: 100 In Veg.: | 0 0 | Over Veg: | 0 | Cutba | nk: | | 0 | Dunks | | | | |
| Crown Closure %: | 2 | 0 Method Crown Closure: | GE A | Aspect : | S | Metho | od Aspect | : | ΑE | Height (m): | 8.0 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | Yes |
| Discharge | | | | | Ç, | ecific De | nta | | | Confinement: | 1 | | | |
| | | Marked Wassed Widel () | | | - Sp | etijit Di | 414 | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | | Stage: | M | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.15 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0.0 | Method Discharge (m3/s): | , i | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | pH: | 8.4 | Method pH: | | PH |
| Symo | •• | | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | : | |
| | | | NS | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | 10 |
| | | 3 B 12.0 | 1180 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed M | laterial) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location | |
|-------------------|------|----------|--|
| 1 | X | 0.2 | |

Comments

C1 Short section at the bottom of R2 with ~18% gradient and 1 to 1.5 m high drops. End of fish access at 234 m (1 m high debris jam).

C2 Very confined and steep single channel throughout R2.

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-363-L5.-2 -000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | |
|---------------------|---------|-----------------|---------------------------------|----------|-------------|------------------|---------------|------|----|----------------------|------------|------------------------|----------------|---------|
| Stream Name: | LOLJUH | C. TR | IBUTARY | | Stream "Lo | cal": | L5.2 | | | | | Access: | | н |
| Watershed Code: | 460-600 | 6-50 8-5 | 84-214-363-L52 -000-000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.4 Method: | MW |
| Location: | ~50 M D | /S FRO | M HEADWATER LAKE. | | Map #: | 093 L03 4 | 1 | | | Site No.: | 3 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | U.T.M. : | 9.6140 | .60284 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Time | e: 11:1 | 5 Agency: C58 Sur | vey Cre | w: DB\ \ \ | 1 1 1 | \ \ | | | Photos: | DB1/10, 11 | Air Photos: | BCB 911 | 181:173 |
| Channel Ch | aracte | ristic | es . | | | | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.0 | Method Av. Chan. Width (m): | T | | | | - | | % Fines (<2mm): | 40 | % Fines (<2mm): | | 40 |
| Av. Wet. Width (m): | | 1.0 | Method Av. Wet. Width (m): | T | | | | | | % Gravels: | 60 | Small (2-16mm): | | 40 |
| Av. Max. Rif. Depth | - | 6 | Av. Max. Riffle Depth (cm): | MS | | | | | Ì | | | Large (16-64mm): | | 20 |
| Av. Max. Pool Depth | (cm): | 25 | Av. Max. Pool Depth (cm): | 6 | | | | | | % Larges: | 0 | Small cobble (64-128mm | ١٠ | 0 |
| Gradient (%): | | 6.0 | Method Gradient: | CL | | | | | | 70 Larges. | Ū | Large cobble (128-256m | • | 0 |
| % Pool: 70 | % Riff | | % Run: 0 % Other: | | Method: | GE | | | | | | Boulder cobble (>256mm | - | 0 |
| % Side Channel: | | 0 | Method Side Channel: | GE GE | | | | | | R/ Datas I | 0 | • | -,- | 0 |
| % Debris Area: | | 0-10 | Method Debris Area: | - GE | | | | | | % Bedrock: | 0 | % Bedrock: | | () |
| Cover | | | | | | | | | | D90 (cm): | 3 | Compaction: | | High |
| Cover Total % : | | 100 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 0 L | .O.D.: | 20 | Boulder: 0 In Veg.: | 0 | Over Veg: | 30 | Cutbank: | | 50 | | | | | |
| Crown Closure %: | | 70 | Method Crown Closure: | GE | Aspect : | E | Method As | ect: | AE | Height (m): | 0.2 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: No Large | s: No Bedrock: | No |
| Discharge | | | | | ! | c | pecific Data | | | Confinement: | 3 | | | |
| Wasaa Widah () | | | Mathed Watted Width (m) | | İ | 3, | pecific Dail | | | Valley: Chan. Ratio: | ì | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | Ì | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | vo | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | • | 0.03 | Method Mean Velocity (m/s | VO | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.03 | Method Discharge (m3/s): | | ! | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | pH: | | Method pH: | | |
| | | | , | Fish) | | | | | | 02 (ppm): | | Method Dissolved Oxyg | en: | |
| | | | | NF | | | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | rc |
| | | | i A 6.0 | 460 | 0 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: LOLJUH C. TRIBUTARY

Stream Survey Report

460-6006-508-584-214-363-1.5.-2 -000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 5 minnow traps were set overnight: 3 traps in the outlet creek, 2 traps in the lake-ponded outlet. No fish were caught or observed. Assume barren of fish.
- C2 3 Western Spotted frogs were noted in the wetland area around the lake.

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-L6 -000-000-000-000-000-000-000

| | LOLJUH C. 1 | RIBUTAR | Y | | | Stream "Lo | cal": | L6 | | | | | | Access: | | FT |
|--|------------------|------------|--|---------------|---------|------------|---------|-------------|-----------|-----|----|----------------------|---------|-------------------------|-----------------|---------|
| Watershed Code: | 460-6006-508 | -584-214-L | 6 -000-000-000-0 | 00-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.9 Method: | MW |
| Location: | -150 m U/S F | ROM MOL | л н . | | | Мар#: | 093L034 | 1 | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | | U.T.M. : | 9.6147 | .60273 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Time: 10 | 0:00 | Agency: C | 58 Surv | ey Cre | w: RD\ \ \ | 1111 | \ \ | | | | Photos: | A3/2, 3 | Air Photos: | BCB 911 | 181:171 |
| Channel Char | racterisi | ics | | | | | s | Specific De | ıta | | | Bed Material | | | | |
| Av. Chan. Width (m): | 0. | | d Av. Chan. Wid | | T | 0.6 | 0.5 | 0.3 | 0.4 | 0.6 | | % Fines (<2mm): | 0 | % Fines (<2mm): | | 0 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (cr | 0. m): | | d Av. Wet. Width 1x. Riffle Depth (| | T MS | 0.6 | 0.5 | 0.3 | 0.4 | 0.6 | | % Gravels: | 20 | Small (2-16mm): | | 10 |
| Av. Max. Pool Depth (c | • | | ıx. Pool Depth (c | , | 6 | | | | | | | | | Large (16-64mm): | | 10 |
| Gradient (%): | 21. | 0 Metho | d Gradient: | | CL | | | | | | | % Larges: | 80 | Small cobble (64-128mm | • | 30 |
| % Pool: 20 | % Riffle: 8 | | | % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256m) | | 50 |
| % Side Channel: | | 0 Metho | i Side Channel: | | GE | | | | | | | | | Boulder cobble (>256mm | a): | 0 |
| % Debris Area: | 0-1 | 0 Metho | l Debris Area: | | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | | D90 (cm): | 15 | Compaction: | ı | Medium |
| Cover Total % : | 7 |) Metho | l Cover Total %: | : | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L.O |).D.: | Boulde | r: 95 | In Veg.: | 0 | Over Veg: | 0 | Cutbar | ık: | | 0 | Dunns | | | | |
| Crown Closure % : | | Metho | l Crown Closure | :: | | Aspect: | sw | Method | l Aspect: | : | AE | Height (m): | 8.0 | % Unstable: | | 0 |
| | | | | | | | | | | | _ | Textures l'ines: | No | Gravel: Yes Large | s: Yes Bedrock: | No |
| Discharge | | | | | | , | Sp | ecific Dat | a | | | Confinement: | 2 | | | |
| Wetted Width (m): | | Method | Wetted Width (n | m) · | | ĺ | -7 | | - | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Mean Depth (m) | , | | | | | | | | Stage: | M | | | |
| Mean Velocity (m/s): | | | Mean Velocity (| | vo | | | | | | | Flood Signs 11t(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.01 | | Discharge (m3/s) | | | | | | | | | Braided: | N | Method Braided: | | GE |
| | | | Discharge (mors) | ,. | | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | l | | | .= | | | | | | | | pl1: | 8.1 | Method pH: | | PH |
| | | | | , | rish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygo | en: | |
| | | | | | NS - | | | | | | | Water Temp. (°C): | 0.0 | Method Temperature: | | 10 |
| | | | 1 | 1 A 21.0 | 0280 |) | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (W | idth, Valley: Cha | annel, Slope) | (Bed | Material) | | | | | | C'ond. (µmhos); | | Method Conductivity: | | |

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-L6 -000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C1 Small, confined, steep channel with a trickle flow discharge. Low energy creek. No fish access. No fish habitat present.

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-L7 -000-000-000-000-000

| Header Info | rmatio: | n | | | | | | | | | | | | |
|---------------------|----------|----------------|---------------------------------|----------------|---------|-------------|-----------|-----|-----|----------------------|---------|---|---------------|---------|
| Stream Name: | LOLJUH | C. TRI | BUTARY | Stream " | Local": | L7 | | | | | | Access: | | FT |
| Watershed Code: | 460-6006 | -5 08-5 | 84-214-L7 -000-000-000-000-000 | | | | | | | Reach No.: | ı | Reach Length (km): | 1.0 Method: | MW |
| Location: | ~100 m U | /S FRO | ОМ МОИТН. | Map #: | 093L03 | 4 | | | | Site No.: | 1 | Length surveyed (m): | 350.0 Method: | HC |
| | | | | U.T.M. : | 9.6148 | .60273 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Time | : 11:3 | O Agency: C58 Surv | ey Crew: RD\ \ | 1 1 1 1 | 1 1 | | | | Photos: | A3/6, 7 | Air Photos: | BCB 911 | 181-171 |
| Channel Ch | aracter | istic | 'S | i | | Specific Da | ıta | | j | Bed Material | | | | |
| Av. Chan. Width (m |): | 0.5 | Method Av. Chan. Width (m): | T 0.6 | 0.7 | 0.4 | 0.5 | 0.6 | 0.4 | % Fines (<2mm): | 0 | % Fines (<2mm): | | 0 |
| Av. Wet. Width (m): | : | 0.5 | Method Av. Wet. Width (m): | T 0.6 | 0.7 | 0.4 | 0.5 | 0.6 | 0.4 | % Gravels: | 20 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth | (cm): | 4 | Av. Max. Riffle Depth (cm): | GE | | | | | (| | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depti | h (cm): | 0 | Av. Max. Pool Depth (cm): | 4 | | | | | } | % Larges: | 80 | Small cobble (64-128mm): | | 30 |
| Gradient (%): | | 20.0 | Method Gradient: | CL | | | | | | / Larges: | 80 | • | | 45 |
| % Pool: 0 | % Riffle | | % Run: 5 % Other: | 0 Method | : GE | | | | | 1 | | Large cobble (128-256mm): Boulder cobble (>256mm): | | 43 5 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | Ĭ | | · · | | |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | _ | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 21 | Compaction: | | High |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 0 i | L.O.D.: | 0 | Boulder: 100 In Veg.: | 0 Over Veg | ;: 0 | Cutban | ık: | | 0 | Dunns | | | | |
| Crown Closure %: | | | Method Crown Closure: | Aspect : | sw | Method | l Aspect: | | ΑE | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | 6 | | - | | | Confinement: | 2 | · | | |
| • | | | | | 3 | pecific Dat | a | | Ì | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | ļ | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | ļ | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | ; | Braided: | N | Method Braided: | | GE. |
| Discharge (m3/s): | | 0.08 | Method Discharge (m3/s): | <u> </u> | | | <u> </u> | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | hal | | | | | | | | | pH: | 8.0 | Method pH: | | 211 |
| | ,,,, | | (F | rish) | | | | | | 02 (ըրտ)։ | | Method Dissolved Oxygen: | | |
| i | | | | NS | | | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | IC |
| | | | 1 A 20.0 | 0280 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | Gb |
| | | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

27-Mar-97 Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-L7 -000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

Ci

Lower 50 m of L7: <1% gradient, gravel/sand/silt bed material, and overgrown with brush. The tributary flows into a large flood channel. Although no fish were observed, suspect fish use in the lower 50 m of D7. No fish use further u/s based on no fish access above 50 m (steep gradient) and no fish habitat (forest/moss channel with some standing bog areas).

27-Mar-97 Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Obstructions

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Comments

Cl

Lower 50 m of L7: <1% gradient, gravel/sand/silt bed material, and overgrown with brush. The tributary flows into a large flood channel. Although no fish were observed, suspect fish use in the lower 50 m of D7. No fish use further u/s based on no fish access above 50 m (steep gradient) and no fish habitat (forest/moss channel with some standing bog areas).

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-L8 -000-000-000-000-000

Header Information LOLJUH C. TRIBUTARY Stream Name: Stream "Local": L8 Access: FT Watershed Code: 460-6006-508-584-214-L8 -000-000-000-000-000-000 Reach No .: Reach Length (km): 1.0 Method: MW 093L034 ~80 m U/S FROM MOUTH. Map #: Site No.: 100.0 Method: Location: Length surveyed (m): HC U.T.M. : 9.6148 .60273 Fish Card: Ν Field: Yes Historical: No Date: 9/18/96 Time: 11:00 Agency: C58 Survey Crew: RD\ \ \ \ \ \ \ Photos: A3/4, 5 Air Photos: BCB 91181:171 Channel Characteristics **Bed Material** Specific Data T Av. Chan. Width (m): 1.0 Method Av. Chan. Width (m): 0.9 0.7 1.2 0.9 1.1 1.3 % Fines (<2mm): % Fines (<2mm): 0 T Av. Wet. Width (m): 0.2 Method Av. Wet. Width (m): % Gravels: Small (2-16mm): 5 3 Av. Max. Riffle Depth (cm): GE Av. Max. Rif. Depth (cm): Large (16-64mm): Š 3 Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): % Larges: Small cobble (64-128mm): 10 CLGradient (%): 55.0 Method Gradient: Large cobble (128-256mm): 30 % Riffle: 99 % Other: 0 Method: GE % Pool: 0 Boulder cobble (>256mm): 50 % Side Channel: Method Side Channel: GE Method Debris Area: GE % Debris Area: % Bedrock: % Bedrock: 0 30 D90 (cm): Compaction: Medium Cover Cover Total %: Method Cover Total %: GE Banks Dp Pool : 0 L.O.D.: Boulder: 100 In Veg.: 0 Over Veg: Cutbank: Crown Closure %: Method Crown Closure: GE Aspect: Method Aspect: ΑE Height (m): % Unstable: **Textures Fines:** No Gravel: Yes Larges: Yes Bedrock: Discharge 2 Confinement: Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): Stage: М Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): 0.15 Method Flood Signs: MS Mean Velocity (m/s): Method Mean Velocity (m/s VO Braided: Method Braided: Ν GEDischarge (m3/s): 0.01 Method Discharge (m3/s): Bars (%): 50 Method Bars: GE pH: 8.4 Method pH: PH Reach Symbol (Fish) Method Dissolved Oxygen: 02 (ppm): NS Water Temp. (°C): 6.0 Method Temperature: 10 0190 1 A 55.0 Turb. (cm): 200 Method Turbidity: GI: (Width, Valley: Channel, Slope) [(Bed Material) Method Conductivity: Cond. (µmhos):

27-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-L8 -000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C1 Very confined, steep, low energy tributary. Channel is stable (moss covered boulders within channel).

C2 No potential fish access or fish use.

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-L9 -000-000-000-000-000-000-000

| Header I <mark>nf</mark> or | rmation | | | | | | | | | | | • | | | |
|-----------------------------|------------|-------|---------------------------------|---------|-------------|---------|------------|-----------|-----|-----|----------------------|----------|-------------------------|---------------|----------|
| Stream Name: | LOLJUH C. | TRII | BUTARY | | Stream "L | ocal": | L9 | | | | | | Access: | | FT |
| Watershed Code: | 460-6006-5 | 08-58 | 4-214-L9 -000-000-000-000-000 | | | | | | | | Reach No.: | ì | Reach Length (km): | 1.1 Method: | : MW |
| Location: | LOWER 10 | 0 m C | FL9. | | Map#: | 093L034 | 4 | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | : HC |
| | | | | | U.T.M. : | 9.6153 | .60273 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Time: | 11:00 | Agency: C58 Sur | vey Cre | w: RD\ \ \ | 111 | \ \ | | | | Photos: | A3/9, 10 | Air Photos: | BCB_91 | .181:171 |
| Channel Cha | aracteris | stic. | s | | | | Specific E | Pata | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 0.5 | Method Av. Chan. Width (m): | T | 0.4 | 0.6 | 0.3 | 0.5 | 0.9 | 0.4 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 0,0 | Method Av. Wet. Width (m): | GE | | | | | | (| % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (| | 0 | Av. Max. Riffle Depth (cm): | GE | | | | | | | | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth | | 0 | Av. Max. Pool Depth (cm): | 0 | į | | | | | | % Larges: | 80 | Small cobble (64-128mm) | . . | 30 |
| Gradient (%): | | 0.0 | Method Gradient: | CL | | | | | | | 76 Larges. | 80 | Large cobble (128-256mr | | 50 |
| % Pool: 0 | % Riffle: | 0 | % Run: 0 % Other: | | Method: | GE | | | | | | | Boulder cobble (>256mm | - | 0 |
| % Side Channel: | | | Method Side Channel: | GE | | | | | | | | | | .,. | |
| % Debris Area: | | 0 | Method Debris Area: | GE | | | _ | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | <u>-</u> | | | | | | | | | | D90 (cm): | 15 | Compaction: | | Medium |
| Cover Total % : | | 70 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L | .O.D.: | 0 | Boulder: 100 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 0 | | | | | |
| Crown Closure %: | | 20 | Method Crown Closure: | GE | Aspect: | N | Metho | od Aspect | : | AE | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges | : No Bedrock: | : No |
| Discharge | | | | | 1 | c | pecific De | nta | | | Confinement: | 2 | | | |
| | | | Marilia I Walana I Walidaka () | | | 3/ | pecyte Di | , | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | Dry | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | VO. | | | | | | | Flood Signs Ht(m): | 0.15 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : 0.0 | | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | | Method Discharge (m3/s) : | | ! | | | | | | Bars (%): | 001 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | ρH; | | Method pil: | | |
| | | | (1 | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | en: | |
| | | | | NS | | | | | | | Water Temp. (°C); | | Method Temperature: | | |
| | | | I A 30.0 | 119 | 0 | | | | | | Turb. (cm): | | Method Turbidity: | | |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cand. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-L9-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Comments

Cl Small, steep, dewatered channel which enters into an active flood channel of main Loljuh C.

C2 No fish access and no suitable fish habitat in L9.

Obstructions

2~-Mar-9~

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-521-000-000-000-000-000-000

| Header Infor | matio | n | | | | | | | - | | <u> </u> | | |
|------------------------|-----------|------------|---|----------------|------------------|----------------|-------|----------|----------------------|-----------|--------------------------|---------------|---------|
| Stream Name: | LOLJUH | C. TR | BUTARY | Stream "i | .ocal": | L10 | | | | | Access: | | FT |
| Watershed Code: | 460-6006 | -508-5 | 84-214-521-000-000-000-000-000 | | | | | | Reach No.: | ı | Reach Length (km): | 2.4 Method: | MW |
| Location: | LOWER | REAC | H OF L10, ~400 m U/S FROM MOUTH. | Map #: | 093L 03 4 | l | | | Site No.: | 1 | Length surveyed (m): | 500.0 Method: | HC |
| | | | | U.T.M.: | 9.6154 | .60273 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Time | : 13:3 | O Agency: C58 Survey | Crew: RD\ \ | 1 1 1 1 | \ \ | | | Photos: | A3/11, 12 | Air Photos: | BCB 911 | 181.171 |
| Channel Cha | ıracter | istic | es . | | 3 | Specific Data | | il | Bed Material | | | | |
| Av. Chan. Width (m): | 1 | 5.1 | . , | T 4.4 | 6.5 | 4.7 4.1 | 5.2 5 | .7 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 4.9 | | T | | | | | % Gravels: | 20 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (| | 10 | Av. Max. Riffle Depth (cm): | į | | | | | | | Large (16-64mm): | | 15 |
| Av. Max. Pool Depth | (cm): | 3 5 | • , , | 10 | | | |] | % Larges: | 70 | Small cobble (64-128mm): | | 25 |
| Gradient (%): | | 7.0 | | L. | | | | - 1 | /o Larges. | /0 | Large cobble (128-256mm) | | 40 |
| % Pool: 15 | % Riffle | | | 0 Method | : GE | | | | | | Boulder cobble (>256mm): | • | 5 |
| % Side Channel: | | 0-10 | | E | | | | | * * * * | • | | | _ |
| % Debris Area: | _ | 10-40 | Method Debris Area: | E | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | D90 (cm): | 21 | Compaction: | | Medium |
| Cover Total % : | | 80 | Method Cover Total %: | ŀΕ | | | | | Banks | | | | |
| Dp Pool: 5 L. | O.D.: | 20 | Boulder: 70 In Veg.: | 0 Over Veg | : 0 | Cutbank: | | 5 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | Aspect : | sw | Method Aspect: | | AE | Height (m): | 2.0 | % Unstable: | | 0 |
| | | | - | | | | | \dashv | Textures Fines: | No | Gravel: Yes Larges: | Yes Bedrock: | No |
| Discharge | | | | | S. | pecific Data | | 1 | Confinement: | 4 | | | |
| Wester & Window () | | | Machad Washed Widel (m) | | Sį | verijit Dulu | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | Stage: | М | | | |
| Mean Depth (in) : | _ | | Method Mean Depth (m): | o | | | | | Flood Signs 11t(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (ms/s) : | | 0.40 | Method Mean Velocity (m/s V Method Discharge (m3/s): | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | - | 0.40 | Method Discharge (m3/s): | | | | | | Bars (%): | i | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | pH: | 8.2 | Method pH: | | PH |
| | | | (Fish | • | | | | | 02 (թթm)։ | | Method Dissolved Oxygen | | |
| | | | D\ | ' | | | | | Water Temp. (°C): | 60 | Method Temperature: | | TC |
| | | | 5 A 7.0 | 1270 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-521-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 4 | F | 0.8 |
| 3 | F | 0.8 |

| C1 | Easy fish access into L10. |
|----|--|
| C2 | Bed material primarily consists of cobble but sections of gravel with potential for spawning were observed. |
| C3 | LOD is present across the channel. Tributary is large with a high potential to move debris. |
| C4 | The 4 m high falls and 3 m high falls observed ~800 m u/s from the mouth are barriers, but resident DV were found further u/s. |
| CS | L10.1 - L10.4 were not observed by air. Due to the the steepness of the sideslopes off the bench, the tributaries are inaccessible and not fish bearing if they are at all existent. |

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-521-000-000-000-000-000-000

| Header Inform | tion | | | | | | | | | | | | | |
|---|--------------------|--|----------|------------------|---------|------------|-----------|--------|-----|----------------------------|------------|--|---------------|------------------|
| Stream Name: LO | LJUH C. T | RIBUTARY | _ | Stream "Lo | ocal"; | LIO | | | | | | Access: | | 11 |
| | | 584-214-521-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 3.2 Method: | MW |
| | 8 km U/S F EAK. | ROM MOUTH, ~1.4 km U/S FROM R | EACH | Map #: | 093L044 | | | | | Site No.: | 2 | | 100.0 Method: | |
| | | | _ | U.T.M. : | 9.6154 | | | | | Fish Card: | Y | | fistorical: | No |
| Date: 9/18/96 | Time: 12: | 00 Agency: C58 Su | rvey Cre | w: DB\ \ \ | 111 | | | | | Photos: | DB1/12, 13 | Air Photos: | BCB 911 | 1 81 :196 |
| Channel Chara | cteristi | ics | | | S | Specific E |)ata | | İ | Bed Material | | | | |
| Av. Chan. Width (m): | 2.8 | ` ' | Т | 3.5 | 2.3 | 2.9 | 2.8 | 3.1 | 2.1 | % Fines (<2mm): | 0 | % Fines (<2mm): | | U |
| Av. Wet. Width (m): Av. Max. Rif. Depth (cm) | 2.6 | ` • | T MS | 2.1 | 2.9 | 2.8 | 3. i | 2.1 | | % Gravels: | 50 | Small (2-16mm): | | 10 |
| Av. Max. Pool Depth (cm) | | Av. Max. Pool Depth (cm): | 10 | | | | | | | Į. | | Large (16-64mm): | | 40 |
| Gradient (%): | 2.0 | | CL | | | | | | ļ | % Larges: | 50 | Small cobble (64-128mm): | | 40 |
| % Pool: 40 % | Riffle: 60 | % Run: 0 % Other | r: 0 | Method: | GE | | | | | | | Large cobble (128-256mm): | | 10 |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | 0 |
| % Debris Area: | 0 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | O |
| Cover | | | | | | | | | | D90 (cm): | 15 | Compaction: | | High |
| Cover Total %: | 50 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L.O.D | | Boulder: 0 In Veg.: | 30 CF | Over Veg: | 30 | Cutba | | | 40 |) | | | | |
| Crown Closure %: | 0 | Method Crown Closure: | GE | Aspect: | SE | Metho | d Aspect: | | AE | Height (m): | 0.2 | % Unstable: | | 0 |
| | | | | | | _ | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | Sį | pecific De | ıta | | | Confinement: | 4 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | 1 | | | | | | Stage: | M | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | i | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.10 | Method Discharge (m3/s): | | | | | | | | Braided: | N | Method Braided: | | GE |
| | | | | | | - | | - 11 1 | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | (Fish) | | | | | | | pH: | | Method pll: | | |
| | | | DV• | | | | | | | 02 (ppm): | 3.0 | Method Dissolved Oxygen: | | 1775 |
| | | 3 B 2 | | | | | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | TC CC |
| | | 3 B 2 (Width, Valley: Channel, Slop | - 1 |) d Material) | | | | | | Turb. (cm): Cond. (µmhos): | 200 | Method Turbidity: Method Conductivity: | | GE |

2"-Mar-9" Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-521-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| | | • | | | | | • | |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|---|
| Species | Number | Size Range (mm) | Life Phase | Use I | Use 2 | Use 3 | Method/Reference | |
| DV | | 102 - 130 | Α | S | М | | MT | _ |
| ไทง | 12 | 76 - 100 | 1 7 | R | 1 1 | | MT | |

Obstructions

- 5 minnow traps were set overnight and DV were caught. Majority of the adult DV were either spent or ripe. Two ~10 cm DV were visually observed and were suspected to be DV spawners. Assume DV are spawning in this section. Resident population presumably associated with headwater lake on this system.
- C2 Lat/Lon of helicopter landing site: 54 24.57 127 13.43
- C3 L10.5, L10.6 and 1.10.7 were surveyed by air; the lower reach of each tributary is accessible to fish based on gradient.

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-583-000-000-000-000-000

| Header Infor | mation | | - | | | | | | | | | • | | | |
|-----------------------|------------|--------|-----------------------------------|---------|-------------|---------|-------------|------------|-----|--|----------------------|---------|--------------------------|---------------|---------|
| Stream Name: | LOLJUH | TRI | BUTARY | | Stream "Le | cal": | L13 | | | | | | Access: | | FT |
| Watershed Code: | 460-6006-5 | 508-58 | 4-214-583-000-000-000-000-000-000 | | | | | | | | Reach No.: | ī | Reach Length (km): | 1.3 Method: | MW |
| Location: | ~100 m U/s | S FRC | M MOUTH. | | Map#: | 093L034 | ı | | | | Site No.: | 1 | Length surveyed (m): | 300.0 Method: | HC |
| | | | | | U.T.M. : | 9.6159 | .60273 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Time: | 13:50 | Agency: C58 Surv | vey Cre | w: RD\ \ \ | 111 | ١ ١ | | | | Photos: | A4/2, 3 | Air Photos: | BCB 911 | 181:171 |
| Channel Cha | racteri | stic | s | | - - ! | S | Specific De | ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | | 0.2 | Method Av. Chan. Width (m): | T | 0.4 | 0.3 | 0.0 | 0.2 | 0.1 | 0.2 | % Fines (<2mm): | 100 | % Fines (<2mm): | | 100 |
| Av. Wet. Width (m): | | 0.2 | Method Av. Wet. Width (m): | T | 0.4 | 0.3 | 0.0 | 0.2 | 0.1 | 0.2 | % Gravels: | 0 | Small (2-16mm): | | 0 |
| Av. Max. Rif. Depth (| | 2 | Av. Max. Riffle Depth (cm): | MS | | | | | | - | | | Large (16-64mm): | | 0 |
| Av. Max. Pool Depth (| | 1) | Av. Max. Pool Depth (cm): | 2 | | | | | | | % Larges: | 0 | Small cobble (64-128mm): | | 0 |
| Gradient (%): | | 15.0 | Method Gradient: | CL | | | | | | | 76 Carges. | U | Large cobble (128-256mm) | | 0 |
| % Pool: 10 | % Riffle: | | % Run: 10 % Other: | 0 | Method: | GE | | | | | | | Boulder cobble (>256mm) | • | 0 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | • | | • | |
| % Debris Area: | | 0 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | _ | | | | | | | | | | D90 (cm): | 0 | Compaction: | | High |
| Cover Total % : | | 10 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 90 L. | O.D.: | 0 | Boulder: 0 In Veg.: | 10 | Over Veg: | 0 | Cutbat | nk: | | 0 | | | | | |
| Crown Closure % : | | | Method Crown Closure: | | Aspect : | N | Metho | d Aspect: | | ΑE | Height (m): | 0.2 | % Unstable: | | O |
| | | | | | | | | | _ | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | | c. | pecific Da | . _ | | | Confinement: | 3 | | | |
| | | | | | | S) | vecijic Da | ıa | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | ł. | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | 1 | Flood Signs 11t(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s) : | | | Method Mean Velocity (m/s | VO | İ | | | | | İ | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | .01 | Method Discharge (m3/s): | _ | <u> </u> | | | _ | | <u>. </u> | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbo | o/ | | | | | | | | | | pt4: | 8.2 | Method pH: | | PH |
| Tieuen Dymot | • | | | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | : | |
| | | | | NS | | | | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | IC. |
| | | | 0 A 15.0 | F | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bec | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-583-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C1 Sand/silt-bedded seepage with moss covered banks. Very, very small tributary with no possible fish use.

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-690-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | | | |
|--|--------------|--|--------|----------------------|-----------|--------------------------|-----|-------------|----------------------|---------|--------------------------|---------------|---------|
| Stream Name: | LOLJUH C. | TRIBUTARY | | Stream "I | .ocal": | L17 | | | | | Access: | | FI |
| Watershed Code: | 460-6006-508 | 3-584-214-690-000-000-000-000-000-0 | 000 | | | | | | Reach No.: | 1 | Reach Length (km): | 2.1 Method: | : MW |
| Location: | ~250 m U/S I | FROM MOUTH. | | Map #: | 093L03 | 4 | | | Site No.: | 1 | Length surveyed (m): | 400.0 Method: | : HC |
| | | | | U.T.M.: | 9.6167 | .60274 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Time: 1 | 5:00 Agency: C58 | Survey | Crew: RD\ \ | 1111 | \ \ | | | Photos: | A4/4, 5 | Air Photos: | BCB 91 | 181:171 |
| Channel Ch | aracteris | tics | | į | | Specific Data | ÷ | | Bed Material | | | | |
| Av. Chan. Width (m | • | 5 Method Av. Chan. Width (m): | | Γ 6.4 | 4.3 | 5.7 4.8 | 5.4 | 6 .6 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): Av. Max. Rif. Depth | | 5 Method Av. Wet. Width (m): 5 Av. Max. Riffle Depth (cm): | M: | r S | | | | | % Gravels: | 25 | Small (2-16mm): | | 5 |
| Av. Max. Pool Depth | | 5 Av. Max. Pool Depth (cm): | 1. | 1 | | | | | | | Large (16-64mm): | | 20 |
| Gradient (%): | • • | .0 Method Gradient: | CI | | | | | | % Larges: | 70 | Small cobble (64-128mm): | | 60 |
| % Pool: 15 | % Riffle: | 30 % Run: 5 % Otl | ner: | 0 Method | GE | | | | | | Large cobble (128-256mm) | : | 10 |
| % Side Channel: | | 0 Method Side Channel: | Gi | E | | | | | | | Boulder cobble (>256mm): | | 0 |
| % Debris Area: | 40 | Method Debris Area: | G | E | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | _ | | | | | | | | D90 (cm): | 12 | Compaction: | | Medium |
| Cover Total %: | | 0 Method Cover Total %: | G | | | Code | | • | Banks | | | | |
| Dp Pool : 0 1 Crown Closure % : | | 0 Boulder: 70 In Veg. Method Crown Closure: | : 0 | Over Veg Aspect : | : 0 SW | Cutbank: Method Aspec | t: | 0 AE | Height (m): | 2.0 | % Unstable: | | 0 |
| | | - | _ | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | : No |
| Discharge | | | | : | | | | | Confinement: | 2 | • | | |
| • | | | | | 3 | Specific Data | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (nn): | | Method Wetted Width (m): | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | Flood Signs 11t(m): | 0.35 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | ı: | Method Mean Velocity (m/s | | | | | | | Braided: | N | Method Braided: | | GE: |
| Discharge (m3/s) : | | Method Discharge (m3/s) : | | | | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symb | bol | | | | | | | | pH: | 8.1 | Method pH: | | PH |
| | | | (Fish | • | | | | | 02 (բթու)։ | | Method Dissolved Oxygen | : | |
| | | | SP(D | V) | | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | К |
| | | 6 A | 9.0 | 1270 | | | | | Turb. (cm): | 200 | Method Turbidity: | | Gl |
| | | (Width, Valley: Channel, Sl | ope) (| (Bed Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-690-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | C | 0.0 |
| i | C | 0.0 |

Comments

C3

C1 Large, dynamic creek with large amounts of debris lying within the channel.

C2 Two 0.5 m high bedrock chutes were observed at 30 m from the mouth; barrier to fry and juveniles.

Observed a char ~150 in u/s from mouth; suspected to be DV based on other sampling results which show only DV in the upper reaches of Loljuh C. Accessible to fish to the top of R1. Above R1, creek is too steep to support fish.

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-690-062-000-000-000-000-000

| Header Info | rmation | | | _ | | | <u>-</u> | | | | | | | | • |
|---------------------|----------------|--------|--|---------|-------------|------------|------------|-----------|-----|---------|----------------------|--------------|-------------------------|---------------|---------|
| Stream Name: | LOLJUH C | . TRII | BUTARY | | Stream "Lo | cal": | L17.1 | | | | | | Access: | | FT |
| Watershed Code: | 460-6006-5 | 08-58 | 4-214-690-062-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.7 Method: | MW |
| Location: | ~50 m U/S | FRON | 1 L17.1 CONFLUENCE. | | Map #: | 093L034 | ı | | | | Site No.: | 2 | Length surveyed (m): | 200.0 Method: | HC |
| | | | | | U.T.M. ; | 9.6167 | .60278 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Time: | 16:00 | Agency: C58 Sur | vey Cre | :w: RD\ \ \ | 1 1 1 | ١١ | | | | Photos: | A 4/6 | Air Photos: | BCB 911 | 181:171 |
| Channel Ch | aracteri | stic | s | | | Į. | Specific E |)ata | | . | Bed Material | | | | |
| Av. Chan. Width (m | | 2.1 | Method Av. Chan. Width (m): | T | 1.7 | 1.9 | 2.2 | 2.4 | 2.3 | 1.9 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 1.9 | Method Av. Wet. Width (m): | T | | | | | | | % Gravels: | 65 | Small (2-16mm): | | 20 |
| Av. Max. Rif. Depth | | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | | | | Large (16-64mm): | | 45 |
| Av. Max. Pool Depth | (cm): | 20 | Av. Max. Pool Depth (cm): | 8 | | | | | | | % Larges: | 30 | Small cobble (64-128mm) | | 20 |
| Gradient (%): | av Dien | 7.0 | Method Gradient: | CL | | 0 E | | | | | no Carges. | 50 | Large cobble (128-256mn | | 10 |
| % Pool: 10 | % Riffle: | | % Run: 10 % Other: | - | Method: | GE | | | | | | | Boulder cobble (>256mm | • | 0 |
| % Side Channel: | 10 | 0 | Method Side Channel: Method Debris Area: | GE | | | | | | | W 6 1 - 1 | 0 | • | | Α |
| % Debris Area: | 10 | | Mieinou Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total %: | | 60 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| - | O. D .: | 30 | Boulder: 60 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 0 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect : | sw | Metho | d Aspect: | | AE | lleight (m): | 1.5 | % Unstable: | | 0 |
| · | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges | No Bedrock: | Νο |
| Discharge | | | | | | 6 | pecific Da | nto. | | 1 | Confinement: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m) : | | İ | o, | occigic Di | ••• | | | Valley: Chan. Ratio: | 1 | | | |
| ` ′ | | | , , | | ĺ | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.15 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | • | | Method Mean Velocity (m/s | | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | | Method Discharge (m3/s) : | | <u> </u> | | | | | <u></u> | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 7.8 | Method pH: | | PH |
| | | | (| Fish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxyge | n: | |
| | | | | DV | | | | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | 10 |
| | | | 2 A 7.0 | 163 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Bed | d Material) | | | | | | Cond. (µmhos); | | Method Conductivity: | | |

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-690-062-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 1 | | J | R | | | VO |

Obstructions

- C1 Observed DV juvenile ~30 m u/s from mouth.
- The lower 40 m of channel has a gradient of 7% and habitat is suitable for fish. Above 40 m the channel becomes very confined/boulder-bedded with a gradient of 14 18% and increasing u/s. Tributary is accessible to fish in the lower 40 m; no potential fish use above 40 m.

2~-Mar-9~

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-690-365-000-000-000-000-000

| Header Info | rmatioi | t | | | | | | | | | | | | | | |
|---------------------|----------|--------|-----------------------------------|----------|-------------|-----------------|-------------|-----------|-----|-----|----------------------|---------|------|--------------------------|---------------|-----------------|
| Stream Name: | LOLJUH | C. TRE | BUTARY | | Stream "Lo | cal": | L17.2 | | | | | | | Access: | | ŧ |
| Watershed Code: | 460-6006 | 508-58 | 4-214-690-365-000-000-000-000-000 |) | | | | | | | Reach No.: | | 2 | Reach Length (km): | 1.2 Method: | : MW |
| Location: | | S FRO | M MOUTH, ~400 m U/S FROM RE | ACH | Мар #: | 0 93L044 | ļ | | | | Site No.: | | 3 | Length surveyed (m): | 200.0 Method: | : нc |
| | BREAK. | | | | U.T.M. : | 9.6169 | .60293 | | | | Fish Card: | | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Time: | 15:00 | Agency: C58 Su | rvey Cre | :w: DB\ \ \ | 1 1 1 | \ \ | | | _ | Photos: | DB1/14, | 15 | Air Photos: | BCB 91 | 181 :196 |
| Channel Ch | aracter | istic | 2 | | | S | Specific Da | ıta | | - | Bed Material | | | | - | |
| Av. Chan. Width (m |): | 1.7 | Method Av. Chan. Width (m): | T | 1.9 | 1.2 | 2.8 | 1.7 | 1.0 | 1.3 | % Fines (<2mm): | 1 | 80 | % Fines (<2mm): | | 80 |
| Av. Wet. Width (m): | : | 1.7 | Method Av. Wet. Width (m): | T | 1.9 | 1.2 | 2.8 | 1.7 | 1.0 | 1.3 |) | | | , , | | |
| Av. Max. Rif. Depth | (cm): | 10 | Av. Max. Riffle Depth (cm): | MS | | | | | | | % Gravels: | | 0 | Small (2-16mm): | | 0 |
| Av. Max. Pool Depth | n (cm): | 35 | Av. Max. Pool Depth (cm): | 10 | | | | | | | | | | Large (16-64mm): | | Ú |
| Gradient (%): | | 6.0 | Method Gradient: | CL | L | | | | | . ! | % Larges: | 2 | 20 | Small cobble (64-128mm): | | 20 |
| % Pool: 90 | % Riffle | 10 | % Run: 0 % Other | r: 0 | Method: | GÉ | | | | | | | | Large cobble (128-256mm |): | 0 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | | Boulder cobble (>256mm) | | 0 |
| % Debris Area: | | 0 | Method Debris Area: | GE | | | | | | | % Bedrock: | | 0 | % Bedrock: | | 0 |
| Cover | | | | _ | | | | | | | D90 (cm): | | 8 | Compaction: | | High |
| Cover Total % : | | 100 | Method Cover Total %: | GÉ | | | | | | | Banks | | | | | |
| Dp Pool: 0 L | O.D.: | 0 | Boulder: 0 in Veg.: | 0 | Over Veg: | 90 | Cuthan | ık: | | 10 | Dunks | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect : | SE | Method | i Aspect: | | AE | Height (m): | | 0.2 | % Unstable: | | (|
| | | | _ | | | | | | | | Textures Fines: | , | r'es | Gravel: No Larges: | No Bedrock: | : N |
| Discharge | | | | | ı | | | | | | Confinement: | | 3 | ~ | | |
| • | | | | | | Sį | pecific Dat | a | | | Valley: Chan. Ratio: | | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | VO | | | | | | | Braided: | | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.05 | Method Discharge (m3/s): | _ | ł | | | | | | Bars (%): | | 0 | Method Bars: | | Gl |
| Reach Symb | hal | | | | | | | | | _ | pH: | | | Method pf1; | | |
| Reach Dyine | · · · | | | (Fish) | | | | | | | 02 (ppm): | | | Method Dissolved Oxygen | : | |
| | | | | NF | | | | | | | Water Temp. (°C): | | 7.0 | Method Temperature: | | TC |
| | | | 2 A 6 | .0 802 | 0 | | | | | | Turh. (cm): | 2 | 00 | Method Turbidity: | | GI |
| | | | (Width, Valley: Channel, Slop | e) (Be | d Material) | | | | | | Cond. (µmhos): | | | Method Conductivity: | | |

2"-Mar-9" Stre

Stream: LOLJUH C. TRIBUTARY Watershed Code:

Stream Survey Report

460-6006-508-584-214-690-365-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- Cl Set 5 minnow traps overnight; no fish were caught or observed. Suspected fish access to the top of R1 (the lower 400 m of L17.2).
- C2 Channel is heavily overgrown with willow cover. No deep water take area for overwintering present.
- C3 Large clay bank was observed at mouth of L17.2.
- C4 Lat/Lon of helicopter landing site: 54 24.18 127 12.29

2"-Mar-9" Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-696-000-000-000-000-000-000

Header Information LOLJUH C. TRIBUTARY Stream Name: Stream "Local": L18 Access: FT 460-6006-508-584-214-696-000-000-000-000-000 Watershed Code: Reach No .: Reach Length (km): 1.3 Method: MW ~500 m U/S FROM MOUTH. 093L035 Location: Site No.: Length surveyed (m): 700.0 Method: HC U.T.M.: 9.6171 .60274 Fish Card: Field: Yes Historical: No Survey Crew: RD\ \ \ \ \ \ \ Date: 9/19/96 Time: 9:30 Agency: C58 Photos: A4/10, 11 Air Photos: BCB 91181:170 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 3.5 Method Av. Chan. Width (m): T 3.5 3.2 2.9 3.7 % Fines (<2mm): % Fines (<2mm): 10 Method Av. Wet. Width (m): T Av. Wet. Width (m): % Gravels: Small (2-16mm): 15 Av. Max. Rif. Depth (cm): 8 Av. Max. Riffle Depth (cm): MS Large (16-64mm): 25 Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 8 Small cobble (64-128mm): % Larges: 45 5.0 Method Gradient: CLGradient (%): Large cobble (128-256mm): 5 % Pool: 25 % Riffle: 65 % Run: % Other: 0 Method: GE Boulder cobble (>256mm): GE % Side Channel: Method Side Channel: GE % Debris Area: 45 Method Debris Area: % Bedrock: % Bedrock: Ü D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks 10 Dp Pool: 30 L.O.D.: Boulder: 20 in Veg.: 0 Over Veg: Cutbank: Crown Closure %: Method Crown Closure: Aspect: Method Aspect: ΑE Height (m): 1.2 % Unstable: 0 No Textures Fines: Gravel: Yes Larges: No Bedrock: Discharge 2 Confinement: Specific Data Valley; Chan. Ratio: Wetted Width (m): Method Wetted Width (m): Stage: М Mean Depth (m): Method Mean Depth (m): MS Flood Signs Ht(m): Method Flood Signs: VO Mean Velocity (m/s): Method Mean Velocity (m/s GE Braided: Method Braided: Discharge (m3/s) : 0.20 Method Discharge (m3/s): Bars (%): Method Bars: GE ptt: Method pH: PH Reach Symbol (Fish) Method Dissolved Oxygen: 02 (ppm): SP(DV*) Water Temp. (°C): Method Temperature: 10 5.0 1450 GE: Turb. (cm): Method Turbidity: (Width, Valley: Channel, Slope) [(Bed Material) Cond. (µmhos): Method Conductivity:

2"-Mar-9" Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-696-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| SP | 1 | | F | R | | | vo |

- C1 One char fry was observed ~400 m u/s from mouth; suspected to be DV, and suspect DV spawning is occurring in this reach.
- C2 LOD is abundant in stream channel and the majority is stable. Numerous small drops over debris are present.
- C3 Good spawning habitat is present throughout most of R1.

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-696-L18-.1-000-000-000-000

| Header Infor | matio | n | | | | | | | | | | | | | | |
|------------------------------------|---------------------------|-----------------|------------------------------|--------------|--------|----------------------|------------------|------------|------------------|-----|-----------------|-----------------------|--------|--|---------------|----------|
| Stream Name: | LOLJUI | C. TR | BUTARY | | | Stream "Lo | cal": | L18.1 | | | | | | Access: | | FT |
| Watershed Code: | 4 6 0- 6 00 | 5-50 8-5 | 84-214-696-L181 -000 | -000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.3 Method: | MW |
| Location: | ~100 m | J/S FRO | M L18.1 CONFLUEN | CE. | | Map #: | 093L 0 35 | ; | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | | U.T.M.: | 9.6178 | .60278 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 | Time | :: 11:0 | Agency: | C58 Surve | ey Cre | w: RD\ \ \ | 1 1 1 1 | ١١ | | | | Photos: | A4/12 | Air Photos: | BCB 91 | 181:170 |
| Channel Cha | racte | ristic | S | | | | S | pecific D | ata | |] | Bed Material | | | | |
| Av. Chan. Width (m): | : | 0.5 | Method Av. Chan. W | /idth (m): | т | 0.6 | 0.7 | 0.4 | 0.5 | 0.4 | 0.6 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 0.5 | Method Av. Wet. Wi | | Т | 0.6 | 0.7 | 0.4 | 0.5 | 0.4 | 0.6 | % Gravels: | 90 | Small (2-16mm): | | 40 |
| Av. Max. Rif. Depth (| cm): | 4 | Av. Max. Riffle Dept | • • | MS | | | | | | | - Graveisi | ,, | Large (16-64mm): | | 50 |
| Av. Max. Pool Depth | (cm): | 20 | Av. Max. Pool Depth | (cm): | 4 | | | | | | | 9/ 1 angua | 0 | | | 0 |
| Gradient (%): | | 19.0 | Method Gradient: | | CL | | | | | | | % Larges: | 0 | Small cobble (64-128mm) Large cobble (128-256mn | | 0 |
| % Pool: 15 | % RiM | | % Run: 10 | % Other: | 0 | Method: | GE | | | | | | | Boulder cobble (>256mm | | 0 |
| % Side Channel: | •• | 0 | Method Side Channe | | GE | | | | | | | | | |) . | |
| % Debris Area: | 30 | | Method Debris Area | : | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | | D90 (cm): | 5 | Compaction: | | High |
| Cover Total %: | 0.0 | 70 | Method Cover Total | | GE | . | • | C 4 | | | •• | Banks | | | | |
| Dp Pool: 40 L. Crown Closure %: | .O.D.: | 50 | Boulder: 0 Method Crown Clos | In Veg.: | 0 | Over Veg: Aspect: | 0 S | Cutba | nk: d Aspect: | | 10 AE | | | | | |
| Crown Closure 70: | | | | | | лорест. | _ | Michie | а лэрссі | 1 | _ | Height (m): | 0.5 | % Unstable: | | 0 |
| Disalana | | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges | : No Bedrock: | Nο |
| Discharge | | | | | | | Sį | pecific Da | ıta | | | Confinement: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Widt | h (m) : | | | | | | | | Valley: Chan. Ratio: | | | | |
| Mean Depth (m): | | | Method Mean Depth | (m): | | | | | | | | Stage: | L | M (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | 3.40 |
| Mean Velocity (m/s) | : | | Method Mean Velocit | y (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | | 0.03 | Method Discharge (m | 3/s) : | | | | | | | | Braided: Bars (%): | N 0 | Method Braided: Method Bars: | | GE GE |
| Daniel Co. 1 | . 1 | | | | | · | | | | | | Bars (%): pl1: | 7.8 | Method pH: | | PH |
| Reach Symb | o t | | | (Fi | ish) | | | | | | | 02 (ppm): | 7.0 | Method Dissolved Oxyge | n· | 111 |
| | | | | ì | NS | | | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | ••• | TC |
| | | | | l A 19.0 | 1900 |) | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: 0 | | | l Material) | | | | | | Cond. (µmhos): | 200 | Method Conductivity: | | 01. |

2"-Mar-9" Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-696-L18-.1-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Small, steep, stable, confined creek. Moss covers the channel banks. Several 0.3 m 0.5 m high drops over LOD are present in R1. Not accessible to fish.
- C2 R2 was surveyed by air: creek is nearly stagnant with sections having no defined channel. No fish potential throughout R2
- C3 L18.1 is classed as S6 habitat throughout

27-Mar-97

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-696-000-000-000-000-000-000

| Header Info | mation | ! | | | | - | | | | | | | | | |
|-------------------------------|-----------|-----------------|--|-------------|-------------|---------|------------|-----------|-----|---------|----------------------|------------|--------------------------|---------------|---------|
| Stream Name: | LOLJUH | C. TRI | BUTARY | | Stream "Lo | cai": | L18 | | | | | | Access: | | H |
| Watershed Code: | 460-6006- | 50 8-5 8 | 4-214-696-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.3 Method: | MW |
| Location: | | | M REACH BREAK; ADJACENT TO | | Map #: | 093L035 | i | | | | Site No.: | 3 | Length surveyed (m): | 100.0 Method: | HC |
| | MEADOW | , NEA | AR OLD MINING CAMP. | | U.T.M.: | 9.6171 | .60274 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/18/96 | Time: | 15:30 | Agency: C58 Surv | ey Cre | :w: DB\ \ \ | 111 | \ \ | | | | Photos: | DB1/16, 17 | Air Photos: | BCB 911 | 181:198 |
| Channel Ch | aracter | istic | s | j | j | S | Specific D | ata | | ļ | Bed Material | | | | |
| Av. Chan. Width (m) | : | 2.0 | Method Av. Chan. Width (m): | Т | 2.7 | 1.3 | 2.2 | 1.9 | 2.0 | 1.8 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 2.0 | Method Av. Wet. Width (m): | T | 2.7 | 1.3 | 2.2 | 1.9 | 2.0 | 1.8 | % Gravels: | 60 | Small (2-16mm): | | 40 |
| Av. Max. Rif. Depth | • • | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | | | | Large (16-64mnı): | | 20 |
| Av. Max. Pool Depth | (cm): | 40 | Av. Max. Pool Depth (cm): | 8 | | | | | | ļ | % Larges: | 30 | Small cobble (64-128mm): | | 20 |
| Gradient (%): | 0/ P:00 | 6.0 | Method Gradient: | CL 0 | 34.4.1 | C.F. | | | | | / Larges. | 30 | Large cobble (128-256mm | | 10 |
| % Pool: 25 % Side Channel: | % Riffle: | . 73 | % Run: 0 % Other: Method Side Channel: | GE | Method: | GE | | | | | [| | Boulder cobble (>256mm) | | 0 |
| % Debris Area: | | >40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| 76 Debits Alex. | | | | GL - | | | _ | | | | | • | | | |
| Cover | | | | | | | | | | | D90 (cm): | 15 | Compaction: | | High |
| Cover Total % : | | 75 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| • | .O.D.: | 80 | Boulder: 0 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 20 | | | | | |
| Crown Closure %: | | 50 | Method Crown Closure: | GE | Aspect : | SW | Metho | d Aspect: | : | AE | Height (m): | 0.7 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | Í | Sı | pecific Da | ta | | | Confinement: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | • | • | | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | , | Stage: | М | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | νo | | | | | | 1 | Flood Signs Ht(m): | 0.7 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | | | Method Discharge (m3/s): | | | | | | | | Braided: | N | Method Braided: | | GE |
| | | | | | <u> </u> | | | | | <u></u> | Bars (%): | i | Method Bars: | | GE |
| Reach Symb | ol | | /1 | *-L1 | | | | | | | pH: | | Method pH: | | |
| | | | • | rish) DV | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | n: | |
| 1 | | | | _ | | | | | | | Water Temp. (°C): | 5.5 | Method Temperature: | | TC |
| | | | 2 A 6.0 | 1630 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed | i Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use I | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 3 | 93 - 103 | J | R | | | MT |
| DV | 4 | 108 - 130 | Α | S | M | | MT |

Obstructions

Comments

C4

C1 5 minnow traps were set overnight adjacent to the meadow. All of the DV adults caught were males. Fish distribution is to the top of R2; above the reach break, creek is too steep to support fish.

C3 Lat/Lon of helicopter landing site: 54 23.28 127 10.29

Tributaries L18.2 and L18.3 were surveyed by air; the creeks are very small and steep and have no fish access.

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-L19-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | - | | |
|---------------------|-----------------|-----------------|---------------------------------|-------------|----------|-----------------|------------|-----------|-----|----|----------------------|----------|--------------------------|---------------|---------|
| Stream Name: | LOLJUH | l C. TR | BUTARY | Sti | ream "Lo | cal": | L19 | | | | | | Access: | | FT |
| Watershed Code: | 460 -600 | 6-50 8-5 | 84-214-1.19-000-000-000-000-000 | | | | | | | | Reach No.: | l | Reach Length (km): | 08 Method: | |
| Location: | ~10 0 m | U/S FR | OM MOUTH. | Ma | ър#: | 09 3L035 | | | | | Site No.: | 1 | Length surveyed (m): | 150.0 Method: | |
| | | | | U. | Т.М. : | 9.6174 | .60272 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 | Tim | e: 11:3 | O Agency: C58 Surve | y Crew: 1 | RD\ \ \ | 1111 | () | | | | Photos: | no photo | Air Photos: | BCB 911 | 181:170 |
| Channel Ch | aracte | ristic | es · | ſ | | | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m) | | 0.5 | Method Av. Chan. Width (m): | Т | 0.7 | 0.5 | 0.6 | 0.4 | 0.5 | | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 0.5 | Method Av. Wet. Width (m): | T | 0.7 | 0.5 | 0.6 | 0.4 | 0.5 | | % Gravels: | 80 | Small (2-16mm): | | 20 |
| Av. Max. Rif. Depth | | 4 | • , , | MS | | | | | | | | | Large (16-64mm): | | 60 |
| Av. Max. Pool Depth | (cm): | 12 | Av. Max. Pool Depth (cm): | 4 | | | | | | | % Larges: | 10 | Small cobble (64-128mm): | | 10 |
| Gradient (%): | | 3.0 | | CL | | | | | | | / Larges. | 10 | Large cobble (128-256mm) | | 0 |
| % Pool: 10 | % Riff | | % Run: 30 % Other: | | Method: | GE | | | | | | | Boulder cobble (>256mm): | | 0 |
| % Side Channel: | | 0 | | GE CE | | | | | | | | | | | |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | _ | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 7 | Compaction: | - | High |
| Cover Total %: | | 40 | | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 L | O.D.: | 20 | • | 20 O | er Veg: | 0 | Cutba | | | 50 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | As | pect : | NE | Metho | d Aspect: | | AE | Height (m): | 0.8 | % Unstable: | | 0 |
| - | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | t | | Sa | ecific Da | ta | | | Confinement: | 2 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | ĺ | | -7 | | | | i | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | į | Stage: | L | | | |
| Mean Velocity (m/s) | | | • • • | vo | | | | | | j | Flood Signs Ht(m): | 0.01 | Method Flood Signs: | | MS |
| Discharge (m3/s): | • | 0.01 | Method Discharge (m3/s) : | ,,, | | | | | | ! | Braided: | N | Method Braided: | | GE |
| | | | | | | | | | | i | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 7.4 | Method pH: | | PH |
| | | | (Fis | • | | | | | | | 02 (ppm)։ | | Method Dissolved Oxygen: | | |
| } | | | N | | | | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | TC |
| | | | 1 A 3.0 | 1810 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | ĞE |
| l | | | (Width, Valley: Channel, Slope) | (Bed Ma | terial) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

Stream Survey Report

2"-Mur-9" Stream: LOLJUH C. TRIBUTARY

Watershed Code:

460-6006-508-584-214-L19-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

Comments

CZ

- Cl Small, stable creek with a trickle flow discharge. Bed material primarily consists of fine gravels with some sections suitable for resident DV spawning.
 - Fish access in the lower 20 in; further w/s, numerous 0.2 m 0.3 in high debris drops are present. ~120 m u/s from the mouth, the gradient increases to ~15%. The channel disappears into the ground ~150 m u/s from the tributary mouth.

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-800-000-000-000-000-000-000

| Header Inform | ation | - - | | | | | | | | - | | | | |
|--|-------------------------------|---------------------------------|--------|-------------|---------|------------|----------|-----|-----|----------------------|------------|-------------------------|---------------|---------|
| Stream Name: Lo | LJUH C. TI | RIBUTARY | | Stream "Lo | cal": | L20 | | | | | | Access: | | н |
| Watershed Code: 40 | 0 -6 006-50 8 - | 584-214-800-000-000-000-000-000 | | | | | | | | Reach No.: | i | Reach Length (km): | 1.2 Method: | MW |
| Location: ~4 | 00 m U/S FF | ом моитн. | | Мар#: | 093L035 | ; | | | | Site No.: | 1 | Length surveyed (m): | 850.0 Method: | HC |
| | | | | U.T.M. : | 9.6175 | .60272 | | | | Fish Card: | Y | Field: Yes | Historical: | No |
| Date: 9/19/96 | Time: 15: | 45 Agency: C58 Surv | ey Cre | w: DB\ \ \ | 111 | ١١. | | | _ | Photos: | DB1/18, 19 | Air Photos: | BCB 911 | 181:170 |
| Channel Char | icteristi | cs | ; | | S | pecific D | ala | |] | Bed Material | | | | _ |
| Av. Chan. Width (m): | 3.2 | Method Av. Chan. Width (m): | т | 3.0 | 2.6 | 3.8 | 4.4 | 2.5 | 2.7 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | 2.2 | Method Av. Wet, Width (m): | T | 1.5 | 2.5 | 2.7 | | | | % Gravels: | 50 | Small (2-16mm): | | 20 |
| Av. Max. Rif. Depth (cm |): 15 | Av. Max. Riffle Depth (cm): | MS | | | | | | | 7# Graveis. | 50 | Large (16-64mm): | | 30 |
| Av. Max. Pool Depth (cn |): 50 | Av. Max. Pool Depth (cm): | 15 | | | | | | | | | | | |
| Gradient (%): | 9.0 | Method Gradient: | CL | | | | | | | % Larges: | 40 | Small cobble (64-128mm) | | 20 |
| % Pool: 30 | 6 RiMe: 70 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | • | 20 |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm) | : | 0 |
| % Debris Area: | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | U |
| Cover | | | | | | | | | | D90 (cm): | 24 | Compaction: | | High |
| Cover Total % : | 50 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L.O. | D.: 50 | Boulder: 30 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 20 | | | | | |
| Crown Closure %: | 50 | Method Crown Closure: | GE | Aspect: | N | Metho | d Aspect | : | AE | Height (m): | 0.5 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges | No Bedrock: | No |
| Discharge | | | i | i | S/ | pecific Da | nta | | | Confinement: | 4 | | | |
| Wetted Width (m) : | | Method Wetted Width (m): | | | 7.5 | , | | | | Valley: Chan. Ratio: | 3 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Stage: | M | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.5 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | 0.20 | Method Discharge (m3/s): | •• | | | | | | | Braided: | N | Method Braided: | | GE |
| —————————————————————————————————————— | | | | <u> </u> | | | | | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pH: | | Method p11: | | |
| , | | · | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | 1: | |
| | | | DV* | | | | | | | Water Temp. (°C): | 5.5 | Method Temperature: | | IC. |
| | | 3 C 9.0 | 1540 |) | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed | l Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 4 | 64 - 102 | J | R | | | MT |
| DV | 2 | 50, 53 | F | R | | | MT |

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 2 | F | 0.9 |

- Set 6 minnow traps overnight and caught DV. Newly-emerged DV fiv were visually observed throughout lower section of R1 up to the impassable falls. Suspect DV are spawning in 1.20 based on the presence of newly emerged fry above debris drops which would pose as barriers to the fry. No BT were caught at this site; suitable BT habitat is present with several nice pools located in the lower end of R1.
- C2 Large/high bars suggest some high flow events occur and that the creek is dynamic.
- The 2.3 in high bedrock falls located ~850 in u/s from the mouth is a barrier to fish based on the falls' confined nature (Photo A4/14). 1.20 is classed as S5 habitat above the falls based on no catch further u/s at site 2.
- C4 Lat/Lon of helicopter landing site: 54 22.49 127 11.33

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-800-000-000-000-000-000

Header Information Stream Name: LOLJUH C. TRIBUTARY Stream "Local": L20 Access: H Watershed Code: 460-6006-508-584-214-800-000-000-000-000-000-000 Reach No .: MWReach Length (km): 2.7 Method: ~1.8 km U/S FROM BASE OF REACH 2; LOCATEDIN A Map#: 093L035 Site No.: Location: Length surveyed (m): 100.0 Method: HC MEADOW IN THE UPPER SECTION OF R2. 9.6175 .60272 U.T.M.: Fish Card: Field: Yes Historical: No Date: 9/19/96 Time: 17:00 Agency: C58 Survey Crew: DB\ \ \ \ \ \ \ Photos: DB1/22, 23 Air Photos: BCB 91181:065 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 1.1 Method Av. Chan. Width (m): T 0.9 1.1 0.7 1.1 % Fines (<2mm): % Fines (<2mm): 0 T 0.9 0.7 Av. Wet. Width (m): Method Av. Wet. Width (m): 1.0 1.1 1.8 1.1 % Gravels: Small (2-16mm): 15 MS Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): Large (16-64mm): 30 Av. Max. Pool Depth (cm): 10 Av. Max. Pool Depth (cm): 30 % Larges: Small cobble (64-128mm): 20 8.0 Method Gradient: CL Gradient (%): Large cobble (128-256mm): 25 % Pool: 20 0 % Other: 0 Method: GE % Riffle: 80 Boulder cobble (>256mm): 10 % Side Channel: Method Side Channel: GE % Debris Area: 0 Method Debris Area: GE % Bedrock: 0 % Bedrock: D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks 0 L.O.D.: Boulder: 40 In Veg.: Over Veg: 10 Cutbank: 50 Dp Pool: Method Crown Closure: Crown Closure %: Aspect: Method Aspect: ΑE Height (m): 0.2 % Unstable: Ω **Textures Fines:** Yes Gravel: No Larges: Yes Bedrock: No Discharge Confinement: 2 Specific Data Valley: Chan. Ratio: Wetted Width (m) : Method Wetted Width (m): М Stage: Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): Method Flood Signs: MS vo Mean Velocity (m/s): Method Mean Velocity (m/s Braided: Method Braided: GE 0.03 Method Discharge (m3/s): Discharge (m3/s): Method Bars: Bars (%): GE pH: Method pH: Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: NF Water Temp. (°C): Method Temperature: TC 0550 1 A 8.0 GE Turb. (cm): Method Turbidity: (Width, Valley: Channel, Slope) (Bed Material) Cond. (µmhos): Method Conductivity:

Stream Survey Report
Watershed Code: 460-6006-508-584-214-800-000-000-000-000-000-000

2"-Mar-9" Stream: LOLJUH C. TRIBUTARY

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

Comments

C1 Set 5 minnow traps overnight; no fish were caught. Assume creek to be barren u/s of 2.3 m high impassable falls located in R1.

