

Ritt Kellogg Memorial Fund – Proposal Evaluation

Proposal Title: _____

Applicants: _____

*previous grantee

Reviewer: _____

General Criteria

- ☐ Minimum 12 days in field
- ☐ Wilderness-based
- ☐ WFR of each team member will be current prior to trip departure
- ☐ Start of trip no later than 8 months after graduation
- ☐ Expedition team is made up of at least two CC students
- ☐ Expedition will occur in US or Canada
- ☐ First aid kit
- ☐ Maps

Proposal Completeness

- ☐ Emergency contact information
- ☐ Insurance
- ☐ Medical release
- ☐ Applicant questionnaire
- ☐ Relevant experience resume
- ☐ References provided
- ☐ Certificates and other proof of training
- ☐ Participant acknowledgement and assumption of risks & release and indemnity agreement
- ☐ Ritt Kellogg Fund Agreement
- ☐ Complete proposal as per web site

Proposal Elements

Relevant Experience of Team Members

- ☐ Members have relevant experience in the activity
- ☐ Members have relevant experience in the venue
- ☐ Members have relevant experience in backcountry conditions, including inclement weather
- ☐ Members have relevant hazard evaluation skills
- ☐ Members have taken additional classes or training for the activity
- ☐ Members have relevant decision-making/route finding experience
- ☐ Overall, team members will solidify skills on the expedition rather than “cut their teeth”
- ☐ References and certifications

Risk Management Plan

- ☐ Proposal identifies thorough list of hazards associated with the activity

- ☐ Proposal identifies thorough list of hazards associated with the venue
- ☐ Proposal identifies thorough hazard evaluation plan
- ☐ Proposal identifies sensible steps to avoid incidents
- ☐ Proposal identifies a sound management plan if incidents occurs
- ☐ Proposal includes reliable emergency communication plan
- ☐ Proposal includes well-planned emergency evacuation plan
- ☐ Proposal lists the first aid kit contents which are appropriate for activity, venue, size of group, and participant health conditions

Logistical Considerations

- ☐ Proposal states dates of expedition and total days in field
- ☐ Proposal includes reasonable travel plans to and from the trail head
- ☐ Proposal details a sensible, day-by-day itinerary including elevations, distances, and camps
- ☐ Proposal provides a detailed route description, including maps
- ☐ Proposal provides minimum impact techniques
- ☐ Proposal provides cultural considerations (if applicable)
- ☐ Proposal provides appropriate gear list for activity and venue
- ☐ Proposal provides appropriate food list for activity and venue and considers re-rations
- ☐ Proposal includes a service component

~~COVID-19 Preparedness~~

- ~~☐ Proposal includes an analysis of the current COVID situation in the proposed location~~
- ~~☐ Proposal includes a realistic pre-expedition plan for reducing COVID likelihood~~
- ~~☐ Proposal includes realistic travel considerations~~
- ~~☐ Proposal includes an appropriate planned response for managing COVID in the field~~

Budgetary Considerations

- ☐ Proposal provides itemized budget
- ☐ Proposed budget does not include capital equipment purchases
- ☐ Proposal includes reasonable travel costs
- ☐ Expedition cap per person is \$1,500 (12+ days) or \$2,500 (21+ days)

Reviewer's Conclusion

Should the expedition be funded? _____

What are the total funds requested by the team? _____

How much funding do you believe the team should be awarded? _____

Is anyone on the team requesting additional financial support for a WFR course? _____



Ritt Kellogg Memorial Fund Registration

Registration No. CQ7H-7W3TV

Submitted Jan 21, 2025 11:24pm by Vincent Mangat

Registration

Aug 26, 2024-
Jan 22, 2025

Ritt Kellogg Memorial Fund

RKMF Expedition Grant (2025 Group Application)

Event Aug 26, 2024-Jan 22, 2025

This is the group application for a Ritt Kellogg Memorial Fund Expedition Grant. In this application you will be asked to provide important details concerning your expedition.

In addition to this Group Application, **each team member must submit an Individual Application**. All Group Applications and Individual Applications must be received by 1st Wednesday of Block 5 at noon.

For more information, example applications, proposal writing tips, and further guidance, please visit
<https://www.coloradocollege.edu/other/rittkelloggfund/grants/expedition-grants/overview.html>

If you have any questions please email Kate Nelson at
knelson@coloradocollege.edu

**Waiting
for
Approval**
Jan 21,
2025
11:24pm

Participant



Vincent Mangat



Consent



Vincent Mangat

Participant Agreement: Behavior and Expectations

Recorded (Jan 21, 2025 11:07pm, VJM)

Expedition Summary

What is the name of your proposed expedition?

Ski Traversing in the Garibaldi Park

If you have an alternate name for your expedition, please list it here.

Funner Kids: A Backcountry Baddies Expedition

Briefly describe the objectives of your expedition.

The goal of this expedition is to complete a ski traverse link up of the Garibaldi-Neve Traverse and the McBride Traverse, essentially a traverse from Squamish, BC to Whistler, BC. This route includes or passes by a few peaks such as Mt. Garibaldi, Mt. Sinister, Mt. Sir Richard and the Spearhead. It will take 12 days and will be a total of 28,618 ft of vertical gain.

Some of our specific objectives of this expedition include :

Safely execute our 12 day ski traverse across Garibaldi Park using our planned route and implementing from our learned experiences and courses taken in preparation.

Explore new terrain that no group member has explored before in a safe and conscious manner. Stay on track of our daily mileage and elevation goals, and unless an in field decision change becomes necessary for unforeseen circumstances, stay on route with our planned camping and traversing routes.

Be effective and efficient during our travels, remaining vigilant of the time so that we are arriving at our next camp before the sun sets every night while maintaining a group dynamic that allows everyone to have the necessary amount of breaks and food throughout our highly active days. Ensure that there is a clear plan in case of a worst case scenario so all team members can act safely, quickly, and effectively if that should occur. This includes a variety of applicable responses for if any member falls into a crevasse, is buried in an avalanche, or has any sort of medical emergency.

Foster an encouraging team environment where everyone's voice is heard in decision making in the field and feels supported during an extremely physically taxing expedition.

Make safe and responsible decisions together in the backcountry prioritizing safety in the forefront.

Be conscious that we are the intruders on a serene and beautiful natural landscape and stay respectful of our Leave No Trace Principles, leaving each night's camping spot and break spots the way we found it.

Safely summit Mt. Garibaldi by implementing our outdoor skill sets and making responsible and informed decisions based on weather conditions, both observed and searched, to decide our means of descent.

Deepen our friendships throughout a challenging yet exciting backcountry adventure.

Laugh, have fun, enjoy making memories.

Briefly describe the location of the expedition.

This expedition will take place in the Garibaldi Park in British Columbia, Canada. Garibaldi Park is a centerpiece along BC's world renowned Coast range, with numerous glaciers, high alpine peaks, and lakes. Our route ascends out of the greater Squamish area, through 70 miles of forested, glaciated and alpine terrain. The route concludes at the summit of Whistler Blackcomb Ski Area. Our chosen route is an approximate combination of the Garibaldi-Neve Traverse and the McBride Traverse which are two commonly traveled ski traverses in the Garibaldi Park. The area features majestic peaks like Mt. Garibaldi, The Black Tusk and The Spearhead.

Date that travel to the expedition will start.

May 16, 2025

Date that your team will enter the field.

May 17, 2025

Date that your team will exit the field.

May 28, 2025

Date that the last team member gets to their home location.

May 29, 2025

How many days will your team be in the backcountry?

12

How does your planned destination provide a "wilderness experience," and how will your expedition offer solitude and promote self-reliance and grit?

The Garibaldi Park Backcountry is only accessible to ski tourers, climbers or mountaineers. The park itself is located in the center of the Coast range and spans 1,905 square kilometers, a stunning preservation of land located just 64 km from Vancouver. In our search for an objective, our team discussed what a valuable outdoor experience meant to us and how we could use our skill sets to find a location and objective that would promote these values.

Our initial question when researching potential expeditions was "Where can we do a ski traverse for a full 12 days?" While we first thought that this would be an easier task, it was soon apparent that there is a limited amount of connected ski terrain in May after we end school. This predicament proved to us that whatever we would find would be deep in the wilderness with incredible potential for serenity and solitude.

When we stumbled upon the terrain in the Garibaldi Park we were amazed by the grandeur of the peaks and valleys, but also abruptly aware of its uniqueness to our previous expeditions. This combination of elements will provide an excellent wilderness experience for all three of us by allowing us to become familiar and experienced in an unfamiliar environment.

