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New Graph Environment Ltd.  
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250-777-1518  
Date Original: 2024-08-09  
Date Revised: 2024-09-08

## **Safety Plan - 2024-072-sern-skeena-fish-passage**

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

The main goal of this fieldwork is to evaluate fish passage and establish baseline data through electrofishing techniques. We will be completing fish passage (Phase 1) and habitat confirmation (Phase 2) assessments in the Bulkley, Morice, Kispiox, and Zymoetz River watershed groups. A summary of the potential sites for fish passage assessments, habitat confirmation assessments, and electrofishing is provided in Table [5](#), with kml (Google Earth) and gpx (garmin) files downloadable [here](#).

Georeferenced pdf maps can be accessed and downloaded for each watershed using the following links: [Bulkley](#), [Kispiox](#), [Zymoetz](#), and [Morice](#).

## **New Graph Employee Information**

Al Irvine

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

*Accommodation:* Sept 15 - 25: 4036 Second Avenue B, Smithers, BC V0J 2N0

Sept 24 - Oct 5: 3876 Second Avenue #1, Smithers, BC V0J 2N0

Lucy Schick

*Vehicle:* 2006 Pontiac Vibe red

*Accommodation:* 3876 Second Avenue 2, Smithers, BC V0J 2N0

## Crew Members

Table 1: Crew members details and emergency contacts

name	email	phone	satellite	emerg_name	emerg_email	emerg_phone
Allan	<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
Irvine						
Vern	<a href="mailto:vernon.joseph@wetsuweten.com">vernon.joseph@wetsuweten.com</a>	250-842-8204	truck radio equiped to call out	Brett Tripp	<a href="mailto:Brett.tripp@wetsuweten.com">Brett.tripp@wetsuweten.com</a>	250-847-3630 ext. 2246
Joseph						
Tiesha	<a href="mailto:pierreteasha@icloud.com">pierreteasha@icloud.com</a>	250-877-0849	truck radio equiped to call out	Brett Tripp	<a href="mailto:Brett.tripp@wetsuweten.com">Brett.tripp@wetsuweten.com</a>	250-847-3630 ext. 2246
Pierre						
Jesse	<a href="mailto:jesse.olson@qitxsanbusiness.com">jesse.olson@qitxsanbusiness.com</a>	778-202-0250	–	–	–	–
Olson						
Lucy	<a href="mailto:lucy@newgraphenvironment.com">lucy@newgraphenvironment.com</a>	604-741-2032	807-790-9843	Sa Boothroyd	<a href="mailto:sabootheroyd@gmail.com">sabootheroyd@gmail.com</a>	604-740-7199
Schick						

## Equipment Checklists

PLEASE NOTE THAT EQUIPMENT CHECKLISTS ARE PROVIDED FOR THE OVERALL TEAM AND NOT ALL CREWS ARE REQUIRED TO HAVE ALL EQUIPMENT. ALTHOUGH ENCOURAGED FOR ALL ENVIRONMENTAL SCIENCE TECHNICIANS AND MONITORS TO HAVE THE PERSONAL EQUIPMENT NEW GRAPH ENVIRONMENT WILL HAVE ALL EQUIPMENT NECESSARY TO COMPLETE THE WORK.

MINIMUM REQUIREMENTS FOR EACH CREW MEMBER INCLUDES GOOD QUALITY AND APPROPRIATELY FITTING LIGHT WEIGHT WADERS AND SEPERATE WADING BOOTS (RUBBER SOLED), HAT, WATER AND A FOOD.

MINIMUM REQUIREMENTS FOR FIELD TRUCKS INCLUDE A QUALITY RADIO APPROPRIATE FOR FOREST SERVICE ROADS, OFF-ROAD CAPABLE TIRES IN GOOD CONDITION, SPARE TIRE, JACK, AND TOOLS.

## NOTE ABOVE FOR MINIMUM REQUIREMENTS

Equipment	•
Equipment	•
GPS	water
Sunscreen	food
Bugspray	gloves work
Polarized glasses	headlamp
Bear Spray	clinometer
phone/camera	field vest (surveyors)
battery pack booster for phone	note book
Hat	Extra clothes
first aid kit personal	rain gear
Waders	hand lens
Wading Boots (Rubber-soled only)	range finder
Ski poles	—

Table 3: Crew Equipment  
Checklist - SEE NOTE  
ABOVE FOR MINIMUM  
REQUIREMENTS

Crew Equipment Checklist	•
glasses safety	tape measure eslon
Hand saw	pilon x 2
Linesman Gloves x 3	Measuring board
Backroads Mapbook	Scale
Locational maps	Permits
Background Documents	Fish ID book
radio handheld	Site Cards / Field Guide
Satelite communicator	Minnow Traps
Field Safety Plan	Catfood
first aid kit level 1	Flagging