C2 Lat/Lon of helicopter landing site: 54 21.92 127 13.42

2"-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-214-933-000-000-000-000-000

| Header Info | rmation | - | | _ | | | | | |
|---------------------|----------------|-------------------------------------|----------------|----------------|----------------------|-----------|-------------------------|---------------|------------|
| Stream Name: | LOLJUH C. TE | UBUTARY | Stream "Local" | : L23 | | | Access: | | FT |
| Watershed Code: | 460-6006-508- | 84-214-933-000-000-000-000-000 | | | Reach No.: | 1 | Reach Length (km): | 1.0 Method: | MW |
| Location: | ~100 in U/S FR | OM LAKE INLET (INLET CREEK). | Map #: 0931 | .035 | Site No.: | 1 | Length surveyed (m): | 300.0 Method: | HC |
| | | | U.T.M.: 9.61 | 83 .60266 | Fish Card: | N | Field: Yes | Historical: | Nο |
| Date: 9/19/96 | Time: 15: | OO Agency: C58 Survey Cr | ew: RD\ \ \ \ | \ \ \ | Photos: | A4/17, 18 | Air Photos: | BCB 911 | 81.169 |
| Channel Ch | aracteristi | cs | | Specific Data | Bed Material | | | | |
| Av. Chan. Width (m | • | , (.). | | | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m) | | ` , | | | % Gravels: | 40 | Small (2-16mm): | | 20 |
| Av. Max. Rif. Depth | | | | | | | Large (16-64mm): | | 20 |
| Av. Max. Pool Dept | | Av. Max. Pool Depth (cm): 0 | 1 | | % Larges: | 50 | Small cobble (64-128mm) | | 50 |
| Gradient (%): | 5.0 | | | | 70 Dailges. | 50 | Large cobble (128-256mm | | Ü |
| % Pool: 0 | % Riffle: 0 | | Method: GE | | | | Boulder cobble (>256mm | | 0 |
| % Side Channel: | 0 | | | | % Bedrock: | 0 | | ,. | 0 |
| % Debris Area: | | Method Debris Area: GE | | | | 0 | % Bedrock: | | U |
| Cover | | | | | D90 (cm): | 9 9 | Compaction: | | Medrum |
| Cover Total % : | | Method Cover Total %: | | | Banks | | | | |
| | L.O.D.: | Boulder: In Veg.: | Over Veg: | Cutbank: | | | | | |
| Crown Closure %: | ! | Method Crown Closure: | Aspect : | Method Aspect: | Height (m): | 1.2 | % Unstable: | | U |
| | _ | | | | Textures Fines: | Yes | Gravel: Yes Larges | : No Bedrock: | No |
| Discharge | | | 1 | Specific Data | Confinement: | 2 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | 1 | | Stage: | Dry | | | |
| Mean Velocity (m/s | ١. | Method Mean Velocity (m/s VO | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | 0.00 | Method Discharge (m3/s): | | | Braided: | Y | Method Braided: | | GE |
| | | | <u> </u> | | Bars (%): | 100 | Method Bars: | | GE |
| Reach Symb | bol | | | | pH: | | Method pH: | | |
| 1 | | (Fish) | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | NS NS | | - | Water Temp. (°C): | | Method Temperature: | | |
| | | 1 A 5.0 14 | 0 | | Turb. (cm): | | Method Turbidity: | | |
| | | (Width, Valley: Channel, Slope) (Bo | d Material) | | Cond. (µmhos): | | Method Conductivity: | | |

2~-Mar-9"

Stream: LOLJUH C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-214-933-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C) Channel is dewatered. In the lower 100 m the channel is braided throughout a meadow; above 100 m, no defined channel is present
- No spawning potential present in L23. No fish observed at the confluence with the upper lake, and no fish were caught and no followers were observed during angling in the lake

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-D15-000-000-000-000-000-000

| Header Info | matio | n | | | | | | | | | | |
|--|---------|-----------------|---------------------------------|----------------|---------|-------------------|---------|----------------------|-------|-------------------------|---------------|--------|
| Stream Name: | DENYS | C. TRIE | BUTARY | Stream " | Local": | D15 | | | | Access: | | н |
| Watershed Code: | 460-600 | -508-5 | 84-D15-000-000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 0.8 Method: | MW |
| Location: | TRIBUT | ARY L | OCATED ~2000 m U/S FROM THE | Map#: | 093L034 | 4 | | Site No.: | 1 | Length surveyed (m): | 85.0 Method: | HC |
| | LOLJUH | C. MC | UTH. | U.T.M. : | 9.6125 | .60278 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 | Time | : 16:0 | 0 Agency: C58 Survey | Crew: JH\ \ | | \ \ | | Photos: | B3/16 | Air Photos: | BCB 911 | 81:173 |
| Channel Cha | racte | ristic | S | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 0.7 | , , | T 0.7 | 0.8 | 0.6 0.7 | 0.7 0.7 | % Fines (<2mm): | 80 | % Fines (<2mm): | | 80 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (| (cm): | 0.5 7 | | T 0.6 | 0.5 | 0.3 | | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Pool Depth | - | 12 | • • • | 7 | | | | 11 | | Large (16-64mm): | | |
| Gradient (%): | (,- | 13.0 | - ' ' | L i | | | | % Larges: | 0 | Small cobble (64-128mm) | : | |
| % Pool: 50 | % RiM | e: 50 | | 0 Method | : GE | | | 1 | | Large cobble (128-256mn | 1): | |
| % Side Channel: | | 0 | Method Side Channel: | iE | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | 20 | | Method Debris Area: | iΕ | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | D90 (cm): | 1 | Compaction: | | High |
| Cover Total %: | | 50 | Method Cover Total %: | ìΕ | | | | Banks | | | | |
| Dp Pool: 0 L | .O.D.: | 10 | Boulder: 0 In Veg.: | 0 Over Veg | : 70 | Cutbank: | 20 | | | | | |
| Crown Closure %: | | 10 | Method Crown Closure: | iE Aspect : | sw | Method Aspect: | AE | Height (m): | 0.4 | % Unstable: | | 0 |
| | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | | c | Specific Data | | Confinement: | 3 | | | |
| | | | Navaba d Wassand Wildela () | | | pecyte Data | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | o | | | | Flood Signs 11t(m): | 0 | Method Flood Signs: | | GE |
| Mean Velocity (m/s) | • | 0.01 | • • | U | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.01 | Method Discharge (m3/s): | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | pH: | 8.0 | Method pH: | | PH |
| | ~ • | | (Fish | • | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | (SF | ") | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | 10 |
| | | | 1 C 13.0 | 8200 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2⁻-Mar-9⁻ Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- Gradient increases to 20% at the base of the gully which is located -90 m u/s from the mouth.
- C2 Habitat structure is too small for fish use except for fry, but 8% gradient and small debris jams restrict fry to the lower section within the Denys floodplain.
- C3 D15 is classified as S4 habitat in the lower 90 m and S6 habitat u/s of 90 m.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

| Header Infor | matio | n | | | | | | | | | | | | | |
|-----------------------|---------|---------|---------------------------------|--------|-------------|-----------|------------|-----------|-----|-----|----------------------|----------|-------------------------|---------------|---------|
| Stream Name: | DENYS | C. TRI | BUTARY | | Stream "Lo | cal": | D15.1 | l | | | | | Access: | | н |
| Watershed Code: | 460-600 | 6-508- | 584-D151 -000-000-000-000-000 | | | | | | | | Reach No.: | ı | Reach Length (km): | 0.6 Method: | MW |
| Location: | ~100 m | U/S FR | OM D15.1 MOUTH. | | Map#: | 093L03 | 4 | | | | Site No.: | 2 | Length surveyed (m): | 50.0 Method: | нс |
| | | | | | U.T.M. : | 9.6125 | .60278 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/19/96 | Tim | e: 16:1 | OO Agency: C58 Surv | vey Cr | ew: JH\ \ \ | \ \ \ \ \ | \ \ | | | | Photos: | no photo | Air Photos: | BCB 91 | 181:173 |
| Channel Cha | racte | risti | cs | | <u> </u> | | Specific I | Data | | i | Bed Material | | | | |
| Av. Chan. Width (m): | | 0.9 | Method Av. Chan. Width (m): | r | 0.6 | 0.8 | 1.2 | 0.8 | 0.5 | 1.4 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 0.5 | Method Av. Wet. Width (m): | T | 0.6 | 0.5 | 0.3 | | | İ | 1 | | | | |
| Av. Max. Rif. Depth (| cm): | 3 | Av. Max. Riffle Depth (cm): | MS | | | | | | İ | % Gravels: | 90 | Small (2-16mm): | | |
| Av. Max. Pool Depth | (cm): | 5 | Av. Max. Pool Depth (cm): | 3 | | | | | | | l | | Large (16-64mm): | | |
| Gradient (%): | | 15.0 | Method Gradient: | GE | , | | | | | ı | % Larges: | 5 | Small cobble (64-128mm) | | |
| % Pool: 10 | % Riff | le: 90 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mr | n); | |
| % Side Channel: | | | Method Side Channel: | GE | | | | | | | 1 | | Boulder cobble (>256mm |): | |
| % Debris Area: | 15 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | Û |
| Cover | | | | | | | | | | | D90 (cm): | 4 | Compaction: | | High |
| Cover Total %: | | 50 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L. | O.D.: | 30 | Boulder: 10 In Veg.: | 10 | Over Veg: | 30 | Cutb | ank: | | 20 |) | | | | |
| Crown Closure %: | | 40 | Method Crown Closure: | GE | Aspect: | w | Meth | od Aspect | : | ΑE | Height (m): | 0.4 | % Unstable: | | 15 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | | | | :C- D | | | | Confinement: | ł | | | |
| | | | | | 1 | 3, | pecific D | ata | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | L | | | |
| Mean Depth (m) : | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0 | Method Flood Signs: | | GE |
| Mean Velocity (m/s): | | 0.01 | Method Mean Velocity (m/s | vo | | | | | | ļ | Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.01 | Method Discharge (m3/s): | | ! | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbo | o/ | | | | | | | | | | pH: | | Method pH: | | |
| Symbo | | | (1 | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | | NS | | | | | | | Water Temp. (°C); | 6.0 | Method Temperature: | | fC |
| | | | 1 A 15.0 | 191 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| l | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

CI

Gradient increases to 20%+ at the base of gully, ~25 m w/s from D15 confluence. Possible fish use in the lower 25 m of D15.1. Tributary is classed as S6 habitat.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-D17-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | - | | | |
|---------------------|---------|-----------------|---|------------|-----------|----------------|---------------|---------|-----|-----|----------------------|------|-------------------------|----------------|---------|
| Stream Name: | DENYS | C. TRII | BUTARY | Stre | am "Loca | al": | D17 | | | | | | Access: | | H |
| Watershed Code: | 460-600 | 5-5 08-5 | 84-D17-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.0 Method: | MW |
| Location: | | | D 692 m U/S FROM D15 CONFLUENCE | E, Mai | p#: 0 | 93L0 34 | ı | | | | Site No.: | 1 | Length surveyed (m): | 20.0 Method: | HC |
| | SITE LO | CATE | ~10 m U/S FROM CONFLUENCE. | U.T | .M.: 9 | 9.6126 | .60282 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/24/96 | Time | : 11:0 | O Agency: C58 Surve | y Crew: Ji | I\SS \ \ | 1 1 1 | \ \ | _ | | | Photos: | B4/6 | Air Photos: | BCB 911 | 181:173 |
| Channel Ch | aracte | ristic | es · | (| | S | Specific Data | | | Į. | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.0 | Method Av. Chan. Width (m): | T | 0.4 | 0.5 | 1.0 | 1.0 | 1.6 | 1.4 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 0.3 | Method Av. Wet. Width (m): | T | 0.2 | 0.4 | | | | | % Gravels: | 25 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 9 | Av. Max. Riffle Depth (cm): | GE | | | | | | i | 76 Graveis. | 25 | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 0 | Av. Max. Pool Depth (cm): | 9 | | | | | | İ | | | | | |
| Gradient (%): | | 31.0 | Method Gradient: | CL | | | | •• | | ' | % Larges; | 65 | Small cobble (64-128mm) | | |
| % Pool: 0 | % RiM | e: 99 | % Run: 1 % Other: | 0 M | lethod: G | ìΕ | | | | | | | Large cobble (128-256mr | | |
| % Side Channel: | | 0 | | GE | | | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | U |
| Cover | | | | | | | | | | - | D90 (cm): | 24 | Compaction: | N | Medium |
| Cover Total %: | | 0 | | GE | | | | | | | Banks | | | | |
| Dp Pool : L | .O.D.; | | Boulder: In Veg.: | Ove | er Veg: | | Cutbank | | | | | | | | |
| Crown Closure %: | | 85 | Method Crown Closure: | GE Asp | ect: | SE | Method A | \spect: | | AE | Height (m); | 0.4 | % Unstable: | | 10 |
| | | | | | | | | | | | Textures Fines: | No | Gravel: No Larges | : Yes Bedrock: | No |
| Discharge | | | | | | ç | pecific Data | | | | Confinement: | 1 | | | |
| What I Wilds (-) | | | Machad Wassad Wideh () | | | ., | occijie Data | | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): Method Mean Depth (m): | | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | • • • | vo | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | • | 0.01 | Method Mean Velocity (m/s Method Discharge (m3/s): | V O | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.01 | Michigan Discharge (m5/s): | | | | <u> </u> | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | _ | | | | | | | ρH: | 8.2 | Method pH: | | PH |
| | | | (Fis | • | | | | | | | 02 (բթա)։ | | Method Dissolved Oxygo | n: | |
| | | | N | <u> </u> | | | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | H |
| | | | 1 A 31.0 | 1270 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| ł | | | (Width, Valley: Channel, Slope) | (Bed Mai | terial) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-D17-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Comments

Ci

No fish habitat; slope >20% from mouth. Tributary classed as S6 habitat.

Obstructions

2^-Mar-9^

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-336-000-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | | | | | |
|---------------------|------------|-------|------------------------------------|--------|-------------|------------------|------------|-----------|-----|-----|----------------------|-------|---------------------------|--------------|---------|
| Stream Name: | DENYS C. | TRIB | UTARY | | Stream "Lo | cal": | D20 | | | | | | Access: | | H |
| Watershed Code: | 460-6006-5 | 08-58 | 4-336-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 2.2 Method: | MW |
| Location: | | | 370 m U/S FROM DI9 CONFLUEN | CE, | Map #: | 093L 0 34 | 4 | • | | | Site No.: | 1 | Length surveyed (m): | 70.0 Method: | HC |
| | SITE LOCA | ATED | ~35 m U/S FROM MOUTH. | | U.T.M.: | 9.6128 | .60293 | | | | Fish Card: | N | Field: Yes I | listorical: | No |
| Date: 9/24/96 | Time: | 14:00 | Agency: C58 Surv | ey Cre | w: JH\SS\ | 111 | \ \ | | | | Photos: | B4/10 | Air Photos: | BCB 911 | 181:173 |
| Channel Ch | aracteri | stic | s | | I | | Specific I |)ata | | ļ | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.2 | Method Av. Chan. Width (m): | γ | 1.5 | 0.9 | 1.4 | 1.5 | 0.7 | 1.0 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 0.9 | Method Av. Wet. Width (m): | T | 1.0 | 0.6 | 1.4 | 0.6 | | ļ | % Gravels: | 30 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 6 | Av. Max. Riffle Depth (cm): | MS | | | | | | į | 76 Graveis. | 30 | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 15 | Av. Max. Pool Depth (cm): | 6 | | | | | | į | | | - ' | | |
| Gradient (%): | | 13.0 | Method Gradient: | CL | | | | | | i | % Larges: | 60 | Small cobble (64-128mm): | | |
| % Pool: 30 | % Riffle: | 70 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm): | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | • | | Boulder cubble (>256mm): | | |
| % Debris Area: | 10 | -40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | - | | | | | D90 (cm): | 20 | Compaction: | | High |
| Cover Total % : | | 40 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 5 L | .O.D.: | 15 | Boulder: 40 In Veg.: | 0 | Over Veg: | 5 | Cutbe | nk: | | 35 | | | | | |
| Crown Closure % : | | 60 | Method Crown Closure: | GE | Aspect: | W | Meth | od Aspect | : | AE | 1leight (m): | 0.5 | % Unstable: | | U |
| | | | | | - | | | | | | Textures Fines: | No | Gravel: No Larges: Y | es Bedrock: | No |
| Discharge | | | | | 1 | | pecific D | ata | | | Confinement: | ı | | | |
| | | | M. at 1 88/ . ac 1 88/2 1al. (c.) | | | رد | pergic D | utu | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (in): | | | Method Mean Depth (m): | VO. | | | | | | | Flood Signs IIt(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | | | Braided; | N | Method Braided: | | GE |
| Discharge (m3/s): | | .01 | Method Discharge (m3/s) : | | <u> </u> | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | al | | | | | | | | | | pt4: | 8.4 | Method pH: | | PH |
| | | | | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | | (| DV) | | | | | | | Water Temp. (°C): | 4.5 | Method Temperature: | | IC |
| | | | 1 A 13.0 | 136 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bec | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-336-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C1

D20 is accessible to fish in the lower 270 m; above this, the gradient increases to 20% and is continuous.

27-Mar-97

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-D20-B -000-000-000-000-000-000

Header Information DENYS C. TRIBUTARY Stream "Local": D20B Stream Name: Access: н Watershed Code: 460-6006-508-584-D20-B -000-000-000-000-000 Reach No .: Reach Length (km): 0.2 Method: MW TRIB. LOCATED AT 90 DEGREE S-BEND IN DENYS C.; Map #: 093L034 Location: Site No.: Length surveyed (m): 244.0 Method: HC SITE LOCATED ~159 m U/S FROM MOUTH. 9.6127 .60294 U.T.M.: Fish Card: Field: Yes Historical: Nο Date: 9/24/96 Time: 15:15 Agency: C58 Survey Crew: JH\ \ \ \ \ \ \ Photos: B4/14 Air Photos: BCB 91181:194 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 1.2 Method Av. Chan. Width (m): T 0.9 1.0 1.4 1.6 0.8 1.6 % Fines (<2mm): % Fines (<2mm): 100 T Av. Wet. Width (m): Method Av. Wet. Width (m): 1.3 0.7 % Gravels: Small (2-16mm): 0 Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): MS Large (16-64mm): 0 Av. Max. Pool Depth (cm): 9 Av. Max. Pool Depth (cm): 20 Small cobble (64-128mm): 0 % Larges: Method Gradient: €L Gradient (%): Large cobble (128-256mm): % Pool: 35 % Riffle: 15 % Run: % Other: Method: GE Boulder cobble (>256mm): GE % Side Channel: 0-10 Method Side Channel: GE 10-40 Method Debris Area: % Bedrock: % Bedrock: 0 % Debris Area: D90 (cm): Compaction: High Cover GE Cover Total %: Method Cover Total %: Banks Dp Pool: 10 L.O.D.: Boulder: In Veg.: Over Veg: 40 Cutbank: 40 Method Crown Closure: GE SWCrown Closure %: Method Aspect: ΑE Aspect: Height (m): 0.4 % Unstable: 15 Textures Fines: Yes No Gravel: No Larges: No Bedrock: Discharge Confinement: Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): Stage: L Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): 0.05 Method Flood Signs: MS VO Mean Velocity (m./s): Method Mean Velocity (m/s Braided: Method Braided: GE Discharge (m3/s): 0.01 Method Discharge (m3/s): Bars (%): Method Bars: GE pH: Method pll: PH Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: D۷ Water Temp. (°C): Method Temperature: TC I D 3.0 Turb. (cm): Method Turbidity: GE: (Width, Valley: Channel, Slope) (Bed Material) Method Conductivity: Cond. (µmhos):

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-D20-B -000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 4 | 70 - 120 | J | | | | vo |

Comments

C2

C1 Previously unmapped tributary.

DV were observed ~159 m u/s from the mouth. Assume fish use throughout R1.

Obstructions

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-D20-B -000-000-000-000-000

| Header Infor | matio | n | | | | | | | | | | | | | - |
|---|---------|------------------|---|---------|-------------|------------------|------------|-----------|-----|------------|----------------------|-------|--------------------------|---------------|---------|
| Stream Name: | DENYS | C. TRI | BUTARY | | Stream "Le | cat"; | D20B | | | | | | Access: | | н |
| Watershed Code: | 460-600 | 6-5 08- 5 | 84-D20-B -000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 0.5 Method: | MW |
| Location: | SITE LO | CATE | o ~400 m U/S FROM MOUTH. | | Map #: | 093 L03 4 | 4 | | | | Site No.: | 2 | Length surveyed (m): | 271.0 Method: | HC |
| | | | | | U.T.M. : | 9.6127 | .60294 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/24/96 | Tim | e: 15:0 | 0 Agency: C58 Sur | vey Cre | :w: JH\ \ \ | 1111 | 1 1 | | | | Photos: | B4/13 | Air Photos: | BCB 911 | 181:194 |
| Channel Cha | racte | ristic | e s | | | | Specific D | ota | | . 1 | Bed Material | | | | |
| Av. Chan. Width (m): | | 0.5 | Method Av. Chan. Width (m): | T | 0.4 | 0.3 | 0.6 | 0.7 | 0.3 | 0.9 | % Fines (<2mm): | 55 | % Fines (<2mm): | | 55 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (c | cm): | 0.4 9 | Method Av. Wet. Width (m): Av. Max. Riffle Depth (cm): | T GE | 0.4 | 0.3 | 0.6 | | | | % Gravels: | 35 | Small (2-16mm): | | |
| Av. Max. Pool Depth (| (cm): | 0 | Av. Max. Pool Depth (cm): | 9 | 1 | | | | | } | ĺ | | Large (16-64mm): | | |
| Gradient (%): | | 23.0 | Method Gradient: | CL | r | | | | | , | % Larges: | 10 | Small cobble (64-128mm): | | |
| % Pool: 0 | % Riff | le: 99 | % Run: 1 % Other: | 0 | Method: | GE | | | | | İ | | Large cobble (128-256mm |) : | |
| % Side Channel: | | 0-10 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm) | : | |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 8 | Compaction: | | High |
| Cover Total % : | | 0 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L. | O.D.: | 0 | Boulder: 0 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 0 | Danks | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect : | w | Metho | d Aspect: | | AE | Height (m): | 0.3 | % Unstable: | | 20 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | | S | pecific Da | ta | | í | Confinement: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | 1 | • | | | | i | Valley: Chan. Ratio: | 4 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | ! | Stage: | L | | | |
| Mean Velocity (m/s) : | | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.15 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | | 0.01 | Method Discharge (m3/s): | | | | | | | 1 | Braided: | Y | Method Braided: | | GE |
| ļ | | | | | | | | | | <u>. i</u> | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbo | ol | | | Fish) | | | | | | | pH: | 8.1 | Method pH: | | PH |
| } | | | , | NS | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | 1: | |
| ļ | | | _ | | | | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | 10 |
| | | | I D 23.0 | j | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2~-Mar-9~

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-D20-B -000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

CI

R2 has a continuous gradient >20% and the channel is intermittent. No fish habitat in R2; fish use is up to the top of R1.

2~-Mar-97

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-442-000-000-000-000-000-000

| Header Infor | matio | n | | | | | | | | | | | · | | | |
|--|-------------|----------------|------------------------------------|---------------------|----------|--------------------|-------------------|------------|-----------|-----|-----|-----------------------------|------------|--|------------------------------|------------------------|
| Stream Name: | DENYS (| . TRIE | | | • | Stream "L | ocal": | D22 | | | | | | Access: | | Н |
| Watershed Code: | | | 34-442-000-000-00 | | | N14. | 0021.044 | ı | | | | Reach No.: | 1 | Reach Length (km): | 1.1 Method: | |
| Location: | CONFLU | | OM MOUTH, JUST | U/3 FROM D22 | .1 | Map #: U.T,M. : | 093L044 9.6124 | | | | | Site No.; Fish Card: | I N | Length surveyed (m): Field: Yes | 450.0 Method: Historical: | |
| Date: 10/15/96 | Time | : 14:0 |) Agei | ncy: C58 S | urvey Cr | ew: SS\RD\ | | | | | | Photos: | A13/15, 16 | Air Photos: | BCB 911 | No 1 8 1:193 |
| Channel Cha | iracter | istic | es | | | ı | | Specific D | ata | | i | Bed Material | | | | |
| Av. Chan. Width (m): | : | 3.1 | Method Av. Cha | | Ť | 3.4 | 3.1 | 2.8 | 3.4 | 2.9 | 3.2 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (| cm): | 3.0 12 | Method Av. Wet Av. Max. Riffle | ` ' | T MS | 3.1 | 3.1 | 2.7 | 3.4 | 2.8 | | % Gravels: | 20 | Small (2-16mm): | | 10 |
| Av. Max. Pool Depth Gradient (%): | • | 40 7.0 | Av. Max. Pool D Method Gradien | epth (cm): | 12 CL | | | | | | | % Larges: | 75 | Large (16-64mm): Small cobble (64-128mm) | ; | 10 25 |
| % Pool: 20 | % Riffle | | % Run: 10 | % Othe | r: 0 | Method: | GE | | | | | | | Large cobble (128-256mm | 1): | 35 |
| % Side Channel: % Debris Area: | | 0-10 0-10 | Method Side Cha Method Debris A | | GE GE | | | | | | | % Bedrock: | 0 | Boulder cobble (>256mm * Bedrock: |): | 15 0 |
| Cover | | | | | | | | | | | | D90 (cm): | 27 | Compaction: | 1 | Medium |
| Cover Total %: Dp Pool: 15 L. | .O.D.: | 70 5 | Method Cover T Boulder: 40 | otal %: In Veg.: | GE 0 | Over Veg: | 30 | Cutba | nk: | | 10 | Banks | | | | _ |
| Crown Closure %: | | 60 | Method Crown | _ | GE | Aspect: | NE | | d Aspect: | : | AE | Height (m): | 2.1 | % Unstable: | | U |
| | _ | - | | | | | | _ | | | | Textures Fines: | Yes | Gravel: Yes Larges | : No Bedrock: | : No |
| Discharge | | | | | | 1 | Sp | ecific Da | ıta | | | Confinement: | 3 | | | |
| Wetted Width (m): | | | Method Wetted V | /idth (m) : | | | - | | | | İ | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m) : | | | Method Mean De | pth (m) : | | ļ | | | | | | Stage: | L | Marked Claud Claus | | Me |
| Mean Velocity (ma/s) : | ; | | Method Mean Ve | locity (m/s | VO | | | | | | l | Flood Signs Ht(m): Braided: | 0.3 N | Method Flood Signs: Method Braided: | | MS GE |
| Discharge (m3/s): | | 0.10 | Method Discharge | e (m3/s) : | | | | | | | į | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symbo | ol | | | | | | | | | | | pH: | 7.7 | Method pH: | | PH |
| | | | | | (Fish) | | | | | | | 02 (թթու)։ | | Method Dissolved Oxyge | n; | |
| | | | | | ĐV | _ | | | | | | Water Temp. (°C): | 2.0 | Method Temperature: | | TC |
| | | | | 3 B 7 | 0 127 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Vall | ey: Channel, Sloj | oe) (Be | d Material) | | | | | | Cand. (µmhos): | 50 | Method Conductivity: | | CM |

2^-Mar-9^

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 4 | 71 - 123 | J | R | | | EL |

- C1 Electroshocked 53 m length of stream, 1 pass with no lower net. 1 of the DV recorded was visually observed as it was lost in the boulders.
- C2 Creek with moderate gradient and very limited potential spawning. Good BT habitat although only DV were caught at the sample site.
- C3 Lat/Lon of helicopter landing site: 54 24.62 127 16.24

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-442-D22-.1 -000-000-000-000-000

| Header Informat | ion | | | | | | | | | | | | |
|---------------------------|------------------|--|--------------|-------------|------------|------------|------|-----------|-----------------------|------------|-------------------------|---------------|---------|
| Stream Name: DEN | YS C. TR | BUTARY | Stre | am "Local": | D22 | .1 | | | | | Access: | | Н |
| Watershed Code: 460-6 | 006-5 08- | 584-442-D221 -000-000-000-000-000 | | | | | | | Reach No.: | ı | Reach Length (km): | 1.1 Method: | MW |
| Location: ~50 m | U/S FRO | OM D22 - D22.1 CONFLUENCE. | Map | #: 093L0 | 44 | | | | Site No.: | 2 | Length surveyed (m): | 120.0 Method: | нС |
| | | | U.T. | M.: 9.612 | 4 .60304 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 T | ime: 14: | 30 Agency: C58 Surv | vey Crew: SS | \RD\ \ \ \ | \ \ \ | | | | Photos: | A13/17, 18 | Air Photos: | BCB 91 | 181:193 |
| Channel Charac | teristi | cs | ! | | Specific | Data | | Ì | Bed Material | | | | |
| Av. Chan. Width (m): | 1.9 | Method Av. Chan. Width (m): | T | 2.9 1.9 | 1.8 | 1.5 | 1.6 | 1.5 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet, Width (m): | 1.8 | Method Av. Wet. Width (m): | T | 2.7 1.8 | 1.7 | 1.5 | 1.6 | 1.5 | % Gravels: | 25 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth (cm): | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | , Graveis. | 23 | Large (16-64mm): | | 15 |
| Av. Max. Pool Depth (cm): | 24 | Av. Max. Pool Depth (cm): | 8 | | | | | | 1 | | - | | |
| Gradient (%): | 6 .0 | Method Gradient: | CL | | | | . ,, | | % Larges: | 65 | Small cobble (64-128mm) | | 50 |
| % Pool: 20 % R | i Me: 7 0 | % Run: 10 % Other: | 0 M | ethod: GE | | | | | l | | Large cobble (128-256mm | • | 10 |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | | Boulder cobble (>256mm |): | 5 |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | • | | | D90 (cm): | 15 | Compaction: | | Medium |
| Cover Total % : | 75 | Method Cover Total %: | GE | | | | | | Banks | | | _ | |
| Dp Pool: 20 L.O.D.: | 5 | Boulder: 40 In Veg.: | 0 Ove | r Veg: 30 | Cut | bank: | | 5 | Danks | | | | |
| Crown Closure % : | 10 | Method Crown Closure: | GE Asp | ect: Si | E Met | hod Aspect | : | AE | Height (m): | 0.4 | % Unstable: | | U |
| | | | | | | _ | | | Textures Fines: | Yes | Gravel: Yes Larges | : No Bedrock: | No |
| Discharge | | | i | | Specific . | Data | | | Confinement: | 4 | | | |
| · · | | Name and Wassard Widols (m) | | | Specific . | Data | | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | Method Mean Depth (m): Method Mean Velocity (m/s | vo | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.08 | Method Discharge (m3/s): | VO | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0,08 | Method Discharge (m5/s) . | i | | | , | | j | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | pH: | 7.8 | Method pl1: | | PH |
| | | · | Fish) | | | | | | 02 (թրտ)։ | | Method Dissolved Oxyge | n: | |
| | | | DV) | | | | | | Water Temp. (°C): | 2.0 | Method Temperature: | | TC |
| | | 2 C 6.0 | 1270 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed Mate | erial) | | | | | Cond. (µmhos): | 70 | Method Conductivity: | | СM |

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction IIt(m) | Туре | Location |
|--------------------|------|----------|
| 1 | X | 0.6 |

| Cl | Electrofished ~57 m length of stream, I pass with no lower net. No fish were caught or observed. |
|----|--|
| C2 | Restricted access into creek due to 8% section for ~15 m, the slight drop at the trib. mouth, and the confined nature of the creek in this section of channel. |
| C3 | Small creek consisting of a series of log steps; suitable DV habitat is present. |
| C4 | D22.1 is suspected to be class S3 habitat in the lower 650 m of creek and is S6 habitat u/s of this point. Although no fish were caught, the lower 650 m conatins suitable habitat and fish use is possible. Above 650 m, the gradient is too steep (20%+) to support fish and the 0.8 m debris jam at 647 m poses as a barrier to fish. |

27-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-442-D22-.1 -000-000-000-000-000

| Header Inform | ation | | | | | | | | | | | | | |
|--------------------------|----------------------|-----------------------------------|---------|-------------|-----------------|------------|----------|-----|-----|----------------------|------------|-------------------------|---------------|---------|
| Stream Name: DE | NYS C. TR | IBUTARY | | Stream "L | ocal": | D22.1 | | | | | | Access: | | Н |
| Watershed Code: 46 | 0-6006-5 08 - | 584-442-D221 -000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.7 Method: | : MW |
| Location: UF | PER MEAL | OOW, ~1400 m U/S FROM MOUTH. | | Map #: | 093 L044 | l | | | | Site No.: | 3 | Length surveyed (m): | 100.0 Method; | : HC |
| | | | | U.T.M.: | 9.6124 | .60304 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 | Time: 15 | 00 Agency: C58 Sur | vey Cre | ew: SS\RD\ | 1 1 1 1 | \ \ | | | | Photos: | A13/19, 20 | Air Photos: | BCB 91 | 181:193 |
| Channel Chara | cterist | ics | | | .5 | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | 1.3 | Method Av. Chan. Width (m): | T | 1.5 | 1.2 | 1.5 | 1.5 | 1.2 | 1.0 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 1.2 | Method Av. Wet. Width (m): | T | 1.7 | 1.1 | 1.0 | 1.5 | 1.1 | 1.0 | % Gravels: | 30 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm) | : 10 | Av. Max. Riffle Depth (cm): | MS | | | | | | | 76 Glaveis. | 50 | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm |): 35 | Av. Max. Pool Depth (cm): | 10 | | | | | | | | | | | |
| Gradient (%): | 8.0 | Method Gradient: | CL | | | | | | | % Larges: | 65 | Small cobble (64-128mm) | | |
| % Pool: 30 % | Riffle: 70 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | | |
| % Side Channel: | O | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | U |
| Cover | | | _ | | | | | | | D90 (cm): | 12 | Compaction: | | High |
| Cover Total % : | 45 | Method Cover Total %: | GE | | | | | | | Banks | | _ | _ | |
| Dp Pool: 15 L.O.I |).: 5 | Boulder: 10 In Veg.: | 0 | Over Veg: | 55 | Cutba | nk: | | 15 | 2-475 | | | | |
| Crown Closure % : | 10 | Method Crown Closure: | GE | Aspect : | SE | Metho | d Aspect | ; | AE | Height (m): | 0.2 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | : No |
| Discharge | | | | | 6. | pecific Da | | | | Confinement: | 5 | | | |
| | | | | ! | 3) | pecijic Di | ıra | | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.05 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.04 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE. |
| Discharge (m3/s) : | 0.06 | Method Discharge (m3/s): | | | | <u></u> | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pH: | 7.7 | Method pH: | | PH |
| Tienen Symbol | | (1 | Fish) | | | | | | | 02 (թթա)։ | | Method Dissolved Oxyge | n: | |
| | | | NF | | | | | | | Water Temp. (°C); | 2.0 | Method Temperature: | | R |
| | | 1 C 8.0 | 136 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmihos): | 30 | Method Conductivity: | | CM |

2^-Mar-97

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

- C1 Electrofished 75 m length of stream, 1 pass with no lower net. No fish were caught or observed.
- C2 Suitable fish habitat is present. Suspect R2 is inaccessible to fish due to the steep gradient and the debris jam barrier located in R1.
- C3 Lat/Lon of helicopter landing site: 54 24.90 127 17.14

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

Header Information DENYS C. TRIBUTARY Stream "Local": D22.2 Stream Name: Access: н 460-6006-508-584-442-418-000-000-000-000-000 Watershed Code: Reach No .: Reach Length (km): 1.3 Method: MW ~450 m U/S FROM MOUTH, JUST BELOW OLD Map#: 093L044 Location: Site No.: Length surveyed (m): 100.0 Method: HC EXPLORATION ROAD CROSSING. U.T.M.: 9.6116 .60298 Fish Card: Field: Yes Historical: No Date: 10/15/96 Time: 14:15 Agency: C58 Survey Crew: DB\CP\\\\\\\\ Photos: DB4/25 Air Photos: BCB 91181:193 Channel Characteristics **Bed Material** Specific Data 2.3 Method Av. Chan, Width (m); T Av. Chan. Width (m): 2.4 3.3 2.2 2.0 2.0 2.0 % Fines (<2mm): % Fines (<2mm): 0 Method Av. Wet. Width (m): T 1.5 Av. Wet. Width (m): 1.4 2.4 1.4 1.8 1.2 % Gravels: Small (2-16mm): 10 Av. Max. Rif. Depth (cm): 12 Av. Max. Riffle Depth (cm): MS 10 16 10 Large (16-64mm): 25 Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 12 35 45 % Larges: Small cobble (64-128mm): 25 CLGradient (%): 10.0 Method Gradient: Large cobble (128-256mm): 30 0 % Pool: 5 % Riffle: 95 % Run: % Other: Method: GE Boulder cobble (>256mm): 10 % Side Channel: 0 Method Side Channel: GE % Debris Area: Method Debris Area: GE % Bedrock: 0 % Bedrock: D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks 0 L.O.D.: In Veg.: Over Veg: Dp Pool: Boulder: 60 Cutbank: Crown Closure %: Method Crown Closure: Aspect: Method Aspect: AE % Unstable: 25 Height (m): Textures Fines: Larges: No Bedrock: Nο Discharge Confinement: Specific Data Valley: Chan. Ratio: Wetted Width (nn): Method Wetted Width (m): М Mean Depth (m) : Method Mean Depth (m): Flood Signs Ht(m): Method Flood Signs: MS Mean Velocity (m/s) : Method Mean Velocity (m/s VO Braided: GE Method Braided: Discharge (m3/s): 0.04 Method Discharge (m3/s): Bars (%): Method Bars: GE pH: Method pH: PH Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: DV* IC Water Temp. (°C): Method Temperature: 2 A 10.0 0370 Turb. (cm): 200 Method Turbidity: GE (Width, Valley: Channel, Slope) [(Bed Material) Method Conductivity: CM Cond. (µmhas):

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-442-418-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use i | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 4 | 62 - 77 | J | R | | _ | EL |
| CHF | 2 | 36 - 37 | F | R | | | EL |

Obstructions

- Cl Electrofished 50 m length of stream, I pass with no lower net. DV were caught. The char fry caught were recorded as CHF (char fry) due to the inability to distinguish between DV and BT fry.
- C2 Air Temp: 0 C.
- C3 LOD stepping present in creek important for trapping sediments. Sections of smaller gravels suitable for spawning were observed.
- C4 Unstable slumps were noted along D22.2.
- C5 Lat/Lon of helicopter landing site: 54 24.36 127 17.35

2~-Mar-9~

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-442-000-000-000-000-000-000

| Header Infor | rmatio | n | | | | | | | | | | | | | |
|-----------------------|---------|-----------------|------------------------------------|---------|-------------|---------|-----------------|-----------|-----|-----|----------------------|---------------|---------------------------|--------------|---------|
| Stream Name: | DENYS | C. TRII | BUTARY | | Stream "Lo | cal": | D22 | | | | | | Access: | | н |
| Watershed Code: | 460-600 | 5-508- 5 | 84-442-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.5 Method: | MW |
| Location: | | | SMALL MEADOW, ~1700 m U/S FR | .OM | Map #: | 093L044 | | | | | Site No.: | 5 | Length surveyed (m): | 00.0 Method: | нс |
| | MOUTH | ., ~550 ı | n U/S FROM REACH BREAK. | | U.T.M.: | 9.6124 | . 60 304 | | | | Fish Card: | N | Field: Yes I | listorical: | No |
| Date: 10/15/96 | Time | : 15:0 | 0 Agency: C58 Surv | vey Cre | w: DB\CP\ | 1 1 1 1 | \ \ | | | | Photos: | not available | Air Photos: | BCB 911 | 181:193 |
| Channel Cha | racte | ristic | es · | | ı | S | pecific E | Data | | 1 | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.0 | Method Av. Chan. Width (m): | T | 1.2 | 0.9 | 1.0 | 1.1 | 0.9 | 0.8 | % Fines (<2mm): | 10 | % Fines (<2mm): | • | 10 |
| Av. Wet. Width (m): | | 0.9 | Method Av. Wet. Width (m): | T | 0.7 | 0.9 | 1.0 | 1.1 | 0.9 | 0.8 | 1 | | | | |
| Av. Max. Rif. Depth (| (cm): | 9 | Av. Max. Riffle Depth (cm): | MS | 8 | 10 | 10 | | | | % Gravels: | 25 | Small (2-16mm): | | 10 |
| Av. Max. Pool Depth | (cm): | 28 | Av. Max. Pool Depth (cm): | 9 | 30 | 30 | 25 | | | | | | Large (16-64mm): | | 15 |
| Gradient (%): | | 15.0 | Method Gradient: | CL | ı | | | | | , | % Larges: | 65 | Small cobble (64-128mm): | | 30 |
| % Pool: 10 | % RiM | e: 80 | % Run: 10 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm): | | 25 |
| % Side Channel: | | 0 | Metbod Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | 10 |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 25 | Compaction: | 1 | Medium |
| Cover Total % : | | 70 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L | .O.D.: | 30 | Boulder: 60 In Veg.: | 0 | Over Veg: | 5 | Cutba | ınk: | | 5 | | | | | |
| Crown Closure %: | | 30 | Method Crown Closure: | GE | Aspect: | NE | Metho | od Aspect | : | ΑE | lleight (m): | 0.4 | % Unstable: | | U |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: \ | es Bedrock: | No |
| Discharge | | | | | , | Sn | ecific D | ata | | ı | Confinement: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | İ | ~ | | | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | İ | | | | | | Stage: | М | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Discharge (m3/s): | • | 0.03 | Method Discharge (m3/s): | •• | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) . | | 0.05 | Wethou Discharge (m5/3) . | | 1 | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 8.2 | Method pH: | | PH |
| | | | , | Fish) | | | | | | | 02 (թթա)։ | | Method Dissolved Oxygen: | | |
| | | | | NF | | | | | | | Water Temp. (°C): | 1.5 | Method Temperature: | | TC |
| | | | 1 A 15.0 | 1270 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed | d Material) | | | | | | Cond. (µmhos): | 50 | Method Conductivity: | | CM |

2^-Mar-9=

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-442-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C1 Air Temp: - 2 C.

C2 Electrofished 75 m length of stream, 1 pass with no lower net. No fish were caught or observed. Fish distribution is to the top of R1 based on the steep nature of R2.

C3 Heavy brush cover. Some LOD stepping is present. Steep, small creek.

C4 Lat/Lon of helicopter landing site (-50 m from site, on top of bench): 54 24.07 127 17.30

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-498-000-000-000-000-000-000

| Header Informat | ion | | | | | | | | | | | | | | |
|---------------------------|-------------------|-------------------------------|----------|--------|------------|-----------------|------------|----------|-----|-----|----------------------|------------|------------------------|----------------|----------|
| Stream Name: DEN | YS C. TR | BUTARY | | | Stream "Lo | cal": | D23 | | | | | | Access: | | н |
| Watershed Code: 460-6 | 006-508- | 584-498-000-000-000-000-000-0 | 00-000 | | | | | | | | Reach No.: | i | Reach Length (km): | 0.4 Method | : MW |
| Location: ~150 | m U/S FR | ОМ ТНЕ МОИТН. | | | Мар#: | 093L 044 | | | | | Site No.: | ı | Length surveyed (m): | 100.0 Method | : HC |
| | | | | | U.T.M. : | 9.6124 | .60313 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 T | i me: 1 6: | OO Agency: C58 | Surve | y Crev | v: SS\RD\ | 1111 | ١ ١ | | | | Photos: | A13/21, 22 | Air Photos: | BC 7 | 7326:242 |
| Channel Charac | teristi | cs | | : | | S | Specific D | ata | | ì | Bed Material | | | | |
| Av. Chan. Width (m): | 1.2 | Method Av. Chan. Width (n | ı): | T | 1.2 | 1.3 | 1.2 | 1.1 | 1.1 | 1.3 | % Fines (<2mm): | 30 | % Fines (<2mm): | | 30 |
| Av. Wet. Width (m): | 1.2 | Method Av. Wet. Width (m) | : | T | 1.1 | 1.3 | 1.2 | 1.0 | 1.1 | 1.3 | % Gravels: | 60 | Small (2-16mm); | | |
| Av. Max. Rif. Depth (cm): | 12 | Av. Max. Riffle Depth (cm): | 1 | MS | 15 | 10 | 12 | | | | 74 Glaveis. | 00 | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm): | 32 | Av. Max. Pool Depth (cm): | | 12 | 35 | 30 | 30 | | | | | | • , | | |
| Gradient (%): | 5.0 | Method Gradient: | | CL | | | | | | , | % Larges: | 10 | Small cobble (64-128m) | · | |
| % Pool: 15 % R | i Me: 60 | % Run: 25 % | Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256n | • | |
| % Side Channel: | 0 | Method Side Channel: | | GE | | | | | | | | | Boulder cobble (>256m | m): | |
| % Debris Area: | >40 | Method Debris Area: | | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | u |
| Cover | | | | | | | | | | | D90 (cm): | 12 | Compaction: | | Medium |
| Cover Total % : | 60 | Method Cover Total %: | | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 L.O.D.: | 25 | Boulder: 5 In \ | eg.: | 0 | Over Veg: | 50 | Cutba | nk: | | 10 | 245 | | | | |
| Crown Closure %: | 15 | Method Crown Closure: | | GE | Aspect: | SE | Metho | d Aspect | : | AE | lleight (m): | 2.3 | % Unstable: | | 5 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larg | es: No Bedrock | : No |
| Discharge | | | | : | | Si | ecific Da | ta | | | Confinement: | 3 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | i | | -, | ergic 22 | | | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | İ | | | | | | | Stage: | М | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | | vo | | | | | | | Flood Signs Ht(m): | 0.15 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.03 | Method Discharge (m3/s): | | •• | | | | | | | Braided: | N | Method Braided: | | GE |
| | 0.03 | Method Discharge (m3/3). | | ! | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | | ptt: | 7.8 | Method pH: | | PH |
| | | | • | ish) | | | | | | | 02 (թթm)։ | | Method Dissolved Oxy | gen: | |
| | | | D | V* | | | | | | | Water Temp. (°C): | 2.0 | Method Temperature: | | IC |
| | | i E | 5.0 | 3610 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channe | , Slope) | (Bed | Material) | | | | | | Cond. (µmhos): | 60 | Method Conductivity: | | CM |

Stream Survey Report

Stream: DENYS C. TRIBUTARY

Watershed Code:

460-6006-508-584-498-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

2"-Mar-9"

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 3 | 59 - 120 | J | R | | | EL |
| CHF | i | 30 | F | R | | | EL |

- C1 Electrofished 22 m length of stream, 1 pass with no lower net. The char fry that was caught was recorded as CHF(char fry) due to the inability to distinguish between BT and DV fry.
- C2 Heavy debris within channel provides good cover. Suitable spawning gravels were noted in this stream section.
- C3 Lat/Lon of helicopter landing site: 54 25.14 127 16.42
- Fish use extends to the top of R1; further u/s the gradient is steep (~18%) and continuous. Seepage D23.1 is accessible to fish in the lower 65 in; further u/s the gradient was ~15% and increasing too steep for the size of the seepage to support fish.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-513-000-000-000-000-000-000

| Header Informat | ion | | | - | | _ | | | | | | | | |
|---------------------------|-------------------|--------------------------------|-----------|--------------|----------------|-------------|-----------|-----|-----|----------------------|----------|--------------------------|---------------|---------|
| Stream Name: DEN | S C. TRI | BUTARY | | Stream "Le | ocal": | D24 | | | | | | Access: | | FT |
| Watershed Code: 460-6 | 006-508- | 84-513-000-000-000-000-000-000 | -000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.4 Method: | MW |
| Location: ~300 | m U/S FR | OM THE MOUTH. | | Map #: | 093L044 | • | | | | Site No.: | 1 | Length surveyed (m): | 300.0 Method: | HC |
| | | | | U.T.M.: | 9.6124 | .60317 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/16/96 T | ime: 14: | 00 Agency: C58 | Survey Ci | rew: RD\CP\ | \ \ \ <u>\</u> | . \ \ | | | | Photos: | A14/3, 4 | Air Photos: | BC 73 | 326:242 |
| Channel Charac | teristi | cs | | | | Specific De | ıta | | j | Bed Material | | | | |
| Av. Chan. Width (m): | 1.1 | Method Av. Chan. Width (m): | T | 1.2 | 1.0 | 0.9 | 1.3 | 1.0 | 1.2 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 1.0 | Method Av. Wet. Width (m): | T | 1.2 | 0.8 | 0.9 | 1.3 | 0.9 | | % Gravels: | 40 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth (cm): | 11 | Av. Max. Riffle Depth (cm): | MS | | | | | | |] | | Large (16-64mm): | | 30 |
| Av. Max. Pool Depth (cm): | 32 | Av. Max. Pool Depth (cm): | 11 | | | | | | 1 | % Larges: | 55 | Small cobble (64-128mm): | | 35 |
| Gradient (%): | 9.0 | Method Gradient: | CL | | | | | | | 76 Larges. | 33 | Large cobble (128-256mm) | | 15 |
| - | i ffle: 60 | % Run: 10 % O | | Method: | GE | | | | | | | Boulder cobble (>256mm): | | 5 |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | | | | | |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 16 | Compaction: | | Medium |
| Cover Total % : | 75 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 30 L.O.D.: | 15 | Boulder: 30 In Veg | .: 0 | Over Veg: | 0 | Cutbai | ık: | | 25 | Bunns | | | | |
| Crown Closure %: | 40 | Method Crown Closure: | GE | Aspect : | SE | Method | d Aspect: | | AE | Height (m): | 1.4 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | Nο |
| Discharge | | | | | S | pecific Dat | ta | | 1 | Confinement: | 2 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | 1 | J, | pecigie Du | | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Stage: | M | | | |
| Mean Velocity (m/s) : | | Method Mean Velocity (m/s | vo | i | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.07 | Method Discharge (m3/s): | 10 | | | | | | | Braided: | N | Method Braided: | | GE |
| | | | | | | | | | | Bars (%): | 2 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pH: | 7.7 | Method pH: | | PH |
| | | | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | : | |
| | | | (DV) | | | | | | | Water Temp. (°C): | 2.0 | Method Temperature: | | IC |
| | | 1 A | 9.0 14 | 50 | | | | | | Turb. (cm); | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, S | lope) (B | ed Material) | | | | | | Cond. (µmhos): | 70 | Method Conductivity: | | CM |

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-513-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Site was not sampled due to no nearby landing sites present.
- C2 Air Temp: 1 C.
- C3 Moderate gradient creek with pockets of spawning habitat located in the lower gradient sections.
- C4 Abundant LOD and willow overstory cover. Several 0.3 m to 0.4 m high drops over debris were noted.
- D24 is not accessible to fish due to the 2.5 m high drop over a bench at the mouth. R1 is suspected to be class S4 habitat due the possibility of residents in this section. R2 is classed as S6 habitat based on its steep gradient.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-526-000-000-000-000-000-000

| Header Informat | on | | | | | | - | | | | | | | |
|---------------------------|-------------------|-------------------------------------|--------|-------------|---------|------------|------------|-----|-----|----------------------|------------|-------------------------|--------------|----------|
| Stream Name: DENY | S C. TRI | BUTARY | | Stream "Lo | eal": | D25 | | | | | | Access: | | Н |
| Watershed Code: 460-6 | 006-50 8 - | 84-526-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.5 Method | d: MW |
| Location: ~300 i | n U/S FR | ОМ ТНЕ МОИТН. | | Map #: | 093L044 | 1 | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method | d: HC |
| | | | | U.T.M. : | 9.6124 | .60317 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 Ti | me: 17:0 | OO Agency: C58 Surv | ey Cre | w: RD\SS\ | 1 1 1 1 | 1_1_ | | | | Photos: | A13/23, 24 | Air Photos: | ВС | 7326:242 |
| Channel Charact | eristi | cs | | 1 | | Specific L | Data | | | Bed Material | | | | |
| Av. Chan. Width (m): | 1.1 | Method Av. Chan. Width (m): | T | 1.2 | 0.9 | 0.8 | 1.3 | 1.2 | 1.0 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | 0.9 | Method Av. Wet. Width (m): | T | 0.8 | 0.9 | 0.8 | 1.0 | | | % Gravels: | 70 | Small (2-16mm): | | 40 |
| Av. Max. Rif. Depth (cm): | 5 | Av. Max. Riffle Depth (cm): | MS | | | | | | | / Graveis. | ,, | Large (16-64mm): | | 30 |
| Av. Max. Pool Depth (cm): | 19 | Av. Max. Pool Depth (cm): | 5 | | | | | | | ĺ.,. | 20 | - ' | | |
| Gradient (%): | 9 .0 | | CL | | | | | | | % Larges: | 20 | Small cobble (64-128mm) | | 20 |
| | Me: 60 | | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | • | 0 |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | } | | Boulder cobble (>256mm | : | • |
| % Debris Area: | >40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | - | | - | D90 (cm): | 9 | Compaction: | | Medium |
| Cover Total % : | 75 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 15 L.O.D.: | 10 | Boulder: 50 In Veg.: | 5 | Over Veg: | 10 | Cutbs | nk: | | 10 | Danks | | | | |
| Crown Closure %: | 65 | Method Crown Closure: | GE | Aspect: | NW | Meth | od Aspect: | | AE | Height (m): | 0.4 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges | No Bedrock | k: No |
| Discharge | | | | ı | C | pecific Di | ota | | | Confinement: | 2 | | | |
| W-4-4 W:44-7-5 | | Back - 2 32/ seed 2 32/ ideb (ms) - | | | J, | pergic Di | **** | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | | Stage: | M | | | |
| Mean Depth (m): | | Method Mean Depth (m): | 110 | | | | | | į | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.04 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0.04 | Method Discharge (m3/s): | | <u> </u> | | | | | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pH: | | Method pH: | | |
| | | · | ish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxyge | 1: | |
| | | | NF | | | | | | | Water Temp. (°C): | 1.5 | Method Temperature: | | TC |
| | | I A 9.0 | 172 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-526-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Electrofished 65 m length of stream, 1 pass with no lower net. No fish were caught.
- C2 Creek is only accessible in the lower 25 m of stream; further u/s, channel drops down a sidehill with ~30%+ gradient which is a barrier to fish.
- C3 Creek contains fish habitat but may be too small to support residents. Sections of good potential resident spawning were observed.
- C4 D25 is classed as S4 habitat in the lower 25 m of stream and S6 habitat in the w/s sections.

