

Al Irvine
New Graph Environment
al@newgraphenvironment
250-777-1518
Date: 2021-07-21

Re: Safety Plan

The latest version of this pdf can be downloaded [here](#).

A zip file which includes kml (google earth) and gpx (garmin) files of the sites to be potentially assessed can be downloaded [here](#). Georeferenced pdf maps can be accessed and downloaded for the [Bulkley here](#) and [Morice here](#).

Field work methods will generally follow procedures in [fish passage assessments](#) and [habitat confirmations](#) protocol documents. Presence/absence of fish, species composition/density and distribution limits can be useful for prioritizing which crossings are a best fit for fish passage restoration and help inform follow up monitoring so electrofishing and minnowtrapping may be conducted. Standard Fish and Fish Habitat Inventory Standard Field Form [site cards](#) are used to gather habitat data.

A summary of sites to be potentially assessed is included as Table [1](#) and an overview map of displaying potential sample locations is included as Figure 1.

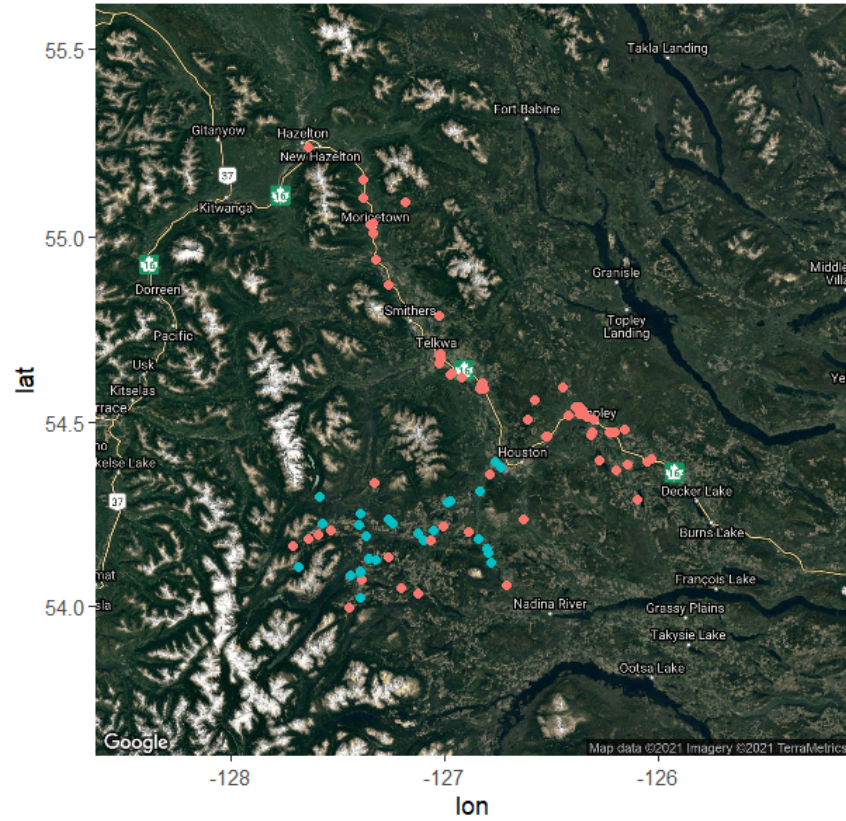


Figure 1. Map of potential sampling areas. High priority sites in red and moderate priority in green.

Table 1: Potential sample locations in the Bulkley River and Morice River watershed groups.