A significant portion of the proposed route is at least 10 miles from any given trailhead, so being self-sufficient will be imperative for success on our expedition. This may include problem solving possible issues, avoiding hazards and preventing accidents. We will also be carrying heavy packs over challenging terrain, so having determination and grit will improve our potential for success and will make it more fun!

Participant Qualifications

Expedition team member information

Vincent Mangat, May 2028, 01/07/27 WFR expire

Emmet Marshall, May 2028, 10/06/26 WFR expire

Sofia Howell, May 2028, Planned NOLS 03/18-22/2025

Does your team have adequate experience?

Yes

Describe your team's training plan to solidify or improve technical skills, physical conditioning, and team dynamics prior to the start of the expedition.

This expedition requires both strong fitness and technical skills, which we plan to work on throughout the spring leading up to the trip. Our team collectively has solid wilderness backgrounds. We are experienced in making smart and safe decisions in the backcountry, as well as executing advanced ski touring skills required for this expedition from years of practice. We want to ensure that we are honing in on these skills and actively practicing them in the time leading up to the expedition to ensure our safety and success. We want to start by spending more time in the backcountry as a group, skiing, ski mountaineering and practicing our skills that will be put to use on this mission. We plan to do this within 2.5 hours of campus, for accessibility reasons, and at least every other week. This will help to solidify our efficient teamwork, improve physical fitness and increase comfort and confidence while in the backcountry. During this time we will practice skiing uphill roped up together with harnesses at different distances from one another and refine burial and general rescue skills learned in AIRIE 1 and Glacier Travel courses. We plan on using low risk backcountry terrain near campus to drill avalanche victim recovery with each

other to ensure we can react efficiently in case a team member falls victim to an avalanche while on our trip. These training trips will allow us to feel confident on both our skis and our competence in austere environments.

Since a large portion of our planned route is on glaciated terrain, we plan to take a glacier travel and crevasse rescue course which prove to be extremely important to managing this new terrain and staying safe. After taking the glacier travel course we will put into practice the crevasse rescue techniques we learned and simulate crevasse rescues in the same low risk backcountry environment mentioned above in order to ensure fluidity and competence in our systems and the ability to complete them effectively in a potentially stressful situation.

In terms of fitness, Vincent will be fresh off of a track season which will help his overall fitness levels, in addition to some planned backcountry trips and ski objectives here in Colorado. For Sofia and Emmet, they will continue to train by frequently ski touring, running and doing the Incline every other week. Both will also practice alternating endurance and weight training in the gym at least 3 times a week to keep up overall physical conditioning. As a team we will also be carrying heavy packs for the duration of the trip, so weight and pack training will be imperative for both success and enjoyment.

Expedition Logistics, Equipment, and Food

Briefly describe how each expedition member will travel from home to the trailhead and back again.

In order to get from school to our trailhead all three group members will leave campus at the end of block eight and travel approximately an hour and a half in Vincent's truck to Vincent's house in Boulder Colorado. Our team will then spend two nights at Vincent's house preparing our gear, sorting food and dividing pack weights and get some good rest before the trip begins. We plan to leave Vincent's home on the morning of the 16th at 5:45am and will be dropped off at the Denver International Airport by Vincent's parents. We are all experienced and self-sufficient travelers and should have no problems checking our bags and boarding a flight from Denver to Vancouver at approximately 7:45 am. Assuming all goes smoothly, we will touch down in Vancouver around 9:51 am. From the Vancouver airport we will take the 3:00 pm shuttle to Squamish Adventure Center which will arrive at 5:00 pm. We will then walk to the Squamish Adventure Inn as it is right down the road, and spend the night there. All shuttles will be booked and reserved ahead of time to ensure we have a seat and don't end up stranded in any place. The next morning we will wake up early and shuttle to the trailhead to begin our trek.

After reaching our end point of Whistler Mountain and taking the Tram down to the base of a mountain our team will take a one way shuttle from Whistler Village Center Gateway Loop at 3:30 pm and arrive in Squamish at 4:30. Our Re-rationing individual will meet us at the Squamish Adventure Center upon arrival with the remainder of our belongings held for us during the trip. We will then go back to the Squamish Adventure Inn for one more night. The next morning we will board our bus from Squamish Adventure center to Vancouver International Airport at 8:30 am, arriving at 10:30 am where we will all board our flight back to Denver, Colorado at approximately 2:20pm. Upon arrival in Colorado, Vincent's parents will pick us up and drive us back to his house in Boulder Colorado. The ending of a long adventure.

After reaching our end point of Whistler Mountain and taking the Tram down to the base of a mountain our team will take a one way shuttle from Whistler Village Center Gateway Loop at 11:00am and arriving in Squamish at noon. Our Re-rationing individual will meet us at the

Squamish Adventure Center upon arrival with the remainder of our belongings held for us during the trip. We will then board our bus from Squamish Adventure center to Vancouver International Airport at 1:30 pm, arriving at 3:30pm where we will all board our flight back to Denver Colorado at approximately 5:45 pm. Upon arrival in Colorado, Vincent's parents will pick us up and drive us back to his house in Boulder Colorado. The ending of a long adventure.

Upload a detailed day-by-day itinerary, beginning when the first team member leaves home.

[RKMF Daily Itinerary-final.pdf](#) (29MB)

Uploaded 1/21/2025 9:48pm by Vincent Mangat

Please paste a URL to your complete digital expedition map.

<https://caltopo.com/m/1R1N1C0>

If you have plans to re-ration during the expedition, describe the plan below

We plan to re-ration on day five of our expedition from the Rubble Creek Trailhead (49.95754 N, -123.11983 W). We have contacted multiple locals in the Squamish-Whistler area who are confident outdoors people and would be willing to porter supplies to our resupply point for around ~\$400. As this proposal is due well in advance of the expedition dates, we are unable to confirm specifics about where the drop will be located, but we expect for it to occur near the Taylor Meadows Campground (49.94867 N, -122.08708 W). This is the best location for a resupply as it is the last trailhead with access to the park before we embark over the Cheakamus River Valley and into Whistler. The proposed individual re-supplier would porter supplies up the moderate 4.2 mile Rubble Creek Trail and meet us at a discussed time. We will be able to communicate with our re-supplier via InReach in case of any change from the original plan.

Describe how you will protect your food from wildlife.

Garibaldi Park is home to both Black and Grizzly bears. In order to effectively keep ourselves and our food safe the best way to protect our food from wildlife are bear-proof bags which will be malleable to fit in our packs during the day. We will each carry a bag to keep our food in and the versatility of the bags will be convenient in our packs. We will also partially-bury these bags far from camp during night to prevent wildlife incidents at night. Although we are mostly unconcerned about small rodents as our route is almost entirely on snow or glaciated terrain, for extra precaution our smellables will go in ziplock bags alongside our bear bags which will also serve as a preventative against the occasional glacier mouse.

Upload a detailed food list with budget numbers and show hoe it meets the caloric needs of the expedition.

[Food List.pdf](#) (90KB)

Uploaded 1/21/2025 7:58pm by Vincent Mangat

Upload a thorough equipment list.

[Equipment list.pdf](#) (88KB)

Uploaded 1/21/2025 9:56pm by Vincent Mangat

Upload a first aid kit list.

[First Aid.pdf](#) (73KB)

Uploaded 1/21/2025 9:59pm by Vincent Mangat

How will you limit and leverage your impact on this trip?

As privileged individuals who are able to attend and afford a college education we realize that if given this opportunity we should be mindful of the impact we are making on the communities and places we are visiting.

To begin, we want to acknowledge that our flights to and from Denver to Vancouver have a negative impact on the environment. For our team, flying economy will emit 3.19 metric tons of carbon emissions into the atmosphere. As individuals, we strive to be environmentally conscious in our day to day lives. After lots of conversation and discussion regarding factors like time and safety, we eventually decided that considering the predicted snow pack, the time to drive to Vancouver would jeopardize the amount of snow we would have to complete our overall objective. That being said, we recognize the detrimental effects of these emissions on the planet and hope to do our best to continue to lead lives with low carbon footprints in the future.

Throughout the entirety of the expedition, we will travel 2,348.1 miles on planes and buses, making the cost to offset these emissions \$16.93. Taking that into account, after our flight, we chose to take a bus from the airport to the Squamish Adventure Inn where we will be staying before the beginning of our expedition. By taking a bus instead of a flight from Vancouver to Squamish we hope to minimize our emissions and cost for the trip. We also hope to minimize our impact by staying in The Squamish Adventure Inn, a hostel that fits our basic needs. We will book a Private 3 single bedroom where we will all stay, as it will be more cost effective than booking 3 beds in the traditional hostel dorm room. This will also allow us to speak to locals and integrate with the local adventure culture and community.