2~-Mar-9~

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-593-000-000-000-000-000-000-000

| Header Informat | ion | | | | | | | | | | | | | |
|---------------------------|---------------------|---|-------|---------------|------------------|-----------|-----------|-----|-----|----------------------|------------|--------------------------|---------------|----------|
| 1 | YS C. TRI | BUTARY | | Stream "Lo | cai": | D26 | | | | | | Access: | | н |
| Watershed Code: 460-6 | 6006-5 08 -5 | 84-593-000-000-000-000-000-000 | | | | | | | | Reach No.: | I | Reach Length (km): | 0.2 Method: | : MW |
| Location: -50 m | u/s fro | M MOUTH. | | Ма р#: | 093L 04 4 | | | | | Site No.: | 1 | Length surveyed (m): | 110.0 Method: | : HC |
|) | | | | U.T.M. : | 9.6130 | .60334 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/16/96 T | ime; 10:0 | O Agency: C58 Surve | y Cre | w: JH\SS \ \ | 1 1 1 | 1 1 | | | | Photos: | B11/17, 18 | Air Photos: | BC 7 | 7326:152 |
| Channel Charac | teristi | es es | | | s | pecific L | Data | | | Bed Material | | | | |
| Av. Chan. Width (m): | 4.2 | Method Av. Chan. Width (m): | T | 4.3 | 4.8 | 5.6 | 3.6 | 3.8 | 3.3 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 2.3 | Method Av. Wet. Width (m): | T | 1.9 | 1.3 | 3.6 | | | , | 1 0/ Con ala | 16 | , , | | |
| Av. Max. Rif. Depth (cm): | 17 | Av. Max. Riffle Depth (cm): | MS | 15 | 13 | 22 | | | | % Gravels: | 15 | Small (2-16mm): | | |
| Av. Max. Pool Depth (cm): | 29 | Av. Max. Pool Depth (cm): | 17 | 25 | 27 | 34 | | | | | | Large (16-64mm): | | |
| Gradient (%): | 15.0 | Method Gradient: | CL | ı | | | | | ' | % Larges: | 70 | Small cobble (64-128mm): | : | |
| % Pool: 15 % R | iffle: 80 | % Run: 5 % Other: | 0 | Method: | GE | | | | | 1 | | Large cobble (128-256mm | ı): | |
| % Side Channel: | 10-40 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm) |): | |
| % Debris Area: | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 10 | % Bedrock: | | 10 |
| Cover | | | | | | | | | | D90 (cm): | 34 | Compaction: | | Medium |
| Cover Total % : | 40 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 20 L.O.D.: | 20 | Boulder: 40 in Veg.: | 0 | Over Veg: | 15 | Cutba | ank: | | 5 | | | | | |
| Crown Closure %: | 15 | Method Crown Closure: | GE | Aspect: | SE | Meth | od Aspect | : | ΑE | Height (m): | 0,7 | % Unstable: | | 30 |
| ļ | | | | | | | | | | Textures Fines: | No | Gravel: Yes Larges: | : No Bedrock: | : No |
| Discharge | | | | 1 | Sn | ecific D | ata | | | Confinement: | 3 | | | |
| ny ar ing at a s | | NA ob o 4 337 or a 4 337 tab () . | | | | cegic D | 4 | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | İ | | | | | | Stage: | L | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.7 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.04 | • | vo | | | | | | | Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s): | 0.04 | Method Discharge (m3/s) : | | <u> </u> | | | | | | Bars (%): | 60 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pl l i: | 8.1 | Method pH: | | PH |
| Syllied Syllied | | (Fi | sh) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | IS | | | | | | | Water Temp. (°C): | 1.0 | Method Temperature: | | 10 |
| | | 4 B 15.0 | 1180 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GĿ |
| | | (Width, Valley: Channel, Slope) | (Bec | d Material) | | | | | | Cond. (µmhos): | 80 | Method Conductivity: | | CM |
| L | | | | | | | | | | <u> </u> | | | | |

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-593-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 4 | х | 0.1 |

- The gradient recorded is an average for the whole reach: the lower section of stream had a gradient of 5%; a 28% gradient was recorded at 89 m and includes the section of stream with an impassable cascade and a 4 m high debris jam; the w/s section of R1 had a gradient of ~11%.
- C2 D26 is classed as S3 habitat up to the barrier (4 in high X) and S6 habitat u/s from this point.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-625-000-000-000-000-000-000

| Header Info | matio | on | | | | | | | | | | | | | |
|-----------------------|---------|---------|--|--------|-------------|---------|------------|------------|-----|--|----------------------|------------|-------------------------|----------------|---------|
| Stream Name: | DENYS | C. TRI | BUTARY | | Stream "Lo | cal": | D27 | | | | | | Access: | | н |
| Watershed Code: | 460-600 | 6-508-5 | 84-625-000-000-000-000-000-000 | | | • | | | | | Reach No.: | 1 | Reach Length (km): | 0.7 Method: | MW |
| Location: | ~400 m | U/S FR | ОМ МОИТН. | | Map#: | 093L044 | } | | | | Site No.: | 1 | Length surveyed (m): | 700.0 Method: | HC |
| | | | | | U.T.M.: | 9.6140 | .60333 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/16/96 | Tim | e: 11:2 | O Agency: C58 Sur | vey Cr | ew: JH\SS\\ | 111 | ١ ١ | | | _ | Photos: | B11/21- 24 | Air Photos: | BC 73 | 326:152 |
| Channel Cha | ıracte | risti | es . | | } | | Specific . | Data | | | Bed Material | | | | |
| Av. Chan. Width (m) | ; | 4.2 | Method Av. Chan. Width (m): | Ŧ | 4.5 | 4.9 | 4.4 | 3.8 | 3.8 | 4.1 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 2.2 | Method Av. Wet. Width (m): | T | 2.3 | 1.9 | 2.4 | | | | % Gravels: | 15 | • | | |
| Av. Max. Rif. Depth (| cm): | 11 | Av. Max. Riffle Depth (cm): | MS | 10 | 12 | 12 | | | | /• Graveis: | 13 | Small (2-16mm): | | |
| Av. Max. Pool Depth | (cm): | 43 | Av. Max. Pool Depth (cm): | 11 | 40 | 40 | 50 | | | | | | Large (16-64mm): | | |
| Gradient (%): | | 7.0 | Method Gradient: | CL | | | | | | | % Larges: | 75 | Small cobble (64-128mm) | | |
| % Pool: 15 | % Riff | le: 80 | % Run: 5 % Other: | : 0 | Method: | GE | | | | | | | Large cobble (128-256mm | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | _ | | | • | | D90 (cm): | 28 | Compaction: | 1 | Medium |
| Cover Total % : | | 45 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 15 L | .O.D.: | 20 | Boulder: 40 In Veg.: | 0 | Over Veg: | 20 | Cutb | ank: | | 5 | Duning | | | | |
| Crown Closure % : | | 20 | Method Crown Closure: | GE | Aspect: | sw | Meth | od Aspect: | | AE | Height (m): | 0.6 | % (instable: | | 10 |
| | | | | | | | | | _ | | Textures Fines: | No | Gravel: No Larges | : Yes Bedrock: | Nο |
| Discharge | | | | | 1 | Ç. | pecific D | ata | | i | Confinement: | 4 | | | |
| 11V-44-3 1V:34b () | | | Marked Wassed Width (m) | | | 3/ | pecigic D | ·uiu | | İ | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | į | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.35 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | • | 0.06 | Method Mean Velocity (m/s Method Discharge (m3/s): | VU | | | | | | į | Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.00 | Method Discharge (m3/s) : | | <u> </u> | | | | | <u>. </u> | Bars (%): | 45 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 7.9 | Method pH: | | PH |
| | - • | | | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | | (DV) | | | | | | | Water Temp. (°C): | 1.0 | Method Temperature: | | TC |
| | | | 4 C 7.0 | 118 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | | | Cond. (µnihos): | 80 | Method Conductivity: | | CM |

2~-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-625-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | Х | 0.2 |

- C1 A series of debris jams with drops up to 0.8 m high were observed ~185 m u/s from the tributary mouth (Photo B11/23) and are restrictions to fish.
- C2 Air Temp: 0 C.
- R2 begins ~700 m w/s from the mouth. ~719 900 m w/s from the mouth, continuous debris jams/cascades are present and the gradient is ~13 19% (Photo B11/24). Fish habitat ends at 800 m.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-640-000-000-000-000-000-000-000

| Header Infor | matio | n | | | | | | | | | | | | | | |
|-----------------------|----------|----------------|--|---------|-------------|---------|------------|-----------|-----|------------|----------------------|---------------|-----------------------|--------------|--------|--------|
| Stream Name: | DENYS | C. TRIE | BUTARY | | Stream "Le | ocal": | D28 | | | | | | Access: | | | н |
| Watershed Code: | 460-6006 | -5 08-5 | 84-640-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.3 M | ethod: | MW |
| Location: | TRIB. LC | CATE | D~1484 m U/S FROM D27 CONFLUE | ENCE, | Map #: | 093L04 | 4 | | | | Site No.: | 1 | Length surveyed (m): | 200.0 M | ethod: | HC |
| | SITE LO | CATE | 0 ~100 m U/S FROM D28 MOUTH. | | U.T.M. : | 9.615 3 | .60334 | | | | Fish Card: | N | Field: Yes | Historical | : | No |
| Date: 10/15/96 | Time | : 13:0 | 0 Agency: C58 Sur | vey Cre | :w: JH\SS\ | 1 1 1 1 | ١ ١ | | | | Photos: | not available | Air Photos: | | BC 73 | 26:153 |
| Channel Cha | racter | istic | es | | | | Specific I | Data | | | Bed Material | | | | | |
| Av. Chan. Width (m) | : | 3.5 | Method Av. Chan. Width (m): | T | 4.5 | 3.6 | 2.6 | 3.7 | 3.4 | 3.1 | % Fines (<2mm): | 5 | % Fines (<2mm): | | | 5 |
| Av. Wet. Width (m): | | 0.0 | Method Av. Wet. Width (m): | GE | | | | | | | % Gravels: | 15 | Small (2-16mm): | | | |
| Av. Max. Rif. Depth (| cm): | 0 | Av. Max. Riffle Depth (cm): | GE | | | | | | | | | Large (16-64mm): | | | |
| Av. Max. Pool Depth | (cm): | 0 | Av. Max. Pool Depth (cm): | 0 | ŀ | | _ | | | | % Larges: | 80 | Small cobble (64-128n | \. | | |
| Gradient (%): | | 17.0 | Method Gradient: | CL | | | | | | | /o Larges: | ۵۷ | Large cobble (128-256 | • | | |
| % Pool: 0 | % RiMe | | % Run: 0 % Other: | | Method: | GE | | | | | ļ | | Boulder couble (>256) | • | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | · | | | |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | | υ |
| Cover | | | | | | _ | | | | | D90 (cm): | 24 | Compaction: | | | Low |
| Cover Total % : | | 30 | Method Cover Total %: | GE | | | | | | | Banks | | | | | |
| Dp Pool: 10 L | O.D.: | 35 | Boulder: 45 In Veg.: | 0 | Over Veg: | 5 | Cutba | ink: | | 5 | | | | | | |
| Crown Closure % : | | 5 | Method Crown Closure: | GE | Aspect: | S | Meth | od Aspect | • | ΑE | Height (m): | 2.0 | % Unstable: | | | 20 |
| | | | | | | _ | | | | | Textures Fines: | No | Gravel: Yes Lai | rges: No Bea | Irock: | No |
| Discharge | | | | | i | | Specific D | ata | | | Confinement: | 1 | | | | |
| | | | Mark at Wasset William () | | | J | pecya D | 444 | | | Valley: Chan. Ratio: | 1 | | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | Dry | | | | |
| Mean Depth (m): | _ | | Method Mean Depth (m): | vo | | | | | | Ì | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | | MS |
| Mean Velocity (m/s) | | 0.00 | Method Mean Velocity (m/s Method Discharge (m3/s): | VO | | | | | | | Braided: | N | Method Braided: | | | GE |
| Discharge (m3/s) : | | V.VU | | | 1 | | | | | <u>. l</u> | Bars (%): | 100 | Method Bars: | | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | | Method pH: | | | |
| | | | (1 | Fish) | | | | | | | 02 (քրու)։ | | Method Dissolved Ox | ygen: | | |
| | | | | NS | | | | | | | Water Temp. (°C): | | Method Temperature | e: | | |
| | | | 4 A 17.0 | 118 | 0 | | | | | | Turb. (cm); | | Method Turbidity: | | | |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity | : | | |

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| i | Х | 0.2 |

- Gradient is 22% at the confluence for 10 m and then decreases to ~13%. Stream is intermittent with large amounts of instream LOD. Creek has a high potential to move debris during peak flows.
- C2 ~150 m w/s from the mouth a debris jam ~1.2 m high was observed; the dewatered channel made it difficult to judge the severity of the drop and whether it posed as a restriction or a barrier to fish. In the same section (~150 m w/s from the mouth), the gradient steepened to ~24% for >50m; based on this gradient and the 1.2 m high drop, potential fish habitat ends at 150 m.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-723-000-000-000-000-000-000

| Header Inf <mark>orm</mark> ati | on | | | | | | | | | | | | | | |
|---------------------------------|-------------------|---------------------------------|--------|--------------|-----------------|-----------|-----------|-----|-----|----------------------|---------------|----------------------|--------------|----------|---------|
| Stream Name: DENY | S C. TRI | BUTARY | | Stream "Lo | cal": | D29 | | | | | | Access: | | | Н |
| Watershed Code: 460-60 | 06-50 8- 5 | 84-723-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.6 | Method: | MW |
| Location: ~100 π | U/S FR | OM THE MOUTH. | | Map #: | 093L 044 | | | | | Site No.: | 1 | Length surveyed (m) |): 100.0 | Method: | HC |
| | | | | ₩.T.M. : | 9.6161 | .60335 | | | | Fish Card: | N | Field: Yes | Historic | cal: | No |
| Date: 10/16/96 Tin | ne: 14:4 | 5 Agency: C58 Surv | ey Cre | w: JH\SS\\ | 1 1 1 | ١١ | | | | Photos: | not available | Air Photos: | | BC 73 | 126:153 |
| Channel Charact | eristi | cs . | İ | | S | pecific D |)ata | | į | Bed Material | - | - | _ | _ | |
| Av. Chan. Width (m): | 6.2 | Method Av. Chan. Width (m): | T | 7.2 | 6.7 | 6.9 | 4.8 | 5.7 | 5.9 | % Fines (<2mm): | 10 | % Fines (<2mm): | | | 10 |
| Av. Wet. Width (m): | 2.2 | Method Av. Wet. Width (m): | T | 2.2 | 1.8 | 2.6 | | | | . , | | , , | | | • |
| Av. Max. Rif. Depth (cm): | 10 | Av. Max. Riffle Depth (cm): | MS | 7 | 10 | 12 | | | | % Gravels: | 20 | Small (2-16mm); | | | |
| Av. Max. Pool Depth (cm): | 20 | Av. Max. Pool Depth (cm): | 10 | 20 | 20 | 20 | | | Ì | | | Large (16-64mm): | | | |
| Gradient (%): | 21.0 | Method Gradient: | CL | | - | | | | ' | % Larges: | 70 | Small cobble (64-128 | • | | |
| % Pool: 5 % Rit | Me: 95 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-2) | | | |
| % Side Channel: | 10-40 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>25 | i6mm): | | |
| % Debris Area: | >40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | | 0 |
| Cover | - | | | - | | _ | | | | D90 (cm): | 35 | Compaction: | _ | - | Medium |
| Cover Total % : | 0 | Method Cover Total %: | GE | | | | | | | Banks | | | _ | | |
| Dp Pool : L.O.D.: | | Boulder: In Veg.: | | Over Veg: | | Cutba | nk: | | | Dunns | | | | | |
| Crown Closure % : | 5 | Method Crown Closure: | GE | Aspect: | NW | Metho | d Aspect: | : | AE | Height (m): | 0.6 | % Unstable: | | | 10 |
| | | | | _ | | | | | | Textures Fines: | Yes | Gravel: No L | arges: Yes 1 | łedrock: | No |
| Discharge | | | | • | Ç _n | ecific Da | nta | | 1 | Confinement: | 1 | | | | |
| W 130° W | | No. at - 4 SN/ | | | Sp | etya Di | 114 | | | Valley: Chan. Ratio: | ı | | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | | Stage: | L | | | | |
| Mean Depth (m): | | Method Mean Depth (m): | vo | | | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs | s : | | MS |
| Mean Velocity (m/s): | 0.03 | Method Mean Velocity (m/s | VU | | | | | | | Braided: | Y | Method Braided: | | | GE |
| Discharge (m3/s) : | U.U3 | Method Discharge (m3/s): | | | <u>-</u> | | | | | Bars (%): | 45 | Method Bars: | | | GE |
| Reach Symbol | | | | | | | | | | pH: | 8.0 | Method pH: | | | PH |
| | | , | ish) | | | | | | | 02 (ppm)։ | | Method Dissolved C |)xygen: | | |
| | | | NS _ | | | | | | | Water Temp. (°C): | 0.1 | Method Temperatu | re: | | TC |
| | | 6 A 21.0 | 1270 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | | GE |
| ĺ | | (Width, Valley: Channel, Slope) | (Bed | Material) | | | | | | Cond. (µmihos): | 50 | Method Conductivit | tv: | | CM |

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-723-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C1 No fish access and no fish habitat present due to steep gradient (continuous >20%).

C2 Air Temp: 3 C.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-741-000-000-000-000-000-000

| Header Info | - rmatio | n | | | _ | | _ | | | | | | | | |
|----------------------|-------------|---------|--------------------------------|---------|--------------|------------------|------------|------------|-----|-----|----------------------|---------------|--------------------------|---------------|---------|
| Stream Name: | DENYS (| C. TRII | BUTARY | | Stream "L | ocal": | D30 | | | | | | Access: | | H |
| Watershed Code: | 460-6006 | -508-5 | 84-741-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.1 Method: | MW |
| Location: | ~40 m U/ | S FRO | M THE MOUTH. | | Map #: | 093L 04 4 | 4 | | | | Site No.: | 1 | Length surveyed (m): | 120.0 Method: | HC |
| | | | | | U.T.M. : | 9.6164 | .60336 | | | | Fish Card: | N | Field: Yes | Historical: | Nυ |
| Date: 10/15/96 | Time | 15:3 | 0 Agency: C58 Sur | vey Cro | ew: JH\SS\ | 1111 | 1 1 | _ | | | Photos: | not available | Air Photos: | BC 73 | 326:154 |
| Channel Cha | aracter | istic | es . | | | | Specific L | ata | | į | Bed Material | | | | |
| Av. Chan. Width (m) |): | 2.6 | Method Av. Chan. Width (m): | T | 2.2 | 2.1 | 2.0 | 2.0 | 3.0 | 4.1 | % Fines (<2mm): | 5 | % Fines (<2mm): | | Š |
| Av. Wet. Width (m): | | 2.2 | Method Av. Wet. Width (m): | T | 2.7 | 1.7 | 2.0 | 2.2 | | - | % Gravels: | 25 | | | |
| Av. Max. Rif. Depth | (cm): | 12 | Av. Max. Riffle Depth (cm): | MS | 10 | 15 | 10 | | | : | 76 Graveis: | 35 | Small (2-16mm): | | |
| Av. Max. Pool Depth | (cm): | 38 | Av. Max. Pool Depth (cm): | 12 | 50 | 25 | 40 | | | | } | | Large (16-64mm): | | |
| Gradient (%): | | 10.0 | Method Gradient: | CL | • | | | | | • | % Larges: | 60 | Small cobble (64-128mm): | | |
| % Pool: 40 | % Riffle | : 60 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm |): | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm) | : | |
| % Debris Area: | | >40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 24 | Compaction: | 1 | Medium |
| Cover Total % : | | 40 | Method Cover Total %: | GE | | | | | | | Banks | | | _ | |
| Dp Pool: 25 L | .O.D.: | 30 | Boulder: 25 In Veg.: | 0 | Over Veg: | 5 | Cutba | ınk: | | 15 | | | | | |
| Crown Closure %: | | 55 | Method Crown Closure: | GE | Aspect: | S | Meth | od Aspect: | | ΑE | Height (m): | 0.5 | % Unstable: | | 10 |
| | | | | | | | | | | | Textures Fines: | No | Gravel: No Larges: | Yes Bedrock: | No |
| Discharge | | | | | ı | | pecific Di | | | | Confinement: | 3 | | | |
| Ů | | | | | | 3, | pecijic Di | uta | | 1 | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | м | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | : | Flood Signs 11t(m); | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (rm/s) | | | Method Mean Velocity (m/s | VO | | | | | | j | Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s): | | 0.04 | Method Discharge (m3/s): | | | | | | | j | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symb | - - 1 | | | | _ | | | | | | pl1: | 7.9 | Method pH: | | PH |
| Tituen Symb | • | | (| (Fish) | | | | | | | 02 (թրա)։ | | Method Dissolved Oxyger | ı: | |
| | | | | (DV) | | | | | | | Water Temp. (°C): | 1.5 | Method Temperature: | | IC |
| | | | 3 B 10.0 | 136 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-741-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | Х | 0.2 |

- C1 Air Temp: 3 C.
- C2 Site contains LOD stepping with pools that provide good cover.
- C3 Upper extent of fish is ~121 m the top of R1; u/s in R2, gradient is ~16 20% and numerous debris/rock jams with up to 1 m high drops present.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-786-000-000-000-000-000-000-000

| Header Informat | ion | | | | | | <u> </u> | | | | | | | |
|---|-----------------|---|--------|---------------|------------------|-------------|-----------|-----|-----|----------------------|---------------|------------------------|-----------------|----------|
| - | | BUTARY | | Stream "Lo | cal": | D33 | | | | | | Access: | | н |
| Watershed Code: 460-6 | 006-508- | 584-786-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.5 Method: | : MW |
| Location: ~100 | n U/S FR | OM THE MOUTH. | | Map #: | 093 L04 5 | | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | : HC |
| | | | | U.T.M.; | 9.6173 | .60339 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/22/96 Ti | me: 14: | OO Agency: C58 Surv | еу Сго | :w: JH\ \ \ | 111 | ١ | | | | Photos: | not available | Air Photos: | BC 7 | 7326:155 |
| Channel Characi | eristi | cs | | i | S | Specific Da | ata | | ! | Bed Material | | | | _ |
| Av. Chan. Width (m): | 2.7 | Method Av. Chan. Width (m): | τ | 2.6 | 2.8 | 2.6 | 2.3 | 2.9 | 3.0 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 1.9 | Method Av. Wet. Width (m): | T | 2.4 | 1.4 | 1.9 | | | 1 | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm): | 13 | Av. Max. Riffle Depth (cm): | MS | 12 | 10 | 12 | | | | 76 GIAVEIS. | 20 | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm): | 35 | Av. Max. Pool Depth (cm): | 11 | 33 | 35 | 36 | | | | | | | | |
| Gradient (%): | 10.0 | Method Gradient: | CL | | | | | | · | % Larges: | 70 | Small cobble (64-128mm | • | |
| % Pool: 35 % R | ffle: 65 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256m | • | |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm | u): | |
| % Debris Area: | 0-1 0 | Method Debris Area: | GE | | | | | | | % Bedrock: | 5 | % Bedrock: | | 5 |
| Cover | | | | | _ | | | | | D90 (cm): | 43 | Compaction: | | Medium |
| Cover Total % : | 35 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 35 L.O.D.: | 10 | Boulder: 45 In Veg.: | 0 | Over Veg: | 5 | Cutbar | nk: | | 5 | Bunks | | | | |
| Crown Closure %: | 25 | Method Crown Closure; | GE | Aspect: | NW | Method | d Aspect: | | ΑE | Height (m): | 0.6 | % Unstable: | | O |
| | | | | | | | | | | Textures Fines: | No | Gravel: No Large | s: Yes Bedrock: | : No |
| Discharge | | | | Specific Data | | | | | | Confinement: | 3 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | Sp | eryn Du | | | | Valley: Chan. Ratio: | 2 | | | |
| ` * | | , , | | | | | | | i | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | vo | | | | | | į | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s) : Discharge (m3/s) : | 0.03 | Method Mean Velocity (m/s Method Discharge (m3/s): | ٧U | 1 | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/5) . | 0.03 | | | | | | | - | | Bars (%): | | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pt1: | 8.1 | Method pH: | | PH |
| | | • | ish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxyg | en: | |
| | | | NS | | | | | | | Water Temp. (°C): | 2.0 | Method Temperature: | | IC |
| | | 3 B 10.0 | 127 |) | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | 40 | Method Conductivity: | | CM |

The second secon

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-786-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C2

CI Air Temp: 1.5 C.

Fish use is in the lower 200 m of stream; further u/s the gradient is a continuous 20% which is too steep for fish access or fish use to occur.

2"-Mar-9"

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-584-787-000-000-000-000-000-000

| Header Informati | | | | | | | | | | | | | | |
|---------------------------|----------|------------------------------------|---------|-------------|----------------|------------|-----------|-----|----------|----------------------|---------------|------------------------|------------------|----------|
| | | BUTARY | | Stream "Le | ocal"; | D34 | | | | | | Access: | | H |
| | | 84-787-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 2.4 Method | l: MW |
| Location: ~100 r | ı U/S FR | OM THE MOUTH. | | Map #: | 093 L04 | | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method | l: HC |
| | | | | U.T.M. : | 9.6173 | | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/22/96 Ti | me: 10:3 | 0 Agency: C58 Surv | vey Cre | w: JH\ \ \ | 111 | \ \ | | | | Photos: | not available | Air Photos: | BC | 7326:155 |
| Channel Charact | eristi | es . | | | • | Specific i | Data | | | Bed Material | | | | |
| Av. Chan. Width (m): | 1.8 | Method Av. Chan. Width (m): | T | 1.8 | 1.4 | 2.4 | 1.8 | 1.5 | 1.7 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 1.3 | Method Av. Wet. Width (m): | T | 1.6 | 0.8 | 1.6 | | | ļ | % Gravels: | 15 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm): | 9 | Av. Max. Riffle Depth (cm): | MS | 12 | 8 | 8 | | | | 1 | | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm): | 30 | Av. Max. Pool Depth (cm): | 9 | 33 | 35 | 22 | | | i | % Larges: | 80 | Small cobble (64-128mn | | |
| Gradient (%): | 14.0 | Method Gradient: | CL | | | | | | | 76 Larges. | 80 | Large cobble (128-256m | | |
| | Me: 70 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Boulder cobble (>256m) | | |
| % Side Channel: | 0-10 | Method Side Channel: | GE | | | | | | | | | | ,. | |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 35 | Compaction: | | Medium |
| Cover Total % : | 30 | Method Cover Total %: | GE | | | | | | | Banks | - | | - | |
| Dp Pool: 30 L.O.D.: | 10 | Boulder: 40 In Veg.: | 0 | Over Veg: | 10 | Cutb | ank: | | 10 | Dunks | | | | |
| Crown Closure % : | 40 | Method Crown Closure: | GE | Aspect : | sw | Meth | od Aspect | : | ΑE | Height (m): | 0.4 | % Unstable: | | 0 |
| <u> </u> | | | | | | | | | | Textures Fines: | No | Gravel: No Large | es: Yes Bedrock: | .: No |
| Discharge | | | | | | : : | | | | Confinement: | 3 | _ | | |
| · · | | | | : | 3 | pecific D | ata | | - | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s): | 0.03 | Method Mean Velocity (m/s | vo | i | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0.03 | Method Discharge (m3/s): | | | | | | | <u> </u> | Bars (%): | | Method Bars: | | |
| Reach Symbol | | | | | | _ | | | | pH: | 8.5 | Method pH: | | PH |
| | | | fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyg | en: | |
| | | | NS | | | | | | | Water Temp. (°C): | 2.0 | Method Temperature: | | 10 |
| | | 2 B 14.0 | 1180 |) | | | | | | Turb. (cm); | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | I (Ba | l Material) | | | | | | Cond. (µmhos): | 40 | Method Conductivity: | | CM |

2"-Mar-9" Stream: DENYS C. TRIBUTARY

Stream Survey Report Watershed Code:

460-6006-508-584-787-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C2

CI Air Temp: 1.5 C.

Unable to walk to the distribution limit of D34; assume fish use to ~180 m, the beginning of continuous 20%+ gradient based on the contour map (not ground surveyed to this

2~-Mar-9~

Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-849-000-000-000-000-000-000-000

| Header Informat | ion | | | | | | | | | | | | | _ |
|---------------------------|-----------------|--|--------|-------------|------------------|------------|------------|-----|-----|----------------------|---------------|--------------------------|--------------|----------|
| Stream Name: DEN | 'S C. TR | IBUTARY | | Stream "Lo | cal": | D36 | | | | | | Access: | | Н |
| Watershed Code: 460-6 | 006-5 08 | 584-849-000-000-000-000-000-000 | | | | | | | | Reach No.: | l | Reach Length (km): | 1.8 Method | d: MW |
| Location: ~80 ir | U/S FR | OM THE MOUTH. | | Map #: | 093 L04 5 | i | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method | d: HC |
| | | | | U.T.M.: | 9.6185 | .60346 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 T | me: 17 | 00 Agency: C58 Surv | ey Cre | w: DB\CP\ | 1 1 1 1 | \ \ _ | | | | Photos: | not available | Air Photos: | BC | 7326:156 |
| Channel Charac | erist | ics | | | .5 | Specific D | Data | | . [| Bed Material | | | | |
| Av. Chan. Width (m): | 2.0 | Method Av. Chan. Width (m): | T | 3.5 | 2.1 | 1.3 | 1.4 | 1.6 | 1.8 | % Fines (<2mm): | 0 | % Fines (<2ınm): | | Ú |
| Av. Wet. Width (m): | 1.8 | Method Av. Wet. Width (m): | T | 3.0 | 2.1 | 1.3 | 1.4 | 1.6 | 1.2 | | 26 | , , | | 10 |
| Av. Max. Rif. Depth (cm): | 11 | Av. Max. Riffle Depth (cm): | MS | 10 | 20 | 20 | | | | % Gravels: | 25 | Small (2-16mm): | | 10 |
| Av. Max. Pool Depth (cm): | 28 | Av. Max. Pool Depth (cm): | 17 | 25 | 30 | 30 | | | | | | Large (16-64mm): | | 15 |
| Gradient (%): | 6.0 | Method Gradient: | CL | ı | | | | | | % Larges: | 75 | Small cobble (64-128mm): | | 20 |
| % Pool: 20 % R | iffle: 8 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm) |): | 30 |
| % Side Channel: | (| Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | 25 |
| % Debris Area: | (| Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 30 | Compaction: | | High |
| Cover Total % : | 80 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L.O.D.: | 0 | Boulder: 75 In Veg.: | 0 | Over Veg: | 10 | Cutba | nk: | | 15 | 24 | | | | |
| Crown Closure %: | 25 | Method Crown Closure: | GE | Aspect : | sw | Metho | od Aspect: | | AE | Height (m): | 0.5 | % linstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | Yes Bedrock | k: No |
| Discharge | | | | i | Ç. | pecific De | ata | | | Confinement: | 4 | | | |
| 117 I 117 ha | | N. A. A. N. A. A. A. N. J. J. J. J. J. J. J. J. J. J. J. J. J. | | i | ., | pergic Di | 414 | | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | į | | | | | | Stage: | М | | | |
| Mean Depth (m) : | | Method Mean Depth (m): | | 1 | | | | | | Flood Signs 11t(m): | 0.25 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.04 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GŁ |
| Discharge (m3/s) : | 0.06 | Method Discharge (m3/s): | | i i | | <u></u> . | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pfl: | 7.8 | Method pH: | | PH |
| Acaen Symbol | | | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | : | |
| | | | NF | | | | | | | Water Temp. (°C): | 1.0 | Method Temperature: | | 10 |
| | | 2 C 6.0 | 0280 |) | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE. |
| | | (Width, Valley: Channel, Slope) | (Bed | d Material) | | | | | | Cond. (µmhos): | 60 | Method Conductivity: | | CM |

2"-Mar-9" Stream: DENYS C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-584-849-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- Cl Electrofished 68 m length of stream, I pass with no lower net. No fish were caught. Habitat is suitable for fish. This sampling confirmed that upper Denys C. is barren (i.e. u/s from 3.5 m high impassable falls located on mainstem Denys C. just u/s from D33 confluence).
- C2 Collects seepage along left side of valley through here.

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-TH -33 -000-000-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | | |
|--|--------------|---------------------------------|----------------|----------|---------------|----------|----------|----------------------|-----------|------------------------|------------------|---------|
| Stream Name: | THAUTIL R. | TRIBUTARY | Stream " | Local": | TH33 | | | | | Access: | | Ff |
| Watershed Code: | 460-6006-508 | TH -33 -000-000-000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 2.4 Method: | MW |
| Location: | ~100 m U/S F | ROM THE MOUTH. | Map #: | 093L03 | 4 | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | HC |
| | | | U.T.M. : | 9.6077 | .60252 | | | Fish Card: | N | Field: Yes | Historical: | Nσ |
| Date: 9/25/96 | Time: 10 | 00 Agency: C58 Surve | Crew: RD\CP | <u> </u> | \ \ \ | | | Photos: | A6/12, 13 | Air Photos: | BCB 911 | 181:058 |
| Channel Ch | aracterist | ics | | | Specific Data | | i | Bed Material | | | | |
| Av. Chan. Width (m | | - , | T 1.5 | 1.8 | 2.9 3.8 | 2.7 | | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): Av. Max. Rif. Depth | | | T 4S | | | | | % Gravels: | 25 | Small (2-16mm): | | 5 |
| Av. Max. Pool Depth | (cm): 10 | Av. Max. Pool Depth (cm): | 3 | | | | - [] | | | Large (16-64mm): | | 20 |
| Gradient (%): | 28.0 | Method Gradient: | CL ' | | - | | 1 | % Larges: | 70 | Small cobble (64-128mm | ı): | 30 |
| % Pool: 10 | % Riffle: 90 | % Run: 0 % Other: | 0 Method | l: GE | | | | | | Large cobble (128-256m | m): | 10 |
| % Side Channel: | | Method Side Channel: | GE | | | | 1 | | | Boulder cobble (>256m) | n): | 30 |
| % Debris Area: | 40 | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | \dashv | D90 (cm): | 30 | Compaction: | | High |
| | | | | | | | | | | | | |
| Cover Total %: | 70 | | GE | _ | | | | Banks | | | | |
| - | O.D.: 40 | • | 0 Over Veg | | Cutbank: | | 0 | | | | | |
| Crown Closure %: | | Method Crown Closure: | Aspect : | SW | Method Aspe | ct: | AE | Height (m): | 2.5 | % Unstable: | | 0 |
| | | | | | | | | Textures Fines: | No | Gravel: No Large | es: Yes Bedrock: | No |
| Discharge | | | | S | Specific Data | | | Confinement: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m) : | | | | | | Valley: Chan. Ratio: | l | | | |
| Mean Depth (in): | | Method Mean Depth (m): | : | | | | - 1 | Stage: | L | | | |
| Mean Velocity (m/s) | | • • • | vo | | | | | Flood Signs 11t(m): | 0.3 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.01 | • • | | | | | | Braided: | N | Method Braided: | | GE |
| | J.01 | | <u> </u> | | <u> </u> | <u> </u> | | Bars (%): | 50 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | pl1: | | Method pH: | | |
| | | (Fis | • | | | | | 02 (ppm)։ | | Method Dissolved Oxyg | en: | |
| | | N | S | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | 1°C |
| | | 3 A 28.0 | 1270 | | | | į | Turb. (cm): | 200 | Method Turbidity: | | Gb |
| | | (Width, Valley: Channel, Słope) | (Bed Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

1211

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-TH -33 -000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 Dynamic, unstable creek. Abundant debris is present within the channel; tributary has a high potential to move debris.
- C2 Th33 flows into a Thautil R. flood channel from a steep hillside. Tributary is very steep; no fish access or fish use.
- An unmapped tributary (Th33A) was observed ~170 m d/s from the Th33 confluence; trib, enters the mainstem Thautil R, through a 30 m wide unstable slump (see map). The channel is small (~0.3 m wide) and dewatered. During high flow periods suspect channel has saturated the fine textured soils causing bank failure and slump formation. Channel is not defined above the slump and there is no fish use.

2~-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-634-000-000-000-000-000-000-000

| Header Information | | | | | | | | | | |
|---|--|---------------|-----------|----------------------------|-----|----------------------|-----------|---|----------------|----------|
| Stream Name: THAUTIL R. T | RIBUTARY | Stream "L | ocal": | TH35 | | | | Access: | | FL |
| Watershed Code: 460-6006-508-6 | 34-000-000-000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 0.5 Method: | MW |
| Location: ~80 m U/S FRC | M THE MAINSTEM CONFLUENCE. | Map #: | 093L034 | | | Site No.: | 1 | Length surveyed (m): | 80.0 Method: | HC |
| | | U.T.M. : | 9.6074 | .60257 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/25/96 Time: 12: | O Agency: C58 Survey | Crew: RD\CP\ | \ \ \ \ \ | \ \ | | Photos: | A6/14, 15 | Air Photos: | BCB 911 | |
| Channel Characteristi | cs | | .s | pecific Data | | Bed Material | | | | |
| Av. Chan. Width (m): 0.8 | • • • | 1.1 | 0.9 | 0.3 0.6 | 0.9 | % Fines (<2mm): | 20 | % Fines (<2mm): | | 20 |
| Av. Wet. Width (m): 0.5 Av. Max. Rif. Depth (cm): 3 | Method Av. Wet. Width (m): Av. Max. Riffle Depth (cm): M | ì | | | | % Gravels: | 80 | Small (2-16mm): Large (16-64mm): | | 50 30 |
| Av. Max. Pool Depth (cm): 15 Gradient (%): 3.0 | • ` ′ | 3 | | | | % Larges: | 0 | Small cobble (64-128mm |): | 0 |
| % Pool: 10 % Riffle: 70 | % Run: 20 % Other: | | GE | | | | | Large cobble (128-256m) Boulder cobble (>256m) | • | 0 |
| % Side Channel: 0 | Method Side Channel: G | | | | | | | · | .,. | • |
| % Debris Area: 0-10 | Method Debris Area: G | | | _ | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | D90 (cm): | 4 | Compaction: | | High |
| Cover Total %: 60 Dp Pool: 20 L.O.D.: 0 | Method Cover Total %: G Boulder: 0 In Veg.: (| | 30 | Cutbank: | 50 | Banks | | | | |
| Crown Closure % : | Method Crown Closure: | Aspect : | SE | Method Aspect: | Al | E | 0.4 | % Unstable: | | 0 |
| | | | | | | Textures Fines: | Yes | Gravel: No Large | s: No Bedrock: | No |
| Discharge | | | Se | ecific Data | | Confinement: | 4 | | | |
| Wetted Width (m) : | Method Wetted Width (m): | 1 | -7 | | | Valley: Chan. Ratio: | 3 | | | |
| Mean Depth (m): | Method Mean Depth (m): | 1 | | | | Stage: | L. | | | |
| Mean Velocity (m/s) : | Method Mean Velocity (m/s V |) : | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s): 0.02 | Method Discharge (m3/s): | 1 | | | | Braided: | N | Method Braided: | | GE |
| Discharge (mis/s) . 0.02 | | | | - <u></u> <u>-</u> <u></u> | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symbol | | | | | | pt1: | | Method pll: | | |
| · , · · · · · · · · · · · · · · · · · · · | (Fish | • | | | | 02 (ppm): | | Method Dissolved Oxyge | en: | |
| | NS | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | HC. |
| | 1 C 3.0 | 800 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| İ | (Width, Valley: Channel, Slope) | Bed Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Stream Survey Report Watershed Code:

460-6006-508-634-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | F | 0.0 |

Comments

Cl Tributary drops over -1 m high bench at the mouth; impassable to fish. Resident habitat is present in the lower 80 m of channel but fish use is not likely due to the small size of the creek, ~90 m u/s from the mouth, the creek forks and the gradient in each fork is too steep (15 - 30%) to support fish; classed as S6 habitat.

2~-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-659-000-000-000-000-000-000-000

| Header Information | _ | | | | | | |
|--|--------------------|----------------|----------------------|-----------|---------------------------|---------------|--------|
| Stream Name: THAUTIL R. TRIBUTARY | Stream "Local": | TH38 | | | Access: | | FT |
| Watershed Code: 460-6006-508-659-000-000-000-000-000-000-000 | | | Reach No.: | 1 | Reach Length (km): | 1.3 Method; | MW |
| Location: ~80 m U/S FROM THE MOUTH. | Map #: 093L034 | 4 | Site No.: | 1 | Length surveyed (m): | 120.0 Method: | HC |
| | U.T.M.: 9,6074 | .60264 | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/25/96 Time: 12:30 Agency: C58 Surv | Crew: RD\CP\ \ \ \ | | Photos: | A6/17, 18 | Air Photos: | BCB 9118 | 81:177 |
| Channel Characteristics | | Specific Data | Bed Material | | | | |
| Av. Chan. Width (m): 1.8 Method Av. Chan. Width (m): | T 1.7 2.5 | 1.6 1.5 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): 0.0 Method Av. Wet. Width (m): | E | | % Gravels: | 45 | Small (2-16mm): | | 35 |
| Av. Max. Riff. Depth (cm): 0 Av. Max. Riffle Depth (cm): | E | | | | Large (16-64mm): | • | 10 |
| Av. Max. Pool Depth (cm): 0 Av. Max. Pool Depth (cm): Gradient (%): 10.0 Method Gradient: | 0 L | | % Larges: | 45 | Small cobble (64-128mm): | | 40 |
| Gradient (%): 10.0 Method Gradient: % Pool: 0 % Riffle: 0 % Run: 0 % Other: | 0 Method: GE | | | | Large cobble (128-256mm): | | 5 |
| % Side Channel: 0 Method Side Channel: | iE | | | | Boulder cobble (>256mm): | | 0 |
| % Debris Area: 0 Method Debris Area: | iE | | % Bedrock: | 0 | % Bedrock: | | 0 |
| | | | D90 (cm): | 11 | Compaction: | | High |
| Cover | | | | | | | |
| Cover Total %: Method Cover Total %: | | | Banks | | | | |
| Dp Pool : L.O.D.: Boulder: In Veg.: | Over Veg: | Cutbank: | | | | | |
| Crown Closure %: 70 Method Crown Closure: | GE Aspect: NE | Method Aspect: | AE Height (m): | 4.0 | % Unstable: | | 0 |
| | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | pecific Data | Confinement: | 3 | | | |
| Wetted Width (m): Method Wetted Width (m): | 1 | , | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): Method Mean Depth (m): | | | Stage: | Dıy | | | |
| Mean Velocity (m/s): Method Mean Velocity (m/s | o | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Discharge (m3/s): 0.00 Method Discharge (m3/s): | | | Braided: | N | Method Braided: | | GE |
| | 1 | <u> </u> | Bars (%): | 100 | Method Bars: | | GE |
| Reach Symbol (F | -1 | | pH: | | Method pH: | | |
| - (r | | | 02 (թրա)։ | | Method Dissolved Oxygen: | | |
| | _ | | Water Temp. (°C); | | Method Temperature: | | |
| 2 A 10.0 | 1450 | | Turb. (cm): | | Method Turbidity: | | |
| (Width, Valley: Channel, Slope) | (Bed Material) | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

Comments

C4

- C2 Lower 30 m of creek has a gradient of -35%; not accessible to fish. -30 60 m u/s, the gradient decreases to <8% and water enters the channel over -4 m high bank from a shallow swampy lowland. Above 60 m from the mouth, gradient is 8 -12%.

 C3 Assume no fish habitat present, but suggest the upper sections to be flown to look for possible resident use.
 - Well-used moose trails were observed throughout swampy lowland area.

2~-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-680-000-000-000-000-000-000-000-000

| Header Informati | ion | | | | | | | | | | | |
|---------------------------------------|--------------------|---|-------------------|---------|---------------|-----|------|----------------------|-----------|---------------------------|---------------|---------------|
| Stream Name: THAU | ITIL R. T. | RIBUTARY | Stream "L | ocal": | TH39 | | | | | Access: | | FT |
| Watershed Code: 460-6 | 006-5 08- 6 | 80-000-000-000-000-000-000-000 | | | | | 1 | Reach No.: | 1 | Reach Length (km): | 3.3 Method: | MW |
| Location: ~300 r | n U/S FR | OM THE MOUTH. | Map #: | 093L034 | 4 | | : | Site No.: | 1 | Length surveyed (m): | 300.0 Method: | HC |
| | | | U.T.M.: | 9.6073 | .60272 | | 1 | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/25/96 Ti | me: 13:0 | O Agency: C58 Surve | Crew: RD\CP\ | 1111 | | | | Photos: | A6/19, 20 | Air Photos: | BCB 911 | 181:177 |
| Channel Charact | eristi | cs | | | Specific Data | | - | Bed Material | | | | |
| Av. Chan. Width (ru): | 5.6 | ` , | T 5.4 | 5.0 | 7.2 4.8 | 5.7 | | % Fines (<2mm): | 0 | % Fines (<2mm): | | O |
| Av. Wet. Width (m): | 1.5 | Method Av. Wet. Width (m): | T | | | | - 11 | % Gravels: | 10 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (cm): | 7 | • ` ` | AS | | | | - 1) | | | Large (16-64mm): | | 5 |
| Av. Max. Pool Depth (cm): | 25 | Av. Max. Pool Depth (cm): | 7 | | | | ij | % Larges: | 90 | Small cobble (64-128mm): | | 20 |
| Gradient (%): | 15.0 | | CL | | | | - 1 | /4 Larges: | 90 | Large cobble (128-256mm): | | 10 |
| | Me: 80 | % Run: 10 % Other: | 0 Method: | GE | | | | | | Boulder cobble (>256mm): | | 60 |
| % Side Channel: | 0-10 | | GE | | | | - 1 | W/ Ps. 1 | • | | | |
| % Debris Area: 25 | | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | D90 (cm): | 34 | Compaction: | I | Medium ——— |
| Cover Total % : Dp Pool : 10 L.O.D.: | 80 20 | Method Cover Total %: Boulder: 70 In Veg.: | GE 0 Over Veg: | . 0 | Cutbank; | | 0 | Banks | | | | |
| Crown Closure %: | 20 | Method Crown Closure: | Aspect: | w | Method Aspect | : | AE | lleight (m): | 3.5 | % Unstable: | | 0 |
| | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | Nο |
| Discharge | | | | | | | | Confinement: | 2 | | | |
| | | | 1 | S | pecific Data | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | <u>!</u> ! | | | | | Stage: | ł. | | | |
| Mean Depth (m) : | | Method Mean Depth (m): | | | | | | Flood Signs 11t(m): | 0.4 | Method Floud Signs: | | MS |
| Mean Velocity (m/s): | | • • | vo | | | | | Braided: | N | Method Braided: | | Gb |
| Discharge (m3/s) : | 0.07 | Method Discharge (m3/s): | | | | | | Bars (%): | 70 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | pH: | | Method pH: | | |
| Acaen Bynnipot | | (Fi | • | | | | i | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | N | s | | | | | Water Temp. (°C): | | Method Temperature: | | |
| | | 6 A 15.0 | 0190 | _ | | | 1 | Turb. (cm): | 200 | Method Turbidity: | | Gh |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C2

Very confined and steep creek; accessible to fish up to 27 m. Sections in the lower 300 m of stream have gradients of ~20%. No fish habitat present; bed material consists primarily of boulder/cobble.

An unstable slump was observed on river right ~200 m u/s from the mouth.

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-TH -41 -000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | | |
|-------------------------------|---------|------------------|-------------------------------|--------------|------------|-------------|------------------|------------|----------|-----|----|----------------------|-----------|-------------------------|---------------|---------|
| Stream Name: | THAU1 | IL R. T | RIBUTARY | | | Stream "Lo | cal": | TH41 | | | | | | Access: | | 1/1 |
| Watershed Code: | 460-600 | 6-5 08- T | H -41 -000-000-000-000-0 | 00-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.7 Method: | MW |
| Location: | ~30 m U | J/S FRO | м тне моитн. | | | Map#: | 093 L03 4 | | | | , | Site No.: | 1 | Length surveyed (m): | 300.0 Method: | нС |
| | | | | | | U.T.M. : | 9.6071 | .60275 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/25/96 | Tim | ie: 14:4 | O Agency: C | 58 Surv | ey Cre | w: RD\CP\ | 1 1 1 1 | . \ \ | | | | Photos: | A6/21, 22 | Air Photos: | BCB 911 | 181:177 |
| Channel Ch | aracte | ristic | es | | | | | Specific D | ata | | 1 | Bed Material | | | - - | |
| Av. Chan. Width (m) | e: | 0.6 | Method Av. Chan. Wide | • • | T | 0.3 | 0.5 | 0.8 | 0.7 | 0.5 | | % Fines (<2mm): | 80 | % Fines (<2mm): | | 80 |
| Av. Wet. Width (m): | | 0.6 | Method Av. Wet. Width | ` , | T | 0.3 | 0.5 | 0.8 | 0.7 | 0.5 | | % Gravels: | 20 | Small (2-16mm): | | 20 |
| Av. Max. Rif. Depth | | 5 | Av. Max. Riffle Depth (| | MS | | | | | | | | | Large (16-64mm): | | 0 |
| Av. Max. Pool Depth | (cm): | 20 | Av. Max. Pool Depth (ca | m): | 5 | | | | | | | % Larges: | 0 | Small cobble (64-128mm) | | 0 |
| Gradient (%): | 9/ D:# | 2.0 | Method Gradient: % Run: 80 | % Other: | CL 0 | Method: | CF. | | | | | l ve zanges. | · · | Large cobble (128-256mm | | 0 |
| % Pool: 10 % Side Channel: | 7 KIII | le: 10 0-10 | Method Side Channel; | % Other: | GE | Method: | GE | | | | | | | Boulder cobble (>256mm | | 0 |
| % Debris Area: | 30 | 0-10 | Method Debris Area: | | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | • | 0 |
| 76 Debris Area: | 30 | | Method Debris Area. | | <u> </u> | | | | | | | | U | | | |
| Cover | | | | | | | | | | | | D90 (cm): | 1 | Compaction: | | |
| Cover Total % : | | 60 | Method Cover Total %: | | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L | .O.D.: | 80 | | In Veg.: | 5 | Over Veg: | 5 | Cutba | nk: | | 10 | | | | | |
| Crown Closure %: | | 70 | Method Crown Closure | : | GE | Aspect: | E | Metho | d Aspect | | AE | Height (m): | 0.5 | % Unstable: | | U |
| | | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | | | | S | pecific Da | ta | | | Confinement: | 5 | | | |
| Wetted Width (m): | | | Method Wetted Width (n | n) · | | I | =1 | ,, | | | | Valley: Chan. Ratio: | 4 | | | |
| Mean Depth (m): | | | Method Mean Depth (m) | • | | | | | | | | Stage: | M | | | |
| Mean Velocity (m/s) | • | | Method Mean Velocity (1 | | vo | ! | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s): | • | 0.01 | Method Discharge (m3/s) | | | 1 | | | | | | Braided: | N | Method Braided: | | GE |
| | | 0.01 | | | | <u> </u> | | | | _ | i | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | , - | ~ . | | | | | | | pH: | | Method pH: | | |
| _ | | | | | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | | | NS T | | | | | | | Water Temp. (°C): | 5.5 | Method Temperature: | | TC |
| | | | | I D 2.0 | 820 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Cha | nnel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-TH -41 -000-000-000-000-000-000

Stream/Valley Cross-Section

flow events.

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

No defined channel in sections. Creek is small, moss covered and intermittent. Areas of grassy swamp line the seepage channel in sections. No channel is present above the base of the hill.

Seepage channel from Th41 joins Th40, ~50 in from the confluence with the mainstem Thautil R. Th40 comes down the hillside; discharge is a trickle flow, channel width is ~15 cm, and the gradient is too steep (~50%) for fish access.

Lower section of Th41 which flows parallel to the mainstem Thautil R. along the base of the hill is classed as a 250 in long FSZ (see map); suspect area may be used during high

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-606-508-TH -45 -000-000-000-000-000-000-000

| Header Info | rmation | : | | | | | | | | | | | İ |
|-----------------------------------|------------|----------------|-------------------------------------|-------------|-------------|---------|----------------|----|----------------------|------|--------------------------|--------------|-------------|
| Stream Name: | THAUTIL | R. TR | IBUTARY | Strea | ım "Local": | ; | TH45 | | | | Access: | | FI |
| Watershed Code: | 460-6006-5 | 0 8-T F | f -45 -000-000-000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 0.5 Method: | MW |
| Location: | ~30 m U/S | FRON | 1 ТНЕ МО СТН . | Map | #: 093L | .034 | | | Site No.: | 1 | Length surveyed (m): | 30.0 Method: | HC |
| | | | | U.T. | M.: 9.60 | 071 .60 | 285 | | Fish Card: | N | Field: Yes | llistorical: | Nο |
| Date: 9/25/96 | Time: | 15:30 | Agency: C58 Surve | ey Crew: RD | NCP \ \ \ | 1 1 1 | ١ | | Photos: | A7/4 | Air Photos: | BCB 911 | 181:177 |
| Channel Ch | aracteri | stic. | s | | | Spe | ecific Data | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.0 | . , | GE | | | | | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 0.2 | | GE | | | | | % Gravels: | 60 | Small (2-16mm); | | 20 |
| Av. Max. Rif. Depth | | 1 | Av. Max. Riffle Depth (cm): | | | | | | | | Large (16-64mm): | | 40 |
| Av. Max. Pool Depth | | | Av. Max. Pool Depth (cm): | | | | | 1. | % Larges: | 30 | Small cobble (64-128mm): | | 30 |
| Gradient (%): % Pool: 0 | % Riffle: | 60.0 | Method Gradient: % Run: 1 % Other: | CL 0 Me | ethod: GE | | | | , | | Large cobble (128-256mm | | 0 |
| 75 1 5511 | % Kille: | 0 | | GE NIE | etnoa: GE | | | | | | Boulder cobble (>256mm) | | U |
| % Side Channel: % Debris Area: | | 0 | | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| 76 Dedris Area: | | | | | | | | | | Ť | | | |
| Cover | | | | | | | | | D90 (cm): | | Compaction: | | High ——— |
| Cover Total % : | | 0 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: L | .O.D.: | | Boulder: In Veg.: | | Veg: | | Cutbank: | | | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE Aspe | ect: \ | W | Method Aspect: | AE | Height (m): | 1.0 | % Unstable: | | 0 |
| | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges | No Bedrock: | No |
| Discharge | | | | | | Spec | ific Data | | Confinement: | 3 | | | |
| | | | Method Wetted Width (m) : | İ | | Spec | y 2 | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | ! | Stage: | l. | | | |
| Mean Velocity (m/s) | | | • | vo | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | | | Method Discharge (m3/s): | 10 | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (mo/s): | | | | | | | | i | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | pH: | | Method pH: | | |
| | | | • | ish) | | | | | 02 (ppm)։ | | Method Dissolved Oxyge | 1: | |
| | | | ! | NS | | | | | Water Temp. (°C): | 4.5 | Method Temperature: | | 10 |
| | | | I A 60.0 | 1630 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed Mate | rial) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report
460-6006-508-TH -45 -000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Comments

Cl

Very small seepage trickle on a steep sideslope. No fish use is possible.

Obstructions

2~-Mar-9~

Stream: STARR C.

Watershed Code:

Stream Survey Report

460-6006-508-722-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | |
|--|---------|------------------------|---|----------------|----------------|-----------------|------|----------------------|------|---------------------------|--------------|---------|
| Stream Name: | STARR | C. | | Stream "l | .ocal": | STARR C. (TH46) | 1 | | | Access: | | FΓ |
| Watershed Code: | 460-600 | 6-50 8-7 2 | 22-000 -000 -000-000 -000-000 -000 | | | | | Reach No.: | 2 | Reach Length (km): | 10.5 Method: | MW |
| Location: | | | OM THE TOP OF THE CANYON AND T | HE Map#: | 09 3L03 | 34 | | Site No.: | 1 | Length surveyed (m): | 80.0 Method: | HC |
| | REACH | BREAK | ζ. | U.T.M.: | 9.6071 | .60286 | | Fish Card: | N | Field: Yes I | listorical: | No |
| Date: 9/25/96 | Tim | e: 17:1 | 4 Agency: C58 Survey | Crew: RD\CP\ | . 1 1 1 | 1.1.1 | | Photos: | A7/5 | Air Photos: | BCB 911 | .81:177 |
| Channel Ch | aracte | ristic | es · | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m | | 76.4 | | T 95.0 | 90.0 | 62.0 63.0 | 72.0 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 8.0 | | T | | | | % Gravels: | 20 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth | | 15 | • • • | IS . | | | | | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth | (cm): | 150 1.5 | - , | is CL | | | | % Larges: | 70 | Small cobble (64-128mm): | | 25 |
| Gradient (%): % Pool: 10 | 9/ D:66 | 1.5 1 e : 50 | | .L 0 Method | . CE | | | | | Large cobble (128-256mm): | | 35 |
| % Side Channel: | 20 | ie. 50 | | iE | . GE | | | | | Boulder cobble (>256mm): | | 10 |
| % Debris Area: | 25 | | | iE | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | _ | D90 (cm): | 25 | Compaction: | | High |
| Cover Total %: | | 8 0 | Method Cover Total %: | GE. | | | | Banks | | | | |
| Dp Pool: 10 I | O.D.: | 10 | Boulder: 80 In Veg.: | 0 Over Veg | : 0 | Cutbank: | 0 | | | | | |
| Crown Closure % : | | 5 | Method Crown Closure: | iE Aspect: | SE | Method Aspect: | AE | Height (m): | 1.3 | % Unstable: | | 0 |
| | | | _ | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | i | , | Specific Data | 1 | Confinement: | 4 | | | |
| Ū | | | Marked Warred Wideland | | • | Specific Data | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | Stage: | ί. | | | |
| Mean Depth (m): | | | Method Mean Depth (m): Method Mean Velocity (m/s | /o | | | ļ | Flood Signs Ht(m): | 1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) Discharge (m3/s): | • | 0.85 | Method Discharge (m3/s): | | | | i | Braided: | N | Method Braided: | | GE |
| Discharge (ms/s) . | | 0.00 | | | | | | Bars (%): | 85 | Method Bars: | | GE |
| Reach Symb | ool | | | | | | | pft: | | Method pH: | | |
| | | | (Fish | | | | | 0 2 (րթա)։ | | Method Dissolved Oxygen: | | |
| | | | SST DV B | T (MW) | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | TC |
| | | | 76 B 1.5 | 1270 | | | | Turb. (cm); | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: STARR C.

Stream Survey Report
Watershed Code: 460-6006-508-722-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| \sim | | | • | |
|--------|-----|-----|-----|---|
| () | str | uct | เกท | C |
| - | 300 | | | |

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| SP | | | F | R | | | VO |

- This site was not sampled; fry were observed along the margins of the creek and numerous tadpoles were observed in lower tributary St1. An index site is located further u/s; SST, BT and DV were caught at this site and are assumed to be present throughout lower Starr C.
- C2 Very wide flood channel with LOD and debris deposited throughout the channel. Creek has a high potential to transport debris.
- C3 Very few pools observed in this section; consists primarily of riffle.
- C4 Easy fish access throughout lower Starr C, and Thautil R, canyons. (Only 1 small chute was observed.)
- C5 Tributaries St3, St4, St6, St11, St12, St15, St16, St24, and St25 had undefined channels with no potential fish habitat, based on the Starr C. ground survey. Tributary St21 was not observed.

Stream: STARR C.

Watershed Code:

Stream Survey Report 460-6006-508-722-000-000-000-000-000-000-000-000

| Date: 10/7/94 Time 12.00 | Map #: 093L043 U.T.M.: 9.6071 .60286 | Reach No.; Site No.: Fish Card; | 3 2 N | Length surveyed (m): 2000.0 Method: 1 |
|---|---|---------------------------------------|-------------|---|
| Channel Characteristics | | Photos: | A11/1, 2 | |
| Av. Chan. Width (m): 16.5 Method Av. Chan. Width (m): T | Specific Data 24.1 14.1 14.0 16.6 15.8 14.2 | Bed Material | | |
| Av. Wet. Width (m): 11.9 Method Av. Wet. Width (m): T Av. Max. Rif. Depth (cm): 18 Av. Max. Rifle Depth (cm): 10 | 15.5 15.5 14.2 | % Fines (<2mm): | 5 | % Fines (<2mm): |
| MS | | % Gravels: | 10 | Small (2-16mm): |
| Gradient (%): 3.5 Method Gradient: CL | | % Larges: | 85 | Large (16-64mm): Small cobble (64-128mm): |
| % Side Channel: 10 Method Side Channel: GE | Method: GE | | 03 | Large cobble (128-256mm): |
| 6 Debris Area: 15 Method Debris Area: GE | | % Bedrock: | | Boulder cobble (>256mm): 3: |
| Cover | | D90 (cm): | 0 160 | % Bedrock: (Compaction: |
| rown Closure %: Method Crown Closure: | over Veg: 0 Cutbank: 5 spect: E Method Aspect: AE | Banks | | Medius |
| Discharge | | Textures Fines: | 2.5 | % Unstable: |
| | Specific Data | Confinement: | Yes 3 | Gravel: Yes Larges: No Bedrock: No |
| etted Width (m): Method Wetted Width (m): Can Depth (m): Method Mean Depth (m): | , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | Valley: Chan. Ratio: | 2 | |
| Man Depth (m): | | Stage: | L | |
| ean Velocity (m/s): Method Mean Velocity (m/s VO scharge (m3/s): 1.10 Method Discharge (m3/s): | 1 | Flood Signs Ht(m): | 1.5 | Method Flood Signs: MS |
| Distrial ge (m3/s) : | | Braided: | N | Method Braided: GE |
| each Symbol | | Bars (%): pH: | 30 | Method Bars: GE |
| (Fish) | | ргі: 02 (ррт): | 8.0 | Method pH: PH |
| (SP) | | Water Temp. (°C): | 4.7 | Method Dissolved Oxygen: |
| (Width, Valley: Channel, Slope) (Bed Ma | | Turb. (cm): | 200 | Method Temperature: TC |
| (Widin, Valley: Channel, Slope) (Bed Ma | terial) | Cond. (µmhos): | 200 | Method Turbidity: GE |

2"-Mar-9"

Stream: STARR C.

Watershed Code:

Stream Survey Report 460-6006-508-722-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|--------|----------|
| 1 | | 0.7 |
| i | X C | 0.7 |
| 3 | F | 0.7 |
| 1 | С | 0.8 |
| ı i | С | 1.1 |
| 2 | F | 1.3 |
| 3 | F | 1.5 |
| 2 | F | 1.5 |
| 4 | F | 1.6 |
| 1 | С | 1.7 |
| 5 | F | 3.0 |
| 3 | F | 3.4 |

- C1 At base of R3, bed material consists of boulder/cobble and spawning habitat is very limited. Easy fish access u/s to 500 m. Good BT/RB rearing habitat (large bed material).
- C2 -600 m u/s from the confluence with East Starr, bedrock outcrops begin to appear. Numerous falls and chutes are present throughout the rest of R3: the 2.5 m high falls at 745 m u/s from the reach break may be impassable (Photo A11/3); 4 m high x 8 m long chute is present ~1600 m u/s from the reach break (Photo A11/4); ~2.7 m high falls at 1470 m from the reach break are impassable to residents; the 5 m falls located 2950 m u/s from the reach break are a complete barrier to fish (Photo A10/1); and ~3450 m u/s from the reach break, 3 m high falls are present (Photo A10/3).
- C3 Resident BT are present in St34; assume fish are present u/s to the 5 m falls located at 2950 m u/s from the reach break in R3.

2"-Mar-9"

Stream: STARR C.

Watershed Code:

Stream Survey Report

460-6006-508-722-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|--|---------|------------------|--------------------------------|---------|-------------|------------------|------------|-----------|------|------|-------------------|------------------|-------------------------|---------------|----------|
| Stream Name: | STARR | C. | | | Stream "L | ocal"; | STAI | RR C. (TH | 46) | | | | Access: | | н |
| Watershed Code: | 460-600 | 6-50 8- 7 | 22-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 4 | Reach Length (km): | 4.9 Method: | : MW |
| Location: | ~100 m | U/S FR | OM TRIBUTARY ST36. | | Map #: | 093L 04 3 | 3 | | | | Site No.: | 3 | Length surveyed (m): | 100.0 Method: | : НС |
| | | | | | U.T.M.: | 9.6071 | .60286 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/3/96 | Time | e: 13:3 | O Agency: C58 Sur | vey Cre | ew: DB\CP\ | 1 1 1 1 | . \ \ | | | | Photos: | A9/12, 13; A10/4 | Air Photos: | BC 7. | 7326:256 |
| Channel Ch | aracte | risti | cs | | | | Specific i | Data | | į | Bed Materia | al . | | | |
| Av. Chan. Width (m | ı): | 15.4 | Method Av. Chan. Width (m): | T | 13.6 | 9.7 | 10.1 | 15.2 | 19.4 | 24.7 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m) | : | 5.3 | Method Av. Wet. Width (m): | T | 7.5 | 5.3 | 4.8 | 4.7 | 4.2 | | · ' ' | | | | |
| Av. Max. Rif. Depth | (cm): | 10 | Av. Max. Riffle Depth (cm): | MS | | | | | | | % Gravels: | 10 | Small (2-16mm): | | 5 |
| Av. Max. Pool Dept | h (cm): | 35 | Av. Max. Pool Depth (cm): | 10 | | | | | | | | | Large (16-64mm): | | 5 |
| Gradient (%): | | 3.0 | Method Gradient: | CL | l | | | | | | % Larges: | 85 | Small cobble (64-128mm) | | 20 |
| % Pool: 5 | % Riff | le: 90 | % Run: 5 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm |): | 40 |
| % Side Channel: | | 0-10 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm) | : | 25 |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 27 | Compaction: | | High |
| Cover Total % : | | 80 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 5 | L.O.D.: | 0 | Boulder: 75 In Veg.: | 0 | Over Veg: | 10 | Cutb | ank: | | 10 | Duning | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect: | E | Meth | od Aspec | : | ΑE | Height (m): | 1.5 | % Unstable: | | 50 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | : No |
| Discharge | | | | | į | c | pecific D | ata | | | Confinement: | 4 | | | |
| W 44 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | | Barah - d Wisas - d Widah (m) | | | رد | pecijic D | uru | | | Valley: Chan. Rat | tio: 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | vo | | | | | | | Flood Signs Ht(m |): 1.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s |): | 1.00 | Method Mean Velocity (m/s | VO | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 1.00 | Method Discharge (m3/s): | | ţ | | | _ | | | Bars (%): | 50 | Method Bars: | | GE |
| Reach Symi | hal | | | | | | | | | | pH: | | Method pH: | | |
| | , | | (| Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | n: | |
| | | | | NF | | | | | | | Water Temp. (°C | 3.8 | Method Temperature: | | TC |
| | | | I5 B 3.0 | 118 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | | | Cond. (µmhos): | 40 | Method Conductivity: | | CM |

2"-Mar-9"

Stream: STARR C.