| id_xing | Stream | lat | long | source | id_map | comments | sp_upstr |
|---------|--------------------|----------|-----------|--------|----------|--|--|
| 3042 | Barren Creek | 54.50932 | -126.6142 | 2020 | 093L.114 | – | – |
| 3054 | – | 54.59474 | -126.4478 | 2020 | 093L.114 | – | {RB} |
| 3139 | – | 54.56012 | -126.5773 | 2020 | 093L.114 | – | – |
| 57944 | Toboggan Creek | 54.93977 | -127.3183 | cwf | 093L.122 | – | {CC,CH,CO,CT,DV,KO,L,LSU,MW,OS,PK,RB,SK,SST,ST} |
| 58159 | McDowell Creek | 54.67521 | -127.0204 | 2020 | 093L.118 | – | {CO,RB} |
| 123445 | Tyhee Creek | 54.68440 | -127.0263 | 2020 | 093L.118 | – | {BB,C,CAS,CC,CH,CM,CO,CT,GPW,LSU,MW,NSC,PCC,PK,PW,RB,RDC,RS} |
| 123446 | Tyhee Creek | 54.68713 | -127.0218 | 2020 | 093L.118 | – | {BB,C,CAS,CC,CH,CM,CO,CT,GPW,LSU,MW,NSC,PCC,PK,PW,RB,RDC,RS} |
| 123770 | John Brown Creek | 55.01008 | -127.3326 | cwf | 093M.102 | – | {BT,CH,CT,DV,RB} |
| 123776 | Corya Creek | 55.03681 | -127.3341 | cwf | 093M.102 | – | {DV,RB} |
| 123794 | – | 55.09398 | -127.1806 | 2020 | 093M.103 | – | {DV} |
| 123795 | – | 55.09473 | -127.1855 | 2020 | 093M.103 | – | {SA} |
| 124420 | Station Creek | 55.24045 | -127.6375 | cwf | 093M.106 | – | {BT,CO,CT,DV,PK,RB,SP} |
| 124487 | Porphyry Creek | 55.15630 | -127.3823 | 2020 | 093M.102 | – | {DV,RB} |
| 124500 | Helps Creek | 54.65954 | -127.0228 | 2020 | 093L.118 | – | {CT,DV,LNC,LSU,RB} |
| 124501 | – | 54.63182 | -126.9757 | 2020 | 093L.118 | – | {DV,RB} |
| 124504 | Coffin Creek | 54.62079 | -126.9195 | 2020 | 093L.118 | – | {CSU,CT,DV,LSU,MW,RB,RSC} |
| 195288 | Gibson Creek | 54.59190 | -126.8188 | 2020 | 093L.113 | – | {CT,RB} |
| 195290 | Gibson Creek | 54.59318 | -126.8328 | 2020 | 093L.113 | – | {CT,RB} |
| 197360 | Riddeck Creek | 54.05795 | -126.7093 | 2020 | 093L.104 | – | {LSU,RB} |
| 197365 | – | 54.15719 | -126.8005 | morice | 093L.103 | Smaller channel width. | – |
| 197378 | – | 54.11705 | -126.7802 | morice | 093L.104 | Large wetland complex upstream. | {DV,LNC,MW,RB} |
| 197379 | – | 54.18203 | -126.8400 | morice | 093L.103 | Less than 1km of potential habitat but very large channel width. | {CO,RB} |
| 197640 | – | 54.23614 | -126.6322 | 2020 | 093L.109 | – | {RB} |
| 197658 | Byman Creek | 54.51881 | -126.4222 | cwf | 093L.114 | – | {CO,CSU,LNC,LSU,RB,RSC,ST} |
| 197662 | Richfield Creek | 54.51552 | -126.3365 | cwf | 093L.115 | – | {CH,CO,LKC,LNC,LSU,RB,SST,ST} |
| 197663 | Johnny David Creek | 54.52188 | -126.3696 | cwf | 093L.115 | – | {RB} |
| 197664 | Barren Creek | 54.46354 | -126.5243 | 2020 | 093L.114 | – | {CH,CO,CT,L,RB,SST,ST} |