We also recognize that we will be traveling and utilizing unceded lands of the Skwxwú7mesh, now commonly known as the Squamish Indigenous People. In their mythology, the Skwxwú7mesh people tied their canoes to Garibaldi Peak, indigenously named Nch'kay after the dirty volcanic water, to evade the great flood of the creator and used the obsidian from the area. As we traverse this land, we aspire to recognize and honor its original inhabitants.

We anticipate this experience to be one of adventure, comradery, challenge and growth. Our legs will inevitably hurt. We will be forced to rely on one another throughout these challenges and hope to absorb every small victory and failure to use as learned experience. In our 12 days alone in the backcountry, we hope to develop our backcountry skill sets, deepen our friendships with each other, and expand our appreciation for the outdoor world we have the privilege of exploring.

Risk Management

What are the main objective hazards of the expedition?

Glacier travel / Crevasses

Because so much of our expedition will take place on glaciated terrain, taking the necessary precautions to minimize the possibilities of crevasse danger and remaining vigilant and clear headed when making decisions in the field is essential to the safety of our team. While in the field there are two categories of glacier travel that are relevant to our expedition.

The first category is when there are no visible crevasses present, but the risk of hidden or unexpected crevasses is possible. Our expedition would be in the late spring, so we expect most of the snow covering these crevasses to have melted, especially considering the present trend of warmer, shorter winters. However, even uncovered, crevasses are deadly and will likely not show up on our digital mapping systems. In these instances, we will be sure to rope up when deemed necessary, or on any large glacier sections that are known for having crevasses even if we think them to be safe at the moment. Having active plans for staying aware will be imperative to the success of our group and we are committed to prioritizing group safety and skiing cautiously. The second category of glacier travel is navigating visible crevasse hazards. While simple, this is where route finding will be the main prevention technique for us to use. We will use digital

mapping to navigate when possible and be extra observant when making descents, skiing one at a time and having eyes on the person skiing when skiing without ropes. As mentioned we will have the capabilities to rope together, but taking it slow while navigating these hazards will be of utmost importance.

We realize while writing this section, that our knowledge of glacier travel and crevasse rescue is limited. And while our team has some limited experience on glaciated terrain, this expedition will certainly be a big step, and since glacier travel and crevasses present a very real danger on expeditions like these we are committed to taking a glacier travel and crevasse rescue course in February. Taking the course will allow us to improve our knowledge and systems to become as safe as possible while traveling across glaciers. By taking the course together we will have an opportunity to practice these rescue and travel techniques as a team under the supervision of instructors who can give active feedback. This course will cover navigational strategies, glacier rope-team travel techniques, mechanical advantage hauling systems, snow anchoring techniques and any other tactics or information that will prioritize our safety. After taking the course, we are committed to practicing the strategies learned in the course as well as simulating crevasse rescues during our training trips on each of the team members so that we are prepared in the event of an emergency. So, while we are currently unable to explain exactly the systems that we will use to haul a team member out of a crevasse, by the time of our expedition not only will we have taken the glacier travel and crevasse rescue course, but we will have close to 4 months of practicing and applying these skills.

Bears

There are two prevalent bear species that call Garibaldi Park home and are a potential hazard to us as backcountry travelers. The most common of the two is the black bear and is most likely to be seen in the early mornings. We will make ourselves known as we traverse bear country as to not startle any bears and reduce the likelihood of encountering one. We will keep alert for any tracks, droppings or signs of bears active in the area. Bears are usually looking for food, so we will also take precautions in our campsites, keeping our tent and sleeping bags separate from food odors and storing our smellables, food, cooking supplies and garbage downwind of our tent during the nights. Our food will be kept in bear bags at all times and will be buried at night as stated in the "Bears and Food" section of our proposal. In the case of an encounter we will comply with the suggestions from parks.canada.ca. No matter what the situation, we will each take out our can of bear spray from an accessible place and be prepared to use it if necessary. However, If the bear is unaware of our presence we will move away quietly without alerting it. If the bear is aware of us, we will stay calm and speak firmly to the bear, this lets it know you are human, and back away slowly. If the bear continues to approach us we will continue to talk in a calm but firm voice until it leaves. If it continues to approach, we will use our bear spray if necessary.

Trail Snow Conditions

Because of the warming climate, the snow conditions at the lower elevation beginning sections of the traverse remain a bit of a mystery until we can see what kind of snowpack is present. In any backcountry scenario, uncertainty is a major hazard. In order to combat this, we will be prepared to tackle the beginning two days of this traverse on skins, or on foot with our skis on our packs. In an effort to combat this uncertainty, our team is well versed and prepared for either method of ascent. In the case of a shallow snow pack, the first day and a half are likely to have little snow, leading to us hiking on foot. Although the terrain is more mild, the hazard of steep uphill is still prevalent and we will do our best to hike carefully on the steeper sections and take

breaks as needed. Ski and non-ski crampons will be readily available for any terrain that may require them, and will be used if the terrain is icy, overly steep, or at any time that we see fit. All members of the team are also well versed in using crampons. We are also aware that hiking on foot will take considerably longer and will be more physically taxing than skinning, which is why the first two days are lighter, mileage wise, and day three is a built in easier day to account for any extra fatigue or time it may take us to reach our campsites. Overall, while skinning these sections would be preferable to hiking, we are prepared to deal with scenarios and the hazards that go along with it and recognize it could be a real possibility on this adventure.

Avalanches

During late May, when we will be embarking on our expedition, avalanches are a hazard that will be taken into serious account. Each member of our team is individually AIARE level 1 certified, and will implement the knowledge learned in this course to minimize any present avalanche danger. This effort begins prior to the expedition during our training trips discussed above. As a team, we will practice reading avalanche forecasts and creating a plan for our backcountry training trips. Making good in field decisions and being able to visually identify trigger points, terrain traps, and possible avalanche paths in a landscape. This knowledge should be trained like any other skill and will be something we actively focus on and debrief upon, post training trips. We will also simulate avalanche rescues for each member of our team using the techniques learned in the field during AIARE level 1 courses. This will include practicing searching for a simulated buried partner, for practice purposes we will use a backpack, and canvassing the area from the last seen point using the techniques introduced in the course. This will allow us to minimize our search time using our avalanche beacons and give us a space to practice timed probing and digging in order to make a rescue. This will ensure that when in the field, if an avalanche were to occur, we would be able to efficiently and effectively implement the skills that could potentially save a partner's life.

While we are on the expedition, we will put the skills into practice that we trained to use, keeping safety at the forefront of our minds when making any decisions about changes in routes. We will check the avalanche forecast when possible on our smartphones and observe the incoming terrain carefully. Keeping an eye out for any potential hazards. Avalanches can occur on slopes 30 degrees and steeper, so in our route we will do our best to "Keep It Simple and Avoid Avalanche Terrain". We will steer clear of any particularly steep slopes when traversing, and opt for a slope that is more mild and in turn, less avalanche prone. However there are a few minor downhill sections in our route that are over 35 degrees and are unavoidable without adding intense mileage to the day. In the scenarios we will stop in a smart zone above the descent, discuss as a team and review the avalanche forecast and our observations of the slope and weather. If the avalanche danger is deemed Low for the face we plan to ski we will then descend one at a time, transitioning to skin mode at the bottom, in a safe location, in the case of an avalanche so we can act quickly. In the case that the avalanche danger is higher than our group risk tolerance we will take an alternate route on a slope with a different aspect, likely one more shaded from the sun. If there is no other face with a lower avalanche danger we will opt to take a longer safer way around. As we travel, we will also be sure to analyze the snow layers so we have an idea of any problematic layers in the snowpack. Our knowledge on snow layers, supported by past weather patterns and avalanche forecasts in the area, predicts that our biggest Avalanche Problems would be Wet Loose, or Wet Slab Avalanche at this time of year. In order to avoid this we will get an early start every day, minimizing the amount of time we will be on the snow when it is being warmed intensely by the sun, and be on the lookout for signs of natural avalanches and roller balls. We will also remain aware and vigilant of wind direction and the potential hazard of cornices or wind and storm slabs.

Following that, another important aspect of avalanche danger is past and current snow and weather conditions, which we will monitor as we go to stay aware of which types of avalanches are possible, how likely we are to trigger them, and which terrain to travel on in order to avoid avalanche exposure altogether. We will also contact local guiding services as we get closer to the date for an insight on the terrain. As seen on the caltopo map our camps are set up in areas that are not in avalanche danger zones, and are out of the way of any potential avalanche run out. Digital mapping tools like caltopo are extremely helpful for expeditions like these, however, they are not perfect, so while in the field we will inspect our camping areas for any unexpected avalanche danger and move camp to a safer location if necessary. If in a situation where we must cross potential avalanche terrain we will cross one at a time, keeping eyes on the team member at all times, eliminating the possibility of more than one individual being caught or carried by an avalanche. We will also be sure to discuss as a team any observations or concerns about avalanche danger and how to best avoid it at the time.