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C2 Very unstable creek. Evidence of high flows include bank crosion and cobble/boulder bed material. Creek has a high potential to move debris.

C3 Suitable fish habitat is present although no fish were caught. Excellent potential spawning habitat present in upper R4. Suspect upper Starr C, is barren above the 5 m high impassable falls at 2950 m in R3.

C4 Lat/Lon of helicopter landing site: 54 25.57 127 31.65

27-Mar-97

Stream: STARR C.

Watershed Code:

Stream Survey Report

| Header Information | | | | | | | | - | <u>.</u> | - | |
|---|--------------------|------------|------------|------------|-------------|------------|------------------------------------|----------------|---|------------------------------|-----------|
| Stream Name: STARR C. Watershed Code: 460-6006-508-722-000-000-000-000-000-000-000 | Stream "Lo | ocal": | STAR | R C. (TH | 46) | | Reach No.: | 5 | Access: Reach Length (km): | 2.1 Method: | H MW |
| Location: ~200 m U/S FROM REACH BREAK. | Map #: U.T.M. ; | 093L043 | | | | | Site No.: Fish Card: | 4 N | Length surveyed (m): Field: Yes | 110.0 Method: Historical: | |
| Date: 10/3/96 Time: 15:00 Agency: C58 Survey Cre | w: DB\CP\ | | | | | | Photos: | A10/5 - 7 | Air Photos: | | 326:136 |
| Channel Characteristics | | S | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m): 6.2 Method Av. Chan. Width (m): T Av. Wet. Width (m): T Method Av. Wet. Width (m): T | 4.6 3.3 | 3.7 2.1 | 4.4 4.4 | 8.5 3.8 | 10.8 3.8 | 5.1 5.1 | % Fines (<2mm): % Gravels: | 0 30 | % Fines (<2mm): Small (2-16mm): | | 0 |
| Av. Max. Riffle Depth (cm): 15 Av. Max. Riffle Depth (cm): MS Av. Max. Pool Depth (cm): 30 Av. Max. Pool Depth (cm): 15 Gradient (%): 3.0 Method Gradient: CL | | | | | | ļ | % Larges: | 70 | Large (16-64mm): Small cobble (64-128mm): | | 30 30 |
| % Pool: 0 % Riffle: 75 % Run: 25 % Other: 0 % Side Channel: 0 Method Side Channel: GE | Method: | GE | | | | | | | Large cobble (128-256mm) Boulder cobble (>256mm) | | 30 10 |
| % Debris Area: 0 Method Debris Area: GE | | | | | | | % Bedrock: D90 (cm): | 0 30 | % Bedrock: Compaction: | | 0 High |
| Cover | | | | | | | | | | | |
| Cover Total %: 60 Method Cover Total %: GE Dp Pool: 0 L.O.D.: 0 Boulder: 80 In Veg.: 0 | Over Veg: | 0 | Cutba | nk: | | 20 | Banks | | | | |
| Crown Closure %: 0 Method Crown Closure: GE | Aspect : | SE | Metho | d Aspect | : | AE | Height (m): Textures Fines: | 0.9 Yes | % Unstable: Gravel: No Larges: | Yes Bedrock: | 0 No |
| Discharge Wetted Width (m): Method Wetted Width (m): | | Sį | oecific Da | ta | | | Confinement: Valley: Chan. Ratio: | 5 2 | | | |
| Mean Depth (m): Mean Velocity (m/s): Method Mean Depth (m): Method Mean Velocity (m/s VO Discharge (m3/s): 0.20 Method Discharge (m3/s): | | | | | | | Stage: Flood Signs Ht(m): Braided: | L 0.25 N | Method Flood Signs: Method Braided: | | MS GE |
| Discharge (m3/s): 0.20 Method Discharge (m3/s): Reach Symbol (Fish) | <u> </u> | <u></u> | <u> </u> | <u></u> | <u></u> | <u>. !</u> | Bars (%): pH: | 25 | Method Bars: Method pH: | | GE |
| NF | | | | | | | 02 (ppm): Water Temp. (°C): | 5.0 | Method Dissolved Oxyger Method Temperature: | : | TC |
| 6 B 3.0 037 (Width, Valley: Channel, Slope) (Bet | | | | | | | Turb. (cm): Cond. (µmhos): | 200 37 | Method Turbidity: Method Conductivity: | | GE CM |

2'-Mar-9' Stream: STARR C.

Watershed Code:

Stream Survey Report

460-6006-508-722-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Comments

- Electrofished 109 m length of stream, 1 pass with no lower net. No fish were caught.
- C2 Excellent potential fish habitat in lower R5. (No fish present above the impassable falls at 2950 m in R3).
- C3 Lat/Lon of helicopter landing site: 54 26.89 127 32.19

Obstructions

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-024-000-000-000-000-000-000

Header Information Stream Name: STARR C. TRIBUTARY Stream "Local": STI Н Access: Watershed Code: 460-6006-508-722-024-000-000-000-000-000-000 Reach No .: Reach Length (km): 1.2 Method: MW ~226 m U/S FROM STARR C. CONFLUENCE. Map #: 093L034 1200.0 Method: Location: Site No.: Length surveyed (m): HC U.T.M.: 9.6066 .60287 Fish Card: Ν Field: Yes Historical: No Date: 10/11/96 Time: 9:30 Agency: C58 Survey Crew: JH\SS\\\\\\\\ Photos: Air Photos: BCB 91181:177 B10/1-3 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 2.2 Method Av. Chan, Width (m): T 2.2 2.3 2.2 2.3 2.0 2.4 % Fines (<2mm): % Fines (<2mm): 40 Av. Wet. Width (m): Method Av. Wet. Width (m): T 2.6 2.1 2.2 2.2 1.6 2.0 % Gravels: Small (2-16mm): 9 Av. Max. Riffle Depth (cm): MS 10 10 7 Av. Max. Rif. Depth (cm): Large (16-64mm): 9 30 Av. Max. Pool Depth (cm): Max. Pool Depth (cm): 30 30 % Larges: Small cobble (64-128mm): Gradient (%): 4.0 Method Gradient: CL Large cobble (128-256mm): % Pool: 15 % Riffle: 15 45 % Other: 25 Method: GE Boulder cobble (>256mm): % Side Channel: >40 Method Side Channel: GE 10-40 Method Debris Area: GE % Debris Area: % Bedrock: % Bedrock: 0 D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks 5 L.O.D.: Boulder: 5 In Veg.: 0 Over Veg: 25 60 Dp Pool: Cutbank: Crown Closure %: 10 Method Crown Closure: GE NE Method Aspect: Aspect: ΑE 25 Height (m): % Unstable: Textures Fines: Yes Gravel: No Larges: No Bedrock: No Discharge Confinement: 5 Specific Data Valley: Chan. Ratio: 4 Wetted Width (m): Method Wetted Width (m): М Stage: Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): 0.2 Method Flood Signs: MS Mean Velocity (m/s): Method Mean Velocity (m/s Braided: Y Method Braided: GE Discharge (m3/s): Method Discharge (m3/s): Bars (%): Method Bars: GE pH: Method pH: PH 7.6 Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: RB DV (LKC) Water Temp. (°C): Method Temperature: TC 2 D 4.0 4420 Turb. (cm): Method Turbidity: GE (Width, Valley: Channel, Slope) (Bed Material) Method Conductivity: Cond. (µmhos):

2"-Ma**r**-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-024-000-000-000-000-000-000-000

siieu Coue.

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | BD | 0.0 |

| CI | Air Temp: 3 C. |
|----|--|
| C2 | No fish were observed; numerous tadpoles were observed in stagnant water. |
| С3 | I in high drop over a beaver dam is located ~40 m u/s from the St1 mouth (Photo B10/I); presently a migration barrier. At 99 m, the channel braids around an old beaver dam. Further u/s, a beaver dam complex consisting of multiple channels across an unconfined floodplain is present. |
| C4 | ~50 m FSZ is present ~400 m u/s from the St1 confluence. |
| C5 | R1 is classed as S3 habitat. (See fish data from Site 2 - u/s in R1.) |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-024-000-000-000-000-000-000-000

| Header Informati | on - | , | | | | | | | | | | | - | |
|--|--------------------------------|---|--------|---------------------------|--------------------|------------|-----------|----------|-----|-------------------------------|----------|---|-----------------|----------|
| Stream Name: STAR. Watershed Code: 460-60 | R C. TRI 106-50 8 -7 | BUTARY 22-024-000-000-000-000-000 OM THE TOP OF RI . | -000 | Stream Map #: | "Local": 093L03 | STI | | | | Reach No.: Site No.: | l 2 | Access: Reach Length (km): Length surveyed (m): | 1.2 Method: | |
| • | | | | U.T.M. | : 9.6066 | .60287 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 9/26/96 Tis | ne: 13:0 | Agency: C58 | Survey | Crew: DB\C | P\ \ \ \ | 1 1 1 | | | | Photos: | A8/7, 8 | Air Photos: | BCB 91 | 1181:177 |
| Channel Charact | eristi | cs . | | ı | | Specific i | Data | | | Bed Material | | - | | |
| Av. Chan. Width (m): | 1.4 | Method Av. Chan. Width (m) | : | T 2.0 | | 1.3 | 0.7 | 2.3 | 1.0 | % Fines (<2mm): | 0 | % Fines (<2mm): | | Ü |
| Av. Wet. Width (m): Av. Max. Rif. Depth (cm): | 1.4 10 | Method Av. Wet. Width (m): Av. Max. Riffle Depth (cm): | N | T 2.0 | 0.9 | 1.3 | 0.7 | 2.3 | 1.0 | % Gravels: | 30 | Small (2-16mm): Large (16-64mm): | | 10 20 |
| Av. Max. Pool Depth (cm): Gradient (%): | 25 2.0 | Av. Max. Pool Depth (cm): Method Gradient: | (| IO CL | | | | | | % Larges: | 70 | Small cobble (64-128mm Large cobble (128-256m | | 20 30 |
| % Pool: 40 % Ri % Side Channel: % Debris Area: | Me: 40 0 0-10 | % Run: 20 % C Method Side Channel: Method Debris Area: | | 0 Meth GE GE | od: GE | | | | | % Bedrock: | 0 | Boulder cobble (>256mr | • | 20 |
| Cover | | - | | | | | | <u> </u> | | D90 (cm): | 40 | Compaction: | | High |
| Cover Total %: Dp Pool: 0 L.O.D.: | 100 | Method Cover Total %: Boulder: 10 In Ve | g.: 3 | GE O Over V | • | Cutb | | | 20 | Banks | | | | |
| Crown Closure %: | 30 | Method Crown Closure: | , | GE Aspect | : NE | Meth | od Aspect | | AE | Height (m): | 0.3 | % Unstable: | | 0 |
| Discharge | | | | - | - | C:6- D | | | | Textures Fines: Confinement: | Yes 3 | Gravel: No Large | s: Yes Bedrock: | : No |
| Wetted Width (m): | | Method Wetted Width (m) : | | | • | Specific D | ata | | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Stage: | L | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | , | /o | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | 0.08 | Method Discharge (m3/s): | | | | | | | | Braided: | N | Method Braided: | | GE |
| <u> </u> | | | | | | <u> </u> | | | 1 | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | (Fis | h) | | | | | | ptt: | | Method pH: | | |
| | | RB | • |)V* (LKC) | | | | | | 02 (ppm): | 0.1 | Method Dissolved Oxyg | en: | ·re |
| | | I B | 2.0 | 0370 | | | | | | Water Temp. (°C): | 9.6 | Method Temperature: | | TC |
| | | (Width, Valley: Channel, | | (Bed Materia | l) | | | | | Turb. (cm): Cond. (µmhos): | 68 | Method Turbidity: Method Conductivity: | | CM |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-024-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| RB | 4 | 60 - 101 | 1 | R | | | EL |
| DV | 1 | 198 | A | S | М | | EL |

| C1 | Water is a tannic colour. |
|----|---|
| C2 | Electrofished 41 m length of stream, 1 pass with no lower net. The RB caught are suspected to be residents based on the heavy spotting they exhibit on their bellies. The DV caught was a ripe male (Photos A8/12). Suspect the presence of lake chub (LKC) based on previous catches in lower St1 by Carswell and Witt (1979). |
| C3 | Small pockets for potential spawning were observed in this section. |
| C4 | St1.1 was surveyed and has no defined channel. The small lake at the top of St1.1 is shallow and stagnant; there is no defined channel at the lake outlet and there is no fish access into lake. The lake is surrounded by meadow and the Lat/Lon of the helicopter landing site is 54 23.34 127 22.36. |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-024-000-000-000-000-000-000

| Header Information | | | | | | | | _ | | | | |
|---|------------|--------------|---------|-----------|-------------|-----|----|----------------------|----------|------------------------|----------------|---------|
| Stream Name: STARR C. TRIBUTARY | | Stream "Lo | cal": | STI | | | | | | Access: | | F3 |
| Watershed Code: 460-6006-508-722-024-000-000-000-000-000 | -000 | | | | | | | Reach No.: | 2 | Reach Length (km): | 2.4 Method: | MW |
| Location: UPPER ST1, ~150 m U/S FROM THE TOP OF T | HE LAKE. | Map #: | 093L034 | | | | | Site No.: | 3 | Length surveyed (m): | 2000.0 Method: | HC |
| | | U.T.M. : | 9.6066 | .60287 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/9/96 Time: 12:30 Agency: C58 | Survey Cr | ew: RD\CP\ | 1 1 1 1 | \ \ | | | | Photos: | A12/I, 2 | Air Photos: | BCB 911 | 181:178 |
| Channel Characteristics | | | S | pecific D | at a | | 1 | Bed Material | | | | |
| Av. Chan. Width (m): 2.6 Method Av. Chan. Width (m): | T | 2.2 | 2.4 | 2.i | 3.5 | 2.6 | | % Fines (<2mm): | 100 | % Fines (<2mm): | | 100 |
| Av. Wet. Width (m): 2.6 Method Av. Wet. Width (m): | T | 2.2 | 2.4 | 2.1 | 3.5 | 2.6 | | % Gravels: | 0 | Small (2-16mm): | | 0 |
| Av. Max. Rif. Depth (cm): 0 Av. Max. Riffle Depth (cm): | GE | | | | | | ļ | / Giakis. | · | Large (16-64mnı): | | 0 |
| Av. Max. Pool Depth (cm): 0 Av. Max. Pool Depth (cm): | 0 | | | | | | | ∤ | | | | ٥ |
| Gradient (%): 0.5 Method Gradient: | CL | | | | | | | % Larges: | 0 | Small cobble (64-128mm | • | 0 |
| % Pool: 0 % Riffle: 0 % Run: 100 % O | ther: 0 | Method: | GE | | | | |] | | Large cobble (128-256m | | 0 |
| % Side Channel: Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm | 1): | 0 |
| % Debris Area: 0 Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | D90 (cm): | 0 | Compaction: | | High |
| Cover Total % : 95 Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L.O.D.: 0 Boulder: 0 In Ve | g.: 70 | Over Veg: | 0 | Cutba | nk: | | 30 | | | | | |
| Crown Closure %: Method Crown Closure: | | Aspect : | NE | Metho | d Aspect: | | ΑE | Height (m): | 0.2 | % Unstable: | | 0 |
| | | | | | | | | Textures Fines: | Yes | Gravel: No Large | s: No Bedrock: | No |
| Discharge | | , | c. | ecific Da | ta | | | Confinement: | 5 | | | |
| | | | Sp | eigu Du | ıu | | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): Method Wetted Width (m): | | | | | | | İ | Stage: | Ĺ | | | |
| Mean Depth (m): Method Mean Depth (m): | vo | | | | | | ! | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s): Method Mean Velocity (m/s) Discharge (m3/s): 0.03 Method Discharge (m3/s): | VO | | | | | | 1 | Braided: | N | Method Braided: | | GE |
| Discharge (m3/5): 0.05 Method Discharge (m3/5). | | <u> </u> | | | | _ | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | pH: | 7.7 | Method plf: | | PH |
| | (Fish) | | | | | | | 02 (թթա)։ | | Method Dissolved Oxyg | en: | |
| _ | SP | | | | | | | Water Temp. (°C): | 6.5 | Method Temperature: | | IC |
| 3 C | 0.5 F | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| (Width, Valley: Channel, | Slope) (Be | ed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-024-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- Easy fish access u/s from lake throughout meadow area. The upper extent of fish is to 1700 m u/s from the top of the lake. Further u/s the channel is not defined, and in R4, no fish were caught at the sample site.
- Surveyed R2 of St1. Inlet tributaries St1.2, St1.3 and St1.5 had no defined channel and contained no fish habitat. Tributary St1.4 was observed and there is possible fish use in the lower 500 m; a beaver dam is present ~450 m w/s from the mouth.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-024-000-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | | | | | _ |
|---------------------|------------|-------|---------------------------------|---------|--------------|----------------|-------------|-----------|-----|-----|----------------------|-----------|---------------------------|--------------|---------|
| Stream Name: | STARR C. | TRIB | UTARY | | Stream "Lo | cal": | STI | | | | | | Access: | | 11 |
| Watershed Code: | 460-6006- | 08-72 | 2-024-000-000-000-000-000-000 | | | | | | | | Reach No.: | 4 | Reach Length (km): | 1.4 Method: | MW |
| Location: | UPPER MI | EADO | W AREA ABOVE STEEP SECTION | IN | Map #: | 093L034 | I | | | | Site No.: | 4 | Length surveyed (m): | 00.0 Method: | НC |
| | R4, ~100 r | n U/S | FROM THE REACH BREAK. | | U.T.M. : | 9.6066 | .60287 | | | | Fish Card: | N | • • • • • | istorical: | No |
| Date: 9/26/96 | Time: | 14:40 | Agency: C58 Sur | vey Cro | ew: DB\CP\ | \ \ \ <u>\</u> | ١ ١ | | | | Photos: | A8/13, 14 | Air Photos: | BCB 911 | 181:179 |
| Channel Ch | aracteri | stic | s | | - | | Specific De | ıta | | | Bed Material | | | | - |
| Av. Chan. Width (m) |): | 0.7 | Method Av. Chan. Width (m): | T | 0.5 | 1.0 | 0.6 | 0,5 | 0.6 | 1.2 | % Fines (<2mm): | 0 | 9/ Finan (<3) | | 0 |
| Av. Wet. Width (m): | | 0.7 | Method Av. Wet. Width (m): | T | 0.5 | 1.0 | 0.6 | 0.5 | 0,6 | 1.2 | 1 | U | % Fines (<2mm): | | 0 |
| Av. Max. Rif. Depth | (cm): | 6 | Av. Max. Riffle Depth (cm): | MS | | | | | | | % Gravels: | 30 | Small (2-16mm): | | 10 |
| Av. Max. Pool Depth | (cm): | 20 | Av. Max. Pool Depth (cm): | 6 | | | | | | i | | | Large (16-64mm): | | 20 |
| Gradient (%): | • | 8.0 | Method Gradient: | CL | 1 | | | | | i | % Larges: | 70 | Small cobble (64-128mm): | | 30 |
| % Pool: 50 | % Riffle: | 50 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm): | | 40 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | 0 |
| % Debris Area: | | 0 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | _ | | | - | | | | D90 (cm); | 20 | Compaction: | | High |
| Cover Total % : | | 50 | Method Cover Total %: | GE | | | | | | | Banks | | | | , |
| Dp Pool: 0 L | O.D.; | 0 | Boulder: 0 In Veg.: | 0 | Over Veg: | 50 | Cutban | ık: | | 50 | Danks | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect : | Е | Method | l Aspect: | | ΑE | Height (m): | 0.2 | % Unstable: | | o |
| | | | | | | | | | _ | | Textures Fines: | Yes | Gravel: Yes Larges: N | lo Bedrock: | No |
| Discharge | | | | | | | - | | | : | Confinement: | 2 | | | • • • • |
| Z ischia, ge | | | | | | Sį | pecific Dat | 'a | | | Valley: Chan. Ratio: | - I | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | ĺ | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | | | Braided; | N | Method Braided: | | GE |
| Discharge (m3/s): | 0 | .03 | Method Discharge (m3/s): | | | | | | | 1 | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol. | | | | | | | | | | pH: | | Method pH: | | |
| neuch symu | Ui | | (1 | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | | | NF | | | | | | | Water Temp. (°C): | 9.0 | Method Temperature: | | TC |
| | | | 1 A 8.0 | 037 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | Be | d Material) | | | | | | Cond. (jumhos): | 61 | Method Conductivity: | | CM |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-024-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

- C1 Electrofished 41 m length of stream, 1 pass with no lower net. No fish were caught.
- C2 Willow/balsam line the edge of the tributary.
- C3 St1 has no defined channel d/s at the top of R2; water goes subsurface in large meadow. Suspect fish distribution ends at this point

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

Header Information STARR C. TRIBUTARY ST2 Stream Name: Stream "Local": Access: 11 460-6006-508-722-ST2-000-000-000-000-000-000 Reach No · 0.7 Method: MW Watershed Code: Reach Length (km): TRIB. LOCATED ~1700 m U/S FROM STI CONFLUENCE. Man #: 093L034 Site No.: Length surveyed (m): 50.0 Method: HC Location: SITE LOCATED ~50 m U/S FROM THE MOUTH. U.T.M.: 9.6046 .60278 Fish Card: Field: Yes Historical: No Time: 11:30 Agency: C58 Survey Crew: JH\SS\\\\\\\\ Photos: BCB 91181:179 Date: 10/11/96 B10/6.7 Air Photos: Channel Characteristics **Red Material** Specific Data Av. Chan. Width (m): Т 1.5 Method Av. Chan. Width (m): 16 10 1.5 1.4 1.9 1.8 % Fines (<2mm): % Fines (<2mm): Ŧ Av. Wet. Width (m): 0.9 Method Av. Wet. Width (m): 12 1.2 0.8 0.9 0.8 % Gravels: Small (2-16mm): Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): Large (16-64mm): Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): Small cobble (64-128mm): % Larges: Method Gradient: CL Gradient (%): Large cobble (128-256mm): 0 % Riffle: 99 % Run: % Other: Method: GE % Pool: 0 Boulder cobble (>256mm): GE Method Side Channel: % Side Channel: % Debris Area: 0 Method Debris Area: GE % Bedrock: % Bedrock: D90 (cm): High Compaction: Cover Cover Total %: Method Cover Total %: Banks L.O.D.; Boulder: In Veg.: Over Veg: Cutbank: Dp Pool: Method Crown Closure: SE Crown Closure %: Aspect: Method Aspect: Height (m): % Unstable: Textures Fines: Larges: No Bedrock: Gravel: No Discharge Confinement: Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): М Stage: Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): Method Flood Signs: Mean Velocity (m/s): Method Mean Velocity (m/s VO Braided: Method Braided: Method Discharge (m3/s): Discharge (m3/s): Bars (%): Method Bars: Reach Symbol pH: Method pH: (Fish) 02 (ppm): Method Dissolved Oxygen: NS Water Temp. (°C): Method Temperature: 43.0 Turb. (cm): Method Turbidity: (Width, Valley: Channel, Slope) (Bed Material) Cond. (µmhos): Method Conductivity:

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-5'T2-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

- C1 St2 flows into the Starr C. mainstern at the base of a ~15 m high eroding bank (Photo B10/4). Gradient is 52% up the bank and ~23% thereafter.
- C2 No fish access, no fish habitat.

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-154-000-000-000-000-000-000

| Header Info | rmation | | - | | | | | | | | - | | |
|---------------------|---------------------|-----------------------------------|----------------|------------------|------------|-----------|-----|-----|----------------------|-------|-------------------------|---------------|---------|
| Stream Name: | STARR C. T | RIBUTARY | Stream "L | ocal": | ST5 | | | | | | Access: | | Н |
| Watershed Code: | 460-600 6-50 | 8-722-154-000-000-000-000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.3 Method: | MW |
| Location: | | TED1261 m U/S FROM ST2 CONFLUENC | E, Map#: | 093 L0 34 | 1 | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | HC |
| | SITE LOCA | TED ~100 m U/S FROM THE MOUTH. | U.T.M. ; | 9.6041 | .60277 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/11/96 | Time: 1 | 2:30 Agency: C58 Survey | Crew: JH\SS\ | 1 1 1 1 | 1.1 | | | | Photos: | B10/8 | Air Photos: | BCB 911 | 181:179 |
| Channel Ch | aracteris | tics | ļ | | Specific L | Dafa | | İ | Bed Material | | | | |
| Av. Chan. Width (m) |): l | .2 Method Av. Chan. Width (m): | T 1.4 | 1.5 | 1.2 | 1.2 | 0.9 | 1.1 | % Fines (<2mm): | | % Fines (<2mm): | | |
| Av. Wet. Width (m): | 1 | .1 Method Av. Wet. Width (m): | T 1.1 | 1.3 | 1.0 | 1.2 | 0.8 | 1.1 | | | | | |
| Av. Max. Rif. Depth | (cm): | Av. Max. Riffle Depth (cm): | | | | | | | % Gravels: | | Small (2-16mm): | | |
| Av. Max. Pool Depth | (cm): | Av. Max. Pool Depth (cm): | | | | | | | | | Large (16-64mm): | | |
| Gradient (%): | 16 | .0 Method Gradient: C | L ' | | | | | | % Larges: | | Small cobble (64-128mm) | | |
| % Pool: 0 | % Riffle: | 99 % Run: 1 % Other: | 0 Method: | GE | | | | | | | Large cobble (128-256mn | • | |
| % Side Channel: | | 0 Method Side Channel: G | E | | | | | | | | Boulder cobble (>256mm | : | |
| % Debris Area: | 0- | 0 Method Debris Area: G | E | | | | | | % Bedrock: | | % Bedrock: | | |
| Cover | | | | | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total %: | | Method Cover Total %: | | | | | | | Banks | | | | |
| Dp Pool : L | O.D.: | Boulder: In Veg.: | Over Veg: | | Cutba | ınk: | | | | | | | |
| Crown Closure %: | | Method Crown Closure: | Aspect : | SE | Meth | od Aspect | : | AE | lleight (m): | | % Unstable: | | |
| | | | | | | | | | Textures Fines: | No | Gravel: No Larges | No Bedrock: | No |
| Discharge | | | i | ç | pecific D | nto | | | Confinement: | | | | |
| W-44-3 W/345 () | | Nach ad III - se - d III deb () . | İ | 3, | pecijie Di | -14 | | | Valley: Chan. Ratio: | | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | Stage: | М | | | |
| Mean Depth (in): | _ | Method Mean Depth (m): | | | | | | | Flood Signs 11t(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s) | | Method Mean Velocity (m/s V | U | | | | | | Braided: | | Method Braided: | | |
| Discharge (m3/s): | 0.0 | 1 Method Discharge (m3/s) : | | <u>.</u> | | | | | Bars (%): | | Method Bars: | | |
| Reach Symb | ol | | | | | | | | pH: | | Method pli: | | |
| | - | (Fish | • | | | | | | 02 (թթm)։ | | Method Dissolved Oxyge | n: | |
| | | NS | | | | | | | Water Temp. (°C): | | Method Temperature: | | |
| | | 1 16.0 | | | | | | | Turb. (cm): | | Method Turbidity: | | |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 2 | F | 0.0 |

Comments

Cl

2.25 m high falls over a rock bank is present at the mouth of St5; no fish access. Gradient is steep above the falls (19%, 13%); habitat is too limited to support a resident population.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-ST7-000-000-000-000-000-000

| Header Info | rmation - | | | | | | | | | | | | |
|--|----------------|---------------------------------|----------------------|-----------------|----------|-----------|-----|------------|--------------------|----------------------|------------------------------------|-----------------|------|
| Stream Name: | STARR C. TRI | BUTARY | Stream "L | .ocal": | ST7 | | | | | | Access: | | Н |
| Watershed Code: | 460-6006-508-7 | 22-ST7-000-000-000-000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.1 Method: | MW |
| Location: | TRIB. LOCATI | E, Map#: | 093L03 | 3 | | | | Site No.: | 1 | Length surveyed (m): | 50.0 Method: | GE | |
| | SITE LOCATE | U.T.M. : | 9.6038 | .60275 | | | | Fish Card: | N | Field: Yes | Historical: | No | |
| Date: 10/11/96 Time: 13:20 Agency: C58 Survey Crew | | | | ew: JH\SS\\\\\\ | | | | Photos: | B10/11, 12 | Air Photos: | BCB 911 | 181:179 | |
| Channel Ch | aracteristi | cs | | | Specific | Data | | | Bed Material | | - | | _ |
| Av. Chan. Width (m |): 1.4 | Method Av. Chan. Width (m): | T 1.6 | 1.8 | 1.2 | 1.3 | 1.4 | 1.0 | % Fines (<2mm): | | % Fines (<2mm): | | |
| Av. Wet. Width (m): | 0.4 | Method Av. Wet. Width (m): | T 0.3 | 0.4 | 0.4 | | | | % Gravels: | | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | Av. Max. Riffle Depth (cm): | | | | | | | % Graveis: | | Sman (2-10mm): Large (16-64mm): | | |
| Av. Max. Pool Depti | (cm): | Av. Max. Pool Depth (cm): | | | | | | | | | - ' | | |
| Gradient (%): | 48.0 | Method Gradient: | IL ' | | | | | , | % Larges: | | Small cobble (64-128mn | | |
| % Pool: 0 | % Riffle: 99 | % Run: 1 % Other: | 0 Method: | : GE | | | | | | | Large cobble (128-256m | | |
| % Side Channel: | 0 | Method Side Channel: | ìΕ | | | | | | | | Boulder cobble (>256m) | n): | |
| % Debris Area: | 0-10 | Method Debris Area: | iΕ | | | | | | % Bedrock: | | % Bedrock: | | |
| Cover | - | | | _ | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total % : | | Method Cover Total %: | | | | | | | Banks | | | | |
| Dp Pool: | O.D.: | Boulder: In Veg.: | Over Veg | : | Cutb | ank: | | | | | | | |
| Crown Closure % : | | Method Crown Closure: | Aspect: | NE | Meti | od Aspect | : | AE | Height (m): | | % Unstable: | | |
| | | | | | | | | | Textures Fines: | No | Gravel: No Large | es: No Bedrock: | No |
| Discharge | | | i | Specific Data | | | | | Confinement: | | | | |
| Westerd Widsh () | | | Valley: Chan. Ratio: | | | | | | | | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | Stage: | Ł | | | |
| Mean Depth (m): | | Method Mean Depth (m): | o | | | | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s) | 0.01 | | | | | | | | Braided: | | Method Braided: | | |
| Discharge (m3/s) : | | Method Discharge (m3/s): | | | | | | | Bars (%): | | Method Bars: | | |
| Reach Symbol | | | | | | | | | pH: | | Method pH: | | |
| (Fish) NS | | | | | | | | | 02 (ppm)։ | | Method Dissolved Oxyg | gen: | |
| | | | <u> </u> | | | | | | Water Temp. (°C): | | Method Temperature: | | |
| | | ì 48.0 | | | | | | | Turb. (cm): | | Method Turbidity: | | |
| ĺ | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-ST7-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

- CI Alluvial fan at the mouth of St7; accessible to 8 m. U/S of 8 m, gradient is 58% and further w/s the average gradient is ~48%.
- C2 No fish access; no fish habitat present.
- C3 Tributary has a low potential to move debris due to stable low flow

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-186-000-000-000-000-000-000-000-000

| Header Info | rmation | | | | | | _ | | | _ | <u> </u> | | | | _ |
|----------------------|-------------|-----------|--|--------|--------------|-----------------|------------|-----------|---|----------|----------------------|-------------|-------------------------|---------------|---------|
| Stream Name: | STARR C. | RIB | UTARY | | Stream "Lo | cal": | ST8 | | | | | | Access: | | н |
| Watershed Code: | 460-6006-50 | 8-72 | 2-186-000-000-000-000-000-000 | | | | | | | | Reach No.: | J | Reach Length (km): | 0.3 Method: | HC |
| Location: | TRIB. LOC. | ATEI | > ~724 m U/S FROM ST5 CONFLUE | NCE, | Map#: | 09 3L033 | 3 | | | | Site No.: | 1 | Length surveyed (m): | 313.0 Method: | HC |
| | SITE LOCA | TED | ~108 m U/S FROM THE MOUTH. | | U.T.M. : | 9.6035 | .60274 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/11/96 | Time: | 14:00 | Agency: C58 Surv | vey Cn | ew: JH\SS\ \ | 1 1 1 | ١ ١ | | | | Photos: | B10/13-15 | Air Photos: | BCB 911 | 181:179 |
| Channel Cho | aracteris | tic | S | | ĺ | S | Specific D | ata | | - Ì | Bed Material | _ | | | - |
| Av. Chan. Width (m) | : | 1.8 | Method Av. Chan. Width (m): | T | 2.8 | 1.6 | 1.3 | 0.9 | 1.3 | 2.6 | % Fines (<2mm): | 70 | % Fines (<2mm): | | 70 |
| Av. Wet. Width (m): | | 0.1 | Method Av. Wet. Width (m): | T | 1.1 | 1.4 | 0.5 | 0.7 | 0.8 | 1.6 | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 12 | Av. Max. Riffle Depth (cm): | MS | 15 | 10 | 10 | | | | 7. Graveis: | 20 | , , | | |
| Av. Max. Pool Depth | (cm): | 23 | Av. Max. Pool Depth (cm): | 12 | 20 | 20 | 30 | | | | | | Large (16-64mm): | | |
| Gradient (%): | | 4.0 | Method Gradient: | CL | | | | | | , | % Larges: | 10 | Small cobble (64-128mm) | | |
| % Pool: 40 | % RiMe: | 30 | % Run: 30 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | • | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | 0- | 10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | 4/4 Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 6 | Compaction: | | High |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | | | Banks | | | - | · · |
| Dp Pool: 5 L | .O.D.: | 5 | Boulder: 0 In Veg.: | 0 | Over Veg: | 75 | Cutba | nk: | | 15 | Danks | | | | |
| Crown Closure %: | | 60 | Method Crown Closure: | GE | Aspect : | N | Metho | d Aspect: | | ΑE | Height (m): | 0.4 | % Unstable: | | 10 |
| | | | | | | _ | | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | | 1 | Ç, | pecific Da | nta. | | | Confinement: | 4 | | | |
| Wetted Width (m): | | | Method Wetted Width (m) : | | | 94 | regic Di | .,,, | | | Valley: Chan. Ratio: | 4 | | | |
| , , | | | • • | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | _ | | Method Mean Depth (m): | vo | | | | | | , | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (ma/s) | : 0.0 | | Method Mean Velocity (m/s Method Discharge (m3/s) : | VU | | | | | | ļ | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | | Method Discharge (m3/s): | | <u> </u> | · · • | | <u> </u> | <u>. </u> | <u>.</u> | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 7.4 | Method pH: | | PH |
| | | | · | Fish) | | | | | | | 02 (բթm)։ | | Method Dissolved Oxyge | n: | |
| | | | | (SP) | | | | | | | Water Temp. (°C): | 5.5 | Method Temperature: | | IC |
| | | | 2 D 4.0 | 721 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | 100 | Method Conductivity: | | CM |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | F | 0.1 |

| Cl | Crown closure consisted of deciduous forest. |
|----|--|
| C2 | Air Temp: 6 C. |
| C3 | St8 channel flows in an old flood channel of the Starr C. mainstem. ~118 in u/s from the mouth, a 1 m high drop was observed; may be a migration barrier (Photo B10/15). ~246 m u/s from the mouth, the channel enters a gully. The gradient is >20% and continuous ~313 m u/s from the mouth; no fish access and no fish habitat beyond this point. |
| C4 | Tributary St8 1 was not observed |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-ST9-000-000-000-000-000-000-000

Header Information Stream Name: STARR C. TRIBUTARY Stream "Local": ST9 H Access: Watershed Code: 460-6006-508-722-ST9-000-000-000-000-000-000 Reach No.: 0.4 Method: MW Reach Length (km): TRIB. LOCATED ~295 m U/S FROM ST8 CONFLUENCE, 093L033 Site No.: GE Location: Length surveyed (m): 50.0 Method: SITE LOCATED ~50 m U/S FROM THE MOUTH. 9,6032 .60275 U.T.M.: Fish Card: Field: Yes Historical: No Date: 10/11/96 Time: 15:00 Agency: C58 Survey Crew: JH\SS\\\\\\\\ Photos: B10/16 Air Photos: BCB 91181:179 Channel Characteristics **Bed Material** Specific Data T Av. Chan. Width (m): 1.3 Method Av. Chan. Width (m): 2.0 1.9 1.4 1.0 0.7 % Fines (<2mm): % Fines (<2mm): T 0.5 Av. Wet. Width (m): 0.8 Method Av. Wet. Width (m): 1.0 1.0 0.6 0.6 % Gravels: Small (2-16mm): Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): Large (16-64mm): Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): % Larges: Small cobble (64-128mm): CLGradient (%): 39.0 Method Gradient: Large cobble (128-256mm): % Pool: 0 % Riffle: 99 % Other: % Run: Method: GE Boulder cobble (>256mm): Method Side Channel: GE % Side Channel: GE % Debris Area: 0-10 Method Debris Area: % Bedrock: % Bedrock: D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: Banks Dp Pool: L.O.D.: Boulder: In Veg.: Over Veg: Cutbank: Crown Closure %: Method Crown Closure: Aspect: N Method Aspect: Height (m): % Unstable: **Textures Fines:** Larges: No Bedrock: No Gravel: No Discharge Confinement: Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): Stage: М Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): Method Flood Signs: Mean Velocity (m/s): Method Mean Velocity (m/s Braided: Method Braided: Discharge (m3/s): Method Discharge (m3/s): Bars (%): Method Bars: pH: Method pH: Reach Symbol (Fish) Method Dissolved Oxygen: 02 (ppm): NS Water Temp. (°C); Method Temperature: 39.0 Turb. (cm): Method Turbidity: (Width, Valley: Channel, Slope) (Bed Material) Cond. (µmhos): Method Conductivity:

2"-Mar-9" Stream: STARR C. TRIBUTARY

Stream Survey Report

Watershed Code:

460-6006-508-722-\$T9-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 64% fall over ~3.5 m high bank into the Starr C. mainstem; no fish access. Creek is too steep w/s to support fish; St9 is classed as S6 habitat.
- C2 Tributary has a low potential to transport bed material and debris.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-213-000-000-000-000-000-000

| Header Inform | ation | | | | | | | | _ | | | | | |
|-------------------------|-------------|-------------------------------------|-----------|-------------|---------|------------|-----------|-----|---------|----------------------|--------------|--------------------------|---------------|---------|
| Stream Name: S | TARR C. TI | RIBUTARY | _ | Stream "Lo | cal": | ST10 | | | | | | Access: | | н |
| | | -722-213-000-000-000-000-000-000-00 | U | | | | | | | Reach No.: | 1 | Reach Length (km): | 2.3 Method: | |
| Location: S. | TE LOCAT | ED ~50 m U/\$ FROM THE MOUTH. | | Map #: | 093L033 | | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | |
| | | | | U.T.M. : | 9.6029 | | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/11/96 | Time: 1 | 30 Agency: C58 St | irvey Cri | | . 1 1 1 | 1 1 | | | _ | Photos: | B10/17, 18 | Air Photos: | BCB 911 | 181:180 |
| Channel Char | acterisi | ics | | 1 | | Specific L |)ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | 2. | 4 Method Av. Chan. Width (m): | T | 1.5 | 2.2 | 2.3 | 2.4 | 3.4 | 2.4 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 1 | | T | 1.0 | 1.3 | 1.8 | 1.0 | 2.2 | 1.5 | % Gravels: | 10 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm | | 9 Av. Max. Riffle Depth (cm): | MS | 10 | 7 | 10 | | | | İ | | Large (16-64mm): | | |
| Av. Max. Pool Depth (cn | • | | 9 | 30 | 40 | 40 | | |] | 9/ 1 0 0000 | 85 | | | |
| Gradient (%): | 20 | | CL | | | | | | | % Larges: | 83 | Small cobble (64-128mm): | | |
| | 6 Riffle: 8 | | | Method: | GE | | | | | | | Large cobble (128-256mm | | |
| % Side Channel: | 0-1 | | GE | | | | | | | | | Boulder cobble (>256mm) | | |
| % Debris Area: | 0-1 | 0 Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | - | | | | _ | | | | D90 (cm): | 36 | Compaction: | | High |
| Cover Total % : | 3 | Method Cover Total %: | GE | | | | | | | Banks | - | | | |
| Dp Pool: 10 L.O. | D.: | Boulder: 80 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 10 | Dunins | | | | |
| Crown Closure %: | 3 | Method Crown Closure: | GE | Aspect : | S | Meth | od Aspect | : | AE | Height (m): | 0.6 | % Unstable: | | 5 |
| | | | | | _ | | | | | Textures Fines: | No | Gravel: No Larges: | Yes Bedrock: | No |
| Discharge | | | | 1 | Ç. | pecific Di | nta | | | Confinement: | 2 | | | |
| Wetted Width (m) : | | Marked Street Stridge () | | Ì | ٠, | pregie D | | | i | Valley: Chan. Ratio: | l | | | |
| | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | wo | | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.01 | Method Mean Velocity (m/s | vo | ļ | | | | | İ | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.01 | Method Discharge (m3/s) : | | <u> </u> | | · · · | | | <u></u> | Bars (%): | 35 | Method Bars: | | GE |
| Reach Symbol | | | - | | | | | | | pH: | 7.8 | Method pH: | | PH |
| Traci Symbol | | | (Fish) | | | | | | | 02 (բրա)։ | | Method Dissolved Oxygen | : | |
| | | | NS | | | | | | | Water Temp. (°C): | 5.5 | Method Temperature: | | IC |
| | | 2 A 20 | .0 118 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slop | e) (Be | d Material) | | | | | | Cond. (µmhos): | 50 | Method Conductivity: | | CM |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Stream Survey Report

460-6006-508-722-213-000-000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- An alluvial fan is present at the base of St10. The gradient is ~20% from the mouth with debris/rock jams present up to 1 m high. Further u/s (~50 m), the gradient decreases to <17% and continues u/s.
- C2 No fish habitat present and tributary is classed as \$6 throughout.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-224-000-000-000-000-000-000

| Header Info | ormation | | | | | | | | | | | | | |
|--------------------|------------------|-----------------------------------|---------|-------------|---------|------------|-------------|-----|-----|----------------------|------------|-------------------------|--------------|---------|
| Stream Name: | STARR C. T | RIBUTARY | | Stream "L | ocal": | ST13 | | | | | | Access: | | H |
| Watershed Code: | 460-6006-50 | 8-722-224-000-000-000-000-000-000 | | | | | | | | Reach No.: | ı | Reach Length (km): | 1.0 Method: | MW |
| Location: | SITE LOCAT | TED ~100 m U/S FROM THE MOUTH. | | Map #: | 093L033 | 3 | | | | Site No.: | 1 | Length surveyed (m): | 50.0 Method: | GE |
| | | | | U.T.M.: | 9.6027 | .60275 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/11/96 | Time: 1 | 6:15 Agency: C58 Sur | vey Cre | w: JH\SS\ | 1111 | 1.1 | | | | Photos: | B10/19, 20 | Air Photos: | BCB 911 | 181:180 |
| Channel Ch | haracteris | tics | | j | | Specific D | ala | | į | Bed Material | | | | |
| Av. Chan. Width (r | m): l | 0 Method Av. Chan. Width (m): | T | 2.2 | 1.0 | 0.8 | 0.8 | 0.8 | 0.5 | % Fines (<2mm): | | % Fines (<2mm): | | |
| Av. Wet. Width (m |): 0 | .5 Method Av. Wet. Width (m): | T | 0.6 | 0.7 | 0.6 | 0.2 | 0.6 | 0.4 | % Gravels: | | Small (2-16mm): | | |
| Av. Max. Rif. Dept | h (cm): | Av. Max. Riffle Depth (cm): | | | | | | | ļ | // Glaveis. | | Large (16-64mm): | | |
| Av. Max. Pool Dep | th (cm): | Av. Max. Pool Depth (cm): | | | | | | | | | | - | | |
| Gradient (%): | 37 | .0 Method Gradient: | CL | | | | | | | % Larges: | | Small cobble (64-128mm) | | |
| % Pool: 0 | % Riffle: | 99 % Run: 1 % Other: | 0 | Method: | GE | | | | | } | | Large cobble (128-256mm | | |
| % Side Channel: | | 0 Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | 0- | 0 Method Debris Area: | GE | | | | | | | % Bedrock: | | % Bedrock: | | |
| Cover | | | | | - | | | | _ | D90 (cm): | | Compaction: | | High |
| Cover Total % : | | Method Cover Total %: | | | | | | | | Banks | | | | |
| Dp Pool : | L.O.D.: | Boulder: In Veg.: | | Over Veg: | | Cutha | nk: | | | Dunks | | | | |
| Crown Closure % | : | Method Crown Closure: | | Aspect : | N | Metho | d Aspect: | | AE | Height (m); | | % Unstable: | | |
| L | | | | | | | | _ | | Textures Fines: | No | Gravel: No Larges | No Bedrock: | No |
| Discharge | | | | , | c | | | - | | Confinement: | | • | | |
| | | | | | إد | pecific Da | ia · · · | | i | Valley: Chan. Ratio: | | | | |
| Wetted Width (m) | : | Method Wetted Width (m): | | 1 | | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | 1/0 | | | | | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s | | Method Mean Velocity (m/s | vo | | | | | | | Braided: | | Method Braided: | | |
| Discharge (m3/s) : | 0.0 | Method Discharge (m3/s): | | | _ | | | | | Bars (%): | | Method Bars: | | |
| Reach Sym | hol | | | | - | | | | | pH: | | Method pH: | | |
| | | (| Fish) | | | | | | | 0 2 (ppm): | | Method Dissolved Oxyge | n: | |
| | | _ | NS | | | | | | | Water Temp. (°C): | | Method Temperature: | | |
| | | 1 37.0 | | | | | | | | Turb. (cm): | | Method Turbidity: | | |
| | | (Width, Valley: Channel, Slope) | (Ba | l Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Stream Survey Report

460-6006-508-722-224-000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

Comments

C1 Gradient is 47% up a 4 m high bank at the mouth; no fish access. Further u/s the gradient is 20%+ and continuous; no fish habitat is present and trib. is classed as S6.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-ST -14 -000-000-000-000-000

| Header Info | rmation | | | | | | | | | |
|--------------------------|--------------------------------|---------------------------------|-----------------|----------------|---------|----------------------|--------|------------------------|----------------|---------|
| Stream Name: | STARR C. TR | BUTARY | Stream "Local": | ST14 | | | | Access: | | н |
| Watershed Code: | 4 6 0-6006 -508- | 722-ST -14 -000-000-000-000-000 | | | | Reach No.: | 1 | Reach Length (km): | 0.6 Method: | MW |
| Location: | SITE LOCATE | D~100 m U/S FROM THE MOUTH. | Map #: 093L0 | 033 | | Site No.: | 1 | Length surveyed (m): | 50.0 Method: | GE |
| | | | U.T.M.: 9.602 | 25 .60275 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/11/96 | Time: 16: | 30 Agency: C58 Surve | Crew: JH\SS\\\\ | 111 | | Photos: | B10/23 | Air Photos: | BCB 911 | 181:180 |
| Channel Ch | aracteristi | cs | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m |): 1.1 | Method Av. Chan. Width (m): | T 0.9 0.9 | 0.8 1.7 | 1.5 0.7 | % Fines (<2mm): | | % Fines (<2mm): | | |
| Av. Wet. Width (m) | 0.8 | Method Av. Wet. Width (m): | T 0.9 0.6 | 0.7 1.2 | 1.0 0.5 | % Gravels: | | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | Av. Max. Riffle Depth (cm): | ! | | | | | Large (16-64mm): | | |
| Av. Max. Pool Dept | | Av. Max. Pool Depth (cm): | i | | | % Larges: | | Small cobble (64-128mm | | |
| Gradient (%): | 18.0 | | CL | | | / Larges. | | Large cobble (128-256m | • | |
| % Pool: 0 | % Riffle: 99 | | 0 Method: GE | | | | | Boulder cobble (>256mr | | |
| % Side Channel: | 0 | | SE SE | | | | | | | |
| % Debris Area: | 0-10 | Method Debris Area: | SE | | | % Bedrock: | | % Bedrock: | | |
| Cover | | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total % : | | Method Cover Total %: | | | | Banks | | | | |
| Dp Pool: | O.D.: | Boulder: In Veg.: | Over Veg; | Cutbank: | | | | | | |
| Crown Closure %: | | Method Crown Closure: | Aspect: | S Method Aspec | : AE | Height (m): | | % Unstable: | | |
| | | | - | | | Textures Fines: | No | Gravel: No Large | s: No Bedrock: | No |
| Discharge | | | | Specific Data | | Confinement: | | | | |
| Wetted Width (m) : | | Method Wetted Width (m): | | Specyle Dail | | Valley: Chan. Ratio: | | | | |
| Mean Depth (m): | | Method Mean Depth (m): | : | | | Stage: | М | | | |
| Mean Velocity (m/s | | | /o | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Discharge (m3/s) : | 0.01 | Method Discharge (m3/s): | | | | Braided: | | Method Braided: | | |
| Discharge (m3/s) : | | Method Discharge (m3/s) : | <u> </u> | | | Bars (%): | | Method Bars: | | |
| Reach Symb | bol | | | | | pH: | | Method pH: | | |
| } | | (Fig | | | | 02 (ppm)։ | | Method Dissolved Oxyg | en: | |
| | | N | <u> </u> | | | Water Temp. (°C): | | Method Temperature: | | |
| | | 1 18.0 | | | | Turb. (cm): | | Method Turbidity: | | |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | | Cond. (µmhos): | | Method Conductivity: | | |

2^-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-ST -14 -000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

Comments

C1 Tributary flows down a 6 m high bank with a 52% gradient at its mouth; no fish access. Further u/s, the gradient is an average of 18%; no fish habitat is present and the trib. is classed as S6 throughout.

2 -- Mar-9 -

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-265-000-000-000-000-000-000

Header Information STARR C. TRIBUTARY Stream Name: Stream "Local": ST17 Access: н Watershed Code: 460-6006-508-722-265-000-000-000-000-000-000 Reach No .: Reach Length (km): 0.5 Method: MW Location: SITE LOCATED ~100 m U/S FROM THE MOUTH. Map #: 093L033 Site No.: HC Length surveyed (m): 180.0 Method: 9.6019 .60273 U.T.M.: Fish Card: Field: Yes Historical: No Agency: C58 Date: 10/15/96 Time: 9:30 Survey Crew: JH\ \ \ \ \ \ \ Photos: B10/24, 25; B11/2, 3 Air Photos: BCB 91181:180 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 2.0 Method Av. Chan. Width (m): Ţ 1.8 2.2 1.9 2.0 2.3 % Fines (<2mm): % Fines (<2mm): 5 T 1.7 Av. Wet. Width (m): Method Av. Wet. Width (m): 1.9 1.7 1.6 1.3 1.8 % Gravels: Small (2-16mm): 17 Av. Max. Riffle Depth (cm): MS 15 16 20 Av. Max. Rif. Depth (cm): Large (16-64mm): 17 Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 25 25 % Larges: Small cobble (64-128mm): CLGradient (%): Method Gradient: Large cobble (128-256mm): % Pool: 20 % Riffle: 80 % Run: % Other: 0 Method: GE Boulder cobble (>256mm): % Side Channel: Method Side Channel: GE Method Debris Area: GE % Debris Area: % Bedrock: % Bedrock: 0 D90 (cm): Compaction: High Cover Cover Total %: Method Cover Total %: GE Banks 30 L.O.D.: Boulder: 20 in Veg.: 0 20 Dp Pool: 20 Over Veg: 10 Cutbank: Crown Closure %: 25 Method Crown Closure: GE Aspect: Method Aspect: ΑE Height (m): % Unstable: 20 Textures Fines: Gravel: Yes Larges: Yes Bedrock: No Discharge Confinement: 2 Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m); Stage: Mean Depth (m): Method Mean Depth (m): 0.4 Method Flood Signs: Flood Signs Ht(m): MS VO Mean Velocity (m/s): Method Mean Velocity (m/s Braided: Method Braided: GE 0.03 Method Discharge (m3/s): Discharge (m3/s): Bars (%): 25 Method Bars: GE pH: Method pH: 111 Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: (SP) Water Temp. (°C): Method Temperature: TC2 A 13.0 1360 200 Turb. (cm): Method Turbidity: GE (Width, Valley: Channel, Slope) (Bed Material) Cond. (umbos): Method Conductivity: CM

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-265-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Type | Location |
|-------------------|------|----------|
| 3 | F | 0.2 |

Comments

C2

C1 Air Temp: - 4 C.

Steep creek with debris/rock jams present up to 1.1 m high (Photo B11/2). ~180 m u/s from the mouth, a 2.8 m high falls is a barrier to fish (Photo B11/3). Assume fish use in the lower 180 m up to the impassable falls.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-265-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|---------------------|-----------------|----------|-----------------------------------|-----------|-------------|---------|------------|-----------|-----|-----|----------------------|----------|---------------------------|---------------|--------|
| Stream Name: | STARR | C. TRI | BUTARY | | Stream "L | ocal": | ST17 | | | | | | Access: | | H |
| Watershed Code: | 46 0-600 | 6-508-7 | 22-265-000-000-000-000-000-000-00 | 0 | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.0 Method: | MW |
| Location: | | | JUST ABOVE THE STEEP SECTION | ON IN | Map #: | 093L033 | 3 | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | HC |
| | R2, ~10 | 0 m U/S | FROM THE REACH BREAK. | | U.T.M. ; | 9.6019 | .60273 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/8/96 | Tim | ie: 12:3 | 0 Agency: C58 St | irvey Cre | w: DB\SS\ | 1 1 1 1 | <u> </u> | | | | Photos: | DB4/7, 8 | Air Photos: | BCB 9118 | 81:180 |
| Channel Ch | aracte | risti | 2 S | | i I | 3 | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.7 | Method Av. Chan. Width (m): | T | 1.4 | 1.2 | 2.9 | 1.8 | 1.0 | 1.7 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 1.7 | Method Av. Wet. Width (m): | T | 1.4 | 1.2 | 2.9 | 1.8 | 1.0 | 1.7 | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 10 | Av. Max. Riffle Depth (cm): | MS | 1 | | | | | Ì | , diaveis. | 20 | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 30 | Av. Max. Pool Depth (cm): | 10 | | | | | | | | | | | |
| Gradient (%): | | 25.0 | Method Gradient: | CL | ' | | | | | , | % Larges: | 65 | Small cobble (64-128mm): | | |
| % Pool: 40 | % Riff | le: 60 | % Run: 0 % Other | r: 0 | Method: | GE | | | | | ł | | Large cobble (128-256mm): | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | [| | Boulder cobble (>256mm): | | |
| % Debris Area: | 20 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 10 | % Bedrock: | | 10 |
| Cover | - | | | | | | | | | - | D90 (cm): | 50 | Compaction: | М | 1edrum |
| Cover Total % : | | 45 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 20 L | .O.D.: | 40 | Boulder: 30 In Veg.: | 0 | Over Veg: | 5 | Cutba | nk: | | 5 | Dunks | | | | |
| Crown Closure %: | | 20 | Method Crown Closure: | GE | Aspect : | NW | Metho | d Aspect: | | ΑE | lleight (m): | 0.9 | % Unstable: | | 40 |
| | | | | | | | | | | | Textures Fines: | No | | Yes Bedrock: | No |
| Discharge | | | | | 1 | | | | | | Confinement: | 1 | · · | | |
| ı | | | | | | Sį | ecific Da | ta | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | . М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | 1 | | | | | | Flood Signs 11t(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s | VO | | | | | | | Braided: | N | Method Braided: | | GĿ |
| Discharge (m3/s): | | 0.07 | Method Discharge (m3/s): | | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | al | | | | | | | | | | pH: | 8.1 | Method pH: | | PH |
| neuch Symu | Vi | | | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | | <u> </u> | NF | | | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | TC |
| | | | 2 A 25 | .0 126 | 1 | | | | | | Turb. (cm): | | Method Turbidity: | | |
| | | | (Width, Valley: Channel, Slop | e) (Be | d Material) | | | | | | Cond. (µmbos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-265-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- Cl Electrofished 51 m length of stream, I pass with no lower net. No fish were caught. Assume no fish use based on steep gradient and impassable falls located d/s in R1.
- C2 Steep gully sidewalls with areas of instability; recommend buffer along the creek, should the area be logged.
- C3 LOD stepping occurs in the tributary. Many small drops -0.5 2 m high are present.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-275-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | |
|---|----------|--------------|-----------------------------------|---------------|---------|------------|------------|-----|-----|----------------------|--------------|--------------------------|---------------|---------|
| Stream Name: | STARR (| C. TRII | BUTARY | Stream "L | ocal": | ST18 | | | | | | Access: | | FT |
| Watershed Code: | 460-6006 | -508-7 | 22-275-000-000-000-000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.2 Method: | MW |
| Location: | ~450 m L | J/S FR | OM THE MOUTH, JUST U/S FROM STI8. | . Map #: | 093L033 | 1 | | | | Site No.: | i i | Length surveyed (m): | 500.0 Method: | HC |
| | | | | Ŭ.T.M. : | 9.6017 | .60274 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/11/96 | Time | : 9:00 | Agency: C58 Survey C | rew: RD\CP\ | 1111 | 1.1 | | | | Photos: | A12/9, 10 | Air Photos: | BCB 911 | 181:181 |
| Channel Ch | aractei | ristic | es · | | S | Specific D | Data | | | Bed Material | | | | |
| Av. Chan. Width (m |): | 1.9 | Method Av. Chan. Width (m): | 1.6 | 1.9 | 2.1 | 2.0 | 1.8 | 2.3 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m.): | | 1.8 | Method Av. Wet. Width (m): | 1.6 | 1.7 | 2.0 | 2.0 | 1.6 | 2.1 | % Gravels: | 25 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth | (cm): | 10 | Av. Max. Riffle Depth (cm): MS | | | | | | | 76 Glaveis. | 23 | Large (16-64mm): | | 15 |
| Av. Max. Pool Depth | (cm): | 38 | Av. Max. Pool Depth (cm): 10 | | | | | | | | | - , | | |
| Gradient (%): | | 7.0 | Method Gradient: CL | • | | | | | | % Larges: | 60 | Small cobble (64-128mm): | | 35 |
| % Pool: 20 | % Riffle | e: 60 | % Run: 20 % Other: 0 | Method: | GE | | | | | \ \ | | Large cobble (128-256mm | | 25 |
| % Side Channel: | | 0-1 0 | Method Side Channel: GE | | | | | | | | | Boulder cobble (>256mm) | i | 0 |
| % Debris Area: | | 0-10 | Method Debris Area: GE | | | | | | | % Bedrock: | 10 | % Bedrock: | | 10 |
| Cover | | | | | _ | | _ | | | D90 (cm): | 30 | Compaction: | | Medium |
| Cover To tal % : | | 75 | Method Cover Total %: GE | | | | | | | Banks | - | | | |
| Dp Pool: 25 i | O.D.: | 5 | Boulder: 40 In Veg.: 0 | Over Veg: | 20 | Cutba | ınk: | | 10 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | Aspect : | NE | Metho | od Aspect: | | ΑE | Height (m): | 0.4 | % Unstable: | | 10 |
| | | | | | _ | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | 1 | S. | pecific De | nta | | | Confinement: | 2 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | Sį | recigie Di | 414 | | | Valley: Chan. Ratio: | 1 | | | |
| , - | | | Method Mean Depth (m): | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Velocity (m/s VO | . | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) Discharge (m3/s) : | | 0.17 | Method Discharge (m3/s): | | | | | | | Braided: | N | Method Braided: | | GE |
| Pischarge (m3/s) : | | | memon Discusi Se (1113/3) . | | | | | | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | pH: | 8.1 | Method pf1: | | PH |
| | - | | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | : | |
| | | | DV | | | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | TC |
| } | | | 2 A 7.0 l | 261 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | Bed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-275-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 2 | С | 0.1 |
| $\bar{3}$ | C | 0.3 |
| 1 | C | 0.3 |
| 3 | F | 0.9 |

Comments

| Cī | Air Temp: 1 C. |
|----|---|
| C2 | This site was not sampled but DV were caught u/s in R2. Assume DV are present in R1 also. |
| C3 | No access problems in the lower 65 m of stream. Restricted access further u/s. the 1.5 m chute in bedrock located 65 m u/s from the mouth may be passable by adults but not by juveniles and fry. At 280 m u/s from the mouth, ~2.8 m high bedrock chute is present; this may be passable in a sidechannel along the side of the chute. 3 m high falls located 900 m u/s from the mouth are steep and confined and are a barrier to fish. |
| C4 | Sections of potential BT spawning are present in the lower 50 m of St18. |

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

Header Information STARR C. TRIBUTARY Stream "Local": ST18 н Stream Name: Access: Watershed Code: 460-6006-508-722-275-000-000-000-000-000-000 Reach No.: Reach Length (km): 0.6 Method: MW ~1700 m U/S FROM THE MOUTH, ~100 m D/S FROM TOP Map#: 093L033 Site No.: 100.0 Method: HC Location: Length surveyed (m): 9.6017 .60274 U.T.M.: Fish Card: Yes Field: Historical: No Time: 12:00 Agency: C58 Survey Crew: RD\CP\\\\\\\\ BCB 91181:181 Date: 10/8/96 Photos: A11/15, 16 Air Photos: Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 0.6 Method Av. Chan. Width (m): T 0.6 0.5 0.5 0.9 0.6 % Fines (<2mm): 20 % Fines (<2mm): Т Method Av. Wet. Width (m): 0.6 0.6 0.5 0.5 0.6 Av. Wet. Width (m): 70 % Gravels: Small (2-16mm): Av. Max. Riffle Depth (cm): MS Av. Max. Rif. Depth (cm): 10 Large (16-64mm): Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): 5 Small cobble (64-128mm): % Larges: 0 Method Gradient: CL Gradient (%): 0 Large cobble (128-256mm): 0 % Pool: 20 % Riffle: 30 % Run: 50 % Other: Method: GE 0 Boulder cobble (>256mm): GE % Side Channel: Method Side Channel; % Debris Area: Method Debris Area: GE 0 % Bedrock: % Bedrock: High D90 (cm): Compaction: Cover Cover Total %: Method Cover Total %: GE Banks Dp Pool: 20 L.O.D.: Boulder: in Veg.: 0 Over Veg: Cutbank: 40 Crown Closure %: Method Crown Closure: GE Aspect ; Method Aspect: ΑE Height (m): % Unstable: 0 Textures Fines: Gravel: No Larges: No Bedrock: Nυ Discharge Confinement: Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): Stage: Mean Depth (m): Method Mean Depth (m): Flood Signs 11(m): Method Flood Signs: MS Mean Velocity (m/s): Method Mean Velocity (m/s VO GE Braided: Method Braided: Discharge (m3/s): Method Discharge (m3/s): Bars (%): Method Bars: GE pH: Method pH: PH Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: D۷ Water Temp. (°C): Method Temperature: TC 2800 200 i A 1.5 Method Turbidity: GE Turb. (cm): (Width, Valley: Channel, Slope) [(Bed Material) Cond. (umhos): Method Conductivity: CM

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-275-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 7 | 59 - 80 | J | R | | | EL |

Obstructions

| C | 1 | Electrofished 38 m length of stream, 1 pass with no lower net. |
|---|------------|--|
| C | 2 | Very steep section with a 3 in high falls d/s in R1; the DV caught at this site must therefore be residents. |
| C | 3 | Sections with good potential spawning were observed in this reach. |
| C | £ 4 | Lat/Lon of helicopter landing site: 54 22.42 127 26.87 |
| c | `5 | St18.2 was surveyed; there is no defined channel and it is bedded with moss. |

2~-Mar-9^

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-275-000-000-000-000-000-000-000

| | | | | | | | | |
|--|-----------------|---------|----------------|---------|----------------------|------------|---------------------------|-------------------|
| Header Information | | | | | | | | |
| Stream Name: STARR C. TRIBUTARY | Stream "I | .ocal": | ST18 | | | | Access: | H |
| Watershed Code: 460-6006-508-722-275-000-000-000-000-000-000 | | | | | Reach No.: | 3 | Reach Length (km): | 0.7 Method: MW |
| Location: ~350 m U/S FROM THE BOTTOM OF R3, NEAR THE | Map #: | 093L03 | 3 | | Site No.: | 3 | Length surveyed (m): | 400.0 Method: FIC |
| POND ABOVE THE ST18.3 CONFLUENCE. | U.T.M. : | 9.6017 | .60274 | | Fish Card: | N | Field: Yes | Historical: No |
| Date: 10/8/96 Time: 14:00 Agency: C58 Surve | ey Crew: RD\CP\ | 111 | \ \ \ | | Photos: | A11/17, 18 | Air Photos: | BCB 91181:181 |
| Channel Characteristics | | | Specific Data | | Bed Material | | | |
| Av. Chan. Width (m): 1.4 Method Av. Chan. Width (m): | T 1.9 | 1.3 | 1.6 1.7 | 1.2 0.9 | % Fines (<2mm): | 5 | % Fines (<2mm): | 5 |
| Av. Wet. Width (m): 0.9 Method Av. Wet. Width (m): | Т | | | | | | | |
| Av. Max. Rif. Depth (cm): 3 Av. Max. Riffle Depth (cm): | MS | | | | % Gravels: | 60 | Small (2-16mm): | 30 |
| Av. Max. Pool Depth (cm): 17 Av. Max. Pool Depth (cm): | 3 | | | | | | Large (16-64mm): | 30 |
| Gradient (%): 7.0 Method Gradient: | CL ' | | | | % Larges: | 35 | Small cobble (64-128mm): | 30 |
| % Pool: 10 % Riffle: 80 % Run: 10 % Other: | 0 Method | : GE | | | | | Large cobble (128-256mm): | 5 |
| % Side Channel: 0-10 Method Side Channel: | GE | | | | | | Boulder cobble (>256mm): | 0 |
| % Debris Area: 10-40 Method Debris Area: | GE | | | | % Bedrock: | 0 | % Bedrock: | 0 |
| Cover | | | | | D90 (cm); | 10 | Compaction: | High |
| | GE | | | | Banks | | | |
| Dp Pool: 20 L.O.D.: 30 Boulder: 10 In Veg.: | 10 Over Veg | . 0 | Cutbank: | : | Banks | | | |
| Crown Closure %: Method Crown Closure: | Aspect : | w | Method Aspect: | | AE Height (m): | 1.5 | % Unstable: | 0 |
| | | | <u>-</u> _ | | Textures Fines: | Yes | Gravel: Yes Larges: | |
| Discharge | | | | | Confinement: | 3 | Ciaren tes timiges | |
| | į | Ş | pecific Data | | Valley: Chan. Ratio: | 1 | | |
| Wetted Width (m): Method Wetted Width (m): | | | | | Stage: | L | | |
| Mean Depth (m): Method Mean Depth (m): | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | MS |
| Mean Velocity (m/s): Method Mean Velocity (m/s | vo | | | | Braided: | N. | Method Braided: | GE |
| Discharge (m3/s): 0.01 Method Discharge (m3/s): | | | | | Bars (%): | 5 | Method Bars: | GE |
| Reach Symbol | _ | | | | pH: | 7.8 | Method pH: | PH |
| (F | ish) | | | | 02 (ppni): | | Method Dissolved Oxygen: | |
| | V* | | | | Water Temp. (°C); | 4.9 | Method Temperature: | TC |
| 1 A 7.0 | 1630 | | | | Turb. (cm): | 200 | Method Turbidity: | GE |
| (Width, Valley: Channel, Slope) | (Bed Material) | | | | Cond. (µmhos): | 130 | Method Conductivity: | СМ |
| L | <u> </u> | | | | | | | |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-275-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 2 | 96 - 115 | Α | S | М | | EL |

- C1 Electrofished 80 m length of stream; two ripe DV males were caught at the bottom of the site. Suspect DV are spawning in this section.
- C2 The pond contained no inlet or outlet channels and was perched on a bench above Th18.
- C3 Not able to sample in R4; classed as suspected S4 habitat for the lower 1 km of stream.
- C4 Lat/Lon of helicopter landing site: 54 22.40 127 26.48
- C5 No channel was observed for St18.3.