| | | | | | | | |
|------------|--------------------|----------|-----------|--------|----------|---|--|
| 197665 | – | 54.46280 | -126.5217 | 2020 | 093L.114 | – | {BB,BMC,BT,CAS,CBA,CC,CH,CO,CSU,CT,DV,L,LKC,LNC,LSU,LT,LW,MW,N |
| 197667 | – | 54.63316 | -126.9690 | 2020 | 093L.118 | – | {CT,DV,RB} |
| 197668 | Coffin Creek | 54.62098 | -126.9193 | 2020 | 093L.118 | – | {CSU,CT,DV,LSU,MW,RB,RSC} |
| 1001800048 | Cesford Creek | 54.50844 | -126.3062 | manual | 093L.115 | – | – |
| 1001800050 | Bulkley River | 54.40228 | -126.0352 | cwf | 093L.115 | – | {BMC,CSU,LKC,LNC,LSU,NSC,RB,RSC} |
| 1001800050 | Bulkley River | 54.40228 | -126.0352 | cwf | 093L.115 | – | {BMC,CSU,LKC,LNC,LSU,NSC,RB,RSC} |
| 1001800355 | Ailport Creek | 54.47325 | -126.2121 | cwf | 093L.115 | – | {CO,CT,RB} |
| 1001800356 | Watson Creek | 54.47603 | -126.2159 | manual | 093L.115 | – | {CO,RB} |
| 1001800422 | Ailport Creek | 54.47269 | -126.2294 | cwf | 093L.115 | – | {CO,CT,RB} |
| 1001800752 | – | 54.39789 | -126.2769 | cwf | 093L.110 | – | {BB,CSU,LSU,LW,NSC,PCC,RB,RSC} |
| 1001801122 | Ailport Creek | 54.47578 | -126.2090 | cwf | 093L.115 | – | {CO,CT,RB} |
| 1001801133 | – | 54.47401 | -126.3094 | cwf | 093L.115 | – | {BB,CBA,CC,CSU,LKC,LSU,LW,MW,NSB,NSC,PCC,RB,RSC} |
| 1001801773 | Boulder Creek | 55.10651 | -127.3787 | cwf | 093M.102 | – | {BT,DV} |
| 1001801969 | – | 54.46801 | -126.3181 | cwf | 093L.115 | – | {BB,CBA,CC,CSU,LKC,LSU,LW,MW,NSB,NSC,PCC,RB,RSC} |
| 1001802044 | Ailport Creek | 54.48329 | -126.1602 | cwf | 093L.115 | – | {CT,RB} |
| 1001802088 | Robert Hatch Creek | 54.54393 | -126.3727 | cwf | 093L.115 | – | {LSU,RB} |
| 1001802089 | Johnny David Creek | 54.54204 | -126.3894 | cwf | 093L.115 | – | {RB} |
| 1001802106 | Robert Hatch Creek | 54.53465 | -126.3576 | cwf | 093L.115 | – | {LSU,RB} |
| 1001802760 | Deep Creek | 54.60713 | -126.8238 | cwf | 093L.118 | – | {C,CT,DV,RB} |
| 1001802820 | Deep Creek | 54.60520 | -126.8274 | cwf | 093L.118 | – | {C,CH,CM,CO,CT,DV,PK,RB,SA,SK,ST} |
| 1001803682 | Crow Creek | 54.37200 | -126.1977 | cwf | 093L.110 | – | {CAS,LNC,RB,RSC} |
| 1001804694 | – | 54.29223 | -126.1020 | cwf | 093L.110 | – | {RB} |
| 1001805529 | Bulkley River | 54.39509 | -126.0545 | cwf | 093L.110 | – | {BMC,CAS,CO,CSU,LKC,LNC,LSU,NSC,RB,RSC} |
| 1001805529 | Bulkley River | 54.39509 | -126.0545 | cwf | 093L.110 | – | {BMC,CAS,CO,CSU,LKC,LNC,LSU,NSC,RB,RSC} |
| 1001805532 | Crow Creek | 54.38684 | -126.1460 | cwf | 093L.110 | – | {CAS,CO,LNC,PL,RB,RSC} |
| 1001805553 | Glass Creek | 54.87356 | -127.2593 | cwf | 093L.122 | – | {CC,CO,CT,DV,KO,LSU,MW,OS,RB,SK,ST} |
| 1001805665 | Canyon Creek | 54.78797 | -127.0237 | cwf | 093L.118 | – | {CO,DV,RB,TR} |
| 1014000009 | – | 54.38009 | -126.7377 | morice | 093L.109 | In Houston with rail upstream. Maybe very modified. | {RB} |
| 1014000255 | Nado Creek | 54.13167 | -127.2638 | morice | 093L.102 | CBR - 2.2m culvert. | – |
| 1014000271 | – | 54.39277 | -126.7668 | morice | 093L.109 | Just below Klinger Lake. | |

