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250-777-1518  
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## Safety Plan - 2023-066-sern-skeena-fish-passage

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:

[here for Bulkley and Morice](#), [here for Kispiox](#) and [here for the Zymoetz](#).

A summary of sites to be potentially assessed is included as Table 2. The process to shortlist these sites is documented [here](#) with a password provided in the email when this plan was originally forwarded. If you require the password again please email [al@newgraphenvironment.com](mailto:al@newgraphenvironment.com).

### Accommodations

Al - 2013 Toyota Tundra black w/flatdeck and yellow can-am quad:

- Silverthorne RV park is located between Finning and the Sullivan Chevy dealership on the west side of town. The address is 1700 highway 16 but you could also type in Alix place which should bring you to the driveway as well. Contact Lance - 1 604 556 9903 - email: [399hffibdi8v4u8b70ax17dv3oy@reply.airbnb.com](mailto:399hffibdi8v4u8b70ax17dv3oy@reply.airbnb.com)
- 4036 Second Avenue B, Smithers, BC V0J 2N0 - Amanda

Mateo - 2007 Toyota Tacoma - gold with canopy:

- 3305 Gillespie Road, Houston, BC V0J 1Z1, Canada - Lisa 250-631-3396
- 3876 Second Avenue, Smithers, BC V0J 2N0 - Ylva and Kevin

Table 1: Crew members details and emergency contacts

| name                | email  | phone        | satellite  | emerg_name              | emerg_email  | emerg_phone            |
|---------------------|--|--------------|--|-------------------------|--|------------------------|
| Allan Irvine        | <a href="mailto:al@newgraphenvironment.com">al@newgraphenvironment.com</a>           | 250-777-1518 | must be contacted by inreach first. Cannot cold call | Tara Stark              | <a href="mailto:tara@newgraphenvironment.com">tara@newgraphenvironment.com</a> | 250-505-9854           |
| Vern Joseph         | <a href="mailto:vernon.joseph@wetsuweten.com">vernon.joseph@wetsuweten.com</a>       | 250-842-8204 | truck radio equipped to call out                     | Brett Tripp             | <a href="mailto:Brett.tripp@wetsuweten.com">Brett.tripp@wetsuweten.com</a>     | 250-847-3630 ext. 2246 |
| Tiesha Pierre       | <a href="mailto:pierreteasha@icloud.com">pierreteasha@icloud.com</a>                 | 250-877-0849 | truck radio equipped to call out                     | Brett Tripp             | <a href="mailto:Brett.tripp@wetsuweten.com">Brett.tripp@wetsuweten.com</a>     | 250-847-3630 ext. 2246 |
| Mateo Winterscheidt | <a href="mailto:matwint45@gmail.com">matwint45@gmail.com</a>                         | 672-998-5293 | 807-790-9843   | Felicitas Winterscheidt | <a href="mailto:fhwinterscheidt@gmail.com">fhwinterscheidt@gmail.com</a>       | 519-636-5251           |
| Jesse Olson         | <a href="mailto:jesse.olson@gitxsanbusiness.com">jesse.olson@gitxsanbusiness.com</a> | –            | –  | –                       | –  | –                      |

## Equipment Checklists

| Personal Equipment Checklist   | •                |
|--------------------------------|------------------|
| GPS                            | food             |
| Sunscreen                      | gloves work      |
| Bugspray                       | glasses safety   |
| Polarized glasses              | headlamp         |
| Bear Spray                     | hard hat         |
| phone/camera                   | steel toed boots |
| battery pack booster for phone | clinometer       |
| Hat                            | field vest       |
| first aid kit personal         | note book        |
| Waders                         | Extra clothes    |
| Boots                          | rain gear        |
| Ski poles                      | hand lens        |
| water                          | —                |

| Crew Equipment Checklist   | •                             |
|----------------------------|-------------------------------|
| Hand saw                   | pilon x 2                     |
| Linesman Gloves x 3        | Measuring board               |
| Backroads Mapbook          | Scale                         |
| Locational maps            | Permits                       |
| Background Documents       | Fish ID book                  |
| radio road                 | Site Cards / Field Guide      |
| Satelite communicator      | Minnow Traps                  |
| Field Safety Plan          | Catfood                       |
| first aid kit level 1      | Flagging                      |
| First Aid binder stocked   | Laptop w/basecamp             |
| Throw bags                 | GPS cable                     |
| polaski                    | Lazer level                   |
| shovel                     | Assessment cards fish passage |
| fire extinguisher backpack | UAV                           |

|                                 |                               |
|---------------------------------|-------------------------------|
| <b>Crew Equipment Checklist</b> | •                             |
| fire extinguisher pressurized   | Flow meter                    |
| Battery booster                 | ATV                           |
| Compressor 12V                  | bucket rigid x 2              |
| Rubber boots (no-slip soles)    | bucket foldable               |
| Small BT Speaker (for bears)    | clove oil kit w/ instructions |
| Oakton Multimeter               | gloves leather                |
| Backpack Electrofisher          | sharpies                      |
| stop nets x 4                   | ATV gas                       |
| salt blocks                     | ATV lock                      |
| loose salt                      | UAV battery charger           |
| dip nets x 2                    | wader disinfectant kit        |
| tape measure hand               | GPS batteries                 |
| tape measure eslon              | ATV helmets                   |