Weather

There are a few hazards associated with the weather during our expedition that may hinder travel, safety and fun. While late May in British Columbia is not usually a month filled with heavy precipitation, there is still a possibility for unpredictable weather conditions. These adverse conditions can have multiple different impacts on our expedition. Since May is at the beginning of the summer, there is the potential for all types of precipitation which can be unexpected and intense. Our plan for managing these risks is centered around the key idea of staying warm. Staying warm is the safest thing we can do, so adjusting our plans in order to do so will be important. Constantly assessing the conditions regardless of current weather will help keep us prepared in case we need to change our itinerary for the day. Some of our days are shorter and we plan to travel through less challenging terrain. Conversely, some days require good visibility and conditions in order to stay safe. Having an adjustable plan based on the day will keep us both moving along the route when possible and holding off when conditions prevent us from continuing on.

Another weather related hazard is lightning, which can be challenging to navigate in the environment we will be in. Avoiding lightning is more straightforward when we are traveling through the trees like on day 1, 4, 5, and 10. In these cases we want to seek shelter in sections of tall uniform trees which will protect us from direct lightning strikes. While this method works well below treeline, much of our traverse is above treeline on glaciated terrain. In the event of suspected lightning above treeline we want to avoid objects that are isolated like single trees, rocks or ridgelines. The best option for lightning in the high alpine is descending into protected areas. In the event of lightning risk, we will have the option to drop down to treeline throughout the entirety of our expedition. If we deem this necessary, we may seek protection, then reascend when it is safe to do so.

These weather risks are real and require us to monitor them at all times. By staying vigilant in this regard, we will be able to make timely decisions about our travel to keep us as safe as possible.

Food/ Water Consumption

When partaking in any physically taxing activity where you are carrying your own food for extended periods of time, the risk of bonking is a possibility and a hazard. In many outdoor disciplines like rock climbing, it is said that your biggest hazard is yourself, and while that may not be exactly the case for us, in the regards of food and water, self control and good decision making will be crucial to the success of this trip. Bonking, also known as "hitting the wall" is an exercise-induced low blood sugar condition that causes a major loss of energy, making you feel weak, dizzy

and highly fatigued. In backcountry missions this occurs when you run out of food to support the amount of calories you are burning in exercise. We have created a caloric food plan for the expedition that will more than meet our needs, yet, it is important to not eat too more than the allocated number of calories per day. Not eating everything that is readily available can be difficult during long, tiring days, but it will be important not to eat everything in one place and time and to stick generally to our meal plan. We will be counting to the single calorie but we will be wisely and conservatively rationing and ensuring that we are not overeating calories that in turn will take away from future days. This will be important to avoid the risk of bonking in the latter half of the trip.

It will also be important to stay conscious about where we are getting our water from as well as treating it correctly. It can be easy to fall into a muscle memory habit on long trips like this, but often that is where mistakes occur. So while there will be plenty of places to get water along the route, treating it correctly and getting it from the reliable sources we have listed in our proposal is something that we will keep in mind and be aware of at all times throughout the trip.

Equipment Failure

While equipment failure is oftentimes an unexpected and uncontrollable occurrence, there are strategies we can utilize to attempt to minimize the possibility of our gear breaking. This begins on our training trips. We will familiarize ourselves with our gear and know which parts, if any, are likely to break. If they do break, we will know how to fix them in the field. We will also carry a skin and ski repair kit with us on the traverse as our skins and skis are some of the most important equipment we will carry with us. This will allow us to fix potentially broken tail clips, and remedy basic binding malfunctions that can be solved with a screwdriver and spare hardware. This kit will also include skin wax and glue, as the sun may heat the snow, and other miscellaneous helpful items like bailing wire, a scraper, zip ties, ptex and a lighter, a knife and ski straps. It is of course important to recognize that there is no repair for larger damages such as a broken ski. However, we are prepared to deal with minor breaks that could happen on an expedition this long.

Describe your self-evacuation plan in the event of an emergency.

The safest and most efficient option for evacuation would be a Heli lift. If a member of our group was injured severely enough to necessitate an air lift, while waiting for a search and rescue aircraft to arrive, we would prepare a safe scene by making ourselves as visible as possible, in an area safe enough to land or hover a helicopter, and create a warm and safe camp to treat any injuries to the best of our abilities until authorities arrive.

IF an airlift is not an option due to inclement weather:

If an emergency were to occur on days 1 or 2, our plan would be to turn around and exit the mountains via the way that we came in. In case of an emergency that necessitates evac on day 3, we will utilize the Brohm Ridge Trail, and exit to the west. On days 4, 5, and 6 an evacuation would be managed by backtracking towards Rubble Creek, and evacuating through the Rubble Creek trailhead. In case of necessary evacuation along our traverse, we will bring an ultralight rescue sled to prepare for injuries that are severe enough to make any of our group mates unable to move under their own power. We will practice using this equipment in the coming months, prior to our departure, to familiarize ourselves with the process of evacuating an injured person as efficiently as possible. Our daily itinerary sheds more light on how the possibility of evacuation changes over the course of our trip.

Days 7-10 are the farthest into the backcountry, so any evacuation would be more challenging than previous days meaning that the threshold for manual or rapid evac is different. Our plan

would be to follow our proposed route and exit in Whistler, if any emergency evac was needed on days 7-10. On days 10-12 we will be close to Whistler so evacuation will be made easier along a shorter route. We are also more likely to have help along the way as there will be likely people hiking in the areas surrounding the mountain. In the event of an emergency, we will have to adjust our evac plan based on conditions, injury and feel.

Additionally, by the time of our departure, the three of us will be WFR certified. Vincent is also a certified EMT.

Discuss any measures taken for teammates with medical histories which warrant special preparedness.

Vincent has fairly severe exercise-induced asthma which is well maintained by albuterol. Through my experience running competitively for long distances as well as spending time in the backcountry, I have found the best techniques to manage asthma. For example, I know that I generally run hot, so having too many thoracically constricting layers restricts my breathing ability.

List the emergency and rescue resources available in the vicinity of your expedition.

Emergency search and rescue teams are dispatched when 911 is called. The dispatcher works with the party in need in order to respond with accuracy and efficiency.

Blackcomb helicopters medevac services (For backcountry emergencies, dial 911 and ask for police. Where cellular service does not exist, activate your satellite based messaging device, stay in one place, and talk to the operator.)

Whistler Search & Rescue Society (routed thru 911 then dispatched by RCMP)

Squamish search and rescue (If you require search and rescue assistance, call 911 immediately. For lost/missing/stranded persons, request the RCMP. For all injuries, request the BC Ambulance Service)

Pemberton Search & Rescue (Call 911 immediately. When asked by dispatch (Police, Ambulance, or Fire), request Pemberton Search and Rescue (PSAR) PSAR is activated by local RCMP dispatch. Access GPS coordinates on your phone, find GPS Latitude and Longitude. Signal helicopter with a visible item)

Hospitals-

Whistler Health Care Centre, 4380 Lorimer Road Whistler, BC V8E 1A7, (604) 932-4911

Squamish General Hospital, 8140 Behrner Drive Squamish, BC V8B 0J3, (604) 892-5211

Vancouver General Hospital (VGH), 899 West 12th Avenue Vancouver, BC V5Z 1M9, (604) 875-4111, (604) 875-4300

Our travels will be within the confines of Garibaldi park. In case contact is necessary with park authority, any questions we have can likely be answered by utilizing these contact methods: info@seatoskyparks.com parkinfo@gov.bc.ca 1-604-986-9371

STRangers@gov.bc.ca This email is oriented towards backcountry focused questions and info.

List the emergency communication devices you will be carrying on your expedition. If none, explain why.

Between the three group members we will be carrying two Garmin Inreaches to send messages to family members and for SOS if needed. Additionally, each team member will also be carrying their smartphone, although it is likely that we will not have access to reliable cell service. We plan to add Canadian SIM cards so that in the event of an emergency or if we access cell service we can use our cellular devices.

Climate change is affecting how we recreate outside. Please list any expected hazards associated with climate change and how you might address rapidly changing conditions.

When writing our proposal for our Garibaldi Park Ski Traverse we recognized that this expedition, if proposed 15 years ago, would have been very different from the one we are proposing today. Over the past 15 years the conditions of the peaks within this park have changed, the glaciers have rapidly melting. All too quickly, we are suddenly faced with a question mark when predicting future conditions. In the past, spring snow in the British Columbia Mountains has been reliably accessible for any eager individual looking for adventure. However, our ever warming climate has transformed something that was once reliable into a changing and unpredictably hazardous force.