Crew Equipment Checklist	•
First Aid binder stocked	Laptop w/basecamp
Throw bags	GPS cable
polaski	Lazer level
shovel	Assessment cards fish passage
fire extinguisher backpack	UAV
fire extinguisher pressurized	Flow meter
hard hat	ATV
steel toed boots	bucket rigid x 2
Battery booster	bucket foldable
Compressor 12V	clove oil kit w/ instructions
Rubber boots (no-slip soles)	gloves leather
Small BT Speaker (for bears)	sharpies
Oakton Multimeter	ATV gas
Backpack Electrofisher	ATV lock
stop nets x 4	UAV battery charger
salt blocks	wader disinfectant kit
loose salt	GPS batteries
dip nets x 2	ATV helmets
tape measure hand	–

Table 4: Truck  
Equipment Checklist -  
SEE NOTE ABOVE  
FOR MINIMUM  
REQUIREMENTS

Equipment	•
Hand saw	truck/car jack
radio truck	Battery booster
polaski	Compressor 12V
shovel	pilon x 2
fire extinguisher backpack	Tow strap

## Nearest Hospitals



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



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

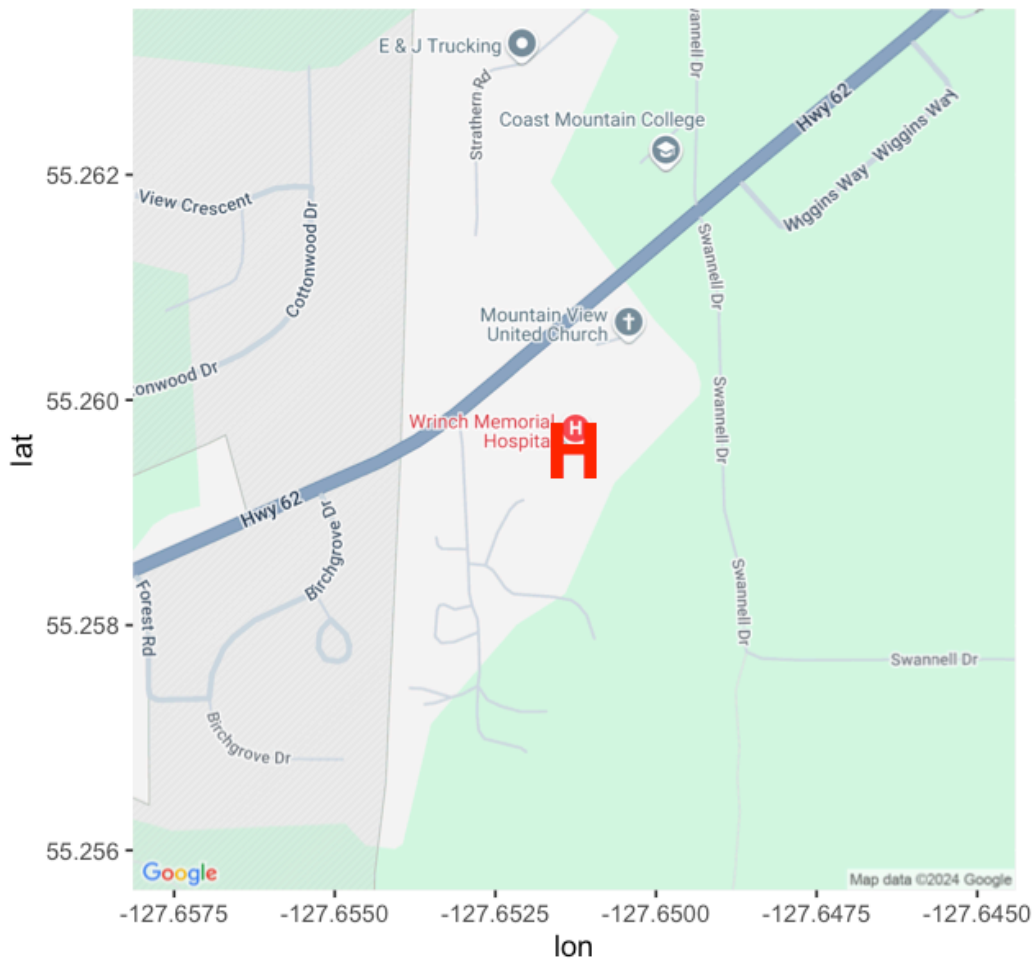


Figure 3: Wrinch Memorial Hospital - Hazelton - 2510 Hwy 62, Hazelton, BC V0J 1Y0 - 250-842-5211

## Emergency Response Plan

New Graph's detailed emergency response procedures can be found [here](#). These procedures should be reviewed and an emergency response plan should be completed for each job site. Our Emergency Response Plan template can be downloaded [here](#).