Good for coho? {EB,RB}

| | | | | | | | |
|------------|---------------|----------|-----------|--------|----------|---|------------------|
| 1014000312 | – | 54.08456 | -127.4368 | morice | 093L.102 | Smaller stream potentially suitable for upstream migrating juvenile salmon. DV upstream. | {DV} |
| | | | | | | Cascade noted adjacent to crossing but no FISS sample sites. | |
| 1014000379 | – | 54.25210 | -127.3909 | morice | 093L.107 | Coho in mainstem Thautil nearby. Stream splits to two tribs just upstream. | – |
| 1014000507 | – | 54.22661 | -127.5698 | morice | 093L.107 | Low gradient with wetlands upstream and CO,CT and others downstream. | – |
| 1014000509 | – | 54.12580 | -127.3180 | morice | 093L.102 | Channel width 1.5 m downstream at FISS site. | – |
| 1014000565 | – | 54.33777 | -127.3300 | morice | 093L.107 | Stealhead and bulltrout nearby | – |
| 1014000569 | – | 54.28134 | -126.9841 | morice | 093L.108 | FISS site downstream does not mention intermittent as is FWA tag. | – |
| 1014000571 | – | 54.28765 | -126.9767 | morice | 093L.108 | Lots of low gradient habitat but split into many tribs. | {DV,RB} |
| 1014000674 | – | 54.19924 | -127.1256 | morice | 093L.103 | Coho downstream. | – |
| 1014000683 | – | 54.20767 | -127.0517 | morice | 093L.108 | Top end of lake. | – |
| 1014000718 | – | 54.14672 | -126.7971 | morice | 093L.104 | Models as over 2m wide and has fish obs upstream. | {DV,RB} |
| 1014000777 | – | 54.09047 | -127.3922 | morice | 093L.102 | Two small tribs upstream. | – |
| 1014000788 | – | 54.09355 | -127.3954 | morice | 093L.102 | Steeper system. | – |
| 1014000796 | Fenton Creek | 54.20165 | -126.8913 | morice | 093L.108 | Major culvert (5m wide). | {CC,CO,DV,RB,SP} |
| 1014000798 | Peacock Creek | 54.36059 | -126.7921 | morice | 093L.109 | Fish way noted as having issues in Smith 2018. | – |
| 1014000801 | – | 54.31559 | -126.8358 | morice | 093L.108 | Quite steep. | – |
| 1014000908 | – | 54.22097 | -127.3994 | morice | 093L.107 | Steelhead and coho points just downstream. | – |
| 1014000912 | – | 54.16261 | -127.7088 | morice | 093L.101 | Good sized lake upstream. Road not visible in aerial imagery. Follow up with foresters before heading out in field. | {DV,RB} |
| 1014000931 | – | 53.99557 | -127.4459 | morice | 093E.122 | Very close to Naninka. | {CT,DV} |
| 1014000991 | – | 54.17901 | -127.1012 | morice | 093L.103 | Steeper stream. | – |

| | | | | | | | |
|------------|---------------|----------|-----------|--------|----------|---|---|
| 1014001002 | – | 54.19188 | -127.3659 | morice | 093L.102 | Smaller stream with coho upstream of crossing. | {CO} |
| 1014001029 | – | 54.17869 | -127.0657 | morice | 093L.103 | Very close to Morice mainstem. | {CT,RB} |
| 1014001080 | – | 54.02044 | -127.3923 | morice | 093L.102 | Smaller potential high value habitat gain but Nanika in Nanika system so in high value watershed. | {CT} |
| 1014001161 | McBride Creek | 54.07139 | -127.3875 | morice | 093L.102 | CBR indicates "major culvert" at 4.5m width. | {BB,CAS,CO,CSU,CT,DV,LDC,LSU,LT,LW,MW,PCC,RB,RSC,WSU} |
| 1014001195 | – | 54.12903 | -127.3542 | morice | 093L.102 | Low gradient and close to mainstem but low elevation watershed. | – |
| 1014001198 | – | 54.10794 | -127.6851 | morice | 093L.101 | Models as a bit larger of a channel with 0.75km <5% and DV upstream. | {DV} |
| 1014001222 | Lamprey Creek | 54.04738 | -127.2029 | morice | 093L.102 | Large lake headed system. | {CT,DV,LKC,RB,RB/CT} |
| 1014001245 | – | 54.18341 | -127.6371 | morice | 093L.101 | Coho, steelhead and other species upstream. | {CO,CT,DV,LKC,SP} |
| 1014001247 | – | 54.19550 | -127.5928 | morice | 093L.102 | Multiple species (including CO) noted upstream with lots of modelled habitat. | {CO,CT,DV,LKC} |
| 1014001427 | – | 54.23806 | -127.2653 | morice | 093L.107 | Potentially fish bearing according to http://a100.gov.bc.ca/pub/acat/public/viewReport.do?reportId=50411 . | – |
| 1014001534 | – | 54.29848 | -127.5862 | morice | 093L.107 | Channel models as small. Flows into lake. | – |
| 1014001542 | – | 54.20825 | -127.5335 | morice | 093L.107 | Many fish points upstream and downstream. Low grades. | {CT,DV} |
| 1014001563 | – | 54.21925 | -127.0061 | morice | 093L.108 | Lots of low gradient and lake upstream. | {CCT,CT,LKC} |
| 1014001769 | – | 54.22487 | -127.2404 | morice | 093L.107 | Appears of highest value for rearing. | {CT} |
| 1024704566 | Corya Creek | 55.03451 | -127.3448 | cwf | 093M.102 | – | {DV,RB} |

1024740003 – 54.03348 -127.1239 morice 093L.103 Lots of lake upstream. {CAL,LKC,RB,RSC}