Along our proposed route the effects of global warming, while saddening, create more of an annoyance than a major hazard for our expedition. The first day and a half of our days in the field will be low enough elevation that the depth of the snowpack in those areas will be uncertain, as mentioned previously. With May being 4 months in advance and snow season just beginning to ramp up, with our current global climate it is impossible to say at this point whether we will be able to skin this first section of our route or if we will have to hike it. In the case of a low snow year we are of course prepared to hike these sections with our skis on our backs. Although more challenging and time consuming, we feel confident in our ability to do so effectively. The First 2 days of this expedition are relatively short in terms of steepness, mileage, and elevation gain, so the potential hazard of having to walk steep terrain on foot will be minimized. Day three was also created as a shorter, easier day in order to be a buffer for any snags that may occur due to unforeseen circumstances regarding trail conditions.

Another issue associated with warming temperatures is melting glaciers and unstable rock and ice conditions leading to rock fall that could be hazardous for us as we traverse these glaciated and mountainous environments. To combat this hazard we will be traveling early in the day before the sun has time to make an effect on the snow and ice that we will be traveling on and near.

Budget**Upload a detailed and complete expedition budget.**

8KB)

m by Vincent Mangat

What is the total funding request for your trip?

3973.62

What is the funding request per person?

1324.54

Describe what measures you have taken to minimize expenses for your expedition.

The majority of expenses for our trip are inherent costs such as the wilderness permits, food, fuel, pre and post trip accommodations and a med kit. Other than these necessary expenses, we have additional expenses that we chose as we feel they are the best option for our expedition. The first of these choices was flying to Vancouver. The flights we chose were the most affordable, and when booking we will continue to seek the cheapest option. To shed light on our alternative method of travel, if we had driven from Boulder to Squamish it would have been close to 1000 dollars in fuel, as well as an additional hotel night stay. While driving would be cheaper, we decided that it would benefit our group to arrive in Canada feeling fresh and full of energy for our adventure ahead, rather than feeling road weary from driving for 45 total hours. In addition,

leaving a car outside of Squamish would have been logistically tricky, so shuttling from Vancouver to Squamish and back from Whistler is efficient and cost effective. Our final expense to highlight is the resupply porter fee. We decided this would be necessary to eliminate the need to carry supplies and food for 12 full days, allowing us to move more efficiently and with lighter packs. In addition, the porter will hold onto our excess gear while we are on the expedition as well as shuttle us to the starting point. As a group, this expense seems necessary to keeping our plan on track and efficiently moving.

Expedition Agreement

The Expedition Agreement must be printed, read, and signed in ink by each member of the expedition team. Once the Agreement is filled out, it should be scanned into PDF format and uploaded here. The group application will not be considered complete until this form is submitted



(838KB)

Vincent Mangat

RKMF Daily Itinerary

Day in field: 1

Starting location: We will start the day in Squamish at the Squamish Adventure Inn, a low-priced hostel for outdoor goers. We will get a shuttle ride up to the Elfin Lakes Trailhead, or as far up the Garibaldi Park Road as car travel allows.

Ending location: Elfin Lakes Campground (49.78834 N, -122.98800 W) Elevation 4862 ft. This is a campground maintained by the Garibaldi Park and requires site reservations of 6 dollars.

Mileage: 6.3 miles

Elevation gain/loss: +2181 /-508 net: 1673

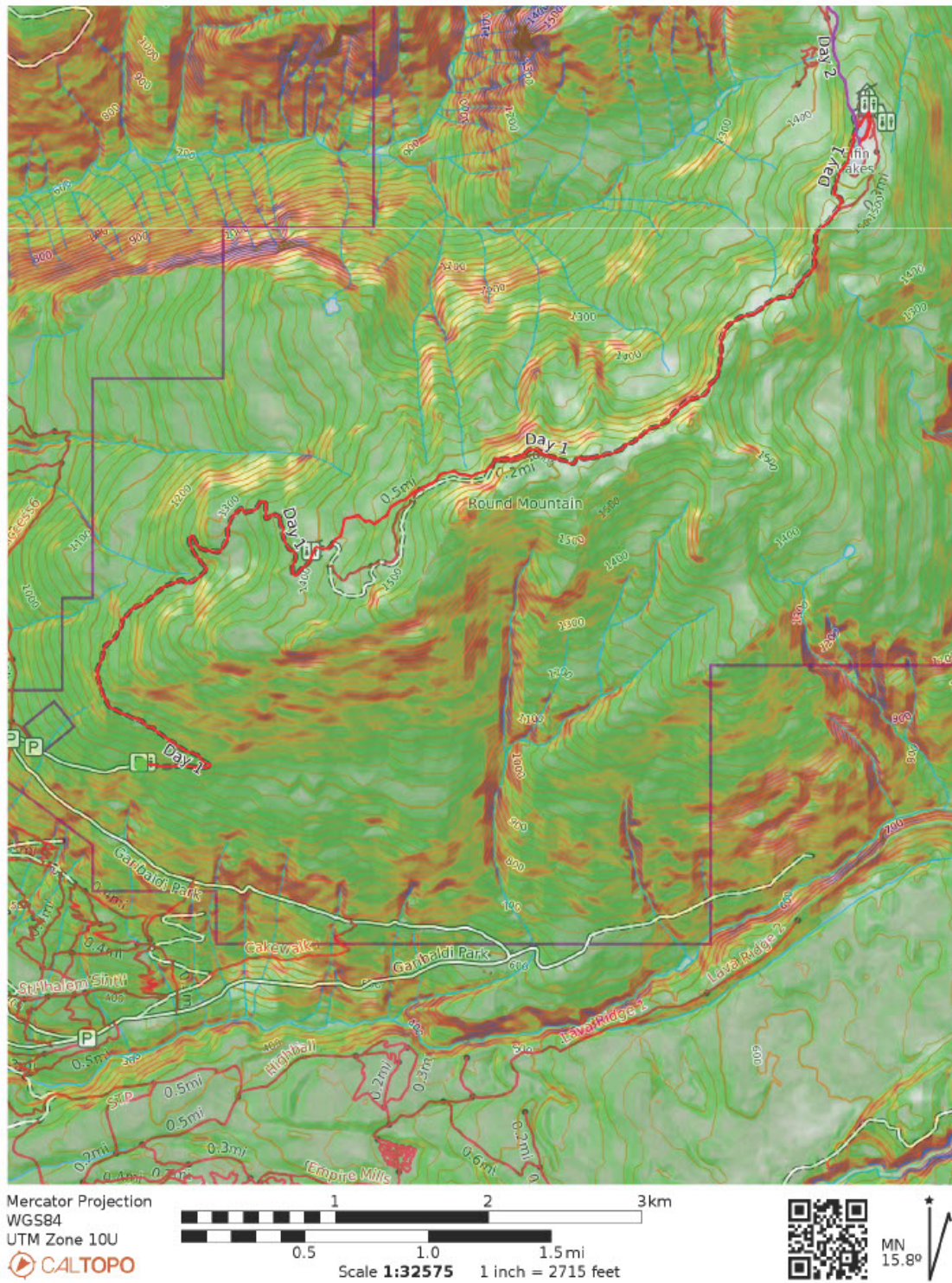
Route description: Starting at the Elfin Lakes Trailhead, we will follow the Elfin Lakes Trail until we arrive at the Elfin Lakes Campground, around 6.3 miles later. We expect to start at the trailhead in hiking shoes with skis and boots on our packs, and will put skis on as soon as snow conditions allow. This portion of trail is both well marked and well traveled, so we expect few route finding issues on day 1.

Water: We will start with full water bottles in Squamish, and will be able to refill water bottles using water from one of the Elfin Lakes and our filtration system.

Evacuation Routes: The best evacuation route for the entirety of the day is backtracking to the trailhead. We will be able to call our driver in the event of an emergency.

Notable Hazards: As this day is entirely done on maintained trails, we do not expect much route hazard, but the possibility of inconsistent snow is probable. It will be important to keep ourselves dry as well as on trail while skinning.

Map:



Day in field: 2

Starting location: Elfin Lakes Campground (49.78834 N, -122.98800 W) Elevation 4862 ft.

Ending location: Garibaldi Neve Camp (49.86547 N, -123.00726 W) Elevation 6332 ft. This camp will be high up on the Garibaldi Neve Glacier, about one mile north of Mt. Garibaldi. We will build our camp on flat snow (by digging into the uphill side) away from any avalanche or glacier hazards. We will also probe our proposed camping area to ensure there are no hidden crevasses or bergschrunds.