## Driving

We will be driving on forest service roads where it is essential to exercise caution and adhere strictly to all radio use protocols to ensure our safety. Proper communication on these roads helps

prevent accidents by keeping everyone informed about vehicle movements and road conditions. Please review the [resource road safety](#) and [radio use](#) sections of our Health and Safety plan so that everyone stays safe.

## Field Plan

The primary objective of the fieldwork is to assess fish passage, habitat conditions and establish baseline monitoring, using electrofishing techniques. We will be completing fish passage (Phase 1) and habitat confirmation (Phase 2) assessments in the Bulkley, Morice, Kispiox, and Zymoetz River watershed groups. Fieldwork methods will produce reports such as the [Skeena Watershed Fish Passage Restoration Planning 2023](#). Additional reports can be found [here](#).

Although currently incomplete and in rough draft format - fieldwork procedures can be found in our [Fish Passage Guidebook](#). We generally follow procedures in:

- [fish passage assessments](#) (BC Ministry of Environment 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, and the Field Guide to these Site Cards can be found [here](#).

We have PIT tagging equipment and 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 use digital field form using a product called [Mergin Maps](#) which syncs with QGIS. Please see our [Fish Passage Guidebook](#) for instructions on how to set up Mergin Maps and use our digital field forms. Please send me your usernames and we 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 Figure 4. If a phone call or inReach check-in is not received by 7 PM, first send a text to the inReach units, then call or text the 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 the field.