2^-Mar-9^

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-275-ST -18.-1 -000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|--------------------------|----------|---------|---------------------------------|--------|-------------|---------|---------------|---------|-----|-----|----------------------|------------|--|-----------------|------------|
| Stream Name: | STARR | C. TRII | BUTARY | | Stream "Lo | cal": | ST18.1 | | | | | | Access: | | FT |
| Watershed Code: | 460-6006 | -508-7 | 22-275-ST -181 -000-000-000-000 | | | | | | | | Reach No.: | i | Reach Length (km): | 0.3 Method: | : MW |
| Location: | SITE LO | CATE | > ~100 m U/S FROM THE MOUTH. | | Map#: | 093L03 | | | | | Site No.: | 4 | Length surveyed (m): | 100.0 Method: | : HC |
| | | | | | U.T.M. : | | .60272 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/11/96 | Time | 9:45 | Agency: C58 Surv | ey Cre | ew: RD\CP\ | 1 1 1 1 | . 1 1 | | | | Photos: | A12/11, 12 | Air Photos: | BCB 91 | 181:181 |
| Channel Ch | aractei | risti | es . | | .· I | | Specific Dai | ta | | | Bed Material | | | | |
| Av. Chan. Width (m | | 1.5 | Method Av. Chan. Width (m): | T | 1.5 | 1.4 | 1.9 | 1.7 | 1.3 | 1.2 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 1.1 | Method Av. Wet. Width (m): | T | | | | | | į | % Gravels: | 35 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | 1 | 1 | | Large (16-64mnı): | | 30 |
| Av. Max. Pool Depth | (cm): | 25 | Av. Max. Pool Depth (cm): | 8 | 1 | | | | | ļ | 4/ 1 | 66 | | | 40 |
| Gradient (%): | | 25.0 | Method Gradient: | CL | | | | | | | % Larges: | 55 | Small cobble (64-128mn | | |
| % Pool: 10 | % Rim | | % Run: 10 % Other: | 0 | Method: | GE | | | | | 1 | | Large cobble (128-256m Boulder cobble (>256m) | | 10 5 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | 1 | | | | J |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 5 | % Bedrock: | | 5 |
| Cover | | | | | | | | | | | D90 (cm): | 15 | Compaction: | | High —— |
| Cover Total % : | | 60 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 L | O.D.: | 10 | Boulder: 65 In Veg.: | 0 | Over Veg: | 0 | Cutban | k: | | 15 | | | | | |
| Crown Closure %: | | 30 | Method Crown Closure: | GE | Aspect : | NW | Method | Aspect: | : | AE | Height (m): | 0.5 | % Unstable: | | 10 |
| } | | | | | | | - | | | | Textures Fines: | Yes | Gravel: No Large | s: Yes Bedrock: | . No |
| Discharge | | | | | 1 | | pecific Data | , | | | Confinement: | 2 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | | ٠, | , cog.c = = | , | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | ! | Stage: | M | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | | ļ | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | • | 0.04 | Method Discharge (m3/s): | VO | | | | | | į | Braided: | N | Method Braided: | | GE |
| Discusi & (m3/2) : | | U.U4 | | | | | | | _ | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH1: | 8.0 | Method pll: | | PH |
| | | | , | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyg | en: | |
| 1 | | | | NS | | | | | | | Water Temp. (°C): | 3.5 | Method Temperature: | | IC |
| 1 | | | 2 A 25.0 | | 1 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| 1 | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | C ond. (µmhos): | | Method Conductivity: | | |

2^-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-275-ST -18.-1 -000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | F | 0.0 |
| i | Ċ | 0.0 |
| 1 | X | 0.0 |

- C1 Air Temp: 0.5 C.
- C2 A fish sample site was conducted u/s in R2 and no fish were caught.
- The gradient is 13% in the lower 20 m of stream. The gradient increases to 18% at 23 m and a 0.5 m high falls is present followed by a 0.5 m high x 2 m long chute at 32 m u/s from the mouth. ~1m high debris jam was observed; the gradient increases to 45% and continues u/s with a series of falls present.
- C4 St18.1 is inaccessible to fish. Possible fish use in the lower 30 m of creek but the habitat is poor. Trib, is classed as S6 habitat.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-275-ST -18.-1 -000-000-000-000

| Heade <mark>r Infor</mark> | mation | | | | | | | | | | | | | | | |
|-----------------------------------|-----------|--------|---|----------------|----------|--------------------|-------------------|--|---------------|-----|-----|-------------------------|---------------|-------------------------|------------------------|----------|
| Stream Name: | STARR C. | | | 20 000 000 | | Stream "Lo | cal": | ST18.1 | | | | | | Access: | 0.4.34.4.4 | Н |
| Watershed Code: | | | 22-275-ST -181 -000-00 | | EAV | M 4. | 0031 033 | | | | | Reach No.: | 2 | Reach Length (km): | 0.4 Method: | MW |
| Location: | SHE LOC. | 4 I EL | ~450 m U/S FROM THI | E KEACH BKE | MK. | Map #: U.T.M. : | 093L033 9.6014 | | | | | Site No.: Fish Card: | 5 N | Length surveyed (m): | 100.0 Method: | HC |
| Date: 10/8/96 | Time: | 11.1 | S Agency: | C58 S | au Cam | w: DB\SS\ | | | | | | | N DB4/5, 6 | Field: Yes Air Photos: | Historical: BCB 911 | No |
| | | | | C36 301V | CIE | W. DB/33 / | - | | | _ | | Photos: | | AIT PROTOS: | | 81.101 |
| Channel Cha | racteri | stic | es . | | | | S | pecific D | ata | | 1 | Bed Material | | | | |
| Av. Chan. Width (m): | | 8.0 | Method Av. Chan. Wie | ` ' | T | 0.9 | 0.7 | 1.3 | 0.6 | 0.7 | 0.6 | % Fines (<2mm): | 80 | % Fines (<2mm): | | 80 |
| Av. Wet. Width (m): | | 0.8 | Method Av. Wet. Wid | ` ' | T | 0.9 | 0.7 | 1.3 | 0.6 | 0.7 | 0.6 | % Gravels: | 20 | Small (2-16mm): | | 20 |
| Av. Max. Rif. Depth (| | 10 | Av. Max. Riffle Depth | | MS | | | | | | |] | | Large (16-64mm): | | o |
| Av. Max. Pool Depth | (cm): | 30 | Av. Max. Pool Depth (| cm): | 10 | | | | | | ļ | % Larges: | 0 | Smail cobble (64-128mm | ١- | 0 |
| Gradient (%): | #/ D.O. | 5.0 | Method Gradient: | * 0.1 | CL | | 05 | | | | | , Larges. | ŭ | Large cobble (128-256m) | | 0 |
| % Pool: 90 | % Riffle: | | % Run: 0 | % Other: | 0 | Method: | GE | | | | | | | Boulder couble (>256mm | | 0 |
| % Side Channel: % Debris Area: | | 0 | Method Side Channel: Method Debris Area: | | GE HC | | | | | | | % Bedrock: | 0 | % Bedrock: | ••• | 0 |
| | | | | | | | | | | | | 1 | | | | |
| Cover | | | | | | | | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total % : | | 100 | Method Cover Total % | 6 : | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L. | O.D.: | 0 | Boulder: 0 | In Veg.: | 20 | Over Veg: | 40 | Cutba | nk: | | 40 | | | | | |
| Crown Closure %: | | 20 | Method Crown Closur | re: | GE | Aspect : | NW | Metho | d Aspect: | : | ΑE | Height (m): | 0.4 | % Unstable: | | 0 |
| | | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Large | s; Yes Bedrock: | No |
| Discharge | | | | | 1 | | Sr | ecific Da | ta | | | Confinement: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (| (m) · | | | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | . | | : | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m | • • | | | | | | | : | Stage: | L | | | |
| Mean Velocity (m/s): | | | Method Mean Velocity | • | vo | | | | | | 1 | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | | .01 | Method Discharge (m3/ | | | | | | | | : | Braided: | N | Method Braided: | | GE |
| | | | | | | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbo | ol | | | | | | | | | | | pH: | 7.8 | Method pH: | | PH |
| | | | | , | ish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxygo | en: | |
| | | | | | NF | | | | | | | Water Temp. (°C): | 4.5 | Method Temperature: | | TC |
| ll | | | | 1 A 5.0 | 8200 | ı | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Ch | nannel, Slope) | (Bed | Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-275-ST -18 -1 -000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Electrofished ~100 m length of stream, I pass with no lower net. No fish were caught.
- C2 A small pond is located u/s of site.
- C3 Lat/Lon of helicopter landing site: 54 22.79 127 26.27

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-300-000-000-000-000-000-000-000

| Header Infor | mation | | | | | | | | _ | | | | | |
|------------------------|---------------|---------------------------------|----------------|----------------|--------|-------------|----------|-------------|----------|----------------------|-------------|------------------------|----------------|--------|
| • | STARR C. TRI | RUTARY | | Stream "L | ocal": | ST19 | | | | | | Access: | | FT |
| Watershed Code: | | /22-300-000-000-000-000-000-000 | -000 | | | 0117 | | | | Reach No.: | 1 | Reach Length (km): | 0.2 Method: | |
| Location: | ~100 m U/S FR | | | Map #: | 093L03 | 3 | | | | Site No.: | | Length surveyed (m): | 240.0 Method: | |
| | | | | U.T.M. : | 9,6017 | | | | | Fish Card: | N | Field: Yes | Historical: | . No |
| Date: 10/11/96 | Time: 10:0 | 00 Agency: C58 | Survey | Crew: RD\ \ | | | | | | Photos: | A12/13, 14 | Air Photos: | BCB 91 | |
| Channel Cha | racteristi | | | | | Specific D | | | | Bed Material | | | | |
| Av. Chan, Width (m): | 0.9 | Method Av. Chan. Width (m): | | T 1.1 | 0.9 | 0,6 | 0.8 | 1.2 | 0.7 | 9/ E' - (3) | 0 | 9/ E: (-2 · · · · | | 0 |
| Av. Wet. Width (m): | 0.9 | Method Av. Wet. Width (m): | | T 1.1 | 0.9 | 0.6 | 0.8 | 1.2 | 0.7 | % Fines (<2mm): | 0 | % Fines (<2mm): | | 0 |
| Av. Max. Rif. Depth (c | | Av. Max. Riffle Depth (cm): | N | 15 | | | | | | % Gravels: | 40 | Small (2-16mm): | | 5 |
| Av. Max. Pool Depth (| • | Av. Max. Pool Depth (cm): | - | 8 | | | | | | | | Large (16-64mm): | | 35 |
| Gradient (%): | 7.0 | Method Gradient: | (| CL T | | | | | | % Larges: | 60 | Small cobble (64-128mm | i): | 45 |
| % Pool: 20 | % Riffle: 70 | % Run: 10 % O | ther: | 0 Method: | : GE | | | | | | | Large cobble (128-256m | m): | 10 |
| % Side Channel: | 0 | Method Side Channel: | (| GE . | | | | | | | | Boulder cobble (>256mm | a): | 5 |
| % Debris Area: | 0-10 | Method Debris Area: | (| GE . | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | = | | | | | | | | | D90 (cm): | 13 | Compaction: | i | Medium |
| | 26 | M. 10 T. 10 | | ne- | | | | | | | | | | |
| Cover Total %: | 75 | Method Cover Total %: | | 3E | | | | | 20 | Banks | | | | |
| • | D.D.: 10 | Boulder: 30 In Ver | - | 0 Over Veg | | Cutba | | | 20 | | | | | |
| Crown Closure %: | 5 | Method Crown Closure: | (| GE Aspect ; | NE | Metho | d Aspect | : | AE | Height (m): | 0.4 | % Unstable: | | 0 |
| | | | _ | | | _ | | | _ | Textures Fines: | Yes | Gravel: Yes Large | s: No Bedrock: | : No |
| Discharge | | | | 1 | s | specific Da | ıta | | | Confinement: | 2 | | | |
| Wetted Width (m) : | | Method Wetted Width (m): | | İ | | , , | | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Stage: | M | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | , | /o | | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.06 | Method Discharge (m3/s): | | | | | | | | Braided: | N | Method Braided: | | GŁ |
| | | | | · | | <u> </u> | | <u></u> | <u> </u> | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbo | l | | (IC) | L \ | | | | | | pH: | 8.0 | Method pll: | | PH |
| | | | (Fis (D) | • | | | | | | 02 (ppm): | | Method Dissolved Oxyg | en: | |
| | | | - ` | <u> </u> | | | | | | Water Temp. (°C): | 4.5 | Method Temperature: | | TC |
| | | I A | | 0460 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, S | lope) | (Bed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2^-Mur-9^

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-300-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 St19 flows into a Starr C. sidechannel.
- C2 -80 m u/s from the mouth, 3 0.5 m high drops over boulders were observed; definite restrictions if not barriers to DV. DV were caught u/s in R2; suspect they are residents based on the access problems here in R1.
- C3 Air Temp: 2 C.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

| Header Info | rmatio | n | _ | | | | | | | | | | | | |
|---------------------|----------|---------|--|------------------|-------------|---------|------------|-----------|-----|-----|----------------------|------------|---|---------------|---------|
| Stream Name: | STARR | C. TRIE | UTARY | | Stream "Le | cal": | ST19 | | | | | | Access: | | Н |
| Watershed Code: | 460-6006 | -508-7 | 22-300-000-000-000-000-000-0 | 000-000 | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.4 Method: | MW |
| Location: | ~200 m [|)/S FR(| M ST19.2 CONFLUENCE. | | Map#: | 093L033 | | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | : HC |
| | | | | | U.T.M. : | 9.6017 | .60274 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/8/96 | Time | : 12:0 | Agency: C58 | Survey Cr | ew: RD\CP\ | 1 1 1 1 | 1.1 | | | | Photos: | A11/13, 14 | Air Photos: | BCB 911 | 181:181 |
| Channel Ch | aractei | istic | es . | | | S | Specific D | ala | | | Bed Material | | | | |
| Av. Chan. Width (m |): | 0.8 | Method Av. Chan. Width (| n): T | 0.7 | 0.9 | 1.0 | 0.8 | 0.8 | 0.7 | % Fines (<2mm): | 20 | % Fines (<2mm): | | 20 |
| Av. Wet. Width (m): | | 0.8 | Method Av. Wet. Width (m |): T | 0.7 | 0.9 | 1.0 | 8.0 | 0.8 | 0.7 | % Gravels: | 80 | Small (2-16mm): | | 50 |
| Av. Max. Rif. Depth | (cm): | 4 | Av. Max. Riffle Depth (cm) | : MS | | | | | | | 70 Graveis. | | Large (16-64mm): | | 30 |
| Av. Max. Pool Deptl | (cm): | 25 | Av. Max. Pool Depth (cm): | 4 | ļ | | | | | | | • | - ' | | |
| Gradient (%): | | 2.5 | Method Gradient: | CL | | | | | | | % Larges: | 0 | Small cobble (64-128mm) | | 0 |
| % Pool: 20 | % RiM | : 40 | | Other: 0 | Method: | GE | | | | | | | Large cobble (128-256mm Boulder cobble (>256mm | • | 0 |
| % Side Channel: | | 0 | Method Side Channel: | G E | | | | | | | | | · |): | U |
| % Debris Area: | | 0 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 3 | Compaction: | | High |
| Cover Total % ; | | 60 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 20 I | O.D.: | 0 | Boulder: 0 in | Veg.: 20 | Over Veg: | 40 | Cutba | nk: | | 20 | 1 | | | | |
| Crown Closure % : | | | Method Crown Closure: | | Aspect : | NE | Metho | d Aspect: | : | AE | Height (m): | 0.4 | % Unstable: | | 0 |
| | <u> </u> | | _ | | | - | | | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | | 1 | S | ecific Da | ta | | | Confinement: | 4 | | | |
| Wetted Width (m): | | | Method Wetted Width (m) : | | 1 | ٠, | ecyle Du | •• | | ! | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | 1 | | | | | | Stage: | L | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | İ | | | | | i | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | • | 0.03 | Method Discharge (m3/s): | *** | | | | | | ĺ | Braided: | N | Method Braided: | | GE |
| | | 0.03 | —————————————————————————————————————— | | <u> </u> | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 8.2 | Method pH: | | PH |
| | • | | | (Fish) | | | | | | | 02 (թրու)։ | | Method Dissolved Oxyge | n: | |
| | | | | DV* | | | | | | | Water Temp. (°C); | 4.8 | Method Temperature: | | IC |
| | | | 1 / | | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channe | :l, Slope) (Be | d Material) | | | | | | Cond. (µmhos): | 101 | Method Conductivity: | | CM |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-300-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use i | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 1 | 86 | J | R | | | EL |
| ĎΫ | 3 | 106, 111 | A | S | M | | EL |

Obstructions

Comments

C5

C1 Electrofished 45 m length of stream, I pass with no lower net. The 2 adult DV caught were ripe males; suspect DV are spawning in R2. The DV are assumed to be residents due to the barriers d/s in R1.

C2 Small, low gradient, meandering creek.

C3 Small pockets with suitable DV spawning habitat were observed.

C4 Assume fish use in lower R2 and suspect fish use in the upper 560 in of R2.

St19.1 and St19.3 have no defined channels. St19.2 and St19.4 were observed but do not contain fish habitat; suspect fish use in the lower 100 in of St19.4.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-ST -20 -000-000-000-000-000-000-000

| Header Informa | tion | _ | • | | | | | | | | | |
|--|--------------------|---------------------------------|------------|------------|------------|----------------|----------|----------------------|------------|-----------------------|----------------|-----------|
| | RR C. TR | BUTARY | Stre | am "Local" | ' : | ST20 | | | | Access: | | FT |
| Watershed Code: 460 | 6006-50 8 - | 722-ST -20 -000-000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 0.2 Meth | nod: MW |
| Location: ~60 | m U/S FR | OM THE CONFLUENCE. | Mag | #: 093 | L033 | i | | Site No.: | 1 | Length surveyed (m): | 320.0 Meth | nod: HC |
| | | | U.T | .M.: 9.6 | 017 | .60274 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/11/96 | Time: 11: | 30 Agency: C58 Surve | y Crew: R | D\CP\\\ | 1 1 | \ \ | | Photos: | A12/15, 16 | Air Photos: | всв | 91181:181 |
| Channel Chara | cteristi | cs | i | | .5 | Specific Data | 1 | Bed Material | | | | |
| Av. Chan. Width (m): | 2.4 | | Т | 2.7 2 | .2 | 2.5 2.1 | 2.3 | % Fines (<2mm): | 5 | % Fines (<2mm): | | . 5 |
| Av. Wet. Width (m): Av. Max. Rif. Depth (cm): | 1.8 | • • | T MS | | | | | % Gravels: | 20 | Small (2-16mm): | | 5 |
| Av. Max. Pool Depth (cm) | | Av. Max. Pool Depth (cm): | 10 | | | | | | | Large (16-64mm): | | 15 |
| Gradient (%): | 9.0 | • • • | CL | | | | | % Larges: | 75 | Small cobble (64-128m | ım): | 40 |
| , , | RiMe: 80 | | | ethod: GE | | | | | | Large cobble (128-256 | mm): | 25 |
| % Side Channel: | 0 | | GE | | | | | | | Boulder cobble (>256n | nm): | 10 |
| % Debris Area: | 0-10 | | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| | _ | | | | | | | D90 (cm): | 25 | Compaction: | | High |
| Cover | | | | | | | | | | | | |
| Cover Total % : | 90 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 10 L.O.D. | 5 | Boulder: 70 In Veg.: | 0 Ove | r Veg: | 10 | Cutbank: | 5 | | | | | |
| Crown Closure %: | 50 | Method Crown Closure: | GE Asp | ect : | SW | Method Aspect: | AE | Height (m): | 0.8 | % Unstable: | | 10 |
| - | | | · | | | | | Textures Fines: | Yes | Gravel: No Lar | ges: Yes Bedro | ick: No |
| Discharge | | | 1 | | ۲, | pecific Data | | Confinement: | 2 | | | |
| Wetted Width (m) : | | Method Wetted Width (m): | | | J | ecyte Data | | Valley: Chan. Ratio: | 1 | | | |
| | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | vo | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.00 | • ` | V O | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.08 | Method Discharge (m3/s) : | | | | <u> </u> | <u> </u> | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | pH: | 8.1 | Method pH: | | PH |
| | | (Fi | - | | | | | 02 (ppm): | | Method Dissolved Oxy | ygen: | |
| Į | | ([| V) | | _ | | | Water Temp. (°C): | 3.5 | Method Temperature | ; | TC |
| | | 2 A 9.0 | 1270 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed Mat | erial) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-ST -20 -000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | Х | 0.0 |
| ī | R | 0.2 |

- C1 ~0.6 m high debris jam at the mouth is accessible at high flows. Several small drops (~0.2 0.5 m high) are present throughout R1.
- The reach break is ~200 m u/s from the mouth; the gradient increases from 7 10% to ~16% and the channel enters a confined gully. At 320 in u/s from the mouth, the gradient is 20% and continuous; fish distribution ends at this point as the gradient is too high for fish use.
- C3 An unstable bank on river left was observed and is located 222 m u/s from the mouth.

2^-Mar-9

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-ST -22 -000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | - | | | |
|---|----------|-----------------|--|--------|--------------|---------|-------------|-----------|-----|-----|----------------------|----------|-------------------------------------|---------------|---------|
| Stream Name: | STARR | C. TRII | BUTARY | | Stream "Lo | cai": | ST22 | | | | | | Access: | | 11 |
| Watershed Code: | 460-6006 | 5-50 8-7 | 22-ST -22 -000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.5 Method: | MW |
| Location: | ~300 m (| J/S FR | OM THE MOUTH, ~25 m D/S FROM T | HE | Map#: | 093L033 | | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | HC |
| | ST22.1-S | T22 C | ONFLUENCE. | | U.T.M. : | 9.6010 | .60279 | | | | Fish Card: | N | Field: Yes | Historical: | Νο |
| Date: 10/8/96 | Time | :: 11:3 | O Agency: C58 Surv | ey Cre | :w: DB\SS\ | 111 | \ \ | | | | Photos: | DB4/3, 4 | Air Photos: | BCB 911 | 181:181 |
| Channel Ch | aractei | ristic | es | | i İ | s | Specific De | ata | | | Bed Material | | | | |
| Av. Chan. Width (m) |): | 1.6 | Method Av. Chan. Width (m): | T | 1.2 | 1.2 | 2.0 | 1.9 | 1.9 | 1.4 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 1.6 | Method Av. Wet. Width (m): | T | 1.2 | 1.2 | 2.0 | 1.9 | 1.9 | 1.4 | % Gravels: | 30 | , | | |
| Av. Max. Rif. Depth | (cm): | 9 | Av. Max. Riffle Depth (cm): | MS | | | | | | ļ | % Graveis: | 30 | Small (2-16mm): Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 23 | Av. Max. Pool Depth (cm): | 9 | ; | | | | | | | | | | |
| Gradient (%): | | 2.5 | Method Gradient: | CL | · | • | | | | , | % Larges: | 60 | Small cobble (64-128mm): | | |
| % Pool: 5 | % RiM | e: 95 | % Run: 0 % Other; | 0 | Method: | GE | | | | | | | Large cobble (128-256mm) | : | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | U |
| Cover | | | | | | | | _ | _ | | D90 (cm): | 14 | Compaction: | | High |
| Cover Total % : | | 55 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Poof: 10 L | O.D.; | 0 | Boulder: 25 In Veg.: | 0 | Over Veg: | 60 | Cutbar | nk: | | 5 | Dunns | | | | |
| Crown Closure %: | | 10 | Method Crown Closure: | GE | Aspect : | SE | Metho | d Aspect: | : | ΑE | lleight (m): | 0.4 | % Unstable: | | 30 |
| | | | | | | | | | | | Textures Fines: | No | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | | Ç. | ecific Dai | ta. | | | Confinement: | 3 | | | |
| 13/ | | | Mathed Wated Width (m) | | I | Sp | etyk Du | ıu | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | M | | | |
| Mean Depth (m) : Mean Velocity (m/s) | - | | Method Mean Depth (m): Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.15 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | • | 0.04 | Method Discharge (m3/s): | VO | ! | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (M3/s) . | | 0.04 | | | <u> </u> | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 7.8 | Method pH: | | PH |
| | | | · | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | 1 | |
| | | | 1 | NF | | | | | | | Water Temp. (°C): | 4.5 | Method Temperature: | | rc |
| | | | 2 A 2.5 | 136 | 0 | | | | | | Turb. (cm): | | Method Turbidity: | | |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-ST -22 -000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location | | |
|-------------------|------|----------|--|--|
| 5 | F | 0.0 | | |

- CI Electrofished 50 m length of stream, I pass with no lower net. No fish were caught.
- C2 Two sets of falls were observed at the mouth of St22, the first was 5 in high: impassable to fish (Photo A12/17).
- C3 The sample site contained good fish habitat. The barrier d/s must account for the absence of fish, and the tributary is classed as S6 habitat.

2"-Mar-97

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-ST -22.-1 -000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | - | | | | |
|--|-------------------|--------------------|--|----------|--------------------|-------------------|------------|------------|------------|-----|--------------------------------|----------|--|------------------------------|----------|
| Stream Name: Watershed Code: | STARR (| | BUTARY 22-ST -221 -000-000-000-000-000 | | Stream "Lo | cai": | ST22. | I | | | Reach No.: | | Access: Reach Length (km): | 0.8 Method: | II MW |
| Watershea Code. Location: | | | OM THE MOUTH, UPPER MEADOW | ON | Map #: U.T.M. : | 093L033 9.6008 | | | | | Site No.: Fish Card: | 2 N | Length surveyed (m): Field: Yes | 100.0 Method: Historical: | HC No |
| Date: 10/8/96 | Time | : 10:0 | O Agency: C58 Surv | vey Cre | w: DB\SS\ | 1 1 1 | 1.1 | | | | Photos: | DB4/1, 2 | Air Photos: | BCB 911 | 181:181 |
| Channel Ch | aractei | ristic | cs . | | i | | Specific D | ata | | 1 | Bed Material | | | | |
| Av. Chan, Width (m Av. Wet. Width (m): | • | 1.0 1.0 | Method Av. Chan. Width (m): Method Av. Wet. Width (m): | T T | 1.4 | 1.1 1.1 | 0.9 0.9 | 1.0 1.0 | 1.2 1.2 | 0.5 | % Fines (<2mm): | 75 | % Fines (<2mm): | | 75 |
| Av. Max. Rif. Depth | (ст): | | Av. Max. Riffle Depth (cm): | MS | | | | | | 0.5 | % Gravels: | 20 | Small (2-16mm); Large (16-64mm): | | |
| Av. Max. Pool Deptl Gradient (%): % Pool: 85 | 1 (cm): % RiMe | 33 2.0 e: 15 | Av. Max. Pool Depth (cm): Method Gradient: % Run: 0 % Other: | CL 0 | Method: | GE | | | - | | % Larges: | 5 | Small cobble (64-128mm) Large cobble (128-256mm | | |
| % Side Channel: % Debris Area: | | 0 0-10 | Method Side Channel: Method Debris Area: | GE GE | | | | | | | % Bedrock: | 0 | Boulder cobble (>256mm % Bedrock: |): | 0 |
| Cover | | | | | | _ | | | - | | D90 (cm): | 5 | Compaction: | | High |
| Cover Total %: Dp Pool: 20 I | L. O .D.: | 0 | Method Cover Total %: Boulder: 0 In Veg.: | GE 0 | Over Veg: | 65 | Cutba | nk: | | 15 | Banks | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect : | SE | Metho | d Aspect: | | AE | Height (m): | 0.4 | % Unstable: | | 20 |
| Discharge | | | | | | | | | | | Textures Fines: Confinement: | Yes 4 | Gravel: No Larges | : No Bedrock: | No |
| Wetted Width (m) : | | | Method Wetted Width (m): | | | Sį | pecific Do | ila | | | Valley: Chan. Ratio: | 3 M | | | |
| Mean Depth (m) : Mean Velocity (m/s) | 1. | | Method Mean Depth (m): Method Mean Velocity (m/s | vo | | | | | | | Stage: Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | | 0.02 | Method Discharge (m3/s): | | | | | | | | Braided: Bars (%): | N 0 | Method Braided: Method Bars: | | GE GE |
| Reach Symb | ool | | | Fish) | ` | | | | | | pH: | 7.9 | Method pH: | | PH |
| | | | | NF | | | | | | | 02 (ppm): Water Temp. (°C): | 5.0 | Method Dissolved Oxyge Method Temperature: | n: | TC |
| | | | l C 2.0 (Width, Valley: Channel, Slope) | - 1 | | | | | | | Turb. (cm); Cond. (µmhos); | | Method Turbidity: Method Conductivity: | | |

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-ST -22.-1 -000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C2

C1 Electrofished 65 m length of stream, 1 pass with no lower net. No fish were caught. Assume barrier d/s at the mouth of St22 has prevented fish access to St22.1.

Lat/Lon of helicopter landing site: 54 23.64 127 26.98

2"-Mar-9"

Stream: STARR C. TRIBUTARY

- -- -

Watershed Code:

Stream Survey Report 460-6006-508-722-339-000-000-000-000-000-000-000

Header Information STARR C. TRIBUTARY Stream Name: Stream "Local": ST23 FT Access: Watershed Code: 460-6006-508-722-339-000-000-000-000-000-000 Reach No .: Reach Length (km): 2.2 Method: MW ~150 m U/S FROM THE MOUTH. 093L033 HC Location: Map #: Site No .: Length surveyed (m): 150.0 Method: U.T.M.: 9.6011 .60283 Fish Card: Field: Yes Historical: No Time: 13:00 Agency: C58 Survey Crew: RD\CP\\\\\\\\ Date: 10/11/96 Photos: A12/18, 19 Air Photos: BCB 91181:181 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 2.3 Method Av. Chan. Width (m): T 2.5 1.2 3.1 2.0 1.6 % Fines (<2mm): % Fines (<2mm): 5 Av. Wet. Width (m): 1.4 Method Av. Wet. Width (m): T % Gravels: Small (2-16mm): 5 Av. Max. Rif. Depth (cm): 8 Av. Max. Riffle Depth (cm): MS Large (16-64mm): 8 Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): % Larges: Small cobble (64-128mm): 15 CLGradient (%): 25.0 Method Gradient: Large cobble (128-256mm): 25 % Pool: 5 % Riffle: 95 % Run: 0 % Other: 0 Method: GE Boulder cobble (>256mm): 35 % Side Channel: Method Side Channel: HC GE % Debris Area: 0-10 Method Debris Area: 10 % Bedrock: % Bedrock: 10 D90 (cm): Compaction: Medium Cover Method Cover Total %: GE Cover Total %: Banks 15 L.O.D.: Boulder: 80 In Veg.: Dp Pool: Over Veg: Cutbank: Crown Closure %: Method Crown Closure: GE Aspect: Method Aspect: ΑE 5 Height (m): % Unstable: **Textures Fines:** Larges: No Bedrock: No Gravel: Yes Discharge 2 Confinement: Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): М Stage: Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): 0.4 Method Flood Signs: MS Mean Velocity (m/s): Method Mean Velocity (m/s VO Method Braided: GE Braided: Discharge (m3/s): 0.08 Method Discharge (m3/s): Bars (%): 10 Method Bars: GE pH: Method pli: PH Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: NS Method Temperature: TC Water Temp. (°C): 2 A 25.0 1171 Turb. (cm): 200 Method Turbidity: GI: (Width, Valley: Channel, Slope) (Bed Material) Cond. (umhos): Method Conductivity:

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-339-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C1 Air Temp: 4 C.

C2 ~1 m high drop is present at the mouth of St23. In the lower 50 m, the gradient is 5%; there may be some fish use in this bottom section (R1) should a major flood event occur.

C3 Reach 3 is very steep and confined; no fish use in this reach.

C4 Creek is dynamic and has a high potential to transport debris.

C5 A large, unstable bank was observed on river left ~100 m u/s from the confluence.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-371-000-000-000-000-000-000

| Header Infor | mation | | | | | _ | | | - | | | - | |
|-----------------------|------------|-------|--|--------|-------------|--------|----------------|---------|----------------------|------------|---------------------------|--------------|---------|
| Stream Name: | STARR C. | TRIB | UTARY | | Stream "Lo | ocal": | ST26 | | | | Access: | | FT |
| Watershed Code: | 460-6006-5 | 08-72 | 22-371-000-000-000-000-000-000 | | | | | | Reach No.: | i | Reach Length (km): | 0.2 Method: | MW |
| Location: | ~50 m U/S | FRO | M THE MOUTH. | | Map #: | 093L03 | 3 | | Site No.: | 1 | Length surveyed (m): | 70.0 Method: | HC |
| | | | | | U.T.M. : | 9.6007 | .60288 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/11/96 | Time: | 13:50 | Agency: C58 Sur | vey Cr | ew: RD\CP\ | 1 1 1 | | | Photos: | A12/21, 22 | Air Photos: | BCB 911 | 181:184 |
| Channel Cha | racteri | stic | s | | i | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | | 3.8 | Method Av. Chan. Width (m): | T | 4.5 | 4.7 | 3.7 3.8 | 4.1 2.2 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (nn): | | 2.1 | Method Av. Wet. Width (m): | T | | | | | % Gravels: | 10 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (| • | 15 | Av. Max. Riffle Depth (cm): | MS | | | | | | | Large (16-64mm): | | ŝ |
| Av. Max. Pool Depth | | 36 | Av. Max. Pool Depth (cm): | 15 | | | | ļ | % Larges: | 75 | Small cobble (64-128mm): | | 10 |
| Gradient (%): | | 18.0 | Method Gradient: | CL | | | | | / Larges. | 7,5 | Large cobble (128-256mm) | • | 20 |
| % Pool: 10 | % Riffle: | | % Run: 0 % Other: | | Method: | GE | | |] | | Boulder cobble (>256nim): | | 45 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | |
| % Debris Area: | |)-10 | Method Debris Area: | GE | | | | | % Bedrock: | 10 | % Bedrock: | | 10 |
| Cover | | | | | | | | | D90 (cm): | 43 | Compaction: | | Medium |
| Cover Total % : | | 90 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 15 L. | O.D.: | 0 | Boulder: 80 In Veg.: | 0 | Over Veg: | 0 | Cutbank: | 5 | i | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect: | E | Method Aspect: | AE | Height (m): | 1.5 | % Unstable: | | Ś |
| | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | i | , | pecific Data | | Confinement: | 2 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | | _ | pergio Dum | Ì | Valley: Chan. Ratio: | ì | | | |
| Mean Depth (m): | | | | | | | | ļ | Stage: | М | | | |
| | | | Method Mean Depth (m): | vo | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | | 20 | Method Mean Velocity (m/s Method Discharge (m3/s): | *0 | | | | ļ | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 20 | retinod Discharge (m3/s): | | <u> </u> | | | | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symbo | ol | | | | | | | | pH: | 8.4 | Method pH: | | PH |
| | | | (| Fish) | | | | | 02 (ppm)։ | | Method Dissolved Oxygen | : | |
| | | | _ | NS | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | IC |
| | | | 4 A 18.0 | 117 | '1 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) |) (Be | d Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-371-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 2 | F | 0.0 |
| 2 | F | 0.0 |

| CI | Air Temp: 6 C. |
|----|---|
| C2 | This site was not fish sampled. The sample site located u/s in R2 had no fish. |
| C3 | The gradient is 10% in the lower 20 m of stream; further u/s the gradient increases to 23%. At 47 m u/s from the mouth, two 2 m high bedrock falls lying on top of each other are present: impassable to fish (Photo A12/20). |
| C4 | Channel is very confined with steep sideslopes u/s, and throughout R2. |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-371-000-000-000-000-000-000

| | | | | | _ | | | | | | | | | |
|---------------------|---------|------------------|--|---------|-------------|----------------|---------------|------------------------|----------|----------------------|------------|-------------------------|---------------|---------|
| Header Info | rmatio | n | | | | | | | | | | | | |
| Stream Name: | STARR | C. TRI | BUTARY | | Stream "L | ocal": | ST26 | | | | | Access: | | H |
| Watershed Code: | 460-600 | 6-5 08- 7 | 22-371-000-000-000-000-000-000 | | | | | | | Reach No.: | 2 | Reach Length (km): | 0.5 Method: | MW |
| Location: | | | OM THE MOUTH, SAMPLED U/S O | N | Map #: | 09 3L03 | 3 | | | Site No.: | 2 | Length surveyed (m): | 120.0 Method: | HC |
| | ST26 TC | THE | FORK IN THE CHANNEL. | | U.T.M.: | 9.6007 | .60288 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/9/96 | Time | e: 9:40 | Agency: C58 Sur | vey Cre | ew: RD\CP\ | 1 1 1 | 1 1 1 | | | Photos: | A11/11, 12 | Air Photos: | BCB 91 | 181:184 |
| Channel Ch | aracte | risti | cs | | - ! | - | Specific Data | | | Bed Material | | | | |
| Av. Chan. Width (m | ı): | 5.0 | Method Av. Chan. Width (m): | T | 5.6 | 4.5 | 4.4 4.9 | 5. 7 5 . | 1 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | : | 1.6 | Method Av. Wet. Width (m): | T | | | | | | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | (cm): | 9 | Av. Max. Riffle Depth (cm): | MS | İ | | | | | % GLaveiz: | 15 | , , | | 10 |
| Av. Max. Pool Deptl | h (cm): | 28 | Av. Max. Pool Depth (cm): | 9 | | | | | | | | Large (16-64mm): | | 10 |
| Gradient (%): | | 8.0 | Method Gradient: | CL | ' | - • | | | 1 | % Larges: | 80 | Small cobble (64-128mm) | | 30 |
| % Pool: 15 | % Riff | e: 80 | % Run: 5 % Other: | 0 | Method: | GE | | | | | | Large cobble (128-256mm | | 20 |
| % Side Channel: | | 0-10 | Method Side Channel: | GE | | | | | | | | Boulder cobble (>256mm |): | 30 |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 30 | Compaction: | | High |
| Cover Total % : | | 80 | Method Cover Total %: | GE | | | | | | Banks | | | | |
| Dp Pool: 15 I | L.O.D.: | 10 | Boulder: 70 In Veg.: | 0 | Over Veg: | 0 | Cutbank: | | 5 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect: | E | Method Aspect | : | AE | Height (m): | 1.3 | % Unstable: | | 10 |
| | | | | _ | | | | | \dashv | Textures Fines: | Yes | Gravel: Yes Larges | : No Bedrock: | No |
| Discharge | | | | | ì | | Specific Data | | | Confinement: | 3 | | | |
| • | | | 84 at 133/-ac-333//3ab () | | | | pecific Data | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | i | Stage: | L | | | |
| Mean Depth (m): | ٠. | | Method Mean Depth (m): | VO | | | | | | Flood Signs Ht(m): | 0.6 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) |): | 0.20 | Method Mean Velocity (m/s Method Discharge (m3/s): | vo | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | <u> </u> | Method Distriarge (m3/s) : | | Į. | | <u></u> | | 1 | Bars (%): | | Method Bars: | | |
| Reach Syml | hol | | | | | | | | | pH: | 8.2 | Method pH: | | PH |
| | | | (| Fish) | | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | | NF | | | | | | Water Temp. (°C): | 40 | Method Temperature: | | ìC |
| | | | 5 A 8.0 | 118 | .0 | _ | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) |) (Be | d Material) | | | | | Cond. (µmhos): | 127 | Method Conductivity: | | CM |

2"-Mur-9" Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-371-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Electrofished 78 m length of stream, I pass with no lower net. No fish were caught. Assume barrier d/s at the base of R1 is an access problem for fish and is the reason no fish are present in R2.
- C2 Large, dynamic creek confined within 1-2 m high banks. Large pieces of debris are present within the channel.
- C3 Limited spawning potential.
- C4 Lat/Lon of helicopter landing site: 54 24.03 127 27.40

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-ST -27 -000-000-000-000-000

| Header Informati | on | | | | | | | - | | | | |
|---|-----------------|---|---------|-------------|------------------|-------------------|---------|----------------------|------------|--------------------------|---------------|---------|
| Stream Name: STAR | R C. TR | BUTARY | | Stream "Lo | cal": | ST27 | | | | Access: | | FT |
| Watershed Code: 460-60 | 06-5 08- | 722-ST -27 -000-000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 0.1 Method: | MW |
| Location: ~50 m | U/S FR | OM THE MOUTH. | | Map#: | 093 L04 3 | • | | Site No.: | Į. | Length surveyed (m): | 140.0 Method: | HC |
| | | | | U.T.M. : | 9.6006 | .60293 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/11/96 Tis | ne: 15: | 10 Agency: C58 Sur | vey Cre | w: RD\CP\ | 1 1 1 | 11 | | Photos: | A12/23, 24 | Air Photos: | BCB 911 | 181:184 |
| Channel Charact | eristi | cs | | | S | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | 2.3 | | T | 2.4 | 3.i | 2.8 2.i | 1.9 1.6 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | 1.3 | ` , | T | | | | | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (cm): | 6 21 | • () | MS | | | | | i | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth (cm): Gradient (%): | 11.0 | Av. Max. Pool Depth (cm): Method Gradient: | 6 CL | | | | İ | % Larges: | 75 | Small cobble (64-128mm): | | 30 |
| · · · | 11.0 Me: 80 | | | Method: | GE. | | | | | Large cobble (128-256mm | : | 40 |
| % Side Channel: | 0 | | GE | wicinog. | OL. | | | | | Boulder cobble (>256mm): | | 5 |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | u |
| | | | | | | | | D90 (cm): | 21 | Compaction: | | Low |
| Cover | | | | | | | | | | | | |
| Cover Total % : | 60 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 15 L.O.D.: | 5 | Boulder: 80 In Veg.: | 0 | Over Veg: | 0 | Cutbank: | 0 | | | | | |
| Crown Closure %: | | Method Crown Closure: | | Aspect : | SW | Method Aspect: | AE | Height (m): | 2.5 | % Unstable: | | 5 |
| | | | _ | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | Nο |
| Discharge | | | | | Se | - pecific Data | | Confinement: | 3 | | | |
| Wetted Width (m) : | | Method Wetted Width (m): | | ; i | 3 | | | Valley: Chan. Ratio: | ı | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | Stage: | М | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.06 | • • | 10 | | | | | Braided: | N | Method Braided: | | GE |
| | | | _ | | | <u> </u> | | Bars (%): | 40 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | pH: | 8.1 | Method pH: | | PH |
| | | (| Fish) | | | | | 02 (ppm): | | Method Dissolved Oxygen | ; | |
| | | | NS | _ | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | IC |
| | | 2 A 11.0 | |) | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed | l Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mur-9" Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-ST -27 -000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 ~1 m high drop over cobble was observed at the mouth; restricted access. May have some fish use in the lower 100 m of creek. The reach break is at 120 in u/s from the mouth and the gradient in R2 is a continuous 22%; R2 is too steep for fish use and the fish distribution ends at the reach break. The channel in R2 is very confined with steep sideslopes
- C2 Suspect unstable slumps further u/s due to the red fines present within the bed material (high compaction).

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-ST -27A-000-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | |
|----------------------|--------------|-----------------------------------|------------------|------------------|----------------|-----|----------------------|-------|-------------------------|----------------|--------|
| Stream Name: | STARR C. T | RIBUTARY | Stream "L | ocal": | ST27A | | | | Access: | | FT |
| Watershed Code: | 460-6006-50 | 3-722-ST -27A-000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 0.9 Method: | MW |
| Location: | | TRIBUTARY LOCATED ON RIVER RI | GHT Map #: | 093L 04 3 | 3 | | Site No.: | 1 | Length surveyed (m): | 40.0 Method: | HC |
| | ~150 m U/S 1 | KOM \$127. | U.T.M. : | 9.6003 | .60293 | | Fish Card: | N | Field: Yes | Historical: | Nο |
| Date: 10/11/96 | Time: 1 | 5:14 Agency: C58 Sur | vey Crew: RD\CP\ | 1 1 1 1 | \ \ | | Photos: | A13/2 | Air Photos: | BCB 911 | 81:184 |
| Channel Ch | aracteris | tics | | | Specific Data | . | Bed Material | | | | |
| Av. Chan. Width (rn) | | . , | T 0.5 | 0.6 | 1.1 0.9 0.7 | 1.2 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 0 | | T | | | | % Gravels: | 10 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | | 4 Av. Max. Riffle Depth (cm): | MS | | | | | | Large (16-64mm): | | 5 |
| Av. Max. Pool Depth | • • | Av. Max. Pool Depth (cm): | 4 | | | | % Larges: | 85 | Small cobble (64-128mm) | | 35 |
| Gradient (%): | 40 | | CŁ . | 0F | | | /• Larges. | 0,5 | Large cobble (128-256mr | | 45 |
| % Pool: 5 | % Riffle: 9 | | 0 Method: GE | GE | | | | | Boulder cobble (>256mm | | 5 |
| % Side Channel: | 0-1 | | GE GE | | | | a/ B. I. I | 0 | | ,- | |
| % Debris Area: | U- 1 | O Method Debris Area: | GE | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | D90 (cm): | 20 | Compaction; | | High |
| Cover Total % : | 6 | Method Cover Total %: | GE | | | | Banks | | | | |
| Dp Pool: 5 L | .O.D.: 1 | Boulder: 75 In Veg.: | 5 Over Veg: | 0 | Cutbank: | 5 | | | | | |
| Crown Closure %: | 3 | Method Crown Closure: | GE Aspect: | NE | Method Aspect: | ΑE | Height (m): | 0.8 | % Unstable: | | 30 |
| | | _ | | | | | Textures Fines: | Yes | Gravel: No Larges | : Yes Bedrock: | No |
| Discharge | | | | | | ÷ | Confinement: | 2 | | | |
| · · | | | İ | S | pecific Data | : | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | Stage: | M | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | Method Mean Velocity (m/s | vo | | | İ | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0.0 | Method Discharge (m3/s): | | | | | Bars (%): | 40 | Method Bars: | | GE |
| Reach Symb | ol | | | | _ | | рН: | 8.1 | Method pH: | | PH |
| Synto | •• | (1 | Fish) | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | | NS | | | | Water Temp. (°C): | 4.5 | Method Temperature: | | К |
| | | 1 A 40.0 | 1180 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Stream Survey Report

Watershed Code:

460-6006-508-722-ST -27A-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

Comments

C1 Air Temp: 6 C.

C2 Creek is inaccessible to fish; the gradient is continuously steep at ~35 - 45%.

C3 Tributary enters the Starr C. mainstern within ~200 m long x - 50 m high very unstable gravel/red mud bank (Photo A13/1).

C4 A second small seepage was observed and enters Starr C. at the top of the slump; the channel width is <30 cm wide, discharge is a trickle flow and the gradient is ~30 - 40%. The tributary is very small and likely dewaters.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-ST -28 -000-000-000-000-000-000

| Header Inform | ation | | | | | | | | | | | |
|--------------------------|---------------------|---|--------------------|-----------|----------------|----------------|---------|----------------------|----------|---------------------------|-------------|---------|
| Stream Name: ST | ARR C. TRI | BUTARY | Str | eam "Loc | al": | ST28 | | | | Access: | | FT |
| Watershed Code: 46 |)-6006-50 8- | 722-ST -28 -000-000-000-000-000 | | | | | | Reach No.: | ı | Reach Length (km): | 0.6 Method: | MW |
| Location: ~1 | 00 m U/S FR | OM THE MOUTH. | Ma | ւթ#։ 0 | 93L 043 | • | | Site No.: | 1 | Length surveyed (m): 100 | 0.0 Method: | HC |
| | | | U. 1 | Г.М.: 9 | 9.6004 | .60294 | | Fish Card: | N | Field: Yes His | torical: | No |
| Date: 10/11/96 | Time: 16: | OO Agency: C58 Surve | ey Crew: R | RD\CP\\ | 1 1 1 | \ \ | | Photos: | A13/3, 4 | Air Photos: | BCB 911 | 181:184 |
| Channel Chara | cteristi | cs | | | S | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | 1.7 | , | τ | 0.9 | 1.8 | 1.8 2.0 | 1.3 2.2 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 1.2 | ` ' | T | | | | | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (cm) | | • • • | MS | | | | | | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth (cm | | Av. Max. Pool Depth (cm): | 8 | | | | | % Larges: | 80 | Small cobble (64-128mm): | | 20 |
| Gradient (%): | 28.0 | | CL | | | | | /a Larges. | 00 | Large cobble (128-256mm): | | 40 |
| | Riffle: 90 | | | Method: (| ĴΕ | | | | | | | 20 |
| % Side Channel: | 0-10 | Method Side Channel: | G E | | | | | | | Boulder cobble (>256mm): | | 20 |
| % Debris Area: | 10-40 | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | <u> </u> | | D90 (cm): | 29 | Compaction: | N | Medium |
| Cover Total % : | 80 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 25 L.O.D | .: 15 | Boulder: 60 In Veg.: | 0 Ov | er Veg: | 0 | Cutbank: | 0 |) | | | | |
| Crown Closure %: | 40 | Method Crown Closure: | GE As _l | pect : | E | Method Aspect: | Al | E Height (m): | 1.0 | % Unstable: | | 5 |
| | | | <u> </u> | | | | | Textures Fines: | Yes | Gravel: Yes Larges: No | Bedrock: | No |
| Discharge | | | | | Ç, | pecific Data | | Confinement: | 2 | | | |
| • | | Mad . I Wassa Midd (m) | i | | J | becijit Dala | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | ! | | | | | Stage: | L. | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | Flood Signs Ht(m): | 0.4 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.04 | Method Discharge (m3/s): | ' | | | <u> </u> | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symbol | _ | | | | | | | pH: | 8.1 | Method pH: | | PH |
| Meden Byntoot | | (F | ish) | | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| | | | 18 | | | | | Water Temp. (°C); | 4.0 | Method Temperature: | | TC |
| | | 2 A 28.0 | 1180 | | _ | | | Turb. (cm); | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed Mai | terial) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-ST -28 -000-000-000-000-000-000-000

Stream/Valley Cross-Section

section.

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

The lower 30 m of stream-gradient ~11%; above 30 m, the gradient is 20 - 35%. Possible fish use in the lower 30 m. Above 30 m in R1, the creek is too steep to support fish.

A sample site is located u/s in R2; no fish were caught.

Channel is confined within steep sideslopes. Evidence of unstable banks in the lower 100 m was noted.

