new graph environment

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New Graph Environment
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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.

Accomodations

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: 399hflfibdi8v4u8b70ax17dv3oy@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	al@newgraphenvironment.com	250-777-1518	must be contacted by inreach first. Cannot cold call	Tara Stark	tara@newgraphenvironment.com	250-505-9854
Vern Joseph	vernon.joseph@wetsuweten.com	250-842-8204	truck radio equiped to call out	Brett Tripp	Brett.tripp@wetsuweten.com	250-847-3630 ext. 2246
Tiesha Pierre	pierretieasha@icloud.com	250-877-0849	truck radio equiped to call out	Brett Tripp	Brett.tripp@wetsuweten.com	250-847-3630 ext. 2246
Mateo Winterscheidt	matwint45@gmail.com	672-998-5293	807-790-9843	Felicitas Winterscheidt	fhwinterscheidt@gmail.com	519-636-5251
Jesse Olson	jesse.olson@gitxsanbusiness.com	–	–	–	–	–

Equipment Checklists

Personal Equipment Checklist	•
GPS	food
Suncreen	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

Crew Equipment Checklist	•
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 accomodations again. Repeat after 2 hours (9 pm) - if no response then notify the RCMP of a missing persons in field.

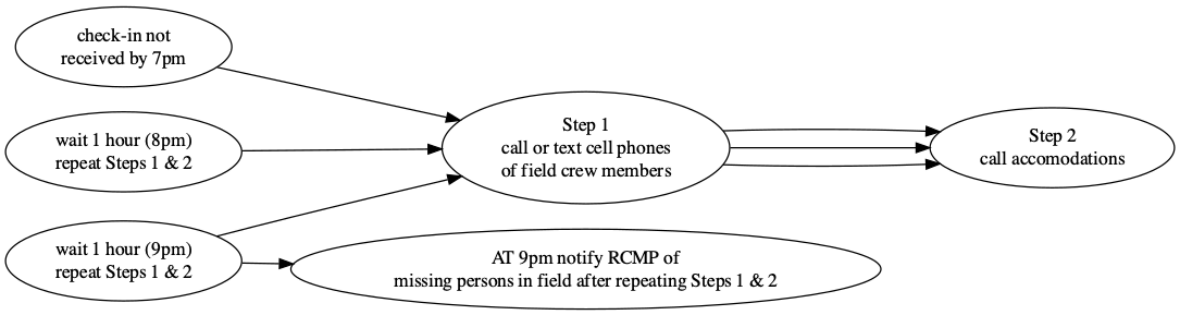

Figure 4: Procedures for failed check-in

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	23.99	1.21	5.65	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 McDonnel 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
open bottom structure. – Possible SK at mouth; about 1.3km u/s of McDonnell L. confluence; another crossing near mouth. – Recommend fish survey. If positive then remove culvert and replace with open bottom structure.						
58067	Tributary to Gramophone Creek	23.86	3.52	4.72	BULK	NA – Replace with OBS – NA –
58159	McDowell Creek	10.36	0.00	7.45	BULK	Restoration likely forthcoming so could inform monitoring program flows through the Woodmere Nu small culvert on burn pile access Highway. Electrofishing conduct cover available primarily as over vegetation and cobbles. Upstrea under Highway 16 has been rec by horizontal drilling. Baffles at u crossing. Coho fry captured belo crossing. – NA – NA
123377	Thompson Creek	33.50	4.87	8.76	BULK	Would be good to get baseline d species composition and abunda baffles in culverts, or replace wit culverts present – NA – NA
124500	Helps Creek	36.57	1.84	11.80	BULK	Species compositionupstream a could be insighful for prioritizatio if Telkwa Coal helps move this o Wetland type habitat upstream w channel containing abundant gra downstream. – NA – NA
195943	Stock Creek	23.12	0.00	0.74	BULK	NA – No access, install OBS and channel – NA – NA
197365	Tributary to Owen Creek	10.56	0.00	0.66	MORR	Flow looks good in photos. – 70 upstream – NA – NA
197378	–	12.33	0.00	0.94	MORR	–
197379	Unnamed	0.84	0.12	0.84	MORR	Would be good to know what fis Good site for tagging? – NA – S entering stream from fill slope; h least 2 small lakes. – Replace R

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	0.00	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	0.77	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.
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.