Mileage: 7 miles

Elevation gain/loss: +3344' -1879'

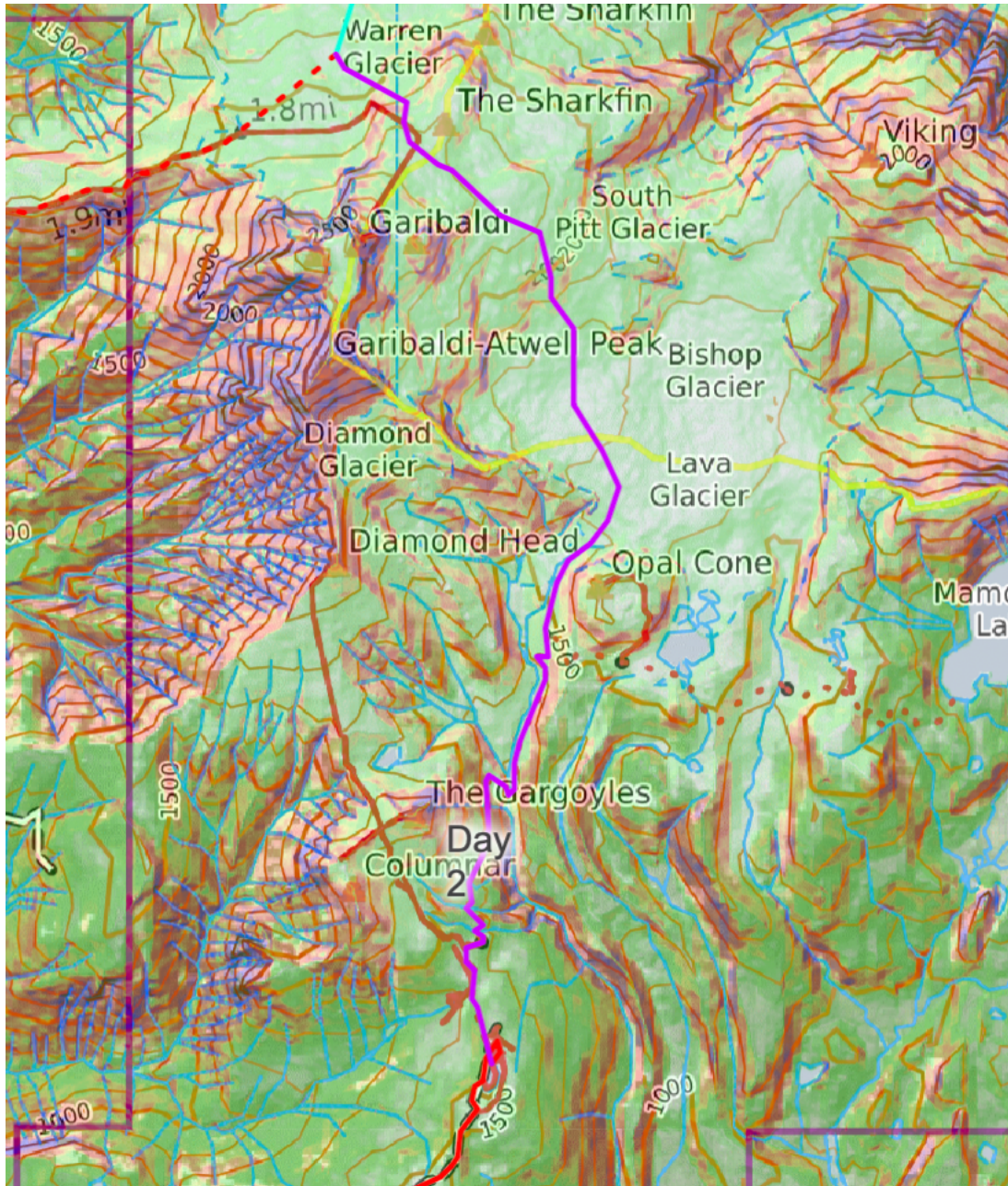
Route description: Starting at the Elfin Lakes Campground, we will skin up the Mamquam Lakes Trail for approximately 3 miles until it hairpins back south just southwest of the Opal Cone. At this point we will leave the trail skinning north up onto the Garibaldi Glacier via the Lava Glacier. At this point we will be aware of any new glacier-related hazards like crevasses or avalanches. We will ascend 2.5 miles and 2000 vertical feet over this glacier until we reach the Mt. Garibaldi ridge. From the ridge we will ski down onto the Garibaldi Neve Glacier where we will make camp, making sure the terrain is both free of crevasses and avalanche paths. We will monitor and test snow throughout the day to make sure our route is safe and avoid steep terrain over 30 degrees.

Water: We will leave the Elfin Lakes Campground with full water bottles from the lakes in the morning which should last us our day on skis until we make camp. At the Garibaldi-Neve Camp we will be able to melt glacier ice for water. This will be our water method for most of our trip while on glaciers.

Evacuation Routes: Our evacuation plan for any point south of the Mt. Garibaldi ridge (49.85737, -122.99614) is to backtrack to the Elfin Lakes Trailhead, similarly to the day before. This would be about 12 miles with 4200 ft of loss, but we can stop at Elfin Lakes Campground if needed. For any point north of this ridge, we will evacuate down the Brohm Ridge trail, which travels west from the Garibaldi-Neve Glacier about 6 miles back towards Squamish. If needed, we have an inreach communication device to contact the proper authorities for a rescue. This will be for the remainder of our itinerary.

Notable Hazards: Day 2 we begin glacier travel which includes much more risk than the previous day. We must be aware of hazards like crevasses and avalanches. The major

variable of this expedition is our inability to predict the conditions, so being extra aware of changing or irregular conditions is essential. We will also travel early in the day to maximize freeze-thaw cycles throughout the day, since firmer conditions will be both easier and safer.



Map:

Day in field: 3

Starting location: Garibaldi Neve Camp (49.86547 N, -123.00726 W) Elevation 6332 ft.

Ending location: Sentinel Bay Glaciology Huts (49.89853 N, -122.99428 W) Elevation 5000 ft.

Mileage: 2.7 miles

Elevation gain/loss: +532' -1853'

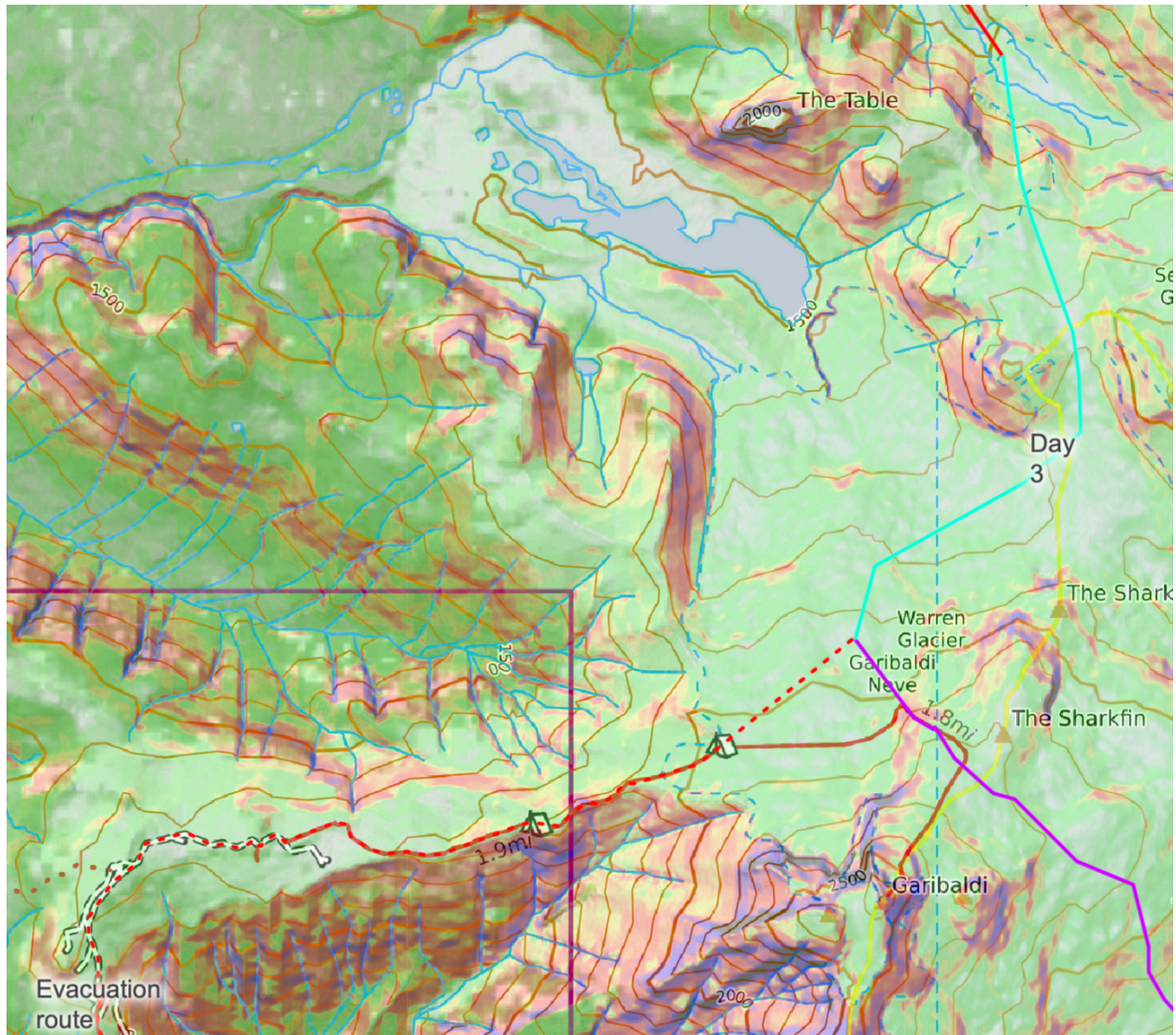
Route description: Day 3 is our shortest day of the trip which we deemed necessary to account for any deviation on the first two nights, as well as a light day to allow us to adjust to the expedition. We will start with a 600 ft ski descent followed with a 500ft ascent off of the Warren Glacier. The day ends with a 1200ft ski down to the Sentinel Bay Glaciology Huts.