## Nearest Hospitals



Figure 1: Houston Health Centre - 3202 14 St, Houston, BC V0J 1Z0 - 250-845-2294

Houston Health Centre - 3202 14 St, Houston, BC V0J 1Z0 - 250-845-2294



Figure 2: my\_caption

(Smithers) Bulkley Valley District Hospital - 3950 8 Ave, Smithers, BC V0J 2N0 - 250-847-2611

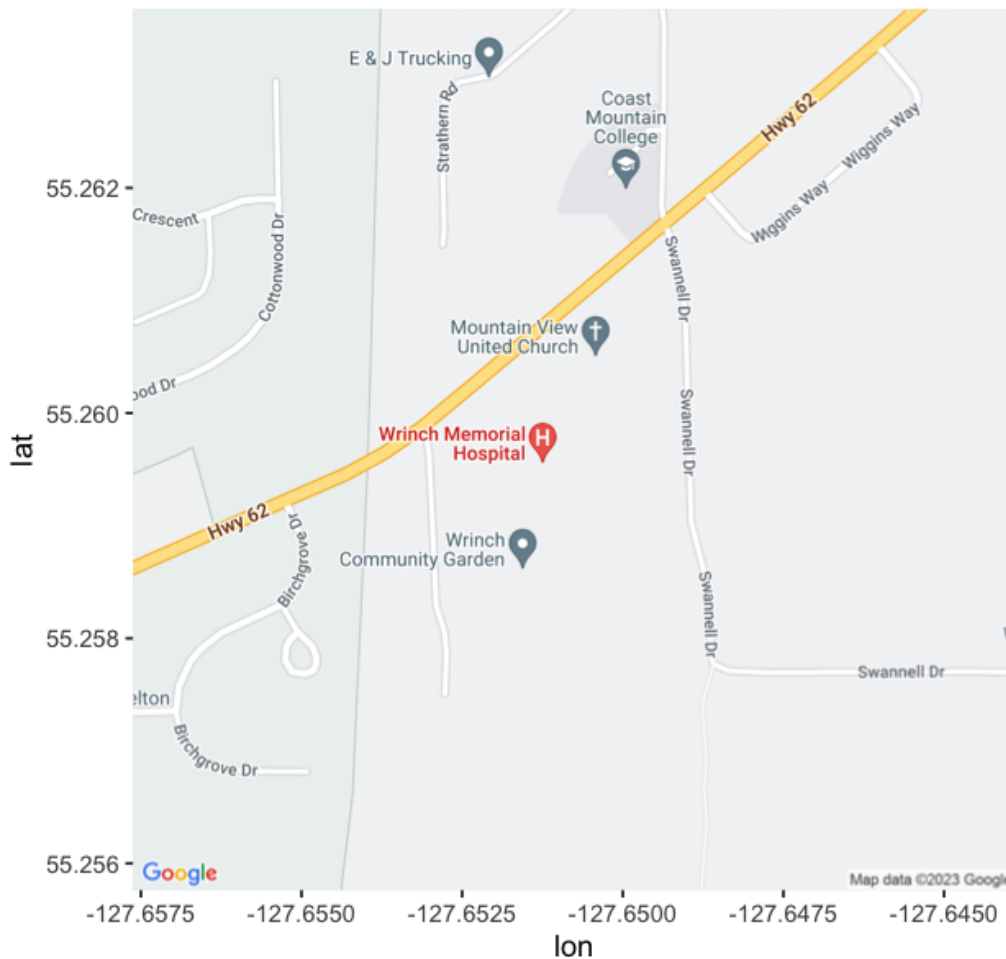


Figure 3: my\_caption

Wrinch Memorial Hospital - Hazelton - 2510 Hwy 62, Hazelton, BC V0J 1Y0 - 250-842-5211

## Field Plan

Field work methods will result in products feeding reporting formats such as [here](#) for 2020 and [here](#) for 2021 and [here](#) for Skeena 2022 and [here](#) for Bulkley 2022 and will generally follow procedures in:

- [fish passage assessments](#) (MoE 2011)
- [habitat confirmations](#) (Fish Passage Technical Working Group 2011).

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. Field guide is [here](#)

We have PIT tagging equipment so we could consider [tagging](#) fish captured at electrofishing sites to help us better understand population sizes and fish movement upstream and downstream of sites over the years.