Below creek mouth, water flows in a Starr C. flood channel for -120 m. Willow overstory is dense and channel is not well defined. Good fish access throughout this brushy

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-ST -28 -000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|--|---------|------------------|---|---------|---------------|-----------------|-----------|-------------|-----|----------|----------------------|----------|--------------------------|---------------|--------|
| Stream Name: | STARR | C. TRI | BUTARY | | Stream "Lo | cal": | ST28 | | | | | | Access: | | 11 |
| Watershed Code: | 460-600 | 6-5 08- 7 | 22-ST -28 -000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 0.6 Method; | MW |
| Location: | UPPER | MEAD | OW, ~300 m U/S FROM THE REACH | | Map#: | 093 L043 | | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | HC |
| | BREAK | • | | | U.T.M. : | 9.6004 | 60294 | | | | Fish Card: | N | Field: Yes | Historical: | Νο |
| Date: 10/8/96 | Tim | e: 9:30 | Agency: C58 Surve | у Сгеч | *: DB\\$\$\\\ | | ١ ١ | | | | Photos: | DB3/8, 9 | Air Photos: | BCB 911 | 81:184 |
| Channel Ch | aracte | risti | :s | | | S | pecific D | ata | | · [| Bed Material | | | | |
| Av. Chan. Width (m) | : | 0.8 | Method Av. Chan. Width (m): | т | 0.5 | 0.6 | 0.8 | 1.0 | 1.2 | 0.7 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): Av. Max. Rif. Depth | (cm): | 0.8 | Method Av. Wet. Width (m): Av. Max. Riffle Depth (cm): | T MS | 0.5 | 0.6 | 0.8 | 1.0 | 1.2 | 0.7 | % Gravels: | 70 | Small (2-16mm): | | 40 |
| Av. Max. Pool Depth | (cm): | 35 | Av. Max. Pool Depth (cm): | | | | | | | | | | Large (16-64mm): | | 30 |
| Gradient (%): | | 1.0 | Method Gradient: | CL ' | | | | | | ı | % Larges: | 20 | Small cobble (64-128mm): | | 10 |
| % Pool: 90 | % Riffl | e: 10 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm |): | 10 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | } | | Boulder cobble (>256mm) | | 0 |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock; | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 12 | Compaction: | | High |
| Cover Total %: | | 100 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L | .O.D.: | 0 | Boulder: 0 In Veg.: | 20 | Over Veg: | 40 | Cutba | nk: | | 40 | Dunns | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect: | SE | Metho | d Aspect: | | ΑE | lleight (m): | 0.7 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | Yes Bedrock: | No |
| Discharge | | | | | | So | ecific Da | ta | | | Confinement: | 4 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | i | | -7 | ccy.c zu | | | ; | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m) : | | | Method Mean Depth (m): | | | | | | | | Stage: | L | | | |
| Mean Velocity (m/s) | | | • • • | vo | | | | | | ! | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s): | • | 0.03 | Method Discharge (m3/s): | | | | | | | į | Braided: | N | Method Braided: | | GE |
| | | | | | | | · | | | <u> </u> | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | (F: | -L.\ | | | | | | | pH: | 7,8 | Method pH: | | PH |
| · | | | (Fi: | | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | : | |
| | | | | | | | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | FC |
| ł | | | 1 B 1.0 | 1720 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| ĺ | | | (Width, Valley: Channel, Slope) | (Bed | Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 Electrofished 87 m length of stream, I pass with no lower net. No fish were caught.
- C2 Stable creek drops out of meadow into a steep gradient section down to Start C.
- C3 Lat/Lon of helicopter landing site: 54 24.23 127 28.03

2^-Mar-9^

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-445-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | _ | | | |
|---------------------|------------------|-----------------|---------------------------------------|--------|-------------|------------------|------------|-----------|-----|-----|----------------------|----------|--------------------------|---------------|---------|
| Stream Name: | STARR | C. TRII | BUTARY | | Stream "Lo | cal": | ST29 | | | | | | Access: | | FT |
| Watershed Code: | 460- 6 00 | 6- 508-7 | 22-445-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.4 Method: | MW |
| Location: | ~180 m | U/S FR | OM THE MOUTH. | | Map#: | 09 3L04 3 | 3 | | | | Site No.: | 1 | Length surveyed (m): | 410.0 Method: | liC |
| | | | | | U.T.M.: | 9.6002 | .60301 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/11/96 | Tim | e: 16:5 | O Agency: C58 Sur | vey Cr | ew: RD\CP\ | 1 1 1 1 | . 1.1 | | | | Photos: | A13/5, 6 | Air Photos: | BCB 911 | 181:184 |
| Channel Ch | aracte | ristic | c s | | I | | Specific L | Data | | | Bed Material | | | | |
| Av. Chan. Width (m |): | 0.8 | Method Av. Chan. Width (m): | T | 0.7 | 0.9 | 0.8 | 1.3 | 0.7 | 0.4 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 0.8 | Method Av. Wet. Width (m): | T | 0.7 | 0.9 | 0.8 | 1.3 | 0.7 | 0.4 | % Gravels: | 20 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | (cm): | 10 | Av. Max. Riffle Depth (cm): | MS | | | | | | | 78 Graveis: | 20 | Large (16-64mm): | | 15 |
| Av. Max. Pool Depti | (cm): | 25 | Av. Max. Pool Depth (cm): | 10 | İ | | | | | | | | | | |
| Gradient (%): | | 10.0 | Method Gradient: | CL | | | | | | | % Larges: | 75 | Small cobble (64-128mm): | | 40 |
| % Pool: 15 | % Riff | le: 70 | % Run: 15 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | | 30 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm) | : | 5 |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 23 | Compaction: | | High |
| Cover Total %: | | 95 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 5 I | O.D.: | 0 | Boulder: 55 In Veg.: | 0 | Over Veg: | 30 | Cutba | nk: | | 10 | Dunks | | | | |
| Crown Closure %: | | 30 | Method Crown Closure: | GE | Aspect : | sw | Meth | od Aspect | : | ΑE | Height (m): | 0.6 | % Unstable: | | 5 |
| _ | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | Yes Bedrock: | No |
| Discharge | | | | | | c. | aaiGa D | | | | Confinement: | 2 | _ | | |
| • | | | | | : | ગ | pecific D | uta | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | 1 | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | ' | Flood Signs Ht(m): | 0.25 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s | VO | i | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.04 | Method Discharge (m ³ /s): | | <u> </u> | | | <u> </u> | | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symb | ool | | | | | | | | | | pH: | 7.9 | Method pH: | | PH |
| Ticuch Dyne | | | (| Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | ı: | |
| | | | | (DV) | | | | | | | Water Temp. (°C): | 4.5 | Method Temperature: | | IC |
| | | | I A 10.0 | 127 | 0 | _ | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | | | Cond. (µnihos): | | Method Conductivity: | | |

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-445-000-000-000-000-000-000-000

2"-Mar-9"

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Type | Location |
|-------------------|------|----------|
| 2 | Х | 0.4 |

| CI | Air Temp: 5 C. |
|----|--|
| C2 | The site was not fish sampled. Possible fish use in R1 i.e. the lower 410 m of stream. Habitat is marginal and creek is small, but possibly could support DV residents. Limited access due to steep gradient at the mouth (11%). Pockets suitable for spawning were observed between 180 - 220 m u/s from the mouth. |
| C3 | Very small creek frequently confined within 6-8 in high sideslopes from bench. |
| C4 | R1 ends ~400 m; the gradient increases to ~15% and ~1.5 m high drop over boulder/debris is present. U/S from R1 is classed at S6 habitat. |

2 -- Mar-9 -

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-ST -30 -000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | _ | | | | | | | | |
|--|----------|------------|--|----------|---------|-------------|----------|------------|----------|-------------|-----------|----------------------|------------|------------------------|----------------|-----------|
| Stream Name: | STARR | C. TRII | | | | Stream "Lo | cal": | ST30 | | | | | | Access: | | н |
| Watershed Code: | 460-6006 | -508-7 | 22-ST -30 - <mark>000-000-000-0</mark> 00 | -000 | | | | | | | | Reach No.: | l | Reach Length (km): | 0.3 Metho | od: MW |
| Location: | SITE LO | CATE | 0~100 m U/S FROM MOUTH. | | | Map #: | 093L043 | | | | | Site No.: | l | Length surveyed (m): | 300.0 Metho | od: HC |
| | | | | | | U.T.M. : | 9.6000 | .60301 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/22/96 | Time | : 15:0 | 0 Agency: C58 | Surve | у Сге | w: RD\CP\ | 1 1 1 1 | 1 1 | | | | Photos: | A14/21, 22 | Air Photos: | ВСВ | 91181:184 |
| Channel Cho | aractei | ristic | es | | | | | Specific D | ata | = • | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 0.8 | Method Av. Chan. Width (m) | : | T | 0.9 | 0.7 | 1.1 | 0.7 | 0.6 | 0.6 | % Fines (<2mm): | 40 | % Fines (<2mm): | | 40 |
| Av. Wet. Width (m): | (am): | 0.8 6 | Method Av. Wet. Width (m): Av. Max. Riffle Depth (cm): | 1 | T MS | 0.9 | 0.7 | 1.1 | 0.7 | 0.6 | 0.6 | % Gravels: | 35 | Small (2-16mm); | | 25 |
| Av. Max. Rif. Depth (Av. Max. Pool Depth | | 24 | Av. Max. Pool Depth (cm): | | мз 6 |) | | | | | ĺ | Ì | | Large (16-64mm): | | 10 |
| Gradient (%): | (Citt). | 5.0 | Method Gradient: | | CL | | | | | | J | % Larges: | 25 | Small cobble (64-128m | m): | 25 |
| % Pool: 10 | % Rime | | | ther: | 0 | Method: | GF | | | | | | | Large cobble (128-256) | mm): | 0 |
| % Side Channel: | | 0 | Method Side Channel: | | GE | | - | | | | | | | Boulder cobble (>256m | nm): | 0 |
| % Debris Area: | | 0 | Method Debris Area: | | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | <u>-</u> | | | | | | ~ | | D90 (cm): | 9 | Compaction: | | Medium |
| Cover Total % : | | 60 | Method Cover Total %: | | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 L | .O.D.: | 0 | Boulder: 0 In Ve | g.: | 0 | Over Veg: | 60 | Cutba | nk: | | 30 | | | | | |
| Crown Closure %: | | 7 0 | Method Crown Closure: | | GE | Aspect: | S | Metho | d Aspect | : | AE | Height (m): | 0.4 | % Unstable: | | 0 |
| | | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Lar | ges: No Bedroc | :k: No |
| Discharge | | | | | | | Sı | ecific Da | ta | | | Confinement: | 5 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | | i | -7 | | | | | Valley: Chan. Ratio: | 4 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | | Stage: | L | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | | ۷o | , , | | | | | : | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | • | 0.03 | Method Discharge (m3/s): | | | | | | | | | Braided: | N | Method Braided: | | GE |
| | | | | | | | <u> </u> | | | | <u> i</u> | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | | pH: | | Method pH: | | |
| _ | | | | (Fi | • | | | | | | | 02 (թթա)։ | | Method Dissolved Oxy | /gen: | |
| | | | | <u>`</u> | (V) | | | | | | | Water Temp. (°C): | 2.0 | Method Temperature: | : | IC |
| J | | | I D | 5.0 | 4330 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, | Slope) | (Bec | d Material) | | | | | | Cond. (µmhos): | 30 | Method Conductivity: | | CM |

2~-Mar-9" Stream: S

Stream: STARR C. TRIBUTARY Watershed Code:

Stream Survey Report

460-6006-508-722-ST -30 -000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 Electroshocked 50 m length of stream, 1 pass with no lower net. No fish were caught. Observed several DV redds at the mouth of St30; assume fish use to the top of R1.
- C2 The base of R2 is on a bench; the gradient is 14% with up to 1 m high drops down the bench; the pond at the top of R2 inaccessible.
- C3 The shallow pond was frozen at the time of surveying and could not be sampled.
- C4 R1 is classed as S4 habitat and R2 is suspected S4 habitat.

2^-Mar-9*

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-486-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|---------------------|---------|------------------|---------------------------------|---------|--------------|----------|------------|-------------|----------|----|----------------------|---------|--------------------------|---------------|---------|
| Stream Name: | STARR | C. TRI | BUTARY | | Stream "Le | cal": | ST31 | | | | | | Access: | | FT |
| Watershed Code: | 460-600 | 6-50 8 -7 | 22-486-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.6 Method: | MW |
| Location: | ~500 m | U/S FR | OM MOUTH. | | Map#: | 093L04 | 3 | | | | Site No.: | 1 | Length surveyed (m): | 650.0 Method: | нс |
| | | | | | U.T.M.: | 9.5995 | .60306 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/3/96 | Tim | e: 10:0 | 0 Agency: C58 Sur | vey Cr | ew: RD\SS\ | 1 1 1 1 | . \ \ | | | | Photos: | B6/6, 7 | Air Photos: | BC 73 | 326:253 |
| Channel Ch | aracte | risti | cs · | | | | Specific D | at a | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 2.5 | Method Av. Chan. Width (m): | T | 2.4 | 2.6 | 2.5 | 2.7 | | | % Fines (<2mm): | 0 | % Fines (<2mm): | | 0 |
| Av. Wet. Width (m): | | 2.4 | Method Av. Wet. Width (m): | T | 2.0 | 2.6 | 2.4 | 2.5 | | | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | | 9 | Av. Max. Riffle Depth (cm): | MS | : | | | | | | | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth | (cm): | 27 | Av. Max. Pool Depth (cm): | 9 | | | | | | | % Larges: | 80 | Small cobble (64-128mm): | | 10 |
| Gradient (%): | | 7.0 | Method Gradient: | CL | | | | | | ŀ | 70 Larges. | 30 | Large cobble (128-256mm | • | 30 |
| % Pool: 15 | % Riff | | % Run: 5 % Other: | | Method: | GE | | | | l | | | Boulder cobble (>256mm) | | 40 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | _ | · | | |
| % Debris Area: | | 0-10 | Method Debris Area: | GE — | | | | | | | % Bedrock: | 5 | % Bedrock: | | 5 |
| Cover | | _ | | | | | _ | _ | | | D90 (cm): | 73 | Compaction: | | Medium |
| Cover Total % : | | 90 | Method Cover Total %: | GE | | | | | | ĺ | Banks | | | | |
| Dp Pool: i0 L | .O.D.: | 0 | Boulder: 90 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 0 | Duning | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect: | sw | Metho | d Aspect | : | AE | Height (m): | 2.0 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | | | pecific Da | •- | | | Confinement: | 2 | • | | |
| • | | | A4 at 1337 at 1337 ha 7 3 | | | 3 | ресіјіс Da | Ia | | j | Valley: Chan. Ratio: | ı | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | VO. | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.00 | Method Mean Velocity (m/s | VO | 1 | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.08 | Method Discharge (m3/s) : | | <u> </u> | <u> </u> | <u> </u> | <u></u> . | <u> </u> | | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symb | ol | | | | | _ | | | | | pl1; | 8.3 | Method pf1: | | PH |
| | •• | | (| Fish) | | | | | | | 02 (թրու)։ | | Method Dissolved Oxyger | : | |
| | | | | (DV) | | | | | | | Water Temp. (°C): | 3.0 | Method Temperature: | | 10 |
| | | | 3 A 7.0 | 018 | BI | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | ed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-486-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| | X | 0.7 |

- C1 Electrofished 45 m length of stream, 1 pass with no lower net. No fish were caught or observed.
- The lower 200 m of stream is in a fan and potential spawning sections are very limited. U/S of 200 m, the channel is confined. Bed material consists of large boulders with some bedrock. No spawning potential is present in this section. 650 m u/s from the mouth is the reach break; the gradient is 12 13% and a 1 m high drop over boulders and debris is present and is a restriction to fish. Further u/s the habitat is marginal but could be accessed by fish. The gradient also steepens moving u/s. Assume fish distribution up to 650 m.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

international control of the control

Watershed Code:

Stream Survey Report

460-6006-508-722-503-000-000-000-000-000-000

| Header Info | | | | | | | | | | | | | |
|-------------------------------|-----------|-----------------|----------------------------|---------------|---------------|--------------|---------------|---------|----------------------|------------|--------------------------|---------------|---------|
| Stream Name: | STARR (| | | | Stream ' | 'Local": | ST32 | | | | Access: | | FT |
| Watershed Code: | 460-6006 | -5 08- 7 | 22-503-000-000-000-000-0 | 00-000-000 | | | | | Reach No.: | i | Reach Length (km): | 0.6 Method: | MW |
| Location: | ~170 m U | /S FRO | OM MOUTH. | | Map #: | 093L04 | 13 | | Site No.: | 1 | Length surveyed (m): | 400.0 Method: | : HC |
| | | | | | U.T.M. : | 9.5993 | .60308 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/7/96 | Time | 10:0 | Agency: C | 58 Surve | y Crew: RD\CP | 1111 | 111 | | Photos: | A10/24, 25 | Air Photos: | BC 7 | 326:253 |
| Channel Ch | aracter | istic | S | | į | | Specific Data | • • • | Bed Material | | | | |
| Av. Chan. Width (m) |): | 3.1 | Method Av. Chan. Wide | • • | T 4.1 | 4.2 | 2.8 4.4 | 1.7 1.1 | % Fines (<2mm): | 0 | % Fines (<2mm): | | 0 |
| Av. Wet. Width (m): | | 2.1 | Method Av. Wet. Width | ` ' | T | | | | % Gravels: | 45 | Small (2-16mm): | | 15 |
| Av. Max. Rif. Depth | | 7 | Av. Max. Riffle Depth (| • | MS | | | | | | Large (16-64mm): | | 30 |
| Av. Max. Pool Depth | (cm): | 28 | Av. Max. Pool Depth (co | • | 7 CL | | - | | % Larges: | 55 | Small cobble (64-128mm): | | 15 |
| Gradient (%): % Pool: 15 | % Riffle | 8.0 | Method Gradient: % Run: 10 | % Other: | 0 Metho | d. GE | | | 1 | | Large cobble (128-256mm) | : | 30 |
| % Foot: 13 % Side Channel: | /# Killic | 0-10 | Method Side Channel: | | GE | u. GE | | | | | Boulder cobble (>256mm): | | 10 |
| % Debris Area: | 25 | 0.10 | Method Debris Area: | | GE | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| 70 Debits Area. | | | | | | | | | | | | | - |
| Cover | | | | | | | | | D90 (cm): | 25 | Compaction: | | Low |
| Cover Total % : | | 75 | Method Cover Total %: | - | GE | | | | Banks | | | | |
| Dp Pool: 20 L | O.D.: | 20 | Boulder: 60 | In Veg.: | 0 Over Ve | g : 0 | Cutbank: | 0 | | | | | |
| Crown Closure %: | | | Method Crown Closure | : | Aspect: | NE | Method Aspec | : AE | Height (m): | 2.5 | % Unstable: | | 0 |
| | | | _ | | | | <u>_</u> | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | | | Specific Data | | Confinement: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (n | m) · | 1 | ~ | , pecyle Dail | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m) | | | | | | Stage: | M | | | |
| Mean Velocity (m/s) | • | | Method Mean Velocity (1 | | vo | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | | 0.08 | Method Discharge (m3/s) | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (mors) . | | 0.00 | Without Discharge (MD/3) | ,• | | | | | Bars (%): | 25 | Method Bars: | | GE |
| Reach Symb | ool | | | 450 | L . | | | | pH: | 8.1 | Method pH: | | PH |
| • | | | | (Fi | • | | | | 02 (ppm): | | Method Dissolved Oxygen | | |
| | | | | | V) | | | | Water Temp. (°C): | 3.9 | Method Temperature: | | IC |
| | | | | 3 A 8.0 | 0460 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Cha | innel, Slope) | (Bed Material |) | | | Cond. (µmhos): | 47 | Method Conductivity: | | CM |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-503-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Site was not fish sampled in R1. A sample site is located u/s and no fish were caught at this site.
- The lower 100 in of creek flows parallel to the Start C. in a floodplain; easy fish access and good DV spawning habitat. Further u/s the creek becomes confined with 2 3 m high sideslopes. A 1 m high drop over debris is observed at 120 m u/s from the mouth, and numerous 0.3 0.4 m drops are present further u/s. The slope increases to 11% at 200 m.

 At 350 m the gradient is 18% for 20 m impassable to fish. The gradient is a continuous 15% further u/s. Assume fish access to 300 m.
- C3 An unstable bank was observed on river right ~120 m u/s from the creek mouth.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report
460-6006-508-722-503-ST-32-1-000-000-000-000

| TT I T C | | | | | | | | | | | | | | | | | |
|---------------------------------------|--------|---------|--------------|-----------------------------|--------------|-----------|-------------|------------------|------------|-------------|-----|------|----------------------|---------|-----------------------|----------------|------------------|
| Header Infor | | | | | | | | | | | | | | | | | |
| Stream Name: | | | BUTARY | | | | Stream "L | ocai": | ST32. | 1 | | | | | Access: | | Н |
| Watershed Code: | | | /22-503-ST - | | 000-000-000 | | | | | | | | Reach No.: | | Reach Length (km): | 0.6 Metho | |
| Location: | ~150 m | U/S FR | ом моит | 1. | | | Map #: | 093 L04 3 | | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Metho | |
|) | | | | | | | U.T.M. : | 9.5985 | | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/3/96 | Tim | e: 12:0 | 30 | Agency: | C58 S | arvey Cri | w: RD\SS\ | 1111 | 11 | | | | Photos: | B6/8, 9 | Air Photos: | BC | 7326 :253 |
| Channel Cha | racte | risti | cs | | | | i | | Specific D |)ata | | ı | Bed Material | | | | |
| Av. Chan. Width (m): | : | 1.9 | | v. Chan. W | ` ' | T | 1.7 | 2.0 | 1.9 | 2.3 | 1.7 | | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 1.9 | | lv. Wet. Wi | | T | 1.7 | 2.0 | 1.9 | 2.3 | 1.7 | - 11 | % Gravels: | 25 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (| | 6 | | Riffle Dept | | MS | 1 | | | | | | | | Large (16-64mm): | | 20 |
| Av. Max. Pool Depth | (cm): | 30 | | Pool Depth | (cm): | 6 | 1 | | | | | | 0/ 1 | 30 | • • | | 20 |
| Gradient (%): | | 4.0 | Method C | Fradient: | | CL | | | | | | | % Larges: | 70 | Small cobble (64-128r | ŕ | 70 |
| % Pool: 30 | % RiM | le: 50 | % Run: | 20 | % Othe | | Method: | GE | | | | | | | Large cobble (128-25) | | 0 |
| % Side Channel: | | 0 | | ide Channe | | GE | | | | | | | | | Boulder cobble (>256 | mm): | U |
| % Debris Area: | | 0 | Method I | ebris Area | : | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | | | D90 (cm): | 8 | Compaction: | | High |
| Cover Total % : | | 60 | Method C | Cover Total | % ; | GE | | | | | | | Banks | | | | |
| Dp Pool: 30 L. | .O.D.: | 0 | Bouider: | 20 | In Veg.: | 0 | Over Veg: | 20 | Cutba | nk: | | 30 | Dunas | | | | |
| Crown Closure %: | | | Method (| Crown Close | ire: | | Aspect: | NE | Metho | d Aspect: | | ΑE | lleight (m): | 1.0 | % Unstable: | | 0 |
| · · · · · · · · · · · · · · · · · · · | | | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes La | rges: No Bedro | ck: No |
| Discharge | | | | | | | | Si | ecific Da | uta | | | Confinement: | 4 | | | |
| Wetted Width (m) : | | | Mathod W | etted Width | · /m·) · | | 1 | J. | , | | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | | ean Depth (| • | | i | | | | | - [1 | Stage: | Ĺ | | | |
| 1 ' ' ' | _ | | | ean Deptit (ean Velocit | • | vo | | | | | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s): | i | 0.06 | | scharge (m. | • | VO | | | | | | 1 | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.00 | MICTION D | Scharge (m. |); | | <u> </u> | | <u></u> | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbo | ol | | | | | | | | | | | | pH: | 7.9 | Method pll: | | PH |
| | | | | | | (Fish) | | | | | | | 02 (քթա)։ | | Method Dissolved Ox | ygen: | |
| | | | | | | NF | | | | | | | Water Temp. (°C): | 3.0 | Method Temperature | :: | TC |
| | | | | | 2 A 4 | .0 127 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| 1 | | | (Wide | th, Valley: (| hannel, Slop | e) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity | : | |
| L | | | | | | | | | | | | | L | | | | |

Watershed Code:

Stream Survey Report

2"-Mar-9"

Stream: STARR C. TRIBUTARY

460-6006-508-722-503-ST -32.-1 -000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| (| 21 | Electrofished 85 m length of stream, 1 pass with no lower net. No fish were caught. No fish access due to very steep, impassable section d/s in R2 of St32. |
|---|----|--|
| (| C2 | Nice, low gradient channel through meadow at sample site. The creek is small and stable with sections of excellent DV resident spawning. <0.3 in high drops are present in this section. |
| (| 23 | Off-channel alcoves and seepage pond areas could not be surveyed due to 3 - 4 cm ice covering them. |
| • | C4 | Lat/Lon of helicopter landing site: 54 24.25 127 29.17 |

2^-Mar-9

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|---------------------|---------|-------------------|---------------------------------|-----------------|-------------|---------|------------|----------|------------|---|----------------------|---------|--------------------------|---------------|----------|
| Stream Name: | STARR | C. TRIE | UTARY | | Stream "Lo | ocal": | EAST | FORK S | TARR C. | (ST33) | | | Access: | | н |
| Watershed Code: | 460-600 | 5-50 8-7 2 | 22-519-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 2.2 Method: | : MW |
| Location: | ~1500 m | U/S FR | ОМ МОСТН. | | Map#: | 093L043 | 3 | | | | Site No.: | 1 | Length surveyed (m): | 700.0 Method: | : HC |
| | | | | | U.T.M. : | 9.5990 | .60310 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/7/96 | Time | : 10:0 | Agency: C58 Sur | v ey Cre | w: SS\ \ \ | 1 1 1 1 | . 1 | | | | Photos: | B7/8, 9 | Air Photos: | BC 7 | 7326:140 |
| Channel Ch | aracte | ristic | S | | | | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 13.1 | Method Av. Chan. Width (m): | T | 12.4 | 14.4 | 14.0 | 8.4 | 18.7 | 10.5 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 9 .7 | Method Av. Wet. Width (m): | T | 11.4 | 5.4 | 12.2 | | | | % Gravels: | 15 | Small (2-16mm); | | |
| Av. Max. Rif. Depth | | 17 | Av. Max. Riffle Depth (cm): | MS . | | | | | | } | | | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 50 | Av. Max. Pool Depth (cm): | 17 | } | | | | | 1 | % Larges: | 80 | Small cobble (64-128mm): | | |
| Gradient (%): | | 6.0 | Method Gradient: | CL | | | | | | | 70 Larges. | 00 | Large cobble (128-256mm) | | |
| % Pool: 25 | % Riff | e: 70 | % Run: 5 % Other: | | Method: | GE | | | | | | | Boulder cobble (>256mm): | | |
| % Side Channel: | | | Method Side Channel: | GE | | | | | | | | | • | | |
| % Debris Area: | 10 | | Method Debris Area: | GE | | | | _ | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 65 | Compaction: | | High |
| Cover Total %: | | 45 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 35 L | .O.D.: | 5 | Boulder: 55 In Veg.: | 0 | Over Veg: | 5 | Cutba | nk: | | 0 | 1 | | | | |
| Crown Closure %: | | 0 | Method Crown Closure: | GE | Aspect: | SE | Metho | d Aspect | : : | AE | Height (m): | 0.9 | % Unstable: | | 20 |
| | | | | | | | | | | | Textures Fines: | No | Gravel: Yes Larges: | No Bedrock: | : No |
| Discharge | | | | | <u> </u> | c | pecific Da | •- | | | Confinement: | 2 | | | |
| Ŭ | | | 8.4 of A89/ or 189/7.40 () | | į | إد | pecyn Du | ru | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | 110 | | | | | | | Flood Signs 14t(m): | 0.6 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.30 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s): | | 0.30 | Method Discharge (m3/s): | | | | | | | . <u>. </u> | Bars (%): | 30 | Method Bars: | | GE |
| Reach Symb | al | | | | _ | | | | | | pti: | 8.2 | Method pli: | | PH |
| Leach Sym | vi | | • | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | : | |
| | | | 8 | TDV | | | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | TC |
| | | | 13 A 6.0 | 1180 |) | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| } | | | (Width, Valley: Channel, Slope) | (Bed | d Material) | | | | | | Coud. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

- C1 No fish were observed in R1; observed 1 suspected BT redd 1700 m u/s from the mouth in R1 (Photo B7/10).
- C2 An eroding bank 20 m x 30 m is present at the site.
- C3 Unembedded cobbles along the margins provide good juvenile rearing habitat. Shallow gravel and sidechannel areas provide good fry/juvenile habitat.
- C4 See table in report outlining unmapped seepages in R1.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | |
|--|----------|---------|---|----------------------|---------|----------------|---------------|----------------------|-------|------------------------|-----------------|----------|
| Stream Name: | STARR | C. TRI | BUTARY | Stream "1 | Local": | EAST FORK ST | ARR C. (ST33) | | | Access: | | 11 |
| Watershed Code: | 460-600 | 6-508-7 | 22-519-000-000-000-000-000-000 | | | | | Reach No.: | 2 | Reach Length (km): | 2.2 Method: | : MW |
| Location: | | U/S FR | OM REACH <mark>BREAK, SURVEYED ALL</mark> O | F Map#: | 093L04 | 3 | | Site No.: | 2 | Length surveyed (m): | 2200.0 Method: | : нс |
| | R2. | | | U.T.M. ; | 9.5990 | .60310 | | Fish Card: | Y | Field: Yes | Historical: | No |
| Date: 10/7/96 | Tim | : 12: | 5 Agency: C58 Survey | Crew: JH\SS\ | 1111 | 1.1 | | Photos: | B7/15 | Air Photos: | BC 7 | 7326:140 |
| Channel Ch | aracte | risti | cs | 1 | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m |): | 7.0 | ` · | F 8.1 | 8.2 | 5.0 7.4 | 6.1 6.9 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 6.9 | ` ' | T 8.1 | 8.2 | 5.0 6.4 | | % Gravels: | 25 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | | 12 | . , , | - 1 | | | | | | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 35 | • • • | 2 | | | | % Larges: | 70 | Small cobble (64-128mm | n: | |
| Gradient (%): | #/ TD:00 | 2.0 | - | L O Method | | | | | | Large cobble (128-256m | | |
| % Pool: 10 | % Riff | e: 90 | | | : GE | | | | | Boulder cobble (>256mm | - | |
| % Side Channel: | • | | | | | | | e/ Dad-salu | 0 | · | • | 0 |
| % Debris Area: | 5 | | Method Debris Area: G | <u> </u> | | | | % Bedrock: | 0 | % Bedrock: | | U |
| Cover | | | | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total %: | | 35 | Method Cover Total %: G | E | | | | Banks | | | | |
| Dp Pool: 10 1 | O.D.: | 5 | Boulder: 50 In Veg.: | Over Veg | : 25 | Cutbank: | 10 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | Aspect : | SE | Method Aspect: | AE | Height (m): | 0.6 | % Unstable: | | 15 |
| | | | | | | | | Textures Fines: | No | Gravel: Yes Large | s: Yes Bedrock: | : No |
| Discharge | | | | | c | pecific Data | i | Confinement: | 4 | | | |
| | | | North and Market of Wildelph (and) | | | pecyc Daia | | Valley: Chan. Ratio: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | Stage: | М | | | |
| Mean Depth (m): | _ | | Method Mean Depth (m): Method Mean Velocity (m/s V | . | | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s) Discharge (m3/s): | : | 0.30 | Method Discharge (m3/s): | J | | | | Braided: | Y | Method Braided: | | GE |
| Discusige (m5/s): | | 0.30 | Memod Discharge (m3/s). | | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | pH: | 7.6 | Method pl1: | | PH |
| | | | (Fish | | | | | 02 (ppm): | | Method Dissolved Oxyg | en: | |
| | | | BT+ D | V* | | | | Water Temp. (°C): | 6.5 | Method Temperature: | | TC |
| | | | 7 C 2.0 | 1270 | | | | Turb. (cm): | | Method Turbidity: | | |
| | | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

Stream: STARR C. TRIBUTARY 2"-Mar-9"

Stream Survey Report Watershed Code:

Obstructions

460-6006-508-722-519-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------------|------------------|
| BT | | | F | R | | VO |
| DV | 1 | | F | R | | vo |
| BT | : | | j | R | · · | vo |
| DV | | | J | R | | vo |
| DV | 3 | 130 - 170 | À | S | | vo |

- C1 Several BT/DV fry and juveniles were observed in R2 along cobble margin areas.
- C2 DV redds were observed in R2: 4 redds ~1100 u/s in R2 (with 3 DV's 130 - 170 inm long on the redds); suspected DV redds ~1500 m u/s in R2.
- C3 BT redds were observed in R2: suspected BT redd ~100 m u/s in R2; 2 redds ~500 m u/s in R2; 1 redd ~700 m u/s in R2 (Photo B7/16); suspected BT redd ~1400 m u/s in R2.
- Eroding banks were observed in R2 and R3: 20 m x 15 m eroding bank ~100 m u/s from ESt7 confluence; 20 m x 17 m eroding bank 200 m u/s from ESt7 confluence; 20 m x C4 10 m eroding bank ~40 m u/s from ESt8 confluence. (Not inapped)
- C5 See table in report outlining unmapped seepages in R2.

27-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-000-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | | | | | |
|---------------------|-----------|-------|---------------------------------|------------|--------------|------------------|------------|------------|-------|-----------------|----------------------|------|------------------------|----------------|-------------------|
| Stream Name: | STARR C. | TRIE | UTARY | | Stream "Lo | cal": | EAST | FORK ST | ARR C | . (ST33) | | | Access: | | н |
| Watershed Code: | 460-6006- | 08-7 | 22-519-000-000-000-000-000-000 | | | | | | | | Reach No.: | 3 | Reach Length (km): | 2.5 Method | : MW |
| Location: | | | OM REACH BREAK, ~150 m D/S FRO | M C | Map #: | 0 93L04 3 | l | | | | Site No.: | 3 | Length surveyed (m): | 2500.0 Method | : нс |
| | EST9 CON | FLUI | ENCE. | | U.T.M.: | 9.5990 | .60310 | | | | Fish Card: | Y | Field: Yes | Historical: | No |
| Date: 10/7/96 | Time: | 17:1: | Agency: C58 Sur | vey Cre | ew: JH\SS\ \ | 111 | 1.1 | | | | Photos: | B8/I | Air Photos: | BC 1 | 7 326 :083 |
| Channel Ch | aracteri | stic | s | | | | Specific L | Data | | | Bed Material | | | | |
| Av. Chan. Width (m |): | 4.1 | Method Av. Chan. Width (m): | T | 3.8 | 3.9 | 4.6 | 4.4 | 4.1 | 3.5 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 4.1 | Method Av. Wet. Width (m): | T | 3.8 | 3.9 | 4.6 | 4.4 | 4.1 | 3.5 | | - | | | , |
| Av. Max. Rif. Depth | (cm): | 25 | Av. Max. Riffle Depth (cm): | MS | | | | | | | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Pool Depth | (cm): | 40 | Av. Max. Pool Depth (cm): | 25 | | | | | | | | | Large (16-64mm): | | |
| Gradient (%): | | 4.0 | Method Gradient: | CL | 1 | | | • | | | % Larges: | 70 | Small cobble (64-128mm |): | |
| % Pool: 35 | % Riffle: | 65 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256m | m): | |
| % Side Channel; | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm | 1): | |
| % Debris Area: | (| -10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 5 | % Bedrock: | | 5 |
| Cover | | | | | | | | | | | D90 (cm): | 26 | Compaction: | | High |
| Cover Total % : | | 35 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 30 l | O.D.: | 5 | Boulder: 40 In Veg.: | 0 | Over Veg: | 15 | Cutba | nk: | | 10 | Dunns | | | | |
| Crown Closure % : | | 10 | Method Crown Closure: | GE | Aspect : | SE | Meth | od Aspect: | | AE | Height (m): | 0.4 | % Unstable: | | 10 |
| | | | | | | | | | | | Textures Fines: | No | Gravel: No Large | s: Yes Bedrock | : No |
| Discharge | | | | | ! | | | | | | Confinement: | ŀ | | | |
| J | | | N. J. 1931 1932 | | | Sį | ecific D | ara | | i | Valley: Chan. Ratio: | ì | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | V.O | | | | | | ļ | Flood Signs Ht(m): | 0.25 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | 30 | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | .20 | Method Discharge (m3/s): | | | | | <u>.</u> | | <u>.</u> . | Bars (%): | 5 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 8.0 | Method pH: | | PH |
| | | | | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyg | en: | |
| | | | BT E | DV (DV | *) | | | | | | Water Temp. (°C): | 5.5 | Method Temperature: | | IC |
| ļ | | | 4 A 4.0 | 127 | I | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) |) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 8 | С | 0.3 |
| 3 ! | F | 0.3 |
| 5 | F | 0.3 |
| 4 | С | 1.0 |
| 2 | F | 1.2 |

- The 4.5 m high falls 300 m w/s in R3 is impassable and DV/BT are present below (Photo B7/24). The 4.0 m high chute 950 m w/s in R3 inay be impassable (Photo B8/11); BT were present above but are assumed to be residents (BT caught at In4). Suspected DV spawners were observed between these two sets of falls (~190 in w/s from ESt 8 confluence) and are assumed to be residents.
- C2 ~600 m w/s in R3 a series of chutes are present; passable to fish (Photo B8/6). Above the ESt12 confluence, the gradient decreases and good spawning gravels are present. ~130 in u/s from the ESt13 confluence, the mainstem becomes unconfined/braided due to the ~50 m wide unstable fan at the mouth of ESt14. The gradient increases to ~16% 575 in u/s from ESt13 confluence, and 25 m further u/s is a 2 m high chute; this marks the end of fish use and the reach break (Photo B8/19). In R4, the gradient is continuously steep (~18%) and ~200 in u/s in R4 ~10 m chute is present (Photo B8/20, 21).
- C3 See table in report outlining unmapped seepages in R3

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-124-000-000-000-000-000-000

| Header Infor | rmation | ! | | | | | | | | | | | | | |
|-----------------------|------------|-------|--|---------|-------------|----------|-----------|----------|-----|-----|-----------------------------|----------|-------------------------------------|--------------|----------|
| Stream Name: | STARR C. | TRIB | UTARY | | Stream "L | ocal": | EStl | | | | | | Access: | | Н |
| Watershed Code: | 460-6006-5 | 08-72 | 2-519-124-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.3 Method: | MW |
| Location: | | | OM THE MOUTH, NEAR OLD MIN | ING | Map #: | 093L043 | | | | | Site No.: | 1 | - ' ' | 00.0 Method: | HC |
| | ROAD CR | OSSIN | NG. | | U.T.M. : | 9.5986 | .60320 | | | | Fish Card: | N | Field: Yes | listorical: | No |
| Date: 10/3/96 | Time: | 15:45 | Agency: C58 Sur | vey Cre | :w: CP\DB \ | 1111 | ١ ١ | | | | Photos: | A10/8, 9 | Air Photos: | BC 73 | 326:140 |
| Channel Cha | aracteri | stic | s | | | S | pecific D | ala | - | | Bed Material | | | | |
| Av. Chan. Width (m) |): | 2.5 | Method Av. Chan. Width (m): | τ | 3.6 | 2.1 | 2.4 | 2.6 | 2.3 | 1.7 | % Fines (<2mm): | 0 | % Fines (<2mm): | | 0 |
| Av. Wet. Width (m): | | 2.0 | Method Av. Wet. Width (m): | τ | 2.2 | 1.3 | 2.4 | 2.6 | 1.7 | 1.7 | 1 | | ` ' | | |
| Av. Max. Rif. Depth (| (cm): | 20 | Av. Max. Riffle Depth (cm): | MS | | | | | | | % Gravels: | 30 | Small (2-16mm): | | 5 |
| Av. Max. Pool Depth | (cm): | 25 | Av. Max. Pool Depth (cm): | 20 | | | | | | | | | Large (16-64mm): | | 25 |
| Gradient (%): | | 11.0 | Method Gradient: | CL | ı | | | | | | % Larges: | 70 | Small cobble (64-128mm): | | 45 |
| % Pool: 15 | % Riffle: | 80 | % Run: 5 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm): | | 20 |
| % Side Channel: | C | -10 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | 5 |
| % Debris Area: | O |)-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 22 | Compaction: | | High |
| Cover Total %: | O.D.: | 80 | Method Cover Total %: Boulder: 65 In Veg.: | GE 0 | Over Veg: | 5 | Cutba | nk: | | 15 | Banks | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect : | sw | | d Aspect | | A | | | | | |
| | | | | | | | | a speed | | | rieight (m): | 0.6 | % Unstable: | | 5 |
| Discharge | | | | | | | | | | | Textures Fines: | No | Gravel: No Larges: Y | es Bedrock: | No |
| Dischurge | | | | | ļ | Sp | ecific Da | ta | | | Confinement: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Stage: | M | M. d. 189 - 169 | | |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s | VO | | | | | | | Flood Signs Ht(m): Braided: | 0.5 | Method Flood Signs: Method Braided: | | MS |
| Discharge (m3/s): | 0. | 10 | Method Discharge (m3/s): | | | | | | | | Bars (%): | N 20 | Method Braided: | | GE GE |
| Danah Curah | -1 | | | | | <u>.</u> | | | | | pH: | 20 | Method pH: | | OE |
| Reach Symbo | Ol | | (| Fish) | | | | | | | 02 (ppin): | | Method Dissolved Oxygen: | | |
| | | | | NF | | | | | | | Water Temp. (°C): | 4.4 | Method Temperature: | | TC |
| | | | 3 A 11.0 | 0370 | <u> </u> | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | 1 | i Material) | | | | | | Cond. (µmhos): | 58 | Method Conductivity: | | CM |
| | | | | 1 | ŕ | | | | | | | | | | |

2"-Mur-Q"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-124-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 4 | F | 0.4 |
| 3 | F | 0.5 |

| Cl | Electrofished 75 m length of stream, 1 pass with no lower net. No fish were caught. |
|----|--|
| C2 | Tributary is steep; a steep series of cascades are present in the lower 500 m of stream. Suspected fish use in the lower 400 m up to the 4 m high impassable falls; u/s of 400 m the creek is classed as S6 habitat. |
| C3 | A small tributary flows into ESt1 on river left just below the old mining road; creek is too steep to support fish. |
| C4 | Lat/Lon of helicopter landing site: 54 26.16 127 28.39 |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-322-000-000-000-000-000

| 77 1 7 | | | | | | | | | | | | | | | |
|---------------------|----------|------------------|---------------------------------|---------------|--------------|-----------------|------------|-----------|-----|-----|----------------------|----------|-------------------------|-------------|----------|
| Header Info | rmatio | n | | | | | | | | | | | | | |
| Stream Name: | STARR | C. TRI | BUTARY | | Stream "Lo | cal": | ESt2 | | | | | | Access: | | 11 |
| Watershed Code: | 460-600 | 6-5 08- 7 | 22-519-322-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.6 Meth | od: MW |
| Location: | ~100 m l | D/S FR | OM OLD MINING ROAD CROSSING. | | Map #: | 09 3L043 | | | | | Site No.: | 1 | Length surveyed (m): | 120.0 Meth | od: HC |
| | | | | | U.T.M.: | 9.5982 | .60334 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/3/96 | Time | e: 16:0 | O Agency: C58 Surv | ey Cro | ew: RD\SS\ | . 1 1 1 | 1 1 | | | | Photos: | B7/6, 7 | Air Photos: | ВС | 7326:140 |
| Channel Ch | aracte | risti | cs | | | S | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m) |): | 1.7 | Method Av. Chan. Width (m): | T | 1.5 | 1.6 | 1.9 | 1.8 | 1.5 | 1.8 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 1.7 | Method Av. Wet. Width (m): | T | 1.5 | 1.6 | 1.9 | 1.8 | 1.5 | 1.8 | 1 | _ | | | |
| Av. Max. Rif. Depth | (cm): | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | | % Gravels: | 40 | Small (2-16mm): | | 10 |
| Av. Max. Pool Depth | | 21 | Av. Max. Pool Depth (cm): | 8 | | | | | | | | | Large (16-64mm): | | 30 |
| Gradient (%): | | 11.0 | Method Gradient: | CL | 1 | | | | | | % Larges: | 55 | Small cobble (64-128mm) | : | 30 |
| % Pool: 15 | % RiM | e: 85 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256m) | n): | 25 |
| % Side Channel: | | | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |): . | 0 |
| % Debris Area: | | 0 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 17 | Compaction: | | Medium |
| Cover Total % : | | 80 | Method Cover Total %: | GE | | | | | | | Pauls. | | | | |
| | O.D.: | 0 | Boulder: 75 In Veg.: | 0 | Over Veg: | 10 | Cutba | nk: | | 5 | Banks | | | | |
| Crown Closure %: | | · | Method Crown Closure: | • | Aspect : | sw | | d Aspect: | | AE | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | | • | | | Textures Fines: | Yes | Gravel: Yes Large: | : No Bedro | |
| Disaharaa | | | | | | | | | | ** | Confinement: | 3 | Gravei: 1es Large: | i No Beure | CK. 165 |
| Discharge | | | | | | Sp | pecific Da | ıta | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | L. | | | |
| Mean Depth (m) : | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | | Method Mean Velocity (m/s | vo | | | | | | | Braided: | 0.2 N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.06 | Method Discharge (m3/s): | | | | | | | | | 0 | Method Bars: | | GE |
| | | | | | | | | | | | Bars (%): | 7.7 | | | PH |
| Reach Symb | ool | | (F | ish) | | | | | | | pH: | 1.1 | Method pH: | | 1.11 |
| | | | • | NF | | | | | | | 02 (ppm): | | Method Dissolved Oxygo | | 17.1 |
| | | | | т — | ** | | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | TC GE |
| | | | 2 A 11.0 | 145 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | ed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 3 | F | 0.3 |

| Cl | Electrofished 65 m length of stream, I pass with no lower net. No fish were caught or observed. |
|------------|---|
| C2 | -0.8 m high drops over debris are present within the site. At the bottom of the shock site, -2.5 m high bedrock falls is present (Photo B7/4): the endpoint of potential fish access. At this point and d/s, the creek is very confined within steep sideslopes ~10 -15 m high. |
| C 3 | Poor fish habitat in this creek with an average gradient of 11%; not accessible to fry due to the 15% gradient at the mouth. |
| C4 | Lat/Lon of helicopter landing site: 54 26.46 127 28.99 |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-EST-3.1-000-000-000-000

| Header Infor | mation | ı | | | | | | | | | | | | | | _ |
|------------------------|------------|--------|-----------------------|----------------|----------|-------------|-----------------|------------|-----------|-----|-----|--|-----------|-------------------------|---------------|---------|
| Stream Name: | STARR C | . TRIE | UTARY | | | Stream "Lo | ocal": | ESt3.1 | | | | | | Access: | | H |
| Watershed Code: | 460-6006- | 508-7 | 22-519-EST-3.1-000-00 | 0-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.8 Method: | MW |
| | | | IBUTARY ENTERS E | | | Map #: | 093 L043 | 1 | | | | Site No.: | 1 | Length surveyed (m): | 775.0 Method: | HC |
| | R1, SITE I | LOCA | TED ~300 m U/S FRO | M EST3.1 MOU | JTH. | U.T.M. : | 9.5979 | .60338 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/7/96 | Time: | 13:0 | Agency: | C58 Sur | rvey Cre | w: JH\SS\ | 111 | ١١ | | | | Photos: | B7/17, 18 | Air Photos: | BC 73 | 326:140 |
| Channel Cha | racter | istic | es . | | | | S | Specific D | ata | |] | Bed Material | | | | |
| Av. Chan. Width (m): | | 1.5 | Method Av. Chan. V | Vidth (m): | T | 2.2 | 2.3 | 1.8 | 0.6 | 1.0 | 1.3 | % Fines (<2mm): | 95 | % Fines (<2mm): | | 95 |
| Av. Wet. Width (m): | | 1.5 | Method Av. Wet. Wi | idth (m): | T | 2.2 | 2.3 | 1.8 | 0.6 | 1.0 | 1.3 | , , | | | | ,,, |
| Av. Max. Rif. Depth (c | m): | 9 | Av. Max. Riffle Dept | th (cm): | MS | | | | | | | % Gravels: | 5 | Small (2-16mm): | | |
| Av. Max. Pool Depth (| em): | 20 | Av. Max. Pool Depth | (cm): | 9 | | | | | | , | | | Large (16-64mm): | | |
| Gradient (%): | | 2.0 | Method Gradient: | | CL | ' | | | | | ' | % Larges: | 0 | Small cobble (64-128mm | | |
| % Pool: 15 | % Riffle: | 15 | % Run: 70 | % Other: | . 0 | Method: | GE | | | | | | | Large cobble (128-256mi | • | |
| % Side Channel: | | 0 | Method Side Channe | al: | GE | | | | | | | | | Boulder cobble (>256mm |); | |
| % Debris Area: | | 0-10 | Method Debris Area | : | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | O |
| Cover | | | | | | | | | | | | D90 (cm): | ı | Compaction: | | High |
| Cover Total % : | | 90 | Method Cover Total | % : | GE | | | | | | | Banks | | | _ | |
| Dp Pool: 0 L. |).D.: | 0 | Boulder: 0 | In Veg.: | 0 | Over Veg: | 80 | Cutba | nk: | | 20 | | | | | |
| Crown Closure % : | | 0 | Method Crown Clos | иге: | GE | Aspect: | sw | Metho | d Aspect: | | AE | Height (m): | 0.4 | % Unstable: | | 0 |
| | | | | | _ | | | _ | | | | Textures Fines: | Yes | Gravel: No Large | : No Bedrock: | No |
| Discharge | | | | | | | 5, | ecific Da | uta | | , | Confinement: | 5 | | | |
| Wetted Width (m): | | | Method Wetted Widtl | h () . | | ĺ | , | recijie Da | | | 1 | Valley: Chan. Ratio; | 4 | | | |
| Mean Depth (m): | | | Method Mean Depth | | | ļ | | | | | | Stage: | L | | | |
| Mean Velocity (m/s): | | | Method Mean Velocit | | vo | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s): | (| 0.01 | Method Discharge (m | - | *** | | | | | | | Braided: | N | Method Braided: | | GE |
| - (more) | ` | | | | | l | | | · · · · · | | ! | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbo | l | | | | | | | | | | | pH: | | Method pH: | | |
| | | | | · | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygo | en: | |
| | | | | | DV* | | | | | | | Water Temp. (°C): | 6.5 | Method Temperature: | | TC |
| | | | | 2 D 2.0 | 910 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: 0 | Channel, Slope |) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-EST-3.1-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | | 130 - 170 | A | S | | | vo |

Comments

- Seepage channel is low gradient for the entire length and easily accessible by fish. Multiple seepage sources at the base of ESt3 fan enter ESt3.1. Channel is parallel to the mainstem and <200 m away. Seepage source for ESt3.1 is at the base of Est5 fan, ~70 m away from the mainstem.
- The lower 200 m of ESt3 was ground surveyed: 5 DV spawners and 5 DV redds were observed in the lower 38 m of stream. At 172 m in R1, seepage inputs are present along the base of the slope of ESt3. Fish access is to 200 m u/s from the mouth, the base of the fan. Further u/s there is no defined channel and multiple seepage inputs are present. Gradient is steep in R2 of ESt3.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-EST-3 -000-000-000-000-000

| Header Infor | mation | | | | | | | | | | | | | | | |
|------------------------|-----------|------|-----------------------------|---------------|--------|-------------|-------------------|-----------|------------|-----|-----|----------------------|------------|-------------------------------------|---------------|----------|
| Stream Name: | STARR C. | TRIE | UTARY | | | Stream "L | ocai": | ESt3 | | | | | | Access: | | 14 |
| Watershed Code: | 460-6006- | 08-7 | 22-519-EST-3 -000-000-000-0 | 00-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.5 Method: | : MW |
| Location: | | | OM THE MOUTH, AT OLD M | SINING R | OAD | Map #: | 093 L.04 3 | | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | : HC |
| | CROSSING | J. | | | | U.T.M.: | 9.5979 | 60337 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/3/96 | Time: | 16:3 | O Agency: C58 | Surv | ey Cre | w: DB\CP\ | 1111 | ١١ | | | | Photos: | A10/10, 11 | Air Photos: | BC 7 | 7326:140 |
| Channel Cha | ıracteri | stic | es · | | | | S | pecific D |) Oata | | . | Bed Material | | | | |
| Av. Chan. Width (m): | : | 0.4 | Method Av. Chan. Width (1 | n): | T | 0.3 | 0.5 | 0.3 | 0.3 | 0.3 | 1.0 | % Fines (<2mm): | 20 | % Fines (<2mm): | | 20 |
| Av. Wet. Width (m): | | 0.4 | Method Av. Wet. Width (m |): | T | 0.3 | 0.5 | 0.3 | 0.3 | 0.3 | 1.0 | % Gravels: | 80 | | | |
| Av. Max. Rif. Depth (e | (cm): | 5 | Av. Max. Riffle Depth (cm) | : | MS | | | | | | | 7. Graveis: | 80 | Small (2-16mm): Large (16-64mm): | | 70 10 |
| Av. Max. Pool Depth (| (cm): | 20 | Av. Max. Pool Depth (cm): | | 5 | | | | | | | | | | | |
| Gradient (%): | | 16.0 | Method Gradient: | | CL | | | | | | · | % Larges: | 0 | Small cobble (64-128mm): | | 0 |
| % Pool: 25 | % RiMe: | | | Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | | 0 |
| % Side Channel: | | 0 | Method Side Channel: | | GE | | | | | | | | | Boulder cobble (>256mm) | : | 0 |
| % Debris Area: | (|)-10 | Method Debris Area: | | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | U |
| Cover | | | | | | _ | | | _ | | | D90 (cm): | 3 | Compaction: | | High |
| Cover Total % : | • | 100 | Method Cover Total %: | | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L. | .O.D.; | 0 | Boulder: 0 In | Veg.: | 20 | Over Veg: | 40 | Cutba | nk: | | 40 | | | | | |
| Crown Closure %: | | 0 | Method Crown Closure: | | GE | Aspect : | SW | Metho | od Aspect: | | AE | Height (m): | 0.1 | % Unstable: | | 0 |
| | | | | | | | _ | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | No |
| Discharge | | | | | | í I | Sn | ecific Da | nta | | | Confinement: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | Sp | ctyk Di | | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | | Stage: | М | | | |
| Mean Velocity (m/s): | | | Method Mean Velocity (m/s | | vo | | | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s): | | | Method Discharge (m3/s): | | •• | | | | | | | Braided: | N | Method Braided: | | GE |
| Bischarge (ms/s): | | | | | | <u> </u> | <u>.</u> | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbo | ol | | | 4=31 | | | | | | | | pH: | | Method pH: | | |
| | | | | • | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | ı; | |
| | | | | | VF | | | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | TC |
| | | | | A 16.0 | 2800 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channe | l, Slope) | (Bed | i Material) | | | | | | Cond. (µmhos): | 78 | Method Conductivity: | | CM |
| | | | | | | | | | | | | | | | | |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-EST-3 -000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Electrofished 55 m length of stream, 1 pass with no lower net. No fish were caught.
- C2 Small, steep creek; not fish habitat. Channel is narrow with several 0.5 m high drops. ESt3 is classed as S4 habitat for the lower 200 m of stream (to the base of the fan) and S6 habitat u/s for the remaining length of creek.
- C3 5 DV spawners and 5 DV redds were observed in the lower 38 m of ESt3. See ESt3.1 site card for comments on this lower section of creek.

27-Mar-97

Stream: STARR C. TRIBUTARY

the second secon

Watershed Code:

Stream Survey Report 460-6006-508-722-519-EST-4 -000-000-000-000-000

| Header Infor | mation | | | | | | | | | | |
|-----------------------|-------------|------------------------------------|--------------|---------|----------------|------------|----------------------|----------|-------------------------|---------------|---------|
| Stream Name: | STARR C. T | RIBUTARY | Stream "Lo | cal": | ESt4 | | | | Access: | | H |
| Watershed Code: | 460-6006-50 | 8-722-519-EST-4 -000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 1.0 Method: | MW |
| Location: | ~40 m U/S F | ROM THE MOUTH. | Map#: | 093L043 | | | Site No.: | 1 | Length surveyed (m): | 35.0 Method: | НC |
| | | | U.T.M. : | 9.5978 | .60338 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/7/96 | Time: | 4:00 Agency: C58 Survey C | rew: SS\ \ \ | 1 1 1 1 | \ | | Photos: | no photo | Air Photos: | BC 73 | 326:140 |
| Channel Cha | ıracteris | tics | | S | pecific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | | 2.8 Method Av. Chan. Width (m): T | 1.4 | 3.0 | 2.4 2.6 | 2.0 5.1 | % Fines (<2mm): | | % Fines (<2mm): | | |
| Av. Wet. Width (m): | | 0.0 Method Av. Wet. Width (m): GE | 1 | | | | % Gravels: | | Small (2-16mm): | | |
| Av. Max. Rif. Depth (| | 0 Av. Max. Riffle Depth (cm): GE | | | | | | | Large (16-64mm): | | |
| Av. Max. Pool Depth | | 0 Av. Max. Pool Depth (cm): 0 | 1 | | | | % Larges: | | | | |
| Gradient (%): | | 7.0 Method Gradient: CL | | | | | % Larges: | | Small cobble (64-128mm | | |
| % Pool: 0 | % Riffle: | 0 % Run: 0 % Other: 0 | Method: | GE | | | | | Large cobble (128-256m) | • | |
| % Side Channel: | | 0 Method Side Channel: GE | | | | | } | | Boulder cobble (>256mm |); | |
| % Debris Area: | 0- | 10 Method Debris Area: GE | | | | | % Bedrock: | | % Bedrock: | | |
| Cover | | | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total %: | | Method Cover Total %: | | | | | Banks | | | | |
| Dp Pool: L. | O.D.: | Boulder: In Veg.: | Over Veg: | | Cutbank: | |] | | | | |
| Crown Closure %: | | Method Crown Closure: | Aspect: | NE | Method Aspect: | AE | Height (m): | | % Unstable: | | |
| | | | | | | | Textures Fines: | No | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | 1 | ç. | ecific Data | | Confinement: | | | | |
| Want Wide (> | | Marked Wassed Wildski () | | Sp | ecyn Dana | | Valley: Chan. Ratio: | | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | į | Stage: | Dry | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s): | 0.0 | Method Mean Velocity (m/s VO | | | | | Braided: | | Method Braided: | | |
| Discharge (m3/s) : | | 0 Method Discharge (m3/s) : | ! | | | , <u>.</u> | Bars (%): | | Method Bars: | | |
| Reach Symbo | ol | | | | | | pH: | | Method pli: | | |
| | | (Fish) | | | | | 02 (ppm): | | Method Dissolved Oxyge | n: | |
| | | NS | | | | | Water Temp. (°C): | | Method Temperature: | | |
| | | 3 17.0 | | | | | Turb. (cm): | | Method Turbidity: | | |
| | | (Width, Valley: Channel, Slope) (B | d Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |
| | | | | | | | | | | | |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-EST-4 -000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 Channel is intermittent and no surface water is observed. Bare rock stream bed, cobble substrate, scour pools, and cutbank edges indicate that channel is seasonally-wetted.
- C2 Gradient is 24% at the mouth of the tributary which then decreases to 11 15% for 15 m. The gradient is 20% and continuous u/s. No fish access; ESt4 is classed as S6 habitat.

2^-Mar-9

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-467-000-000-000-000-000

| Header Info | rmatia | าท | | | | | | | | | | | | | |
|--|---------|-------------|--|---------|-------------|------------------|---------------|-----------|-----|-----|----------------------|------------|--------------------------|---------------|-----------|
| Stream Name: | | | BUTARY | | Stream "Le | ocel": | ESt5 | | | | | | Access: | | и |
| Watershed Code: | - | | 22-519-467-000-000-000-000-000-000 | | Stream L | JCMI . | LSU | | | | Reach No.: | , | Reach Length (km): | 0.3 Method: | H : MW |
| Location: | | | D AT OLD MINING ROAD, ~200 m U/ | s | Мар#: | 093 L04 3 | 1 | | | | Site No.: | , | Length surveyed (m): | 100.0 Method: | |
| Location. | FROM | | | • | U.T.M.: | 9.5977 | | | | | Fish Card: | N | Field: Yes | Historical: | . No |
| Date: 10/4/96 | Tim | e: 17:0 | O Agency: C58 Surv | ey Cre | w: DB\CP\ | | | | | | Photos: | A10/12, 13 | Air Photos: | | 7326:083 |
| Channel Ch | aracte | risti | es | | | | C: <i>G</i> F | | | | Bed Material | | | | |
| | | | | _ | | | Specific L | | | | | | | | |
| Av. Chan. Width (m) | : | 4.1 | Method Av. Chan. Width (m): | T | 5.0 | 4.5 | 4.6 | 4.3 | 4.2 | 2.1 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 1.0 | Method Av. Wet. Width (m): | T | 0.8 | 0.7 | 0.9 | 1.7 | 1.2 | 0.9 | % Gravels: | 30 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth | • • | 8 | Av. Max. Riffle Depth (cm): | MS | | | | | | | | | Large (16-64mm): | | 20 |
| Av. Max. Pool Depth | (cm): | 15 | Av. Max. Pool Depth (cm): | 8 CL | | | | | | } | % Larges: | 65 | Small cobble (64-128mm): | | 40 |
| Gradient (%): % Pool: 15 | % Riff | 14.0 | Method Gradient: % Run: 5 % Other: | 0 | Method: | CF | | | | | , s sanges | - | Large cobble (128-256mm | | 25 |
| % Pool: 13 % Side Channel: | 76 KIII | ne: 80 0 | Method Side Channel: | GE | Method: | GE | | | | | | | Boulder cobble (>256mm) | • | 0 |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | • | | 0 |
| 76 Debris Area: | | 0-10 | Michiga Debits Area: | OE . | | | | | | | | U | % Bedrock: | | |
| Cover | | | | | | | | | | | D90 (cm): | 18 | Compaction: | | High |
| Cover Total % : | | 80 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 5 L | .O.D.: | 0 | Boulder: 85 In Veg.: | 0 | Over Veg: | 5 | Cutbs | nk: | | 5 | | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect : | sw | Metho | d Aspect: | : | AE | Height (m); | 0.8 | % linstable: | | 20 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | Yes Bedrock: | : No |
| Discharge | | | | | | . 6 | pecific De | nta. | - | | Confinement: | 3 | | | |
| W-44-4 Widek (> . | | | Mathed Wated Width (-) | | į. | J | pergic Di | | | į | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): Method Mean Depth (m): | | | | | | | ļ | Stage: | М | | | |
| Mean Depth (m): Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | • | 0.06 | Method Discharge (m3/s): | 10 | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m5/s) . | | 0,00 | Memod Discharge (m3/s) . | | | | | | | . j | Bars (%): | 60 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | | Method pH: | | |
| | • | | • | ish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxyger | ı: | |
| | | | | NF _ | | | | | | | Water Temp. (°C): | 4.2 | Method Temperature: | | IC |
| | | | 4 B 14.0 | 1360 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bec | d Material) | | | | | | Cond. (µmhos): | 88 | Method Conductivity: | | CM |

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-467-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 3 | F | 0.0 |

| Cl | Electrofished 65 m length of stream, I pass with no lower net. No fish were caught. |
|----|---|
| C2 | The creek enters a gully and steepens w/s. At the creek mouth, ~2.5 m high falls are present; impassable by fish. ESt5 is classed as S5 habitat in the lower 550 m of stream and S6 habitat w/s of 550 m. |
| C3 | Several unstable banks were noted u/s from the sample site. Fine red silt is stirred up and clouds the creek when disturbed. |
| C4 | Lat/Lon of helicopter landing site: 54 27.14 127 29.70 |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-EST-6 -000-000-000-000-000

| Header Info | rmation | 1 | - | | - | | | | | | - | | | _ | |
|---------------------|-----------|--------|------------------------------------|--------|-------------|---------|-----------|-----------|-----|-----|----------------------|-------|-------------------------|---------------|----------|
| Stream Name: | STARR C. | TRIB | UTARY | | Stream "L | ocal"; | ES16 | | | | | | Access: | | Н |
| Watershed Code: | 460-6006- | 508-72 | 22-519-EST-6 -000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.5 Method: | : MW |
| Location: | SITE LOC | ATED | ~95 m U/S FROM MOUTH/BRAIDI | ED | Map#: | 093L043 | 3 | | | | Site No.: | ı | Length surveyed (m): | 250.0 Method | : HC |
| | FAN. | | | | U.T.M.; | 9.5977 | .60346 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/7/96 | Time: | 15:1: | 5 Agency: C58 Sui | vey Cr | ew: JH\ \ \ | 1111 | ١. ١ | | | | Photos: | B7/20 | Air Photos: | BC 7 | 7326:083 |
| Channel Ch | aracteri | stic | es . | | İ | | Specific | Data | | | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.9 | Method Av. Chan. Width (m): | T | 1.3 | 1.5 | 1.4 | 3.0 | 1.7 | 2.8 | % Fines (<2mm): | 15 | % Fines (<2mm): | | 15 |
| Av. Wet. Width (m): | | 1.2 | Method Av. Wet. Width (m): | T | 1.2 | 1.3 | 1.2 | | | | % Gravels: | 75 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 9 | Av. Max. Riffle Depth (cm): | MS | | | | | | ļ | 7. Graveis. | ,, | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 17 | Av. Max. Pool Depth (cm): | 9 | | | | | | | | | | | |
| Gradient (%): | | 5.0 | Method Gradient: | Cl. | ` | | | | | | % Larges: | 10 | Small cobble (64-128mm | | |
| % Pool: 20 | % Riffle: | 30 | % Run: 50 % Other: | | Method: | GE | | | | | | | Large cobble (128-256m) | • | |
| % Side Channel: | | | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |): | |
| % Debris Area: | 5 | | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | _ | | | | | | | | | D90 (cm): | 4 | Compaction: | | High |
| Cover Total % : | | 75 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L | .O.D.: | 0 | Boulder: 0 in Veg.: | 0 | Over Veg: | 90 | Cutb | ank: | | 10 | Dunks | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect : | E | Meth | od Aspect | : | AE | Height (m): | 0.5 | % Unstable: | | 5 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Large | : No Bedrock: | : No |
| Discharge | | | | | : | c. | pecific D | 4- | | | Confinement: | 2 | | | |
| | | | M. al. (1997) as (1997) 1-4 (1997) | | | J | pecijic D | uia | | | Valley: Chan. Ratio: | ı | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | | | Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s) : | | .01 | Method Discharge (m3/s): | | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | οl | | | | | | | | | | pH: | | Method pH: | | |
| Sylleo | V. | | | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygo | n: | |
| | | | | DV* | | | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | TC |
| ì | | | 2 A 5.0 | 181 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2~-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 5 | 140 - 160 | A | S | | | vo |

Obstructions

| Obstruction | Ht(m) | Туре | Location |
|-------------|-------|------|----------|
| | 1 | X | 0.2 |

- Adult DV observed at the mouth and 94 in u/s from the creek mouth. DV redds observed at 94 m from the mouth; low gradient section. Assume DV spawning is occurring or just occurred in the lower 145 m of stream.
- C2 -181 m u/s from the mouth, 0.7 m high drop over a debris jam is present. -250 m u/s from the mouth, the channel becomes entrenched and channel width decreases from S3 to S4 classification.
- C3 Fish distribution is up to the top of R1, ~500 m u/s from the mouth. R2 is too small and steep to support fish.