Water: We will melt glacier ice throughout the day as needed, starting with full bottles from Garibaldi Neve Glacier. There are also some creeks that we can purify.

Evacuation Routes: If a non-rapid evacuation is needed on this day there are two options that are beneficial, backtracking to the Brohm Ridge Trail or continuing forward to Rubble Creek Trailhead. While the Brohm Ridge Trailhead is geographically closer on this day, the route is much more involved, so an easy skate across Garibaldi Lake could be better. We will be able to weight these options and make a decision based on the nature of the evac. For a rapid evac scenario, we will use the SOS feature of our In reach.

Notable Hazards: We will be traveling on glaciated terrain for a large part of the day which increases the risk for avalanches and crevasse falls. Being aware of these hazards will be imperative, achieved by monitoring conditions and being thoughtful when choosing the route. There is always a possibility for bears which we will avoid using bear cans and sleeping away from our food.

Map:



Day in field: 4

Starting location: Sentinel Bay Glaciology Huts (49.89853 N, -122.99428 W) Elevation 5000 ft.

Ending location: Taylor Meadow Campground (49.95236 N, -123.07438 W) Elevation 4936 ft. This is a campground maintained by the Garibaldi Park and requires site reservations of 6 dollars.

Mileage: 5.83 miles

Elevation gain/loss: +338' -418'

Route description: This day has two possible route options depending on the conditions. Both routes begin with a 250 ft descent from the glaciology huts to Lake Garibaldi which, assuming it is still frozen, will have a skin track across. This skate track will be our first option. Route B has the same descent to the lake and if it is not frozen then we will have to skin or hike around the lake. While option A is easiest, route b will still be a good option if lake conditions are poor. On the northwest side of the lake, both routes will meet at the Garibaldi Lake Campground. We will continue down the Garibaldi Lake Trail for 1 mile, then up the Taylor Meadow Trail until we reach the campground.

Water: We will start off with melting glacier water at the glaciology huts and can refill as needed on Lake Garibaldi. We will be able to purify water from the Taylor Creek while at the campground.

Evacuation Routes: The Rubble Creek trailhead is the most accessible trailhead for this day, so all non-emergent evacuations will be down the Rubble Creek Trail. The trailhead is about 4.2 miles from the Taylor Meadow Campground. In the event of a rapid evac scenario, we will use the SOS feature of our in reach.

Notable Hazards: Being aware of snow conditions at all points of the day will be important since it is the lowest elevation day, so snow conditions could be variable. It will also be important to monitor the ice on Garibaldi Lake before and during crossing. We will be below tree line after the lake crossing, so there are some additional hazards associated with skiing in the trees and higher prevalence of bears. Our plan for deterring bears is the same throughout the trip, but having food in bear cans and sleeping far from the cans will be extra important on this day.

Map:



Day in field: 5

Starting location: Taylor Meadow Campground (49.95236 N, -123.07438 W) Elevation 4936 ft.

Ending location: Helm Glacier Camp (49.95547 N, -122.98884 W) Elevation 6644 ft.

Mileage: 6.43 miles

Elevation gain/loss: +2929' -1204'

Route description: Day 5 is our proposed resupply day, where we plan to meet our resupplier at a middle point on the Garibaldi Lake Trail between the Rubble Creek Trailhead and Taylor Meadow Campground, close to the bathroom at (49.94.861 N, -123.08693 W). We will descent for .8 miles to the resupply point, then will backtrack to the Taylor Meadows. We will follow the Taylor Meadows and Helm Creek Trails for 2 miles until the Panorama Ridge trail breaks right. We will follow the ridge until we are able to safely ski across the snowfield below panorama peak. At this point we will be able to ski down 600ft then back up 400ft to the Helm Glacier where we will set up camp.

Water: We will start the day with water from Taylor Creek and will be able to refill as needed in Black Tusk Lake and melt snow at Helm Glacier.

Evacuation Routes: : If a non-rapid evacuation is needed on this day then the best option is to backtrack down the Taylor Meadows Trail to the Rubble Creek Trailhead. This route would be efficient and Rubble Creek is the closest trailhead to this route. In the event of a rapid evac scenario, we will use the SOS feature of our in reach.

Notable Hazards: Since we are at lower elevation for part of the day, monitoring snow conditions will be important so we don't end up in in terrain traps. Bears may also be prevalent in this area, which we will avoid using bear cans and sleeping away from our food. Once higher up on the Panorama Ridge and Helm Glaciers, we will reencounter possible avalanche and crevasse dangers.

Map:



Day in field: 6

Starting location: Helm Glacier Camp (49.95547 N, -122.98884 W) Elevation 6644 ft.

Ending location: Gray Glacier Camp (49.91310 N, -122.91321 W) Elevation 6732 ft

Mileage: 4.93 miles

Elevation gain/loss: +2800' -2716'

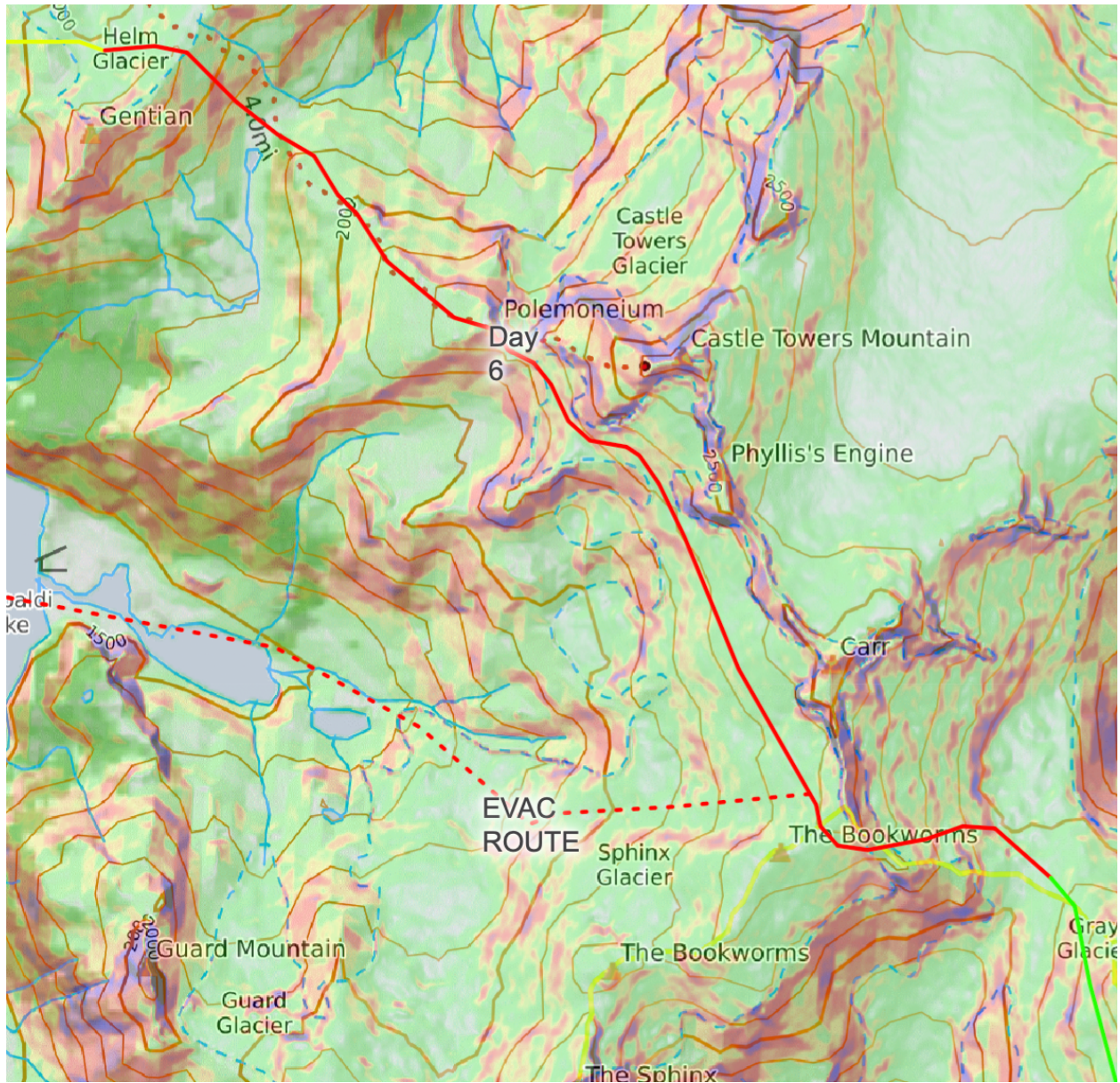
Route description: We will start the day crossing the Helm Glacier and descending 900 ft off the Gentian Peak ridge to Gentian Pass. We will skin 1500 ft back up to Polemoneium Ridge where we will descend to the saddle between Polemoneium Ridge and Castle Towers Mountain. From this saddle we will traverse two and a quarter miles beneath Castle Towers Mountain, Phyllis's Engine and Mt. Carr until we reach The Bookworms. From the North Bookworm we will ski 1200 ft down the NE Face which has several crevasses that we will have to navigate. At the bottom we will set up camp at the foot of Gray Glacier.