We are running digital field form tests using a product called [Mergin Maps](#) which syncs with QGIS. Crews can access projects with a free trial account. Please send me your usernames and I can begin to share projects/forms.

A guide to freshwater fish id such as McPhail and Carveth (1993) can be useful and can be downloaded [here](#).

## **Check In Procedures**

Call, text or inreach Tara Stark (2505059854) each morning to share the plan for the day (i.e. name of roads and sites). Check in time is before 7 pm each evening although we regularly check in throughout the day (ex. at arrival to site, 1pm and 4pm) on the inreach or by text and report position/provide updates.

## **Procedures for Failed Check-In - for Check in person**

Procedures are summarized in the following Figure. If phone call or inReach check-in is not received by 7pm send text to inreach units, call or text cell phones of field crew members. If no response please call accommodations then personal emergency contacts to see if they have heard anything. Wait 1 hour and text inreach, text or call cell phones and personal emergency contacts and accommodations again. Repeat after 2 hours (9 pm) - if no response then notify the RCMP of a missing persons in field.



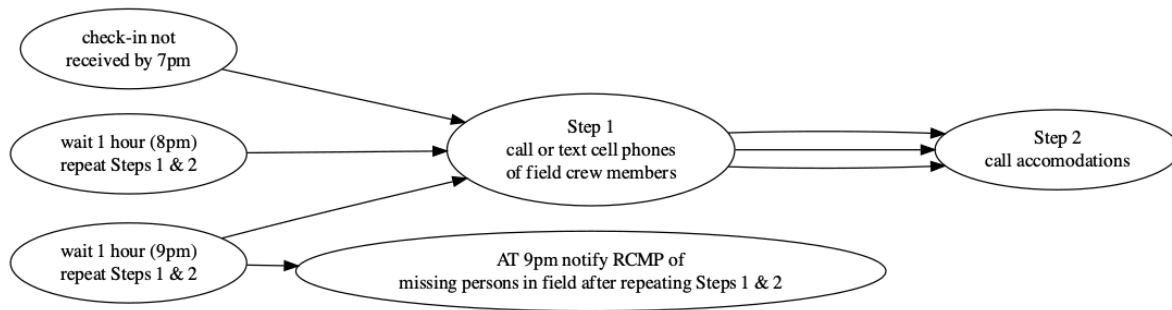


Figure 4: Procedures for failed check-in

Table 2: Potential sample locations.

| id   | stream_name    | st_network_km | st_spawning_km | st_rearing_km | watershed_group_code | comments   |
|------|----------------|---------------|----------------|---------------|----------------------|--|
| 8454 | Trib to Copper | 1.91          | 0.00           | 0.00          | ZYMO                 | BT and DV confirmed. Two SFC priority sites upstream too. – Small creek on side road. Foot access due to major road failure. Should remove culvert and cross ditch. – Headed by small pond near height of land – Small creek on side road. Foot access due to major road failure. Should remove culvert and cross ditch.                     |
| 8530 | Trib to Copper | 2.58          | 0.00           | 0.00          | ZYMO                 | Duplicate. Matched to wrong modelled crossing so corrected in bcfishpass. – Barrier to fish. Recommend embedding material in pipe due to its size to reduce water velocity. – About 600m u/s of Zymoetz River confluence. – Barrier to fish. Recommend embedding material in pipe due to its size to reduce water velocity.                  |
| 8543 | Trib to Copper | 5.51          | 0.00           | 0.00          | ZYMO                 | Just slightly highe than steelhead model criteria. Close to McDonell Lake with fish upstream – Fish survey required. Embed pipe with 30% gravels to mimic stream channel. – About 450m u/s of McDonnell Lake confluence; Cascade listed at crossing on Imap BC; – Fish survey required. Embed pipe with 30% gravels to mimic stream channel. |
| 8547 | Trib to Copper | 0.73          | 0.00           | 0.00          | ZYMO                 | CT (and potentially RB) confirmed. Small lake mapped upstream. – Recommend fish survey. If positive then remove culvert and replace with   |