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-500-000-000-000-000-000

| Header Info | rmatio | 1 | - | | | | | | | | | | _ | | |
|---------------------|----------|------------------|---------------------------------|---------|---------------|------------------|------------|-----------|-----------|----|----------------------|------|---|--------------|----------|
| Stream Name: | STARR C | . TRIB | UTARY | | Stream "L | ocal": | ESt7 | | | | | | Access: | | н |
| Watershed Code: | 460-6006 | -50 8- 72 | 2-519-500-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km); | 0.3 Method | : MW |
| Location: | SITE LOC | CATED | ~100 m U/S FROM MOUTH. | | Map #: | 093 L04 2 | 3 | | | | Site No.: | 1 | Length surveyed (m): | 110.0 Method | : HC |
| | | | | | U.T.M. : | 9.5975 | .60347 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/3/96 | Time: | 10:30 | Agency: C58 Sur | vey Cre | ew: RD\\$\$ \ | 1 1 1 1 | . 1-1 | | | | Photos: | B6/4 | Air Photos: | BC 3 | 7326:083 |
| Channel Ch | aracter | istic | s | | İ | | Specific L | ata | · · · · · | | Bed Material | | | | |
| Av. Chan. Width (rn | : | 3.8 | Method Av. Chan. Width (m): | T | 3.2 | 3.4 | 4.1 | 3.9 | 4.5 | | % Fines (<2mm): | 0 | % Fines (<2mm): | | U |
| Av. Wet. Width (m): | | 1.4 | Method Av. Wet. Width (m): | T | 1.3 | 1.6 | 1.2 | | | | % Gravels: | 5 | Small (2-16mm): | | 0 |
| Av. Max. Rif. Depth | (ст): | 7 | Av. Max. Riffle Depth (cm): | MS | | | | | | | | _ | Large (16-64mm): | | 5 |
| Av. Max. Pool Depti | (cm): | 21 | Av. Max. Pool Depth (cm): | 7 | | | | | | | | 0.5 | - | | |
| Gradient (%): | | 10.0 | Method Gradient: | CL | | | | | | | % Larges: | 95 | Small cobble (64-128mm): Large cobble (128-256mm | ٠. | 15 50 |
| % Pool: 15 | % Riffle | | % Run: 5 % Other: | 0 | Method: | GE | | | | | | | Boulder cobble (>256mm) | | 30 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | | | |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | _ | | | | | | | D90 (cm): | 28 | Compaction: | | Medium |
| Cover Total %: | | 80 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 I | .O.D.: | 0 | Boulder: 90 In Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 0 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect: | sw | Metho | d Aspect: | : | AE | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock | : No |
| Discharge | | | | | i | | :G- D | | | | Confinement: | 2 | - | | |
| | | | | | İ | اد | pecific De | ua | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | 0.08 | Method Discharge (m3/s): | | | | | | | | Bars (%): | 60 | Method Bars: | | GE |
| Reach Syml | ol | | | | | | | | | | pH: | 8.2 | Method pH: | | PH |
| Jaca Synto | ~. | | · | Fish) | | | | | | | 02 (թրա)։ | | Method Dissolved Oxygen | : | |
| | | | | NF | | | | | | | Water Temp. (°C): | 3.0 | Method Temperature: | | 1C |
| | | | 4 A 10.0 | 019 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Stream Survey Report
460-6006-508-722-519-500-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | Х | 0.0 |
| 3 | Ĉ | 0.1 |

Comments

C4

- Electrofished 80 m length of stream (30 m w/s from the mouth to 110 m), 1 pass with no lower net. No fish were caught or observed.

 C2

 0.5 m high drop over debris is located 5 m w/s from the mouth (Photo B7/22); inaccessible to fry. The gradient is 8% in the lower 50 m of stream; w/s it increases to 9 11% for another 50 m. U/S of 100 m, the creek is confined, and the gradient is 15% and continues to steepen. ~3 m high x 3 m long chute is located 110 m u/s from the mouth: impassable.

 C3

 Bed material consists of boulder/cobble; bedload depostion at the creek mouth was noted (Photo B7/21).
 - ESt7 is inapped as class S5/S6 habitat throughout; it should be noted that fish use in the lower 30 m of stream is possible during high flows.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-540-000-000-000-000-000-000

Header Information STARR C. TRIBUTARY Stream "Local": ES₁₈ Stream Name: Access: п Watershed Code: 460-6006-508-722-519-540-000-000-000-000-000 Reach No .: Reach Length (km): 0.2 Method: MW Location: SITE LOCATED ~10 in U/S FROM MOUTH. Map #: 093L043 Site No.: Length surveyed (m): 10.0 Method: GE U.T.M.: 9.5971 .60347 Fish Card: Field: Yes Historical: No Air Photos: Date: 10/7/96 Time: 17:30 Agency: C58 Survey Crew: JH\ \ \ \ \ \ \ Photos: B7/25 BC 7326:083 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 1.1 Method Av. Chan. Width (m): T 1.5 0.6 0.9 0.9 % Fines (<2mm): % Fines (<2mm): Av. Wet. Width (m): Method Av. Wet. Width (m): T % Gravels: Small (2-16mm): Av. Max. Riffle Depth (cm): Av. Max. Rif. Depth (cm): Large (16-64mm): Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): % Larges: Small cobble (64-128mm): CL Gradient (%): 18.0 Method Gradient: Large cobble (128-256mm): % Pool: % Other: 0 Method: GE % Riffle: 99 Boulder cobble (>256mm): GE % Side Channel: Method Side Channel: GE % Debris Area: 0-10 Method Debris Area: % Bedrock: % Bedrock: D90 (cm): Compaction: Medium Cover Cover Total %: Method Cover Total %: Banks Dp Pool: L.Q.D.: Boulder: In Veg.: Over Veg: Cutbank: Crown Closure %: Method Crown Closure: Aspect: Method Aspect: Height (m): % Unstable: Textures Fines: Larges: No Bedrock: Discharge Confinement: Specific Data Valley: Chan. Ratio: Wetted Width (m) : Method Wetted Width (m): Stage: Method Mean Depth (m): Mean Depth (m): Flood Signs Ht(m): Method Flood Signs: VO Mean Velocity (m/s): Method Mean Velocity (m/s Braided: Method Braided: Discharge (m3/s): 0.01 Method Discharge (m3/s): Bars (%): Method Bars: Reach Symbol pH: Method pH: (Fish) 02 (ppm): Method Dissolved Oxygen: NS Water Temp. (°C): Method Temperature: 18.0 Turb. (cm): Method Turbidity: (Width, Valley: Channel, Slope) | (Bed Material) Cond. (umhos): Method Conductivity:

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-540-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | С | 0.0 |

Comments

Cl

No fish habitat present in this creek; gradient is 18% from the mouth and 1.2 m high cascade is located at the mouth (Photo B7/25). Est8 is classed as S6 habitat throughout.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-587-000-000-000-000-000-000

Header Information STARR C. TRIBUTARY ESt9 Stream Name: Stream "Local": Н Access: Watershed Code: 460-6006-508-722-519-587-000-000-000-000-000 Reach No .: MW Reach Length (km): 0.2 Method: SITE LOCATED ~70 in U/S FROM MOUTH. 093L043 Location: Map #: Site No.: Length surveyed (m): 70.0 Method: HC U.T.M.: 9.5969 .60350 Fish Card: Field: Yes Historical: No Date: 10/8/96 Time: 12:30 Agency: C58 Survey Crew: JH\ \ \ \ \ \ \ Photos: B8/5 Air Photos: BC 7326:083 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 1.4 Method Av. Chan. Width (m): T 2.0 0.9 1.2 1.3 % Fines (<2mm): % Fines (<2mm): Av. Wet. Width (m): 1.4 Method Av. Wet. Width (m): T % Gravels: Small (2-16mm): Av. Max. Rif. Depth (cm): Av. Max. Riffle Depth (cm): Large (16-64mm): Av. Max. Pool Depth (cm): Ay, Max. Pool Depth (cm): % Larges: Small cobble (64-128mm): CL 23.0 Method Gradient: Gradient (%): Large cobble (128-256mm): % Pool: 25 % Riffle: 75 % Run: % Other: 0 Method: GE Boulder cobble (>256mm): % Side Channel: Method Side Channel: GE GE % Debris Area: Method Debris Area: % Bedrock: % Bedrock: D90 (cm): Compaction: Medium Cover Method Cover Total %: Cover Total %: Banks In Veg.: L.O.D.: Dp Pool: Boulder: Over Veg: Cutbank: Crown Closure %: Method Crown Closure: Aspect: SW Method Aspect: ΑE Height (m): % Unstable: **Textures Fines:** Gravel: No Larges: No Bedrock: Discharge Confinement: Specific Data Valley: Chan. Ratio: Wetted Width (m): Method Wetted Width (m): Stage: L Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): Method Flood Signs: Mean Velocity (m/s): Method Mean Velocity (m/s VO Braided: Method Braided: Discharge (m3/s): Method Discharge (m3/s): Bars (%): Method Bars: pH: Method pH: Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: NS Water Temp. (°C): Method Temperature: 23.0 Turb. (cm): Method Turbidity: (Width, Valley: Channel, Slope) (Bed Material) Cond. (umhos): Method Conductivity:

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-587-000-000-000-000-0000-000

Stream/Valley Cross-Section

Pianimetric View

Fish Summary

Obstructions

Comments

CI

Tributary is too steep to support fish or for fish access; ESt9 is classed as S6 habitat throughout.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-EST-10 -000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | _ | | | |
|---------------------|------------|-----------------|---------------------------------|--------|---------------|---------|-------------|---------|-----|-----|----------------------|------|--------------------------|--------------|----------|
| Stream Name: | STARR | C. TRII | BUTARY | | Stream "Lo | cal"; | ESt10 | | | | | | Access: | | н |
| Watershed Code: | 460-600 | 6-50 8-7 | 22-519-EST-10 -000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.2 Method: | : MW |
| Location: | SITELO | CATE | o ~60 m U/S FROM MOUTH. | | Мар#: | 093L043 | | | | | Site No.: | 1 | Length surveyed (m): | 60.0 Method: | : HC |
| | | | | | U.T.M. : | 9.5968 | .60350 | | | | Fish Card; | N | Field: Yes | Historical: | No |
| Date: 10/8/96 | Time | e: 10:3 | 0 Agency: C58 Surve | y Crew | v: JH\ \ \ | 1 1 1 1 | ١ | | | | Photos: | B8/2 | Air Photos: | BC 7 | 7326:083 |
| Channel Ch | aracte. | ristic | es | 1 | Specific Data | | | | | 1 | Bed Material | | | | |
| Av. Chan. Width (m) | : | 1.0 | Method Av. Chan. Width (m): | T | 1.0 | 1.2 | 1.5 | 0.7 | 0.6 | 1.0 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 1.0 | Method Av. Wet. Width (m): | T | 1.0 | 1.2 | 1.5 | 0.7 | 0.6 | 1.0 | % Gravels: | 15 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 12 | Av. Max. Riffle Depth (cm): | MS | | | | | | | 76 Glaveis. | 13 | Large (16-64mm): | | |
| Av. Max. Pool Depth | (cm): | 23 | Av. Max. Pool Depth (cm): | 12 | | | | | | | | | | | |
| Gradient (%): | | 15.0 | Method Gradient: | CL | | | | | | | % Larges: | 80 | Small cobble (64-128mm): | | |
| % Pool: 20 | % Riffl | e: 50 | % Run: 30 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm) | 1 | |
| % Side Channel: | | 0-10 | Method Side Channel: | GE | | | | | | | ļ | | Boulder cobble (>256mm): | | |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | - | | | | | | | _ | | | D90 (cm): | 20 | Compaction: | | High |
| Cover Total % : | | 35 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 20 L | .O.D.: | 0 | Boulder: 40 In Veg.: | 0 | Over Veg: | 20 | Cutban | k: | | 20 | Dunks | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect : | NE | Method | Aspect: | | AE | Height (m): | 0.3 | % Unstable: | | 15 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | : No |
| Discharge | | | | 1 | | . 0 | | _ | | | Confinement: | 4 | | | |
| _ | | | | | | зp | ecific Data | • | | į | Valley: Chan. Ratio: | 4 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | | Stage: | i. | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | i | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | : | 0.01 | • ` | vo | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.01 | Method Discharge (m3/s): | _ 1 | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | al | | | | | | | | | | pt1: | | Method pH: | | |
| | -• | | (Fig | - | | | | | | | 02 (ppm)։ | | Method Dissolved Oxygen | | |
| | | | S | P | | | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | TC |
| | | | i D 15.0 | 1180 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed | Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-EST-10 -000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| SP | | | J | R | | | vo |

- C1 The gradient recorded represents the gradient for the whole reach; the gradient is low (3 7%) for the lower 58 m of stream. At 58 m, the gradient rises to 35% a barrier to fish.
- C2 Parr-sized fish were observed just u/s from the creek mouth.
- C3 ESt10 is classed as S4 habitat up to 60 m (base of bench) and S6 habitat u/s.

C. TRIBUTARY Watershed Code:

2^-Mar-9^

Stream: STARR C. TRIBUTARY

| Header Informati | on | | | | | | | | | | | | | |
|---------------------------|-------------------|---------------------------------|--------|------------|-----------------|-----------------|----------|-----|-----|----------------------|---------|--------------------------|---------------|----------|
| Stream Name: STARI | R C. TRII | BUTARY | | Stream "Lo | cal": | ESt11 | | | | | | Access: | | H |
| Watershed Code: 460-60 | 06-5 08- 7 | 22-519-605-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.3 Method | : MW |
| Location: SITE L | OCATE! | 200 m U/S FROM MOUTH. | | Map#: | 093 L043 | ; | | | | Site No.: | l | Length surveyed (m): | 340.0 Method | : HC |
| | | | | U.T.M. : | 9.5963 | . 6035 3 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/8/96 Tir | ne: 11:3 | O Agency: C58 Surve | у Сгеч | /: JH\ \ \ | 1111 | ١ | | | | Photos: | B8/8-10 | Air Photos: | BC | 7326:083 |
| Channel Charact | eristi | es | į. | - | <u>.</u> | Specific L | ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | 1.6 | Method Av. Chan, Width (m): | T | 1.0 | 1.2 | 1.1 | 2.9 | 2.4 | 1.1 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 1.3 | Method Av. Wet. Width (m): | T | 1.0 | 1.2 | 1.1 | 2.0 | 1.8 | 8.0 | % Gravels: | 30 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm): | 12 | • , , | MS | | | | | | | | | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm): | 20 | • • • | 12 | | | | | | | 9/ 1 | 65 | Small cobble (64-128mm): | | |
| Gradient (%): | 12.0 | | CL | | | | | | | % Larges: | 03 | Large cobble (128-256mm) | | |
| | Me: 90 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Boulder cobble (>256mm): | | |
| % Side Channel; | 0 | | GE | | | | | | | | | | | |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 30 | Compaction: | , | High |
| Cover Total % : | 40 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 10 L.O.D.: | 0 | Boulder: 35 In Veg.: | 0 | Over Veg: | 30 | Cutba | nk: | | 25 | | | | | |
| Crown Closure %: | 15 | Method Crown Closure: | GE | Aspect : | S | Metho | d Aspect | ; | AE | lleight (m): | 0.4 | % Unstable: | | 5 |
| | _ | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock | .: No |
| Discharge | | | | | | | -4- | | | Confinement: | 3 | | | |
| o . | | | i | | 2ħ | ecific De | ita | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Flood Signs IIt(m): | 0 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | | • • • | vo | | | | | | | Braided: | Y | Method Braided: | | GE |
| Discharge (m3/s) : | 0.02 | Method Discharge (m3/s): | 1 | | | | | | ! | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pH: | | Method pH: | | |
| ALCHEN SYNEDOL | | (Fig | sh) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | : | |
| | | (D | V) | | | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | TC |
| | | 2 B 12.0 | 1360 | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed | Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-605-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | Х | 0.3 |

Comments

C2

C1 Cascade and 13% gradient is present at the creek mouth (Photo B8/8). 271 m u/s from the mouth, ~1 m high debris jam is present (Photo B8/10).

Gradient is 10 - 13% throughout the small creek and habitat is marginal. Suspected fish use to top of R1, 340 m u/s from the creek mouth.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-EST-12 -000-000-000-000-000

| Header Info | rmation | | | | | | | | | | | | | | | | |
|---------------------|------------|------|-----------------------------------|---------|-------------|--------|---------------|---------|-----|-----|----------------------|--------|----|---------------------|------------|-----------|----------|
| Stream Name: | STARR C. | TRIE | UTARY | | Stream "L | ocal": | ESt12 | | | | | | | Access: | | | н |
| Watershed Code: | 460-6006-5 | 08-7 | 2-519-EST-12 -000-000-000-000-000 | | | | | | | | Reach No.: | | 1 | Reach Length (km) |): i | .0 Method | d: MW |
| Location: | SITE LOCA | TEL | ~100 m U/S FROM MOUTH. | | Map#: | 093L04 | 3 | | | | Site No.: | | 1 | Length surveyed (n | n): 100 | .0 Method | d: HC |
| | | | | | U.T.M.: | 9.5957 | .60354 | | | | Fish Card: | | N | Field: Yes | His | torical: | No |
| Date: 10/8/96 | Time: | 13:0 | Agency: C58 Sur | vey Cre | ew: JH\ \ \ | 111 | \ \ | | | | Photos: | B8/14, | 15 | Air Photos: | | ВС | 7326:083 |
| Channel Ch | aracteri | stic | s | | | | Specific Dat | la | | - | Bed Material | | | | | | |
| Av. Chan. Width (m) |): | 4.6 | Method Av. Chan. Width (m): | T | 4.4 | 4.8 | 5 .6 | 3.8 | 4.2 | 5.0 | % Fines (<2mm): | | | % Fines (<2mm): | | | |
| Av. Wet. Width (m): | | 4.6 | Method Av. Wet. Width (m): | T | | | | | | | % Gravels: | | | Small (2-16mm): | | | |
| Av. Max. Rif. Depth | (cm): | | Av. Max. Riffle Depth (cm): | | | | | | | | 74 GIAVEIS. | | | Large (16-64mm): | | | |
| Av. Max. Pool Depth | ı (cm): | | Av. Max. Pool Depth (cm): | | | | | | | | l | | | | | | |
| Gradient (%): | i | 7.0 | Method Gradient: | CL | | | | | | | % Larges: | | | Small cobble (64-12 | • | | |
| % Pool: 10 | % Riffle: | 90 | % Run: 0 % Other: | 0 | Method | GE | | | | | | | | Large cobble (128- | | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | | Boulder cobble (>2 | :56mm): | | |
| % Debris Area: | 0 | -10 | Method Debris Area: | GE | | | | | | | % Bedrock: | | | % Bedrock: | | | |
| Cover | | | | | | | | | | | D90 (cm): | | _ | Compaction: | | | High |
| Cover Total %: | | | Method Cover Total %: | | | | | | | | Banks | | | | | | |
| Dp Pool: L | O.D.: | | Boulder: in Veg.: | | Over Veg: | 1 | Cutbanl | k: | | | | | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect: | N | Method | Aspect: | | ΑE | lleight (m): | | | % Unstable: | | | |
| | | | | | | | | | | | Textures Fines: | | No | Gravel: No I | Larges: No | Bedrocl | k: No |
| Discharge | | | | | i | | Specific Data | | | | Confinement: | | | | | | |
| Wetted Width (m): | | | Method Wetted Width (m) : | | | | ,,, | | | | Valley: Chan. Ratio: | | | | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Stage: | | L | | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | | İ | Flood Signs Ht(m): | | | Method Flood Sign | 15: | | |
| Discharge (m3/s): | | | Method Discharge (m3/s): | | | | | | | | Braided: | | | Method Braided: | | | |
| | | | | | | | | | | i | Bars (%): | | | Method Bars: | | | |
| Reach Symb | ol | | | | | | | | | | pH: | | | Method pH: | | | |
| | | | (| Fish) | | | | | | | 02 (քրու)։ | | | Method Dissolved | Oxygen: | | |
| | | | | NS | | | | | | | Water Temp. (°C): | | | Method Temperate | ure: | | |
| | | | 5 17.0 | 1 | | | | | | | Turb. (cm): | | | Method Turbidity: | : | | |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | | Method Conductiv | ity: | | |
| | | | | | | | | | | | | | | | | | |

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-EST-12 -000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- Cl Gradient is 16 18% and continuous from the creek mouth. Tributary dewaters u/s in a steep alluvial fan.
- C2 No fish habitat is present; EST12 is classed as \$5 habitat throughout.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-699-000-000-000-000-000

| Header Infor | mation | | _ | | | | | | | | | | | | |
|------------------------|----------------|-------|--------------------------------|---------|--------------|---------|------------|------------|-----|----------|----------------------|-------|-------------------------|---------------|---------|
| Stream Name: | STARR C. | TRIB | UTARY | | Stream "Lo | cal": | ESt13 | | | | | | Access: | | н |
| Watershed Code: | 460-6006-5 | 08-72 | 2-519-699-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.5 Method: | MW |
| Location: | SITE LOCA | ATED | ~220 m U/S FROM MOUTH. | | Map #: | 093L043 | 3 | | | | Site No.: | l | Length surveyed (m): | 300.0 Method: | HC |
| | | | | | U.T.M.: | 9.5956 | .60354 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/8/96 | Time: | 15:00 | Agency: C58 Sur | vey Cr | ew: JH\ \ \ | 1 1 1 1 | ١ ١ | | | | Photos: | B8/18 | Air Photos: | BC 7. | 326:083 |
| Channel Cha | racteri. | stic | s | | | | Specific E | ata | | ! | Bed Material | | | | |
| Av. Chan. Width (m): | | 1.0 | Method Av. Chan. Width (m): | T | 1.2 | 1.0 | 1.0 | 1.0 | 1.4 | 0.9 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (#1): | | 1.0 | Method Av. Wet. Width (m): | T | 1.2 | 1.0 | 1.0 | 1.0 | 1.1 | 0.9 | % Gravels: | 65 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (c | | 14 | Av. Max. Riffle Depth (cm): | MS | | | | | | | | | Large (16-64mm): | | |
| Av. Max. Pool Depth (| cm): | 24 | Av. Max. Pool Depth (cm): | 14 | | | | | | ĺ | % Larges: | 25 | Small cobble (64-128mm) | | |
| Gradient (%): | | 1.5 | Method Gradient: | CL | | | | | | | 70 Larges. | 23 | Large cobble (128-256mm | | |
| % Pool: 15 | % Riffle: | | % Run: 55 % Others | 0 | Method: | GE | | | | | | | Boulder cobble (>256mm | • | |
| % Side Channel: | | 0 | Method Side Channel: | | | | | | | | | • | | ,. | ^ |
| % Debris Area: | | 0 | Method Debris Area: | | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 11 | Compaction: | | Medium |
| Cover Total % : | | 25 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 5 L.C | O. D .: | 0 | Boulder: 15 In Veg.: | 0 | Over Veg: | 40 | Cutba | nk: | | 40 | Dunns | | | | |
| Crown Closure %: | | 15 | Method Crown Closure: | GE | Aspect: | SE | Metho | od Aspect: | | AE | Height (m): | 0.3 | % Unstable: | | 0 |
| | | | _ | | _ | | | _ | | | Textures Fines: | Yes | Gravel: No Larges | : No Bedrock: | No |
| Discharge | | | | | | S | pecific De | nta | | | Confinement: | 3 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | . 7 | TO ETT | - | | ; | Valley: Chan. Ratio: | 4 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | j | Stage: | М | | | |
| Mean Velocity (m/s): | | | Method Mean Velocity (m/s | vo | | | | | | 1 | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Discharge (m3/s): | 0 | 05 | Method Discharge (m3/s): | | į | | | | | | Braided: | | Method Braided: | | |
| | | | | | i | | | | | <u> </u> | Bars (%): | | Method Bars: | | |
| Reach Symbo | ol | | | (E:ala) | | | | | | | pH: | | Method pll: | | |
| - | | | | (Fish) | | | | | | | 02 (բրա)։ | | Method Dissolved Oxyge | n: | |
| | | | | (DV) | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature: | | TC |
| | | | I D 1. | 1 | - | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Be | ed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Stream Survey Report

Watershed Code:

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 No redds or fish were observed. Possible fish use in the lower 500 m of stream (to the top of R1) based on the steep gradient further u/s.
- C2 Lower 300 m of channel is a fan and numerous seepages are present. Input of the seepage located at 124 m u/s from the mouth derives from the mainstem. See table in report outlining unmapped seepages for detailed seepage data of ESt13.
- C3 ESt13 is classed as S4 habitat to the top of Reach 1 and S6 habitat u/s throughout Reach 2.

2^-Mar-9^

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-519-EST-14 -000-000-000-000-000

| Header Informa | tion | | | | | | | | | | |
|---------------------------|------------|-------------------------------------|---------------|----------|---------------------------------------|------|----------------------|----------|--------------------------|---------------|---------|
| Stream Name: STA | RR C. TR | BUTARY | Stream | "Local": | ESt14 | | | | Access: | | li |
| Watershed Code: 460 | -6006-508- | 722-519-EST-14 -000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 0.2 Method: | MW |
| Location: SIT | E LOCATE | D~130 m U/S FROM MOUTH. | Мар#: | 093L04 | 3 | | Site No.: | 1 | Length surveyed (m): | 240.0 Method: | HC |
| | | | U.T.M. | : 9.5957 | .60355 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/8/96 | Time: 16: | 30 Agency: C58 Surv | ey Crew: JH\\ | 1 1 1 1 | \ \ | | Photos: | B8/22-24 | Air Photos: | BC 7: | 326:083 |
| Channel Chara | cteristi | cs | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | 2.0 | Method Av. Chan. Width (m): | T 3.6 | | 1.6 1.4 2.0 | 1.8 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | 1.7 | | T 2.2 | 1.5 | 1.4 | | % Gravels: | 50 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm): | 14 | • ` ' | MS | | | | | | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm): | | Av. Max. Pool Depth (cm): | 14 | | | į | % Larges: | 40 | Small cobble (64-128mm): | | |
| Gradient (%): | 9.0 | | CL | | | |) / Carges. | 10 | Large cobble (128-256mm | | |
| | Riffle: 90 | | | d: GE | | | | | Boulder cobble (>256mm) | | |
| % Side Channel: | 10-40 | Method Side Channel: | GE | | | | P/ Deducat | | | | 4 |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | D90 (cm): | | Compaction; | | High |
| Cover Total % : | 15 | Method Cover Total %: | GE | | | | Banks | | | | |
| Dp Pool: 0 L.O.D. | : 0 | Boulder: 30 In Veg.: | 0 Over Vo | eg: 30 | Cutbank: | 40 | | | | | |
| Crown Closure %: | 15 | Method Crown Closure: | GE Aspect | S | Method Aspect: | AE | Height (m): | 0.1 | % Unstable: | | 60 |
| | | | | | | | Textures Fines: | No | Gravel: Yes Larges: | No Bedrock: | Nυ |
| Discharge | | | | 5 | pecific Data | | Confinement: | 6 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | _ | , , , , , , , , , , , , , , , , , , , | | Valley: Chan. Ratio: | 5 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | 1 | | | 1 | Stage: | L | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | VO ! | | | i | Flood Signs Ht(m): | 0.5 | Method Flood Signs: | | GE |
| Discharge (m3/s): | 0.04 | Method Discharge (m3/s): | | | | 1 | Braided: | Y | Method Braided: | | GE |
| Discharge (mo/s). | | | | | <u> </u> | | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symbol | | | | | | | pH: | | Method pH: | | |
| | | | ish) | | | | 02 (թթու)։ | | Method Dissolved Oxygen | : | |
| | | |)V) T | | | | Water Temp. (°C): | 5.5 | Method Temperature: | | IC |
| | | 2 E 9.0 | 1540 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed Materia | 1) | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-519-EST-14-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary Obstructions

- C1 Site was not fish sampled and no fish were observed.
- In the lower 34 m, stream is within a braided floodplain of the mainstem; w/s of 34 m, stream forms a single channel. ~114 m from the mouth, the channel braids into multiple small channels on an alluvial fan which continues w/s to 210 m. The end of fish distribution is at the reach break (240 m w/s from the mouth) due to the 12% and increasing gradient. The gradient is 20% ~300 m w/s from the mouth.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

| Header Info | rmatio | on | | | | | | | | | · · · · · · · · · · · · · · · · · · · | | | | |
|--|---------|---------|--|---------|-------------|---------|------------|-------------|----------|----------|---------------------------------------|---------|--------------------------|---------------|---------|
| Stream Name: | | | BUTARY | | Stream "Lo | cal": | ST34 | | | | | | Access: | | Н |
| Watershed Code: | | | 22-573-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 1.4 Method: | |
| Location: | SITE LO | OCATE | D~300 in U/S FROM THE BASE OF R | EACH | • | 093L043 | | | | | Site No.: | ı | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | U.T.M. : | 9.5981 | | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/3/96 | Tim | e: 14:0 | OO Agency: C58 Sur | vey Cre | ew: RD\SS\ | 1111 | <u> </u> | | | | Photos: | B7/4, 5 | Air Photos: | BC 73 | 326:254 |
| Channel Ch | aracte | risti | cs | | | S | Specific D | ata | | | Bed Material | | | | |
| Av. Chan. Width (m | : | 1.2 | ` , | T | 1.0 | 1.2 | 1.1 | 1.2 | 1.4 | 1.4 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): Av. Max. Rif. Depth | (cm)· | 1.2 | Method Av. Wet. Width (m): Av. Max. Riffle Depth (cm): | T MS | 1.0 | 1.2 | 1.1 | 1.2 | 1.4 | 1.4 | % Gravels: | 20 | Small (2-16mm): | | 10 |
| Av. Max. Pool Depth | | 21 | Av. Max. Pool Depth (cm): | 7 | | | | | | | | | Large (16-64mm): | | 10 |
| Gradient (%): | (| 5.0 | Method Gradient: | CL | ł | - | | | | ŀ | % Larges: | 75 | Small cobble (64-128mm): | | 70 |
| % Pool: 10 | % Riff | le: 80 | % Run: 10 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm) | : | 5 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | 0 |
| % Debris Area: | | 0 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | _ | • | | | | D90 (cm): | 10 | Compaction: | | High |
| Cover Total % : | | 70 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 20 L | .O.D.: | 0 | Boulder: 40 In Veg.: | 0 | Over Veg: | 15 | Cutba | nk: | | 25 | Dunks | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect : | NE | Metho | d Aspect: | | AE | Height (m): | 0.9 | % Unstable: | | U |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | ; | .Sr | ecific Da | ı <i>ta</i> | - | | Confinement: | 4 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | | ٠, | | | | | Valley: Chan. Ratio: | 3 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | İ | | | | | | Stage: | 1. | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Discharge (m3/s): | • | 0.08 | Method Discharge (m3/s): | 10 | i | | | | | | Braided: | N | Method Braided: | | GE |
| | | 0.00 | Tremos Discharge (moss) . | | <u> </u> | | | | <u> </u> | <u> </u> | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 7.8 | Method pH: | | PH |
| | | | (1 | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | ; | |
| | | | | NF | _ | | | | | | Water Temp. (°C): | 3.5 | Method Temperature: | | 10 |
| | | | I C 5.0 | 1 - | | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (junthos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Lat/Lon of helicopter landing site: 54 24.66 127 29.75

Watershed Code:

Stream Survey Report

460-6006-508-722-573-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C5

C1 Electrofished 68 m length of stream, 1 pass with no lower net; no fish were caught.

C2 Small, stable creek with abundant willow overstory. Sections of suitable resident DV spawning habitat are present.

C3 Difficult to electroshock creek due to the creek's low conductivity.

C4 R1 d/s is very steep; the lower 30 m of R1 has a gradient of 18% with ~3-4 m channel width. Large falls which make up the majority of R1 (~650 m in length) begin ~100 m u/s from the mouth. St34 is inaccessible to fish.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-599-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | | |
|---------------------|---------|-----------------|---------------------------------|-----------------|-------------|---------|------------|----------|------|----------|----------------------|----------|-----------------------|-------------|---------|--------|
| Stream Name: | STARR | C. TRII | BUTARY | | Stream "Lo | ocal": | ST35 | | | | | | Access: | | | FT |
| Watershed Code: | 460-600 | 6-50 8-7 | 22-599-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.5 M | lethod: | HC |
| Location: | SITE LC | CATE | ~400 m U/S FROM THE MOUTH. | | Мар #: | 093L043 | | | | | Site No.: | 1 | Length surveyed (m): | 100.0 M | lethod: | HC |
| | | | | | U.T.M. : | 9.5973 | .60309 | | | | Fish Card: | N | Field: Yes | Historica | l: | Nο |
| Date: 10/7/96 | Time | e: 14:0 | 0 Agency: C58 Surv | v еу Сге | w: RD\CP\ | 1 1 1 1 | 1-1 | | | | Photos: | A11/5, 6 | Air Photos: | | BC 732 | 26:255 |
| Channel Ch | aracte | ristic | es . | | | S | specific D | Vata | | | Bed Material | | | | | |
| Av. Chan. Width (m | : | 7.9 | Method Av. Chan. Width (m): | T | 9.1 | 8.4 | 5.9 | 5.0 | 10.8 | 8.2 | % Fines (<2mm): | 5 | % Fines (<2mm): | | | 5 |
| Av. Wet. Width (m): | | 7.9 | Method Av. Wet. Width (m): | T | 9.1 | 8.4 | 5.9 | 5.0 | 10.8 | 8.2 | % Gravels: | 10 | Small (2-16mm): | | | 5 |
| Av. Max. Rif. Depth | (cm): | 20 | Av. Max. Riffle Depth (cm): | MS | | | | | | | | | Large (16-64mm): | | | 5 |
| Av. Max. Pool Depth | (cm): | 80 | Av. Max. Pool Depth (cm): | 20 | | | | | | _ | 9/ 1 25000 | 65 | Small cobble (64-128m | | | 5 |
| Gradient (%): | | 9 .0 | Method Gradient: | CL | | | | | | | % Larges: | 03 | Large cobble (128-256 | • | | 25 |
| % Pool: 35 | % RiM | | % Run: 5 % Other: | 0 | Method: | GE | | | | | | | Boulder cobble (>256n | | | 35 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | | | | |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 20 | % Bedrock: | | | 20 |
| Cover | - | | | | | | | | | | D90 (cm): | | Compaction: | | М | 1edium |
| Cover Total % : | | 80 | Method Cover Total %: | GE | | | | | | | Banks | | | | | |
| Dp Pool: 40 I | .O.D.: | 0 | Boulder: 60 in Veg.: | 0 | Over Veg: | 0 | Cutba | nk: | | 0 | | | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect: | NE | Metho | d Aspect | : | AE | Height (m): | | % Unstable: | | | 50 |
| | | | | | | | | | | | Textures Fines: | No | Gravel: No Lar | ges: Yes Be | drock: | No |
| Discharge | | | | | | Se | ecific Da | ria | | Į. | Confinement: | 2 | | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | | | cciyic Di | | | | Valley: Chan. Ratio; | 1 | | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | İ | | | | | | Stage: | L | | | | |
| Mean Velocity (m/s) | | | Method Mean Velocity (m/s | vo | 1 | | | | | | Flood Signs Ht(m): | 1.8 | Method Flood Signs: | | | GE |
| Discharge (m3/s): | • | 0.57 | Method Discharge (m3/s): | 10 | | | | | | ! ! | Braided: | N | Method Braided: | | | GE |
| mischar Re (mois) : | | 5.51 | | | <u> </u> | | _ | | | <u> </u> | Bars (%): | 0 | Method Bars: | | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 8.2 | Method pH: | | | PH |
| , , , , , | | | , | Fish) | | | | | | | 02 (թթա)։ | | Method Dissolved Ox | gen: | | |
| | | | | (BT) | | | | | | | Water Temp. (°C): | 4.7 | Method Temperature | : | | 1C |
| | | | 8 B 9.0 | 116 | 2 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | 84 | Method Conductivity | | | CM |

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| l | F | 0.1 |
| 2 | Ć | 0.4 |
| î. | F | 0.4 |
| t | F | 0.4 |
| 3 | Ċ | 0.4 |
| 2 | F | 0.6 |
| 1 | F | 0.6 |
| i | F | 0.7 |
| ī i | F | 1.0 |
| 1 | C | 1.2 |
| 2 | C | 1.2 |
| 2 | F | 1.2 |

- C1 R1 of St35 is a canyon. Numerous small and large drops are present thoughout this reach. (See obstructions section for heights and locations of large drops.)
- C2 Channel is confined with bedrock and unstable banks at 135 m and u/s. -52 m w/s from the mouth, an unstable bank is present on river right. ~1407 m u/s from the mouth, a large, unstable mud slump is present.
- C3 This site was not sampled but BT were caught u/s in R2. Suspect BT are residents due to the 2 m high falls/chutes present in R1 R1 is classed as S2 habitat

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-722-599-000-000-000-000-000-000-000

| Header Info | rmation | | | | | | | | | | | |
|--|--------------------------|-------------------------------------|---------------|--------|---------------|------|-----|----------------------|-----------|--------------------------|----------------|----------|
| Stream Name: | STARR C. TR | IBUTARY | Stream "L | ocal": | ST35 | | | | | Access: | | Н |
| Watershed Code: | 460-6006-508 | -722-599-000-000-000-000-000-000 | | | | | | Reach No.: | 2 | Reach Length (km): | 2.2 Method: | I: MW |
| Location: | SITE LOCAT | ED ~700 in U/S FROM THE BASE OF R2. | Map #: | 093L04 | 13 | | | Site No.: | 2 | Length surveyed (m): | 1600.0 Method: | l: HC |
| | | | U.T.M. : | 9.5973 | .60309 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/3/96 | Time: 12 | :30 Agency: C58 Survey (| Crew: RD\SS\ | 1.1.1 | 1 1 1 | _ | | Photos: | B6/10, 11 | Air Photos: | BC 7 | 7326:255 |
| Channel Ch | aracterist | ics | | | Specific Data | | 1 | Bed Material | | | | |
| Av. Chan. Width (m | <u>-</u> ' | • • • | | 12.1 | 12.6 11.7 | 12.8 | | % Fines (<2mm): | 0 | % Fines (<2mm): | | 0 |
| Av. Wet. Width (nn): | | | | | | | | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | | • , , | i | | | | | | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth Gradient (%): | ı (cm): 35 4. | . , | | | | | i l | % Larges: | 85 | Small cobble (64-128mm): | : | 15 |
| % Pool: 15 | % Riffle: 8 | | | GE | | | | | | Large cobble (128-256mm | | 40 |
| % Side Channel: | 0-1 | | | . GL | | | | | | Boulder cobble (>256mm) |): | 30 |
| % Debris Area: | 0-1 | | | | | | ļ | % Bedrock; | 0 | % Bedrock: | | 0 |
| - | | | | | | | | | | | | • |
| Cover | | | | | | | | D90 (cm): | 28 | Compaction: | | High |
| Cover Total % : | 90 | Method Cover Total %: GE | : | | | | | Banks | | | | |
| Dp Pool: 10 1 | O.D.: | Boulder: 80 In Veg.: 0 | Over Veg | : 10 | Cutbank: | | 0 | | | | | |
| Crown Closure % : | | Method Crown Closure: | Aspect : | NE | Method Aspec | t: | AE | Height (m): | 2.0 | % Unstable: | | O |
| | | | | | _ | | - | Textures Fines: | Yes | Gravel: Yes Larges: | : No Bedrock: | : No |
| Discharge | | | I | | Specific Data | | ı I | Confinement: | 4 | | | |
| 11/ | | Method Wetted Width (m): | ĺ | | specijie Data | | i I | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): Mean Depth (m): | | Method Mean Depth (m): | | | | | | Stage: | L | | | |
| 1 ' ' | | Method Mean Velocity (m/s VC | . | | | | i | Flood Signs Ht(m): | 1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) Discharge (m3/s): | | Method Discharge (m3/s): | | | | | i i | Braided: | N | Method Braided: | | GE |
| Procharge (movs): | | memod Discharge (ms/s). | į | | | · | | Bars (%): | 40 | Method Bars: | | GE |
| Reach Symb | ool | | | | | | | pH: | 7.8 | Method pH: | | PH |
| | | (Físh) | | | | | | 02 (ppm): | | Method Dissolved Oxygen | n: | |
| | | ВТ | | | | | | Water Temp. (°C): | 2.5 | Method Temperature: | | IC |
| | | 12 A 4.0 0 | 190 | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) (| Bed Material) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Ph | ase Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|----------|-----------|-------|-------|------------------|
| BT | 4 | 220 - 270 | J | R | | | EL |
| SP | _ i] | 200 | <u> </u> | R | | _ ! | VO |

Obstructions

- Electrofished 85 m length of stream, 1 pass with no lower net. The BT caught at this site are suspected to be residents due to the large number of impassable 2 m high falls/chutes present d/s in R1. The male gonads of the BT were not completely developed.
- C2 Large, dynamic creek with a high potential to move debris. Bed material consists primarily of boulder/cobble and very little LOD is present in this upper section.
- C3 Sections of meadow are present along the creek. Several unstable banks were noted in this reach: an unstable mud bank present on river left 1772 m u/s from the mouth; 2 unstable banks present 1958 m u/s from the mouth; banks are unstable 2258 m u/s from the mouth; a large, unstable bank on river right is present 2538 m u/s from the mouth.
- C4 Easy fish movement possible thoughout R2. Excellent BT rearing habitat along channel margins.
- C5 Lat/Lon of helicopter landing site: 54 24.38 127 31.11
- C6 Based on gradient, St35 is classed as S2/S3 habitat up to the top of R2 and S6 habitat throughout R3.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-599-106-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | _ |
|---------------------|------------|-----------------|----------------------------------|--------|------------|-----------------|-----------|------------|-----|-----|----------------------|---------|--------------------------|---------------|--------------|
| Stream Name: | STARR | C. TRII | BUTARY | | Stream "Lo | cal": | ST35 | l | | | | | Access: | | Н |
| Watershed Code: | 460-6006 | 5-5 08-7 | 22-599-106-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 0.8 Method: | MW |
| Location: | SITE LO | CATE | D~450 m U/S FROM THE BASE OF R2. | | Map #: | 093 L043 | | | | | Site No.: | 3 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | U.T.M. : | 9.5970 | .60306 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/3/96 | Time | : 14:0 | O Agency: C58 Surve | ey Cre | w: RD\SS\ | 111 | 1.1 | | | | Photos: | B7/2, 3 | Air Photos: | BC 73 | 326:255 |
| Channel Ch | aracte | ristic | cs | į | | S | pecific D | eta | | | Bed Material | | | | |
| Av. Chan. Width (m | 1): | 1.6 | Method Av. Chan. Width (m): | T | 1.4 | 1.3 | 1.5 | 2.3 | 1.4 |)! | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m) | : | 1.6 | Method Av. Wet. Width (m): | T | 1.4 | 1.3 | 1.5 | 2.3 | 1.4 | - 1 | % Gravels: | 15 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | ı (cm): | 6 | Av. Max. Riffle Depth (cm): | MS | | | | | | | diaves. | 17 | Large (16-64mm): | | 18 |
| Av. Max. Pool Depti | h (cm): | 18 | Av. Max. Pool Depth (cm): | 6 | | | | | | | | | | | |
| Gradient (%): | | 6.0 | Method Gradient: | CL | | | | | | | % Larges: | 80 | Small cobble (64-128mm): | | 10 |
| % Pool: 15 | % RiM | e: 80 | % Run: 5 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256mm | | 55 |
| % Side Channel: | | 0 | | GE | | | | | | | | | Boulder cobble (>256mm) | i | 15 |
| % Debris Area: | | 0 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | _ | | | | | | | D90 (cm): | 27 | Compaction: | | High |
| Cover Total % : | | 75 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 | L.O.D.: | 0 | Boulder: 80 In Veg.: | 0 | Over Veg: | 5 | Cutba | ınk: | | 15 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect: | NE | Metho | od Aspect: | | ΑE | Height (m): | 1.5 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | Νο |
| Discharge | | | | | | , C- | ecific De | ata | | | Confinement: | 3 | | | |
| | | | B. A | | | Sp | etyk Di | **** | | į | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | į | | | | | | | Stage: | M | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | | Flood Signs 11t(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s |) : | 0.06 | • ' | vo | | | | | | 1 | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.06 | Method Discharge (m3/s): | | <u> </u> | | | | | j | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | hal | | | | | | | | | | pH: | 7.9 | Method pH: | | PH |
| | | | · | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | : | |
| | | | | VF | | | | | | | Water Temp. (°C): | 2.5 | Method Temperature: | | \mathbf{R} |
| | | | 2 B 6.0 | 1180 |) | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Bed | Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: STARR C. TRIBUTARY

Stream Survey Report Watershed Code:

460-6006-508-722-599-106-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 50 | F | 0.0 |

- Cl Electrofished 65 m length of stream, I pass with no lower net. No fish were caught or observed. Suspect barren; no access due to the 50 in+ high falls at the tributary mouth. C2Small, stable creek. Sample site located in low gradient habitat. Bed material consists of primarily boulder; very limited spawning habitat present. C3 The channel d/s in R1 is within a very steep, confined canyon.
- C4 Lat/Lon of helicopter landing site: 54 24.91 127 31.43

2~-Mar-9~

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-599-402-000-000-000-000-000

| Header Infor | mation | | | | | | | | _ | - | | | | | |
|------------------------|-------------|--------|--|-------------|--------------|--------|------------|-----------|-----|-----|----------------------|----------|--------------------------|---------------|-------------|
| Stream Name: | STARR C. T | RIBU | TARY | | Stream "L | ocal": | ST35. | 2 | | | | | Access: | | FT |
| Watershed Code: | 460-6006-50 | 8-722- | -599-402-000-000-000-000-00 | 00 | | | | | | | Reach No.: | 1 | Reach Length (km): | 1.1 Method: | MW |
| Location: | SITE LOCA | ΓED ~ | 100 m U/S FROM THE MOUTH | | Map #: | 093L04 | 3 | | | | Site No.: | 4 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | | U.T.M. : | 9.5962 | .60293 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/7/96 | Time: | 6:00 | Agency: C58 S | urvey Cr | ew: RD\CP\ | 111 | 111 | | | | Photos: | A11/7, 8 | Air Photos: | BC 7: | 326:255 |
| Channel Ch a | racteris | tics | | | | | Specific D | ata | | ļ | Bed Material | | | | |
| Av. Chan. Width (m): | | | Method Av. Chan. Width (m): | T | 1.4 | 2.1 | 1.6 | 0.9 | 1.3 | 1.1 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | | Method Av. Wet. Width (m): | T | | | | | | | % Gravels: | 20 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth (c | | | Av. Max. Riffle Depth (cm): | MS | | | | | | | | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth (| = | | Av. Max. Pool Depth (cm): | 7 | | | | | | . [| % Larges: | 75 | Small cobble (64-128mm): | | 20 |
| Gradient (%): | | | Method Gradient: | CL | | OF. | | | | | / Laiges. | ,,, | Large cobble (128-256mm | ı | 25 |
| % Pool: 10 | % Riffle: | | % Run: 30 % Othe Method Side Channel: | er: 0 GE | Method | GE | | | | | | | Boulder cobble (>256mm): | | 30 |
| % Side Channel: | | | | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| % Debris Area: | | 0 1 | Method Debris Area: | | | | | | | | % Bearock: | U | % Beurock: | | _ |
| Cover | | | | | | | | | | | D90 (cm): | 30 | Compaction: | | High ——— |
| Cover Total % : | 5 | 0 M | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 20 L.C | D.D.: | 0 I | Boulder: 60 In Veg.: | 0 | Over Veg | 0 | Cutba | nk: | | 20 | | | | | |
| Crown Closure % : | | 0 ! | Method Crown Closure: | GE | Aspect : | NW | Metho | d Aspect: | : | ΑE | Height (m): | 1.8 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | No |
| Discharge | | | | | ! | | pecific Da | 4- | | | Confinement: | 3 | | • | |
| | | | | | | S. | pecijic Da | ua | | İ | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | ethod Wetted Width (m): | | | | | | | | Stage: | l. | | | |
| Mean Depth (m): | | | ethod Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s): | 0.0 | | ethod Mean Velocity (m/s | vo | | | | | | ļ | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.0 | 4 N | ethod Discharge (m3/s) : | | <u> </u> | | | | _ | | Bars (%): | 20 | Method Bars: | | GE |
| Reach Symbo | 1 | | | | | | | | | | pH: | 8.0 | Method pH: | | PH |
| 1 | - | | | (Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | : | |
| | | | | NS | | | | | | | Water Temp. (°C): | 5.0 | Method Temperature: | | TC |
| | | | I B I | 2.0 127 | 70 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slo | pe) (Be | ed Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2^-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-599-402-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

- C1 The recorded gradient represents an average gradient for the whole reach: the lower 30 m of stream has a gradient of 5-8%; u/s of 30 m the gradient is 15-18%.
- This site was not sampled. BT are present on the \$135 mainstern just d/s of the \$135/\$T35.2 confluence. -0.4 in high drop is present at the mouth of \$135.2; fish access is restricted in the lower 30 m of stream and may only be accessible to juveniles during high flows. U/S of 30 m there is no fish access or use due to the steep gradient.
- C3 Tributary is a single channel and bed material consists of boulder/cobble. Potential spawning habitat is very limited. Good BT rearing habitat is present.

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-599-506-000-000-000-000-000-000

| Header Info | mation | ! | | | | _ | | | | | | | | | |
|-----------------------|-----------|-------|---------------------------------|-----------|-------------|---------------------------------------|--------------|---------|-----|-----|----------------------|-----------|-----------------------|-----------------|----------|
| Stream Name: | STARR C. | TRIE | UTARY | | Stream "Le | cal": | ST35.3 | | | | | | Access: | | FT |
| Watershed Code: | 460-6006- | 508-7 | 22-599-506-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.6 Meth | od: MW |
| Location: | | | OCATED 1420 m U/S IN R2; SITE | | Map #: | 093L 04 | 3 | | | | Site No.: | 5 | Length surveyed (m): | 100.0 Meth | nod: HC |
| | LOCATE |) -30 | m U/S FROM THE MOUTH. | | U.T.M. : | 9.5959 | .60289 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/7/96 | Time: | 17:0 | O Agency: C58 Surv | ey Cre | ew: RD\CP\ | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | 111 | | | | Photos: | A11/9, 10 | Air Photos: | ВС | 7326:255 |
| Channel Ch | aracteri | istic | es · | | | | Specific Da | ta | | i | Bed Material | | | | |
| Av. Chan. Width (m) | : | 7.7 | Method Av. Chan. Width (m): | T | 6.8 | 9.5 | 7.3 | 8.4 | 6.5 | 7.4 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | | 2.1 | Method Av. Wet. Width (m): | T | | | | | | | % Gravels: | 10 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth (| | 15 | Av. Max. Riffle Depth (cm): | MS | 1 | | | | | | | | Large (16-64mm): | | 5 |
| Av. Max. Pool Depth | • • | 70 | Av. Max. Pool Depth (cm): | 15 | ĺ | | | | | | */ Lawren | 75 | Small cobble (64-128r | \. | 5 |
| Gradient (%): | | 13.0 | Method Gradient: | CL | | | | | | | % Larges: | د / | Large cobble (128-25) | • | 30 |
| % Pool: 15 | % Riffle: | | % Run: 5 % Other: | 0 | Method: | GE | | | | | | | Boulder cobble (>256 | | 40 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | • | <i>.</i> | |
| % Debris Area: | · · | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 10 | % Bedrock: | | 10 |
| Cover | | | | | | _ | | | | | D90 (cm): | 30 | Compaction: | | Hıgb |
| Cover Total % : | | 80 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 40 L | .O.D.; | 0 | Boulder: 60 In Veg.: | 0 | Over Veg: | 0 | Cutban | k: | | 0 | } | | | | |
| Crown Closure %: | | 5 | Method Crown Closure: | GE | Aspect : | NW | Method | Aspect: | : | ΑE | Height (m); | 1.5 | % Unstable: | | 5 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No La | rges: Yes Bedro | ock: No |
| Discharge | | | | | | | Specific Dat | a | | | Confinement: | 3 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | 1 | ~ | proje se | - | | : | Valley: Chan. Ratio: | 1 | | | |
| ` ' | | | Method Mean Depth (m): | | | | | | | į | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Velocity (m/s | vo | | | | | | i | Flood Signs IIt(m): | 0.8 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | | 1 22 | Method Discharge (m3/s): | VO | | | | | | 1 | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | | | michiga bischwige (mass) . | | <u> </u> | | | | | | Bars (%): | 40 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 8.0 | Method pH: | | PH |
| | - | | | ish) | | | | | | | 02 (ppm): | | Method Dissolved Ox | xygen: | |
| | | | | NS ——— | | | | | | | Water Temp. (°C): | 6.0 | Method Temperature | e: | 1C |
| | | | 8 A 13.0 | 117 | l . | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | 81 | Method Conductivity | y: | CM |

2"-Mar-9"

Stream: STARR C. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-722-599-506-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 2 | F | 0.1 |
| 10 | F | 0.1 |

- This site was not fish sampled. Suspected BT was visually observed on \$135 ~400 m d/s from the \$135/\$135.3 confluence. ~94 m u/s from the mouth, 1.5 m high confined bedrock falls is present: impassable to fish. Channel is steep (~14%) and confined for 40 m and then increases in gradient to ~90% where ~10 m high falls is present.
- C2 Large, dynamic creek with bed material consisting of boulder/cobble bedrock. No potential spawning habitat present.
- C3 Marginal fish habitat above 50 m. Possible fish use in the lower 90 m of stream.
- A small trickle seepage was observed on river left ~67 m u/s from the \$135.3 confluence; creek is steep with a discharge of ~0.5 cfs and an average channel width of 40 cm. No fish habitat present.

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-TH -47 -000-000-000-000-000-000-000-000

| Header Info | rmation | · - | | | | - | | | | | | | |
|----------------------|---------------|-------------------------------------|----------|------------|-----------------|---------------|-----|-----|----------------------|----------|--------------------------|---------------|-------------|
| Stream Name: | THAUTIL R. T | RIBUTARY | St | tream "Loc | :al": | TH47 | | | | | Access: | | 11 |
| Watershed Code: | 460-6006-508- | TH -47 -000-000-000-000-000-000-000 | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.2 Method: | MW |
| Location: | | OCATED ~400 m U/S FROM THE STA | RR M | 1ap#: (| 093 L044 | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | HC |
| | C. CONFLUEN | ICE. | υ | J.T.M. : | 9.6071 | .60288 | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 | Time: 113 | OO Agency: C58 Surve | y Crew: | M/ / / / | | 1 | | | Photos: | B11/4, 5 | Air Photos: | BCB 91 | 181:189 |
| Channel Ch | aracteristi | cs | ; | | S | pecific Data | | 1 | Bed Material | | | | |
| Av. Chan. Width (m) | | Method Av. Chan. Width (m); | T | 0.6 | 0.6 | 1.0 0.0 | 0.7 | 0.0 | % Fines (<2mm): | 60 | % Fines (<2mm): | | 60 |
| Av. Wet. Width (m): | | Method Av. Wet. Width (m): | T | | | | | | % Gravels: | 15 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | | Av. Max. Riffle Depth (cm): | | | | | | ļ | | | Large (16-64mm): | | |
| Av. Max. Pool Dep th | | Av. Max. Pool Depth (cm): | | | | | | | % Larges: | 25 | Small cobble (64-128mm): | | |
| Gradient (%): | 10.0 | | CL | | 05 | | | | , v Larges. | 25 | Large cobble (128-256mm | | |
| % Paol: 0 | % Riffle: 0 | % Run: 0 % Other: | 0 GE | Method: | UE | | | | | | Boulder cobble (>256mm) | • | |
| % Side Channel: | 0 0-10 | | GE GE | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| % Debris Area: | <u> </u> | Method Debris Area: | <u></u> | | | | | | 1 | _ | | | |
| Cover | | | | | | | | | D90 (cm): | | Compaction: | | High ——— |
| Cover Total % : | | Method Cover Total %: | | | | | | | Banks | | | | |
| Dp Pool : L | .O.D.: | Boulder: In Veg.: | 0 |)ver Veg: | | Cutbank: | | | | | | | |
| Crown Closure %: | 40 | Method Crown Closure: | GE A | spect : | sw | Method Aspect | : | ΑE | Height (m): | 0.5 | % linstable: | | 0 |
| <u> </u> | | | | | | | | - | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock: | Νο |
| Discharge | | | : | | Ç. | ecific Data | | 1 | Confinement: | 2 | | | |
| | | | i | | Sp | ecijic Dala | | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | Stage: | Dry | | | |
| Mean Depth (m): | | Method Mean Depth (m): | VO | | | | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Mean Velocity (m/s) | | | vo | | | | | ĺ | Braided: | | Method Braided: | | GE |
| Discharge (m3/s): | 0. 00 | Method Discharge (m3/s) : | | | | <u></u> : | | | Bars (%): | 100 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | pH: | | Method pH: | | |
| (PISN) | | | | | | | | | 02 (ppm): | | Method Dissolved Oxyget | ı: | |
| NS | | | | | | | | | Water Temp. (°C): | | Method Temperature: | | |
| 1 | | 1 A 10.0 | 6130 | | | | | | Turb. (cm): | | Method Turbidity: | | |
| | | (Width, Valley: Channel, Slope) | (Bed M | laterial) | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-TH -47 -000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

Comments

C2

C1 Discontinuous, dry channel. Lacks continuous defined banks.

Fish habitat is present during high flows only and it is marginal due to the steep gradient of the creek which inhibits fry access.