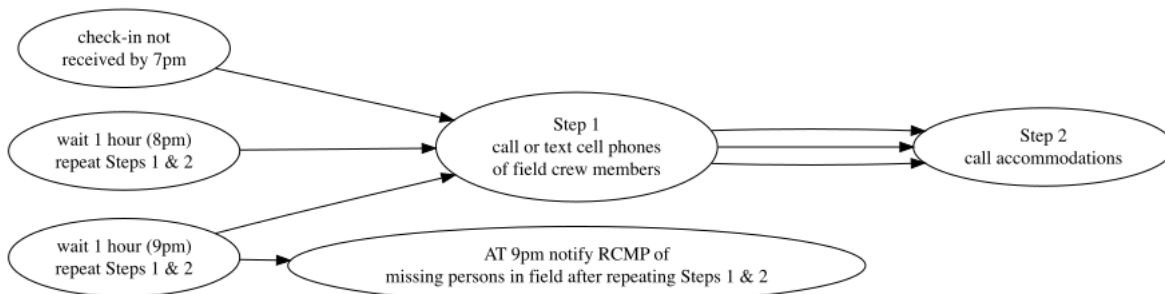


Figure 4: Procedures for failed check-in

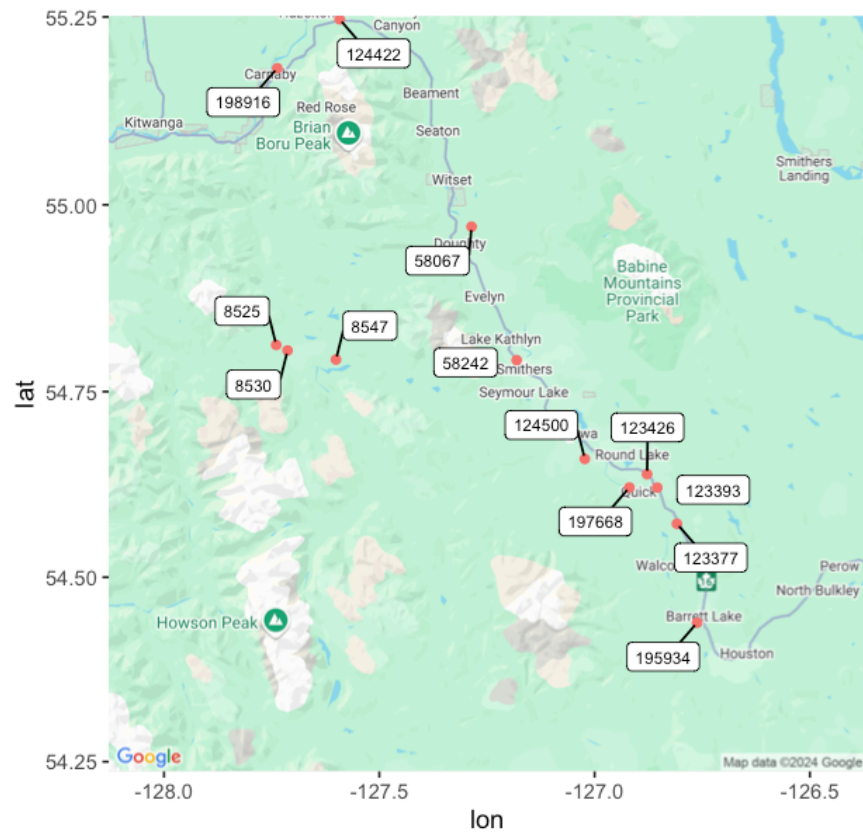


Figure 5: Map of potential sampling areas.

Table 5: Potential Phase 1 assessment, Phase 2 assessment, and Electrofishing Locations

id	stream_name	utm_zone	utm_easting	utm_northing	watershed_group_code	pscls_assessment_comment
8525	Copper	9	581004	6074666	ZYMO	No action warranted at this crossing, although there is potential for embedding existing pipe to ensure fish passage. High habitat value upstream of crossing for 100m, then stream becomes grassy wetland with multiple braids. Crossing fix recommendation of a 1x3 wooden box culvert is from fish passage assessment carried out in 2010.
8530	Sandstone Creek	9	582713	6073870	ZYMO	Channel is steeper downstream of culvert. Very deep fill with a small outlet drop. 10:59
8547	Copper	9	589980	6072661	ZYMO	Recommend fish survey. If positive then remove culvert and replace with open bottom structure.

id	stream_name	utm_zone	utm_easting	utm_northing	watershed_group_code	pscis_assessment_comment
58242	Kathlyn Creek	9	616947	6073197	BULK	If culvert is proven to be a barrier, install OBS
123377	Thompson Creek	9	641633	6049398	BULK	Debris is partially blocking one of the two pipes. Historic washouts on road at this site. Landowner reports stream diverted downstream >50 years ago and crosses farmers field in ditched channel. 15:12
123393	Lemieux creek	9	638516	6054722	BULK	Very deep outlet pool. Wetland downstream and beaver activity upstream. Almost fully backwatered, very little flow through the culvert. 13:32
123426	Robin Creek	9	636935	6056693	BULK	Embedded culvert with high flow. 14:37
124422	Tributary to Waterfall Creek	9	589500	6123161	BULK	2 pipes. Both have water, left bank one is flowing. Assessment comments indicate right bank pipe is backwatered 100% but changed to 25% based on photos and past PSCIS data and photos which also indicated not backwatered. Suspect blockage due to debris. Outlet water depth, fish sighted in outlet of right barrel. 13:42
124500	Helps Creek	9	627541	6058702	BULK	Wetland type habitat upstream with stream channel containing abundant gravels downstream.
195934	Stock Creek	9	645134	6034600	BULK	Currently 2 CVs, no access at low water
197379	Tributary to Owen Creek	9	640960	6005930	MORR	Two thirds of culvert on upstream side has baffles. Fish sampling and PIT tagging conducted. Design underway by MoF. 13:18
197668	Coffin Creek	9	634342	6054605	BULK	CN crossing has had Newbury riffles constructed to decrease the size of the outlet drop but drop still present. Abundant gravels suitable for spawning chinook and coho present. Some deep pools available for fry/parr overwintering.
198217	Tributary to Skeena River	9	582875	6130541	KISP	Francis (chief) indicated this is historic coho harvest site for Glen Vowell community and historic coho spawning stream. 2 1.25m culverts side by side. Trash rack has been removed from inlet. Inlet has significant amount of debris. Extensive gravels present suitable for CO spawning upstream and downstream. Good flow and large stream. On road to water treatment plant. 12:20
198916	Gershwin Creek	9	580429	6115770	KISP	Very high value habitat upstream with pockets of gravel throughout. Adult cutthroat or rainbow observed just downstream of Highway 16 crossing upstream of here. Structure is dated 1923. Water flows within the box. Culvert at the time of the survey was approximately two to 5 cm deep. Skeena fisheries commission site with recommendation for installation of baffles. Fill depth estimated at 30 m and culvert length at 120 m, but changed to 9.9 and 99, respectively, in order to fulfill provincial submission requirements.. 13:35:25

## References

- BC Ministry of Environment. 2011. *Field Assessment for Determining Fish Passage Status of Closed Bottom Structures*. Manual. Victoria, British Columbia: BC Ministry of Environment. <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>.
- Fish Passage Technical Working Group. 2011. "A Checklist for Fish Habitat Confirmation Prior to the Rehabilitation of 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).