| id  | stream_name                         | st_network_km | st_spawning_km | st_rearing_km | watershed_group_code | comments  |
|---|-------------------------------------|---------------|----------------|---------------|----------------------|---|
| <p>open bottom structure. – Possible SK at mouth;<br/> about 1.3km u/s of McDonnell L. confluence;<br/> another crossing near mouth. – Recommend<br/> fish survey. If positive then remove culvert and<br/> replace with open bottom structure.</p> |                                     |               |                |               |                      |   |
| 58067   | Tributary to<br>Gramophone<br>Creek | 23.86         | 2.66           | 4.72          | BULK                 | NA – Replace with OBS – NA –<br><br>Restoration likely forthcoming so<br>could inform monitoring program<br>flows through the Woodmere Nu<br>small culvert on burn pile access<br>Highway. Electrofishing conduct<br>cover available primarily as over<br>vegetation and cobbles. Upstrea<br>under Highway 16 has been rec<br>by horizontal drilling. Baffles at u<br>crossing. Coho fry captured belo<br>crossing. – NA – NA |
| 58159   | McDowell<br>Creek                   | 10.36         | 0.00           | 7.45          | BULK                 | Would be good to get baseline c<br>species composition and abund<br>baffles in culverts, or replace wi<br>culverts present – NA – NA  |
| 123377  | Thompson<br>Creek                   | 33.50         | 4.87           | 9.51          | BULK                 | Species compositionupstream a<br>could be insightful for prioritizati<br>if Telkwa Coal helps move this o<br>Wetland type habitat upstream v<br>channel containing abundant gra<br>downstream. – NA – NA  |
| 124500  | Helps Creek                         | 36.57         | 1.84           | 11.75         | BULK                 | NA – No access, install OBS and<br>channel – NA – NA  |
| 195943  | Stock Creek                         | 23.12         | 0.00           | 8.09          | BULK                 | Flow looks good in photos. – 70<br>upstream – NA – NA   |
| 197365  | Tributary to<br>Owen Creek          | 10.56         | 0.00           | 0.66          | MORR                 | –   |
| 197378  | –                                   | 12.33         | 0.00           | 0.94          | MORR                 | Would be good to know what fis<br>Good site for tagging? – NA – S<br>entering stream from fill slope; h<br>least 2 small lakes. – Replace R   |
| 197379  | Unnamed                             | 0.84          | 0.12           | 0.84          | MORR                 |   |

| id     | stream_name                | st_network_km | st_spawning_km | st_rearing_km | watershed_group_code | comments  |
|--------|----------------------------|---------------|----------------|---------------|----------------------|---|
| 197640 | Tributary to Buck Creek    | 19.96         | 1.96           | 4.65          | BULK                 | Design in progress so sampling could inform monitoring program. Unlikley to have time for this this year though. – Large tributary on section of tributary connected to salmon bearing Buck Creek. Fish rising in outlet pool (estimated 130mm). Some cattle access points downstream. – NA – NA  |
| 197949 | –                          | 6.16          | 0.00           | 0.49          | MORR                 | –   |
| 197962 | Peacock Creek              | 6.14          | 2.98           | 4.89          | MORR                 | Site remediated. Long term monitoring required but could wait another year as work was conducted late last summer and we might expect CO moving in this fall.. – Historic side channel for fish passage not functioning. 17:47 – Concrete weir built mid-90's as retrofit, currently not functioning; further ass't required; High Priority. – Replace RMC with OBS |
| 198008 | Tributary to Nanika River  | 0.60          | 0.00           | 0.00          | MORR                 | Site should be reassessed as we surveyed the wrong upstream channel in 2021. – Stream has good flow, well developed channel. 12:50 – NA – NA  |
| 198060 | Tributary to Owen Creek    | 7.01          | 0.00           | 2.03          | MORR                 | Was passable when assessed in 2021. – Very nice gravels. Some flow. Passable currently but may by higher velocity at higher flows. 8:59 – NA – NA   |
| 198064 | Tributary to Lamprey Creek | 5.05          | 0.00           | 0.81          | MORR                 | Hab con completed. Sampling may be enlightening but habitat not stellar. – Habitat confirmation conducted. Fish observed (150mm). Good flows when compared to many other streams. 9:25 – NA – NA  |
| 198217 | –                          | 5.74          | 0.16           | 0.49          | KISP                 | –   |
| 198225 | Sterritt Creek             | 3.39          | 0.64           | 1.29          | KISP                 | –   |

## References

Fish Passage Technical Working Group. 2011. "A Checklist for Fish Habitat Confirmation Prior to the Rehabilitation Fo a Stream Crossing." <https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/land-based-investment/forests-for-tomorrow/checklist-for-fish-habitat-confirmation-201112.pdf>.

McPhail, J. D., and R Carveth. 1993. "Field Key to the Freshwater Fishes of British Columbia." [https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/nr-laws-policy/risc/field\\_key\\_to\\_freshwater\\_fishes\\_of\\_bc\\_field\\_size\\_water\\_resistant\\_version.pdf](https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/nr-laws-policy/risc/field_key_to_freshwater_fishes_of_bc_field_size_water_resistant_version.pdf).

MoE. 2011. "Field Assessment for Determining Fish Passage Status of Closed Bottom Structures." BC Ministry of Environment (MoE). <https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/land-based-investment/forests-for-tomorrow/field-assessment-for-determining-fish-passage-status-of-cbs.pdf>.