2^-Mar-9*

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-736-000-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | |
|---------------------|---------|------------------|---|---------|-------------|-----------------|----------------|---------|----------------------|----------|-------------------------|--------------|----------|
| Stream Name: | THAUT | LR. T | RIBUTARY | | Stream "L | ocal": | TH48 | | | | Access: | | Н |
| Watershed Code: | 460-600 | 6-5 08- 7 | 36-000-000-000-000-000-000-000 | | | | | | Reach No.: | 1 | Reach Length (km): | 1.4 Method | : MW |
| Location: | SITE LO | CATE | ~200 m U/S FROM THE MOUTH. | | Map#: | 093 L044 | ļ | | Site No.: | l | Length surveyed (m): | 354.0 Method | i: HC |
| | | | | | U.T.M. : | 9.6071 | .60289 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 | Time | e: 13:0 | 0 Agency: C58 Sur | vey Cre | w: JH\ \ \ | 1111 | ١ | | Photos: | B11/8, 9 | Air Photos: | BCB 9 | [181:189 |
| Channel Ch | aracte | ristic | es . | | | 3 | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m |): | 1.3 | Method Av. Chan. Width (m): | Т | 1.3 | 1.3 | 1.8 1.2 | 1.2 1.3 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 0.9 | Method Av. Wet. Width (m): | Т | 0.7 | 1.2 | 0.8 | | % Gravels: | 45 | Small (2-16mm): | | |
| Av. Max. Rif. Depth | (cm): | 7 | Av. Max. Riffle Depth (cm): | MS | 7 | 7 | 7 | | N GIZVELS. | ,, | Large (16-64mm): | | |
| Av. Max. Pool Depti | s (cm): | 15 | Av. Max. Pool Depth (cm): | 7 | 14 | 18 | 13 | | | 4.5 | | | |
| Gradient (%): | | 7.0 | Method Gradient: | CL | | | | | % Larges: | 45 | Small cobble (64-128mm | | |
| % Pool: 30 | % RiM | le: 50 | % Run: 20 % Other: | 0 | Method: | GE | | | | | Large cobble (128-256mr | | |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | Boulder cobble (>256mm |); | |
| % Debris Area: | | 10-40 | Method Debris Area: | GE | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | D90 (cm): | 11 | Compaction: | | Medium |
| Cover Total % : | | 40 | Method Cover Total %: | GE | | | | | Banks | | | | |
| Dp Pool: 0 i | L.O.D.: | 20 | Boulder: 0 In Veg.: | 0 | Over Veg: | 60 | Cutbank: | 2 | | | | | |
| Crown Closure %: | | 40 | Method Crown Closure: | GE | Aspect : | sw | Method Aspect: | : A | E Height (m): | 0.3 | % Unstable: | | O |
| | | | | | | | | | Textures Fines: | Yes | Gravel: No Large | : No Bedrock | a No |
| Discharge | | | | | I I | S. | pecific Data | | Confinement: | 3 | | | |
| | | | Baraha da Maraha da Madaha (m.) | | | | pecgie Dail | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | vo | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s |): | 0.01 | Method Mean Velocity (m/s Method Discharge (m3/s): | VO | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.01 | DIEHIOO DISCHAIRE (1112/2): | | <u> </u> | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Sym | hol | | | | | | | | рН: | 8.4 | Method pH: | | PH |
| Symme | , | | (| Fish) | | | | | 02 (ppm): | | Method Dissolved Oxygo | en: | |
| | | | | DV | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | 1C |
| 1 | | | 1 B 7.0 | 1450 | 0 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope |) (Bed | l Material) | | | | Cond. (µmhos): | | Method Conductivity: | | |

2^-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-736-000-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 12 | ~130 | A | S | R | | vo |

Comments

DV were observed up to 200 m u/s from the mouth. No migration barriers were observed during ground survey to 354 m. Tributary is classed as S4 habitat in the lower 400 m of stream, and suspected S4 habitat u/s to the top of R1.

C2 Air Temp: 1 C.

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-736-000-000-000-000-000-000-000-000-000

Header Information THAUTIL R. TRIBUTARY Stream "Local": **TH48** Stream Name: Access: Watershed Code: 460-6006-508-736-000-000-000-000-000-000-000 Reach No .: Reach Length (km): 1.4 Method: MW SITE LOCATED ~900 m U/S FROM THE MOUTH. 093L044 Map #: Site No.: Length surveyed (m): 100.0 Method: HC Location: U.T.M.: 9.6071 .60289 Fish Card: Field: Yes Historical: No Time: 13:00 Survey Crew: DB\SS\\\\\\\ Photos: Air Photos: BCB 91181:189 Agency: C58 DB4/9, 10 Date: 10/8/96 Channel Characteristics **Bed Material** Specific Data Av. Chan. Width (m): 1.2 Method Av. Chan. Width (m): T 2.0 0.9 1.2 1.3 % Fines (<2mm): % Fines (<2mm): 0 T 0.9 0.6 0.6 Method Av. Wet. Width (m): 0.7 0.5 0.6 Av. Wet. Width (m): % Gravels: Small (2-16mm): 70 MS Av. Max. Riffle Depth (cm): Av. Max. Rif. Depth (cm): Large (16-64mm): 20 5 Av. Max. Pool Depth (cm): Av. Max. Pool Depth (cm): % Larges: Small cobble (64-128mm): 10 CLGradient (%): Method Gradient: Large cobble (128-256mm): 0 % Pool: 40 % Riffle: 60 % Run: 0 % Other: 0 Method: GE Boulder cobble (>256mm): 0 % Side Channel: Method Side Channel: GE GE % Debris Area: Method Debris Area: % Bedrock: % Bedrock: D90 (cm): Compaction: High Cover Method Cover Total %: GE Cover Total %: Banks 0 L.O.D.: Boulder: 0 In Veg.: 0 Over Veg: Cutbank: 40 Dp Pool : Crown Closure %: Method Crown Closure: Method Aspect: Aspect: ΑE Height (m): % Unstable: 0 Gravel: No No Textures Fines: Larges: No Bedrock: Discharge 3 Confinement: Specific Data 2 Valley: Chan. Ratio: Wetted Width (m) : Method Wetted Width (m): Stage: L Mean Depth (m): Method Mean Depth (m): Flood Signs Ht(m): Method Flood Signs: MS Mean Velocity (m/s): Method Mean Velocity (m/s VO GE Braided: Method Braided: Discharge (m3/s): 0.03 Method Discharge (m3/s): Bars (%): 20 Method Bars: GE PH pH: Method pH: Reach Symbol (Fish) 02 (ppm): Method Dissolved Oxygen: NF Water Temp. (°C): Method Temperature: TCl B 8.0 0910 Turb. (cm): Method Turbidity: GE (Width, Valley: Channel, Slope) (Bed Material) Method Conductivity: Cond. (µmhos):

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-736-000-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

Comments

- CI Electrofished 62 m length of stream, I pass with no lower net. No fish were caught or observed.
- C2 2 small Western Spotted frogs were observed at the landing meadow in a 0.2 m wide seepage.
- C3 Creek is subsurface just w/s from the sample site which then reappears in the more confined reach w/s. Suspect channel may dewater in this section during dry years.

- C4 Bar development and gravel bed material suggest flow is high at times.
- C5 Reach 2 begins 1400 in w/s from the mouth and marks the end of fish distribution.
- C6 Lat/Lon of helicopter landing site: 54 24.26 127 20.92

2~-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-745-000-000-000-000-000-000-000-000-000

| Header Informa | ion | | | | | | | | | | • | | | |
|---------------------------|-----------|---------------------------------|--------|-------------|-----------------|------------|-----------|-----|-----|----------------------|------------|---------------------|----------------------|-----------|
| Stream Name: THA | UTIL R. T | RIBUTARY | | Stream "Lo | cal": | TH49 | | | | | | Access: | | 11 |
| | | 45-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | l | Reach Length (km) | 0.7 Method: | : MW |
| Location: SITE | LOCATE | D ~200 in U/S FROM THE MOUTH. | | • | 093L 044 | | | | | Site No.: | l | Length surveyed (n | n): 200.0 Method: | : HC |
| | | | | U.T.M. : | 9.6068 | - | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 T | ime: 14:0 | O Agency: C58 Surve | ey Cre | w: JH\ \ \ | 1 1 1 1 | <u> </u> | | | | Photos: | B11/11, 12 | Air Photos: | BCB-91 | 1181:189 |
| Channel Charac | teristi | cs | | | S | specific D | ata | | j | Bed Material | | | | |
| Av. Chan. Width (m): | 2.1 | Method Av. Chan. Width (m): | T | 1.6 | 1.7 | 2.3 | 2.4 | 2.4 | 2.3 | % Fines (<2mm): | 15 | % Fines (<2mm): | | 15 |
| Av. Wet. Width (m): | 2.0 | Method Av. Wet. Width (m): | T | 2.1 | 2.3 | 2.1 | 1.7 | | | % Gravels: | 25 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm): | 16 | Av. Max. Riffle Depth (cm): | MS | 12 | 22 | 14 | | | | N GILVEIS. | 23 | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm): | 37 | Av. Max. Pool Depth (cm): | 16 | 35 | 41 | 36 | | | | | | | | |
| Gradient (%): | 3.0 | Method Gradient: | CL | • | | | | | | % Larges: | 60 | Small cobble (64-12 | ŕ | |
| % Pool: 30 % F | iMe: 55 | % Run: 15 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128- | · | |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>2 | 56mm): | |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | D90 (cm): | 28 | Compaction: | | High |
| Cover Total % : | 60 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 30 L.O.D.: | 5 | Boulder: 15 In Veg.: | 0 | Over Veg: | 30 | Cutba | nk: | | 20 | Dunks | | | | |
| Crown Closure %: | 60 | Method Crown Closure: | GE | Aspect : | SE | Metho | d Aspect: | | AE | Height (m): | 0.3 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: No I | Larges: Yes Bedrock: | : No |
| Discharge | | | | i | ç, | ecific Da | da. | | | Confinement: | 3 | | | |
| Milana I Milliate (. N . | | Mark of Miras & Wildel (m) | | | Sp | ecijii Du | 14 | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | Method Wetted Width (m): | | | | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | | | | Flood Signs Ht(m): | 0.3 | Method Flood Sigi | is: | MS |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | VO | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s): | 0.08 | Method Discharge (m3/s): | | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbol | | | | | - | | | | | pH: | 7.8 | Method pH: | | PH |
| itain Dynaddi | | (F | ish) | | | | | | | 02 (ppm): | | Method Dissolved | Oxygen: | |
| | | |)V) | | | | | | | Water Temp. (°C): | 2.0 | Method Temperat | иге: | FC |
| | | 2 B 3.0 | 1260 |) | | | | | | Turb. (cm): | 200 | Method Turbidity: | : | GE |
| | | (Width, Valley: Channel, Slope) | (Bec | 1 Material) | | | | | | Cond. (µmhos): | 30 | Method Conductiv | rity: | CM |

2~-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-745-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

- C1 This reach was not fish sampled and no fish were observed. DV are present u/s in R2 but they are suspected to be residents; channel is not defined d/s from the sample site. R1 is classed as S3 habitat.
- C2 No migration barriers were observed in the lower 200 m of stream. Suitable fish habitat is present in R1.
- C3 Air Temp: 0.5 C.

2 -- Mar-9 -

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-745-000-000-000-000-000-000-000

| Header Informa | tion | | | - | | | | | | | | | | |
|---------------------------|---------------------|---------------------------------|--------|-------------|----------------|------------|-----------|-----|-----|----------------------|------------|-------------------------|---------------|-----------|
| Stream Name: TH | UTIL R. T | RIBUTARY | | Stream "Lo | cal": | TH49 | | | | | | Access: | | ŧi |
| Watershed Code: 460 | 6006-50 8- ′ | 45-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 0.7 Method: | MW |
| Location: SIT | LOCATE | D~1250 m U/S FROM THE MOUTH. | | Map#: | 093L044 | | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | HC |
| | | | | U.T.M. : | 9.6068 | .60291 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/8/96 | Cime: 15: | OO Agency: C58 Surv | ey Cre | w: RD\CP\ | 1111 | 1.1 | | | | Photos: | A11/19, 20 | Air Photos: | BCB 911 | 181:189 |
| Channel Ch ara | eteristi | cs . | į | | S | Specific D | ata | | 1 | Bed Material | | | | |
| Av. Chan. Width (m): | 2.3 | Method Av. Chan. Width (m): | Т | 2.6 | 2.1 | 2.4 | 2.0 | 1.9 | 2.7 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | 1.0 | Method Av. Wet. Width (m): | T | 1.1 | 1.0 | 0.7 | 1.1 | | į | % Gravels: | 50 | Small (2-16mm): | | 20 |
| Av. Max. Rif. Depth (cm): | 7 | Av. Max. Riffle Depth (cm): | MS | | | | | | | | • • • | Large (16-64mm): | | 30 |
| Av. Max. Pool Depth (cm) | 35 | Av. Max. Pool Depth (cm): | 7 | | | | | | İ | | 40 | , | | |
| Gradient (%): | 4.0 | | CF | | | | | | | % Larges: | 40 | Small cobble (64-128mm) | | 40 |
| | Riffle: 70 | | 0 | Method: | GE | | | | | | | Large cobble (128-256mn | | 0 |
| % Side Channel: | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |) . | v |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | _ | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | - | - | | | | | _ | D90 (cm): | 8 | Compaction: | | High — |
| Cover Total % : | 60 | Method Cover Total %: | GE | | | | | | | Banks | | _ | | |
| Dp Pool: 10 L.O.D. | 10 | Boulder: 10 In Veg.: | 0 | Over Veg: | 30 | Cutba | nk: | | 40 | | | | | |
| Crown Closure %: | | Method Crown Closure: | | Aspect : | SE | Metho | d Aspect: | ; | ΑE | Height (m): | 1.2 | % Unstable: | | 0 |
| | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges | : No Bedrock: | No |
| Discharge | | | | | Ç, | ecific Da | uto. | | | Confinement: | 4 | | | |
| W-m. 4 Wildel (-) | | Method Wetted Width (m) : | | | S _F | recgie Da | | | i | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | • • | | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | Method Mean Depth (m): | vo | ĺ | | | | | | Flood Signs Ht(m); | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.03 | Method Mean Velocity (m/s | VU | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0.03 | Method Discharge (m3/s): | | <u> </u> | | | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symbol | | | | | | | | | | pH: | 7.6 | Method pH: | | PH |
| | | • | ish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxyge | n: | |
| | | | DV | | | | | | | Water Temp. (°C): | 5.7 | Method Temperature: | | TC |
| | | 2 B 4.0 | 1540 |) | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed | 1 Material) | | | | | | Cond. (µnthos): | 141 | Method Conductivity: | | CM |

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code: 460

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

| Species | Number | Size Range (mm) | Life Phase | Use 1_ | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|--------|-------|-------|------------------|
| DV | 2 | 110, 149 | Α | S | M | _ | EL |

Comments

C1

C4

Small creek with a moderate potential to transport debris. ~20-30 cm high drops over debris are present in this section. Further u/s from the sample site the channel becomes more confined and steepens. R2 is classed as S3 habitat but suspected S3 habitat in the top 400 m of R2.

Sections of heavy alder swales and forest line the creek. D/S from the sample site the creek flows through a wide meadow and is dewatered at the time of survey; the channel is undefined and lower gradient in this section. Suspect the DV caught in sample site 2 are residents based on the dewatered, undefined channel d/s.

Electrofished 45 m length of stream, I pass with no lower net. 2 DV were caught; I DV was a ripe male and the other DV was suspected to be a spent female.

Lat/Lon of helicopter landing site: 54 24.30 127 22.36

C5 Tributary Th49.1 was not ground surveyed; suspect DV are present in the lower 320 m of this stream (to the top of R1) based on gradient.

2 -- Mar-9 --

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-745-000-000-000-000-000-000-000

| Header Inform | ation | | | | - | | | | | | |
|-------------------------|--------------|-----------------------------------|----------------|----------------|---------------|---------|----------------------|------------|---------------------------|-------------|------|
| - | | TRIBUTARY | Stream " | Local": | TH49 | | | | Access: | | н |
| | | 745-000-000-000-000-000-000-000 | | | | | Reach No.: | 3 | | 1.5 Method: | MW |
| | | ED ~100 m U/S FROM THE BASE OF RE | EACH Man#: | 093 L04 | 4 | | Site No.: | 3 | - | 0.0 Method: | HC |
| 3. | | | U.T.M. : | 9.6068 | | | Fish Card: | N | • • • • • | storical: | No |
| Date: 10/8/96 | Time: 16 | 00 Agency: C58 Surve | ey Crew: RD\CP | | | | Photos: | A11/21, 22 | Air Photos: | BCB 9118 | |
| | | | | | | | D-436.4.3.4 | | | | |
| Channel Char | acierisi | ics | i | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | 2 .3 | Method Av. Chan. Width (m): | T 1.4 | 2.0 | 2.4 2.8 | 2.7 2.5 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | 1.0 | Method Av. Wet. Width (m): | Т | | | | % Gravels: | 60 | Small (2-16mm): | | 30 |
| Av. Max. Rif. Depth (cm |): | Av. Max. Riffle Depth (cm): | MS | | | | % Graveis. | 00 | Large (16-64mm): | | 30 |
| Av. Max. Pool Depth (cr | n): 20 | Av. Max. Pool Depth (cm): | 7 | | | | | | | | |
| Gradient (%): | 10.0 | Method Gradient: | CL | | | | % Larges: | 30 | Small cobble (64-128mm): | | 5 |
| % Pooi: 20 | % Riffle: 70 | % Run: 10 % Other: | 0 Method | : GE | | | | | Large cobble (128-256mm): | | 10 |
| % Side Channel: | (| Method Side Channel: | GE | | | | | | Boulder cobble (>256mm): | | 15 |
| % Debris Area: | 10-40 | Method Debris Area: | GE | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | <u></u> | | | D90 (cm): | 28 | Compaction: | | High |
| Cover Total % : | 60 | Method Cover Total %: | GE | | | | Banks | | | | |
| Dp Pool: 5 L.O. | D.: 20 | Boulder: 60 In Veg.: | 0 Over Veg | g: 0 | Cutbank: | | 5 | | | | |
| Crown Closure %: | 20 | Method Crown Closure: | GE Aspect: | SE | Method Aspect | : , | AE | 0.5 | % Unstable: | | 5 |
| | | | · | | | | Textures Fines: | Yes | Gravel: Yes Larges: N | Bedrock: | Nο |
| Discharge | | | i | | Specific Data | | Confinement: | 3 | | | |
| | | | | بد | pecijic Daia | | Valley: Chan. Ratio: | 1 | | | |
| Wetted Width (m) : | | Method Wetted Width (m): | | | | | Stage: | М | | | |
| Mean Depth (m): | | Method Mean Depth (m): | , vo | | | | Flood Signs Ht(m): | 0.3 | Method Flood Signs: | | MS |
| Mean Velocity (m/s): | 0.01 | • • | vo | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0.01 | Method Discharge (m3/s): | | | | | Bars (%): | 10 | Method Bars: | | GE |
| Reach Symbol | 1 | | | | | | рधः: | 8.0 | Method pH: | | PH |
| | | | ish) | | | | 02 (ppm): | | Method Dissolved Oxygen: | | |
| ì | | <u> </u> | NF | | | | Water Temp. (°C): | 5.8 | Method Temperature: | | 10 |
|] | | 2 A 10.0 | 1630 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Bed Material) | | | | Cond. (µmhos): | 59 | Method Conductivity: | | CM |

2^-Mar-9^

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-745-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 Electrofished 70 m length of stream, 1 pass with no lower net. No fish were caught or observed.
- C2 Difficult fish access due to steep gradient. Several ~30-40 cm high drops over boulders or debris are present in this reach. Channel is very confined with 5-10 m high sideslopes.
- C3 Very limited sections suitable for DV spawning; bed material consists primarily of boulder/fines.
- C4 R3 is classed as S6 habitat.
- C5 Lat/Lon of helicopter landing site: 54 24.17 127 22.95

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-804-000-000-000-000-000-000-000

| Header Infor | mation | | | | | | | | | | _ | | | | | _ |
|------------------------|--------------|------------|-------------------|----------------|---------------|-------------|----------|------------|------------|-----|-----|----------------------|------------|---|---------------|-------------|
| - | THAUTIL R. | TRIBI | JTARY | | | Stream "Lo | cal": | TH50 | | | | | | Access: | | 11 |
| Watershed Code: | 460-6006-508 | 8-804-C | 00-000-000-000-0 | 00-000-000-000 | | | | | | | | Reach No.: | ı | Reach Length (km): | 0.2 Method: | MW |
| Location: | SITE LOCAT | ED ~9 | 0 m U/S FROM T | HE MOUTH. | | Мар#: | 093L044 | 1 | | | | Site No.: | ı | Length surveyed (m): | 150.0 Method: | GE |
| | | | | | | U.T.M. : | 9.6063 | .60307 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 | Time: 1 | 6:30 | Agency | : C58 Sui | vey Cr | ew: JH\ \ \ | , , , , | . 1 | | | | Photos: | B11/15, 16 | Air Photos: | BCB 911 | |
| Channel Cha | racteris | tics | | _ <u> </u> | | : | | Specific D |) ata | | | Bed Material | | | | |
| Av. Chan. Width (m): | 1. | 9 M | ethod Av. Chan. | Width (m): | T | 1.4 | 2.2 | 2.4 | 2.2 | 1.8 | 1.6 | % Fines (<2mm): | 80 | % Fines (<2mm): | | 80 |
| Av. Wet. Width (m): | 1 | .9 M | ethod Av. Wet. V | Vidth (m): | T | 1.4 | 2.2 | 2.4 | 2.2 | 1.8 | 1.6 | % Gravels: | 15 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (c | :m): | A | v. Max. Riffle De | pth (cm): | MS | | | | | | | | • • • | Large (16-64mm): | | |
| Av. Max. Pool Depth (| cm): 5 | | v. Max. Pool Dep | th (cm): | | 42 | 65 | 51 | | |] | 1 44 7 | | | | |
| Gradient (%): | | | ethod Gradient: | | CL | | | | | | | % Larges: | 5 | Small cobble (64-128mm) | | |
| % Pool: 30 | % Riffle: | | Run: 60 | % Other: | | Method: | GE | | | | | Ì | | Large cobble (128-256mm Boulder cobble (>256mm | | |
| % Side Channel: | 10-4 | | ethod Side Chan | | GE | | | | | | | <u>.</u> | | | • | ā |
| % Debris Area: | | 0 M | ethod Debris Are | :a: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | _ | | | | | <u>-</u> | | | | | D90 (cm): | 2 | Compaction: | | High ——— |
| Cover Total % : | 4 | 0 M | ethod Cover Tot | al %: | GE | | | | | | | Banks | | | | |
| Dp Peol: 40 L. | O.D.: | 0 B | oulder: 0 | In Veg.: | 0 | Over Veg: | 20 | Cutba | ınk: | | 40 | | | | | |
| Crown Closure %: | | 0 M | lethod Crown Clo | sure: | GE | Aspect: | SE | Metho | od Aspect: | | AE | Height (m): | 0.8 | % Unstable: | | 0 |
| | | | | | - | | | | | | | Textures Fines: | Yes | Gravel: No Larges | No Bedrock: | No |
| Discharge | | | | | | : | 9 | pecific Di | ata | | | Confinement: | 5 | | | |
| Wetted Width (m): | | М | thod Wetted Wic | lth (m) · | | i | | | | | | Valley: Chan. Ratio: | 4 | | | |
| Mean Depth (m): | | | thod Mean Depti | | | Ì | | | | | | Stage: | М | | | |
| Mean Velocity (m/s) : | | | thod Mean Veloc | | | 1 | | | | | | Flood Signs Ht(m): | | Method Flood Signs: | | |
| Discharge (m3/s): | | | thod Discharge (| - ' | | ļ | | | | | | Braided: | Y | Method Braided: | | GE |
| | | | | | | | | | <u> </u> | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symbo | ol | | | | | | | | | | | pH: | 7.9 | Method pll: | | PH |
| | | | | | (Fish) | | | | | | | 02 (ppm)։ | | Method Dissolved Oxyge | n: | |
| | | | | | ST DV | | | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | IC |
| | | | | 2 D 1.0 | 811 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley | Channel, Slope |) (Be | d Material) | | | | | | Cond. (µmhos): | 20 | Method Conductivity: | | CM |

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| | BD | |

Comments

C1 Channel passes through a series of 3 old beaver dams which may be restrictions but are not migration barriers.

C2 This site was not fish sampled; SST and DV were caught ~70 m further u/s and are assumed to be present throughout this tributary.

C3 Air Temp: 1.5 C.

2~-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-804-000-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | _ | | | | | | |
|--|---------|----------|---|---------|-------------|------------------|------------|-----------|-----|----|----------------------|------------|-------------------------|---------------|---------|
| Stream Name: | THAUT | IL R. TI | RIBUTARY | | Stream "Lo | cal": | TH50 | | | | | | Access: | | н |
| Watershed Code: | 460-600 | 6-508-8 | 04-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.2 Method: | MW |
| Location: | SITE L | CATE | D~160 m U/S FROM THE MOUTH. | | Map#: | 09 3L04 4 | ı | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method: | GE |
| | | | | | U.T.M. : | 9.6063 | .60307 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/8/96 | Tim | e: 10:0 | 0 Agency: C58 Surv | vey Cre | w: DB\SS\ | 1 1 1 1 | \ \ | | | | Photos: | DB4/13, 14 | Air Photos: | BCB 911 | 181:189 |
| Channel Ch | aracte | ristic | es | | ! | | Specific D | ata | | 1 | Bed Material | | | | |
| Av. Chan. Width (m | • | 1.6 | Method Av. Chan. Width (m): | T | 1.4 | 1.4 | 1.4 | 2.0 | 2.0 | | % Fines (<2mm): | 20 | % Fines (<2mm): | | 20 |
| Av. Wet. Width (m): Av. Max. Rif. Depth | | 1.6 | Method Av. Wet. Width (m): Av. Max. Riffle Depth (cm): | T MS | 1.4 | 1.4 | 1.4 | 2.0 | 2.0 | İ | % Gravels: | 80 | Small (2-16mm): | | 50 |
| Av. Max. Pool Depti | h (cm): | 15 | Av. Max. Pool Depth (cm): | 10 | 1 | | | | | | | | Large (16-64mm): | | 30 |
| Gradient (%): | ` ' | 1.0 | Method Gradient: | CL | | | | | | 1 | % Larges: | 0 | Small cobble (64-128mm |); | 0 |
| % Pool: 80 | % Riff | le: 20 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256m) | n): | 0 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm |): | 0 |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 6 | Compaction: | | Medium |
| Cover Total % : | | 100 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 I | L.O.D.: | 10 | Boulder: 0 In Veg.: | 90 | Over Veg: | 0 | Cutba | nk: | | 0 | 200000 | | | | |
| Crown Closure %: | | 0 | Method Crown Closure: | GE | Aspect: | SE | Metho | d Aspect: | | ΑE | Height (m): | 0.6 | % Unstable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Large | : No Bedrock: | Nο |
| Discharge | | | | | 1 | S | pecific Da | ıta | | | Confinement: | 5 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | • | | , | | | i | Valley: Chan. Ratio: | 4 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | | | | | | 1 | Stage: | L | | | |
| Mean Velocity (m/s) | ١. | | Method Mean Velocity (m/s | vo | | | | | | Ì | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s) : | ,. | 0.03 | Method Discharge (m3/s): | ,, | | | | | | į | Braided: | N | Method Braided: | | GE |
| | | | | | <u> </u> | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Symb | bol | | | | | | | | | | pH: | 7.2 | Method pH: | | PH |
| | | | • | Fish) | | | | | | | 02 (թրա)։ | | Method Dissolved Oxygo | n: | |
| 1 | | | SS | T DV | | | | | | | Water Temp. (°C): | 7.0 | Method Temperature: | | TC |
| [| | | 2 D 1.0 | 280 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| Ì | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-804-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| SST | 18 3 | 1 - 46 | F | R | | | EL |
| DV | 2 8 | 19, 136 | j | R | | | EL |

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | BD | 0.2 |

- Electrofished 21 m length of stream, I pass with no lower net. DV and SST were caught. The SST caught had highly pigmented fins; suspect due to abundant algae and seepage from the meadow and the tannic color of the water. Suspect SST fry migrate out of the Thautil R. mainstem and occupy Th50 up to the impassable beaver dam at the base of the lake.
- C2 0.75 m high beaver dam at the base of the lake is presently a barrier. Assume fish presence in the lake, but no migration between the lake and tributary is presently possible.
- C3 Several signs of moose were observed, and moose were present in the lake at the time of survey.
- C4 Lat/Lon of helicopter landing site: 54 25.09 127 21.90

2~-Mar-9~

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

460-6006-508-822-000-000-000-000-000-000-000-000

| Header Infor | mation | | | | | | · · · · · · · · · · · · · · · · · · · | | | | |
|---|-----------------|---|------------------|------------|----------------|---------|---------------------------------------|----------|--------------------------|---------------|----------|
| Stream Name: | THAUTIL R. | TRIBUTARY | Stream "Le | ocal": | TH51 | | | | Access: | | Н |
| Watershed Code: | 460-6006-508 | -822-000-000-000-000-000-000-000 | | | | | Reach No.: | 1 | Reach Length (km): | 1.7 Method: | : MW |
| Location: | SITE LOCAT | ED ~200 m U/S FROM THE MOUTH. | Мар #: | 093L044 | 4 | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | : GE |
| | | | U.T.M. : | 9.6065 | .60312 | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 | Time: 9: | 30 Agency: C58 Sur | vey Crew: RD\SS\ | 1 1 1 1 | 11 | | Photos: | A13/7, 8 | Air Photos: | BC 7. | 7326:145 |
| Channel Cha | racterist | ics | | | Specific Data | | Bed Material | | | | |
| Av. Chan. Width (m): | | ` , | T 4.1 T 1.5 | 4.3 3.0 | 4.1 4.6 2.4 | 4.4 3.9 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | 2.: | Method Av. Wet. Width (m): Av. Max. Riffle Depth (cm): | MS 1.5 | 3.0 | 2.4 | | % Gravels: | 70 | Small (2-16mm): | | 20 |
| Av. Max. Rif. Depth (d Av. Max. Pool Depth (| | • • • | 9 | | | | | | Large (16-64mm): | | 50 |
| Gradient (%): | (cm): 42 1.1 | • ` ` | CL | | | | % Larges: | 20 | Small cobble (64-128mm); | | 20 |
| % Pool: 30 | % Riffle: 3 | | | GE | | | | | Large cobble (128-256mm | : | O |
| % Side Channel: | | Method Side Channel: | GE | GL | | | | | Boulder cobble (>256mm) | | 0 |
| % Debris Area: | 0-10 | | GE | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| | | | | | | | _ | • | | | · · |
| Cover | | | | | | | D90 (cm): | | Compaction: | | High |
| Cover Total % : | 60 | | GE | | | | Banks | | | | |
| · • | O.D.: 10 | | 0 Over Veg: | 10 | Cutbank: | 30 | | | | | |
| Crown Closure %: | | Method Crown Closure: | Aspect : | SE | Method Aspect: | : A | E Height (m): | 0.8 | % Unstable: | | 0 |
| | _ | | _ | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | : No |
| Discharge | | | | S | Specific Data | | Confinement: | 4 | | | |
| Wetted Width (m) : | | Method Wetted Width (m): | İ | | • | | Valley: Chan. Ratio: | 4 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | | | | Stage: | M | | | |
| Mean Velocity (m/s) : | | Method Mean Velocity (m/s | vo | | | | Flood Signs Ht(m): | 0.5 | Method Flood Signs: | | MS |
| Discharge (m3/s): | 0.06 | • • | | | | | Braided: | N | Method Braided: | | GE |
| | _ | | | | <u> </u> | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symbo | ol | | Pi.LV | | | | pH: | 7.9 | Method pH: | | PH |
| [| | | Fish) | | | | 02 (թթու)։ | | Method Dissolved Oxygen | : | |
| | | | (DV) | | | | Water Temp. (°C): | 2.0 | Method Temperature: | | TC |
| | | 4 D 1.0 | 1 | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope |) (Bed Material) | | | | Cond. (µmhos): | 60 | Method Conductivity: | | CM |

Stream: THAUTIL R. TRIBUTARY 2"-Mar-9"

Stream Survey Report Watershed Code:

460-6006-508-822-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Planimetric View

Fish Summary **Obstructions**

Comments

Cl Electrofished 55 m length of stream, I pass with no lower net. No fish were caught or observed. C2 Low gradient creek with bed material consisting of gravels. Areas suitable for DV spawning are present. Habitat is suitable for fish although none were observed. The swamp/dry lake just u/s from the sample site was wetted at the time of sampling due to rain but was dry the day before (Photos A11/23, 24); suspect the majority of R1 is C3 seasonally wetted and is classed as S3 habitat. C4 Lat/Lon of helicopter landing site: 54 25.20 127 21.75

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-822-000-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|---------------------|---------|------------------|--|-----------|-------------|---------|------------|-----------|-----|----|----------------------|------------|--|---------------|----------|
| Stream Name: | THAUT | ILR. T | RIBUTARY | | Stream "Lo | cal": | TH51 | | | | | | Access: | | H |
| Watershed Code: | 460-600 | 6-508 - 8 | 22-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 3.1 Method | i: MW |
| Location: | | | 2500 m U/S FROM THE BASE OF | | Map #: | 093L043 | 3 | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method | l: GE |
| | REACH | 2; AD. | IACENT TO SMALL MEADOW. | | U.T.M.: | 9.6037 | .60312 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 | Time | e: 9:30 | Agency: C58 Surv | ey Cre | w: DB\SS\ | 1 1 1 1 | 1.1 | | | | Photos: | DB4/15, 16 | Air Photos: | BC | 7326:145 |
| Channel Ch | aracte | ristic | es | | I | Š | Specific D | Vata | | į | Bed Material | | | | |
| Av. Chan. Width (m) | : | 8.5 | Method Av. Chan. Width (m): | T | 10.5 | 9.2 | 6.6 | 7.9 | 8.1 | İ | % Fines (<2mm): | 0 | % Fines (<2mm): | | 0 |
| Av. Wet. Width (m): | | 3.2 | Method Av. Wet. Width (m): | T | 3.2 | 2.4 | 3.0 | 4.5 | 3.0 | | % Gravels: | 10 | Small (2-16mm): | | 0 |
| Av. Max. Rif. Depth | (cm): | 10 | Av. Max. Riffle Depth (cm): | MS | | | | | | 1 | | | Large (16-64mm): | | 10 |
| Av. Max. Pool Depth | (cm): | 25 | Av. Max. Pool Depth (cm): | 10 | | | | | | | 9 / 1 | 00 | | | 20 |
| Gradient (%): | | 3.0 | Method Gradient: | CL | | | | | | | % Larges: | 90 | Small cobble (64-128mm) | | 50 |
| % Pool: 10 | % RiM | | % Run: 0 % Other: | 0 | Method: | GE | | | | | 1 | | Large cobble (128-256mm Boulder cobble (>256mm) | | 20 |
| % Side Channel: | | 0-10 | Method Side Channel: | GE | | | | | | | | | | , | |
| % Debris Area: | | >40 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | Ó |
| Cover | _ | | | | | | | | | | D90 (cm): | 30 | Compaction: | | High |
| Cover Total % : | | 70 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 L | O.D.: | 50 | Boulder: 50 In Veg.: | 0 | Over Veg: | 0 | Cutba | ınk: | | 0 | | | | | |
| Crown Closure %: | | 25 | Method Crown Closure: | GE | Aspect: | E | Metho | od Aspect | : | AE | Height (m): | 1.0 | % Unstable: | | 75 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: No Larges | : Yes Bedrock | k: No |
| Discharge | | | | | | c | pecific Da | nta | | | Confinement: | 2 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | [| | perga Di | | | | Valley: Chan. Ratio: | i | | | |
| ` ' | | | | | Ì | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mean Depth (m): Method Mean Velocity (m/s | vo | | | | | | | Flood Signs H1(m): | 0.6 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | • | 0.17 | Method Discharge (m3/s): | VO | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.17 | | | <u> </u> | | | <u> </u> | | | Bars (%): | 30 | Method Bars: | | GE |
| Reach Symb | ol | | | | | | | | | | pH: | 7.8 | Method pH: | | PH |
| | - | | • | ish) | | | | | | | 02 (թրա)։ | | Method Dissolved Oxyge | n; | |
| | | | | DV ——— | | | | | | | Water Temp. (°C): | 4.0 | Method Temperature: | | IC |
| 1 | | | 9 A 3.0 | 019 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| Į | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | | Method Conductivity: | | |

Stream: THAUTIL R. TRIBUTARY 2"-Mar-9"

Stream Survey Report Watershed Code:

460-6006-508-822-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 5 | 58 - 84 | J | R | | | EL |
| DV | 1 | 139 | A | M | R | | EL |

Lat/Lon of helicopter landing site: 54 25.24 127 24.11

Obstructions

Comments

CI

C5

C2 Very dynamic system with abundant LOD stepped and jammed across the channel. Bed material is large and appears to be highly mobile; creek has a high potential to transport debris and bed material. C3 Banks on river right are ~100 feet in height. C4 Channel width is wider in R2 than in R1; R2 is classed as an S2 stream.

Electrofished 30 m length of stream, 1 pass with no lower net; DV were caught. Suspect DV are residents due to subsurface flow in the vicinity of the dry lake bed in R1;

2 -Mar-9 -

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-822-000-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | _ | | _ | | | | | | | | | | |
|---------------------|---------|---------|---------------|--------------|---------------|----------|-------------|---------|------------|-----------|-----|-----|----------------------|------------|--------------------------|-------------|----------|
| Stream Name: | THAUT | IL R. T | RIBUTARY | | | | Stream "Le | ocal": | TH51 | | | | | | Access: | | H |
| Watershed Code: | 460-600 | 6-508-8 | 322-000-000-0 | 00-000-000 | -000-000-000 | | | | | | | | Reach No.: | 3 | Reach Length (km): | 2.0 Method | i: MW |
| Location: | | | D~1000 m U/ | S FROM T | HE BASE OF | | Map#: | 093L043 | | | | | Site No.: | 3 | Length surveyed (m): | 60.0 Method | I: HC |
| | REACH | 3. | | | | | U.T.M.: | 9.6029 | .60311 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 | Tim | e: 9:1: | 5 | Agency: | C58 Sui | rvey Cre | w: DB\CP\ | 1 1 1 1 | 1 1 | | | | Photos: | DB4/17, 18 | Air Photos: | BC | 7326:142 |
| Channel Ch | aracte | risti | cs | | | | | | Specific L | Data | | ļ | Bed Material | | | | |
| Av. Chan. Width (m |): | 1.1 | Method Av | . Chan. Wi | idth (m): | T | 0.7 | 0.6 | 0.9 | 1.2 | 1.9 | 1.6 | % Fines (<2mm): | 70 | % Fines (<2mm): | | 70 |
| Av. Wet. Width (m): | | 1.1 | Method Av | . Wet. Wid | lth (m): | T | 0.7 | 0.6 | 0.9 | 1.2 | 1.9 | 1.6 | , , , | | | | |
| Av. Max. Rif. Depth | (cm): | 24 | Av. Max. R | Riffle Depth | (cm): | MS | 22 | 25 | | | | 1 | % Gravels: | 30 | Small (2-16mm): | | 20 10 |
| Av. Max. Pool Depth | (cm): | 31 | Av. Max. P | ool Depth (| (cm): | 24 | 32 | 28 | 34 | | | | | | Large (16-64mm): | | 10 |
| Gradient (%): | | 2.0 | Method Gr | adient: | | CL | • | | | | | , | % Larges: | 0 | Small cobble (64-128mm): | | 0 |
| % Pool: 70 | % Riff | le: 10 | % Run: | 20 | % Other: | . 0 | Method: | GE | | | | | | | Large cobble (128-256mm) | : | 0 |
| % Side Channel: | | 0 | Method Sid | ie Channel: | : | GE | | | | | | | | | Boulder cobble (>256mm): | | 0 |
| % Debris Area: | | 0 | Method De | bris Area: | | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | | | D90 (cm): | 3 | Compaction: | | High |
| Cover Total % : | | 75 | Method Co | ver Totai % | %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 0 I | O.D.: | 0 | Boulder: | 0 | In Veg.: | 20 | Over Veg: | 70 | Cutba | ınk: | | 10 | Dunns | | | | |
| Crown Closure %: | | | Method Cr | own Closui | re: | | Aspect: | E | Metho | od Aspect | : | AE | Height (m): | 0.6 | % Unstable: | | U |
| | | | | | | | | | _ | | | | Textures Fines: | Yes | Gravel: No Larges: | No Bedrock | c No |
| Discharge | | | | | | | : | c. | ecific D | ~*A | | | Confinement: | 4 | | | |
| 111 1 111 1 | | | 80-4-335-4 | | | | ! | SĮ | recyce De | | | | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wet | | ` . | | | | | | | | Stage: | L | | | |
| Mean Depth (m): | | | Method Mea | • | • | vo | | | | | | : | Flood Signs Ht(m): | 0.1 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) | • | 0.03 | Method Mea | = | • | VO | | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.03 | Method Disc | cnarge (mɔ/ | /5): | | | | | | | | Bars (%): | 0 | Method Bars: | | GE |
| Reach Syml | ol | | | | | | | | | | | | pH: | 8.1 | Method pH: | | PH |
| | | | | | (| (Fish) | | | | | | | 02 (րթա)։ | | Method Dissolved Oxygen | : | |
| | | | | | | NF | | | | | | | Water Temp. (°C): | 1.0 | Method Temperature: | | IC. |
| | | | | | 1 B 2.0 | 7300 |) | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width | , Valley: Cl | hannel, Slope |) (Bed | l Material) | | | | | | Cond. (µmhos): | 20 | Method Conductivity: | | CM |

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-822-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 Electrofished 60 m length of stream, 1 pass with no lower net. No fish were caught or observed.
- C2 Suspect fish use ends a the top of R2. No barriers were observed throughout R2 and R3 but it was difficult to see small creek within the forest. R3 is classed as S5 habitat.
- C3 Air Temp: 5 C.
- C4 Lat/Lon of helicopter landing site: 54 25.02 127 25.72

2 -- Mar-9 -

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

| Header Informat | ion | | _ | · | | - | <u> </u> | | - | | | | | |
|---------------------------|--------------------|---|--------|--------------|-----------------|------------|-----------|----------|----------|----------------------|---------------|-----------------------|-----------------|----------|
| Stream Name: THAL | ITIL R. T | RIBUTARY | | Stream "Lo | cal": | TH53 | | | | | | Access: | | н |
| Watershed Code: 460-6 | 006-508- | 895-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.9 Metho | od: MW |
| Location: SITE | LOCATE | D~135 m U/S FROM THE MOUTH. | | Map #: | 093 L044 | | | | | Site No.: | ı | Length surveyed (m): | 300.0 Metho | od: HC |
| | | | | U.T.M. : | 9.6087 | .60326 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/22/96 Ti | me: 13: | 30 Agency: C58 Surv | ey Cro | ew: JH\SS\ \ | 111 | \ \ | | | | Photos: | not available | Air Photos: | BC | 7326:147 |
| Channel Characi | eristi | c s | | | S | Specific D | ata | | _ | Bed Material | | | | |
| Av. Chan. Width (m): | 1.6 | Method Av. Chan. Width (m): | T | 1.3 | 1.8 | 1.5 | 1.6 | 1.3 | 1.8 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | 1.0 | Method Av. Wet. Width (m): | T | 1.0 | 1.1 | 1.0 | | |] | % Gravels: | 20 | Small (2-16mm): | | |
| Av. Max. Rif. Depth (cm): | 12 | Av. Max. Riffle Depth (cm): | MS | 9 | 12 | 15 | | | ļ | 70 Graveis. | 20 | Large (16-64mm): | | |
| Av. Max. Pool Depth (cm): | 21 | Av. Max. Pool Depth (cm): | 12 | 19 | 18 | 26 | | | 1 | | | - | | |
| Gradient (%): | 13.0 | Method Gradient: | CL | | | | | | | % Larges: | 75 | Small cobble (64-128m | | |
| % Pool: 20 % R | if fl e: 80 | % Run: 0 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256 | | |
| % Side Channel: | 0-10 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256n | nm): | |
| % Debris Area: | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | _ | | | | | - | | | | D90 (cm): | 34 | Compaction: | | Medium |
| Cover Total % : | 35 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 20 L.O.D.: | 5 | Boulder: 25 In Veg.: | 0 | Over Veg: | 30 | Cutba | nk: | | 20 | Dunns | | | | |
| Crown Closure %: | 15 | Method Crown Closure: | GE | Aspect : | S | Metho | d Aspect: | | AE | Height (m): | 0.4 | % Unstable: | | O |
| _ | | | | | | | | | | Textures Fines: | No | Gravel: No Lar | ges: Yes Bedroo | ck: No |
| Discharge | | | | | . 0 | ecific Da | ıta | | | Confinement: | 2 | | | |
| Wetted Width (m) : | | Method Wetted Width (m): | | 1 | ~, | occigic Du | | | | Valley: Chan. Ratio: | 1 | | | |
| Mean Depth (m): | | Method Mean Depth (m): | | i | | | | | | Stage: | М | | | |
| Mean Velocity (m/s): | | Method Mean Velocity (m/s | vo | 1 | | | | | : | Flood Signs Ht(m): | | Method Flood Signs: | | |
| , , , | 0.02 | • | VO | | | | | | ! | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | 0.02 | | | <u> </u> | | | | <u>.</u> | <u>.</u> | Bars (%): | | Method Bars: | | |
| Reach Symbol | | | | | | | | | | pH: | 8.1 | Method pH: | | PH |
| | | ` | ish) | | | | | | | 02 (ppm): | | Method Dissolved Oxy | ygen: | |
| | | | DV | | | | | | | Water Temp. (°C): | 3.0 | Method Temperature | : | IC |
| | | 2 A 130 | 127 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | 100 | Method Conductivity: | | CM |

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Stream Survey Report Watershed Code:

460-6006-508-895-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

| Species | Number | Size Range (mm) | Life Phase | Use 1 | Use 2 | Use 3 | Method/Reference |
|---------|--------|-----------------|------------|-------|-------|-------|------------------|
| DV | 2 | 100, 135 | A | М | S | | EL |

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | Х | 0.1 |

Comments

C6

C1 Electrofished 40 m length of stream, I pass with no lower net. DV were caught. C2 The gradient from mouth of creek is 16-18% which then decreases going u/s to 9-12%. C3 The lower 135 m of stream contains several debris/rock jams up to 0.9 m in height; none are migration barriers. C4 ~135 m u/s from the mouth, an unmapped tributary flows into Th53 on river left; the gradient is 20% from the mouth and no fish habitat is present. C5 Air Temp: 5 C.

R1 is classed a S3 habitat to 300 m, suspected S3 habitat from 300 m to 600 m, and S6 habitat u/s of 600 m.

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-895-000-000-000-000-000-000-000-000

| Header Info | matic | on | | | | | | | | | | | | | | | | |
|-------------------------------|---------|-------------------|--------------------|--------------------|-------------|--------------|---------------|------------------|------------|---------|-----|-----|----------------------|------------|--------------------|-------------|----------|--------|
| Stream Name: | | | RIBUTARY | | | | Stream " | Local": | TH53 | | | | | | Access: | | | Н |
| Watershed Code: | 460-600 |)6-50 8- 8 | 95-000-000- | 000-000-00 | 0-000-0004 | 000 | | | | | | | Reach No.: | 3 | Reach Length (km | ı): 1.5 | Method: | MW |
| Location: | | | D ~100 m U/ | | | F REAC | H Map#: | 093L 04 4 | 4 | | | | Site No.: | 2 | Length surveyed (| m): 57.0 | Method: | HC |
| | 3, IN L | OWER | SECTION O | F UPPER N | MEADOW. | | U.T.M.; | 9.6087 | .60326 | | | | Fish Card: | N | Field: Yes | Histor | ical: | Nο |
| Date: 10/15/96 | Tim | ie: 20:0 | 00 | Agency: | C58 | Survey C | rew: DB\CP | | | | | | Photos: | DB4/21, 22 | Air Photos: | | BC 73 | 26:147 |
| Channel Ch | racte | risti | cs | | | | | | Specific D | ata | *** | ! | Bed Material | | | | | |
| Av. Chan. Width (m) | : | 0.9 | | v. Chan. V | ` , | T | 0.6 | 1.1 | 1.2 | 1.0 | 0.8 | 0.5 | % Fines (<2mm): | 40 | % Fines (<2mm): | | | 40 |
| Av. Wet. Width (m): | | 0.9 | | v. Wet. Wi | ` ' | T | 1 | 1.1 | 1.2 | 1.0 | 0.8 | 0.5 | % Gravels: | 30 | Smail (2-16mm): | | | 30 |
| Av. Max. Rif. Depth | | 10 | | Riffle Dept | | MS | 10 | 10 | 10 | | | 1 |] | | Large (16-64mm): | : | | 0 |
| Av. Max. Pool Depth | (cm): | 22 | | Pool Depth | ı (cm): | 10 | 20 | 20 | 25 | | | } | % Larges: | 30 | Small cobble (64-1 | 128mm): | | 0 |
| Gradient (%): % Pool: 20 | 9/ D:0 | 12.0 Ne: 60 | Method G % Run: | 20 | % Otl | CL ner: 0 | Method | . CE | | | | | , s canges. | 30 | Large cobble (128 | • | | 20 |
| % Pool: 20 % Side Channel: | 76 KIII | ne: 60 0 | | 20 ide Channe | | ier: U GE | | : UE | | | | | | | Boulder cobble (> | | | 10 |
| % Debris Area: | | 0 | | ebris Ar ea | | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | · | | () |
| 76 Debits Area: | _ | | Method 1 | eurs Area | ١٠ | OL. | | | | | | | 1 | _ | | | | |
| Cover | | | | | | | | | | | | | D90 (cm): | 26 | Compaction: | | | High |
| Cover Total % : | | 100 | Method C | Cover Total | % : | GE | | | | | | | Banks | | | | | |
| Dp Pool: 0 L | .O.D.: | 0 | Boulder: | 0 | In Veg. | : 10 | Over Veg | ;: 70 | Cutba | nk: | | 20 | | | | | | |
| Crown Closure %: | | 70 | Method C | Crown Clos | ure: | GE | Aspect : | sw | Metho | d Aspec | t: | AE | Height (m): | 0.3 | % Unstable: | | | 0 |
| | | | | | | | | | | | | | Textures Fines: | Yes | Gravel: No | Larges: Yes | Bedrock: | No |
| Discharge | | | | | | | | S | pecific Da | ıta | | | Confinement: | 3 | | | | |
| Wetted Width (m): | | | Method W | etted Widt | h (m) · | | i | _ | | | | | Valley: Chan. Ratio: | 2 | | | | |
| Mean Depth (m) : | | | Method M | | , , | | | | | | | | Stage: | М | | | | |
| Mean Velocity (m/s) | : | | Method M | - | | vo | | | | | | 1 | Flood Signs Ht(m): | | Method Flood Sig | ıns: | | |
| Discharge (m3/s): | • | 0.04 | Method Di | | • • | | : | | | | | | Braided: | N | Method Braided: | | | GE |
| - seemings (more) v | | | | 60 (| | | | | | | | | Bars (%): | 0 | Method Bars: | | | GE |
| Reach Symb | ol | | | | | (8) 1 > | | | | | | | pft: | 8.0 | Method pll: | | | PH |
| | | | | | | (Fish) | | | | | | | 02 (բթու)։ | | Method Dissolved | l Oxygen: | | |
| | | | | | | NF | | | | | | | Water Temp. (°C): | 2.0 | Method Tempera | ture: | | IC |
| | | | | | I B | 12.0 43 | 30 | | | | | | Turb. (cm): | 200 | Method Turbidity | y: | | GE |
| | | | (Widt | h, Valley: | Channel, St | ope) (E | led Material) | | | | | | Cond. (µmhos): | 130 | Method Conducti | ivity: | | CM |

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-895-000-000-000-000-000-000-000-000

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary

Obstructions

- C1 Electrofished 57 m length of stream, 1 pass with no lower net. No fish were caught or observed.
- No barriers were noted by air d/s of the sample site, but creek is small and hard to see. R2 and R3 are classed as S6 habitat based on size and gradient of the tributary.
- C3 Deer tracks were noted in the snow.
- C4 Thick moss is present on the channel bed material.
- C5 Lat/Lon of helicopter landing site: 54 26.81 127 19.13

2"-Mar-9"

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report 460-6006-508-940-000-000-000-000-000-000-000-000

| Header Info | rmatio | n | | | | | | | | | | | | | |
|---------------------|------------------|-----------------|---------------------------------|---------|-------------|---------|-------------|-----------|-----|-----|----------------------|------------|---------------------------|---------------|----------|
| Stream Name: | THAUT | IL R. TI | RIBUTARY | | Stream "Lo | cal": | TH54 | | | | | | Access: | | н |
| Watershed Code: | 460-600 | 6-50 8-9 | 40-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 1 | Reach Length (km): | 0.8 Method: | : MW |
| Location: | SITE LO | CATE | ~670 m U/S FROM THE MOUTH. | | Map#: | 093L044 | 1 | | | | Site No.: | 1 | Length surveyed (m): | 100.0 Method: | : HC |
| | | | | | U.T.M. : | 9.6091 | .60328 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 | Time | e: 13:0 | O Agency: C58 Sur | vey Cre | w: RD\SS\ | \ \ \ \ | ١ ١ | | | | Photos: | A13/13, 14 | Air Photos: | BC 7 | 7326:148 |
| Channel Ch | aracte | ristic | es | | | | Specific Da | ta | | ĺ | Bed Material | | | | |
| Av. Chan. Width (m |): | 2.2 | Method Av. Chan. Width (m): | T | 2.3 | 2.3 | 2.5 | 1.8 | 2.4 | 1.9 | % Fines (<2mm): | 5 | % Fines (<2mm): | | 5 |
| Av. Wet. Width (m): | : | 2.2 | Method Av. Wet. Width (m): | T | 2.1 | 2.2 | 2.5 | 1.7 | 2.4 | | % Gravels: | 25 | Small (2-16mm): | | 5 |
| Av. Max. Rif. Depth | (cm): | 9 | Av. Max. Riffle Depth (cm): | MS | | | | | | | 70 Graveis. | 23 | Large (16-64mm): | | 20 |
| Av. Max. Pool Depti | h (cm): | 36 | Av. Max. Pool Depth (cm): | 9 | i ! | | | | | | | 70 | | | |
| Gradient (%): | | 9.0 | Method Gradient: | CF | | | | | | | % Larges: | 70 | Small cobble (64-128mm): | | 50 15 |
| % Pool: 20 | % Riff | le: 75 | % Run: 5 % Other: | 0 | Method: | GE | | | | | | | Large cobble (128-256nim) | : | 5 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | Boulder cobble (>256mm): | | |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 22 | Compaction: | | Medium |
| Cover Total %: | | 80 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 25 I | L.O. D .: | 10 | Boulder: 50 In Veg.: | 10 | Over Veg: | 0 | Cutban | k: | | 5 | | | | | |
| Crown Closure %: | | | Method Crown Closure: | | Aspect: | NW | Method | l Aspect: | | AE | Height (m): | 0.6 | % Unstable: | | 10 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock: | : No |
| Discharge | | | | | | | pecific Dat | | | | Confinement: | 3 | | | |
| Ŭ | | | | | 1 | 3) | pecific Dai | ď | | i | Valley: Chan. Ratio: | 2 | | | |
| Wetted Width (m): | | | Method Wetted Width (m): | | | | | | | ! | Stage: | М | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | t | | | | | 1 | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Mean Velocity (m/s) |): | 0.07 | Method Mean Velocity (m/s | vo | I | | | | | | Braided: | N | Method Braided: | | GE |
| Discharge (m3/s) : | | 0.06 | Method Discharge (m3/s): | | | | | | | | Bars (%): | 2 | Method Bars: | | Gb |
| Reach Syml | hal | | | | | | | | | | pH: | 7.8 | Method pH: | | PH |
| Syme | | | · | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxygen | : | |
| | | | | (DV) | | | | | | | Water Temp. (°C): | 1.9 | Method Temperature: | | TC |
| | | | 2 B 9.0 | 127 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | 60 | Method Conductivity: | | CM |

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream/Valley Cross-Section

Planimetric View

Fish Summary

Obstructions

| Obstruction Ht(m) | Туре | Location |
|-------------------|------|----------|
| 1 | F | 0.3 |
| 2 | F | 0.5 |

- Electrofished 78 m length of stream, 1 pass with no lower net. No fish were caught or observed although habitat is suitable for fish use. Creek may be too steep to support fish or the ~1.5 m high falls located ~500 m w/s from the mouth may be a migration barrier. The 0.8 m high falls at 300 m is a restriction to fish but not a barrier.
- C2 R1 is classed as suspected S3 habitat up to the 1.5 m high falls and S6 habitat u/s from the falls.
- C3 Channel is confined; numerous 15-20 m high eroding banks were observed on river left in the lower 300 m of the creek.
- C4 Lat/Lon of helicopter landing site: 54 25.78 127 19.23

2 -- Mar-9 -

Stream: THAUTIL R. TRIBUTARY

Watershed Code:

Stream Survey Report

| Header Infor | rmatio | n | | | | | | | | | | | | | |
|-----------------------|----------------|------------------|---------------------------------|---------|-------------|-----------------|------------|------------|-----|-----|----------------------|------------|---|--------------|----------|
| Stream Name: | THAUTI | IL R. TI | RIBUTARY | | Stream "Lo | cal": | TH54 | | | | | | Access: | | 11 |
| Watershed Code: | 460-600 | 6-50 8- 9 | 40-000-000-000-000-000-000-000 | | | | | | | | Reach No.: | 2 | Reach Length (km): | 2.8 Method | t: MW |
| Location: | SITE LO | CATE | ~1550 m U/S FROM THE MOUTH. | | Map #: | 093L 044 | ŀ | | | | Site No.: | 2 | Length surveyed (m): | 100.0 Method | t: HC |
| | | | | | U.T.M. : | 9.6091 | .60328 | | | | Fish Card: | N | Field: Yes | Historical: | No |
| Date: 10/15/96 | Time | : 12:0 | 0 Agency: C58 Surv | vey Cre | ew: RD\SS\ | , , , , | ١ ١ | | | | Photos: | A13/11, 12 | Air Photos: | BC | 7326:148 |
| Channel Cha | aracte | ristic | es | | | | Specific L | Data | | | Bed Material | | | | |
| Av. Chan. Width (m): | : | 0.9 | Method Av. Chan. Width (m): | T | 1.0 | 0.7 | 1.1 | 0.9 | 1.1 | 0.8 | % Fines (<2mm): | 10 | % Fines (<2mm): | | 10 |
| Av. Wet. Width (m): | | 0.7 | Method Av. Wet. Width (m): | T | 0.4 | 0.7 | 0.6 | 0.8 | 0.9 | 0.8 | % Gravels: | 40 | Small (2-16mm): | | 10 |
| Av. Max. Rif. Depth (| (c m): | 4 | Av. Max. Riffle Depth (cm): | MS | ! | | | | | | | | Large (16-64mm): | | 30 |
| Av. Max. Pool Depth | (cm): | 26 | Av. Max. Pool Depth (cm): | 4 | | | | | | | | 50 | • . | | 40 |
| Gradient (%): | | 5.0 | Method Gradient: | CL | | | | | | | Larges: | 50 | Small cobble (64-128mm): Large cobble (128-256mm | | 10 |
| % Pool: 30 | % RiM | | % Run: 30 % Other: | | Method: | GE | | | | | 1 | | Boulder cobble (>256mm) | | 0 |
| % Side Channel: | | 0 | Method Side Channel: | GE | | | | | | | | | | • | _ |
| % Debris Area: | | 0-10 | Method Debris Area: | GE | | | | | | | % Bedrock: | 0 | % Bedrock: | | 0 |
| Cover | | | | | | | | | | | D90 (cm): | 11 | Compaction: | | High |
| Cover Total % : | | 5 | Method Cover Total %: | GE | | | | | | | Banks | | | | |
| Dp Pool: 15 L. | .O.D.: | 5 | Boulder: 45 In Veg.: | 15 | Over Veg: | 0 | Cutb | ank: | | 20 | | | | | |
| Crown Closure %: | | 3 | Method Crown Closure: | GE | Aspect : | NW | Meth | od Aspect: | | AF | Height (m): | 0.7 | % l'instable: | | 0 |
| | | | | | | | | | | | Textures Fines: | Yes | Gravel: Yes Larges: | No Bedrock | i: No |
| Discharge | | | | | | S | ecific D | ata | | | Confinement: | 3 | | | |
| Wetted Width (m) : | | | Method Wetted Width (m): | | | -, | , | | | | Valley: Chan. Ratio: | 2 | | | |
| Mean Depth (m): | | | Method Mean Depth (m): | | : | | | | | | Stage: | L | | | |
| Mean Velocity (m/s) : | | | Method Mean Velocity (m/s | vo | | | | | | | Flood Signs Ht(m): | 0.2 | Method Flood Signs: | | MS |
| Discharge (m3/s): | • | 0.01 | Method Discharge (m3/s): | •• | 1 | | | | | | Braided: | N | Method Braided: | | GE |
| Diocuar Be (mo/s) : | | | | | | | | | | | Bars (%): | 15 | Method Bars: | | GE |
| Reach Symbo | ol | | | | | | | | | | pH: | 7.9 | Method pll: | | PH |
| | | | , | Fish) | | | | | | | 02 (ppm): | | Method Dissolved Oxyger | ı: | |
| | | | | NF | | | | | | | Water Temp. (°C): | 2.5 | Method Temperature: | | TC |
| 1 | | | 1 B 5.0 | 145 | 0 | | | | | | Turb. (cm): | 200 | Method Turbidity: | | GE |
| | | | (Width, Valley: Channel, Slope) | (Be | d Material) | | | | | | Cond. (µmhos): | 40 | Method Conductivity: | | CM |
| | | | | _ | | | | | | | | | | | |

2"-Mar-9" Stream: THAUTIL R. TRIBUTARY

Watershed Code: 460-6006-

Stream Survey Report

Stream/Valley Cross-Section

Stream/Valley Cross Section

Fish Summary Obstructions

Comments

Electrofished 95 m length of stream, I pass with no lower net. No fish were caught or observed.

Small, stable creek; suitable for fish throughout R2 but may be too small to support residents (1.5 m high falls in R1 is a barrier to fish migration.). Suspect creek dewaters/freezes in the winter. Pockets of suitable DV spawning habitat are present.

R2 is classed as S6 habitat.

C4 Lat/Lon of helicopter landing site: 54 25.37 127 19.08