Water: We will melt glacier ice throughout the day as needed, starting with full bottles from Helm Glacier. We can melt glacier water at Gray Glacier as well.

Evacuation Routes: If a non-rapid evacuation is needed on this day, there are two possible evacuation routes. The first is to backtrack around Panorama Ridge and down the Taylor Meadow Trail to the Rubble Creek Trailhead. The second option is descending from our high traverse (from Gentian Peak to The Bookworms) down to Garibaldi Lake. Depending on where we are on the traverse, we can drop down to Garibaldi Lake, skate across and descend to Rubble Creek.

Notable Hazards: We will be travelling in and near avalanche terrain for a majority of the day, so as always, being heads up for clues, terrain traps and slopes will be important. We will be traveling across glaciers for a large part of the day as well, so being aware of our path and avoiding crevasses is a top priority. We have a small technical ridge section descending from Polemonium Ridge where we will have to be especially aware of fall risk and minimize when possible.

Map:



Day in field: 7

Starting location: Gray Glacier Camp (49.91310 N, -122.91321 W) Elevation 6732 ft.

Ending location: Drop Pass Camp (49.91802 N, -122.84093 W) Elevation 5190 ft.

Mileage: 5.62 miles

Elevation gain/loss: +2328' -3890'

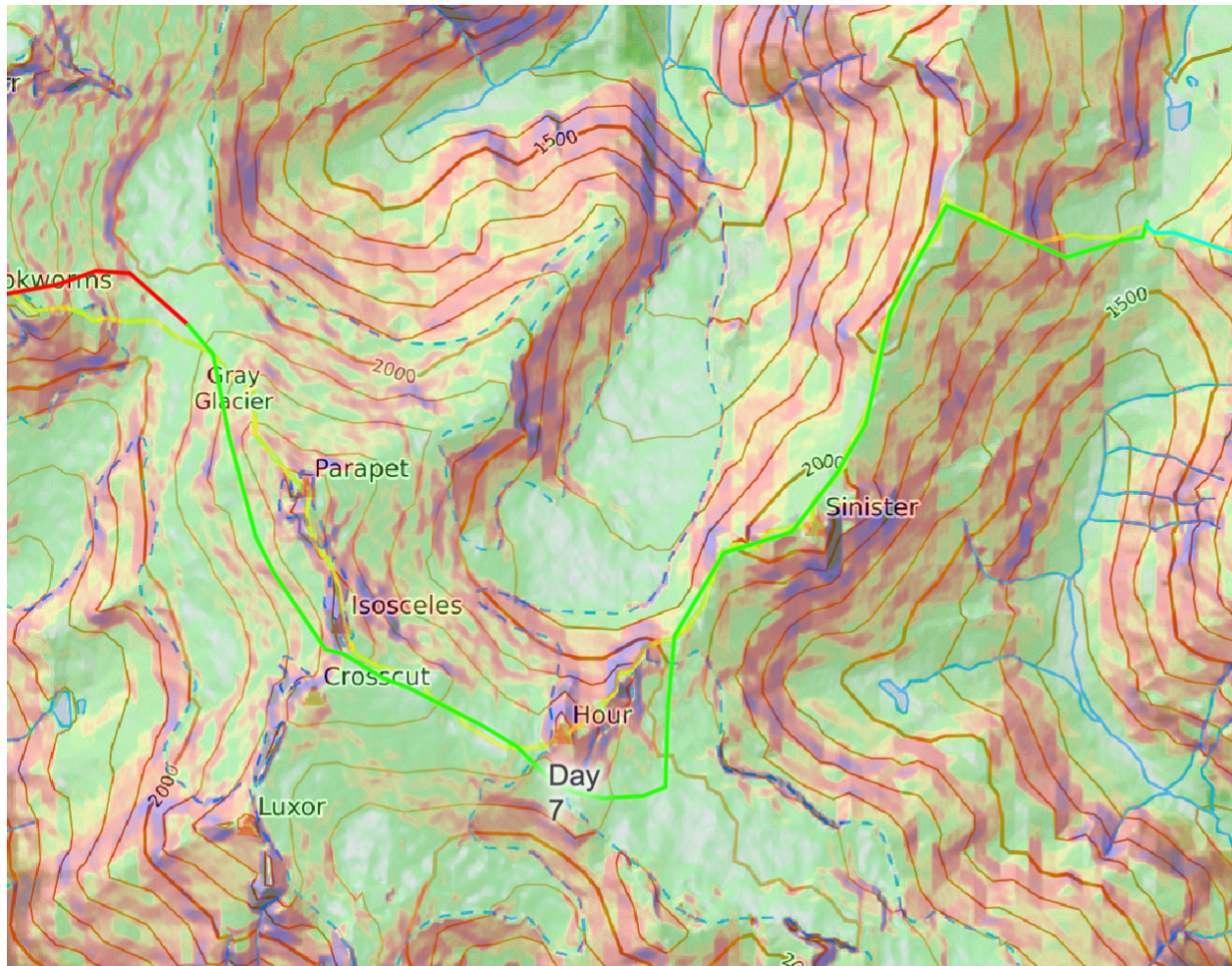
Route description: We will begin the day with a 1100 ft skin climb across the Gray Glacier and beneath Parapet and Isosceles Peaks. From the saddle between Isosceles Peak and Crosscut Peak we will ski 1200ft down the ridge and around Hour Peak. From Hour Peak you follow the ridge past Sinister Peak for 1.8 miles before you ski down 1600ft to Drop Pass.

Water: We will melt glacier ice throughout the day as needed, starting with full bottles from the Gray Glacier. There is a small lake near Drop Pass that we can get water from as well.

Evacuation Routes: If a non-rapid evacuation is needed on this day, we will backtrack our route to The Bookworms where we can descend the Sphinx Glacier to Garibaldi Lake and down to Rubble Creek. Days 7-10 are the farthest into the backcountry, so any evacuation would be more challenging than previous days so the threshold for manual or rapid evac is different. In the event of an emergency, we will have to adjust our evac plan based on conditions, injury and feel.

Notable Hazards: : We will be travelling in and around avalanche terrain for a majority of the day, so as always, being heads up for clues and terrain traps will be important. We will be traveling across glaciers for a large part of the day as well, so being aware of our path and avoiding crevasses is a top priority. When traveling from Hour Peak to the top of Drop Pass we will be on a ridgeline, so making sure weather and wind hazards are minimal will make this section safer and more enjoyable.

Map:



Day in field: 8

Starting location: Drop Pass Camp (49.91802 N, -122.84093 W) Elevation 5190 ft.

Ending location: Snow Bowl Glacier Camp (49.93674 N, -122.77820 W) Elevation 6965 ft.

Mileage: 3.61 miles

Elevation gain/loss: +3386' -1576'

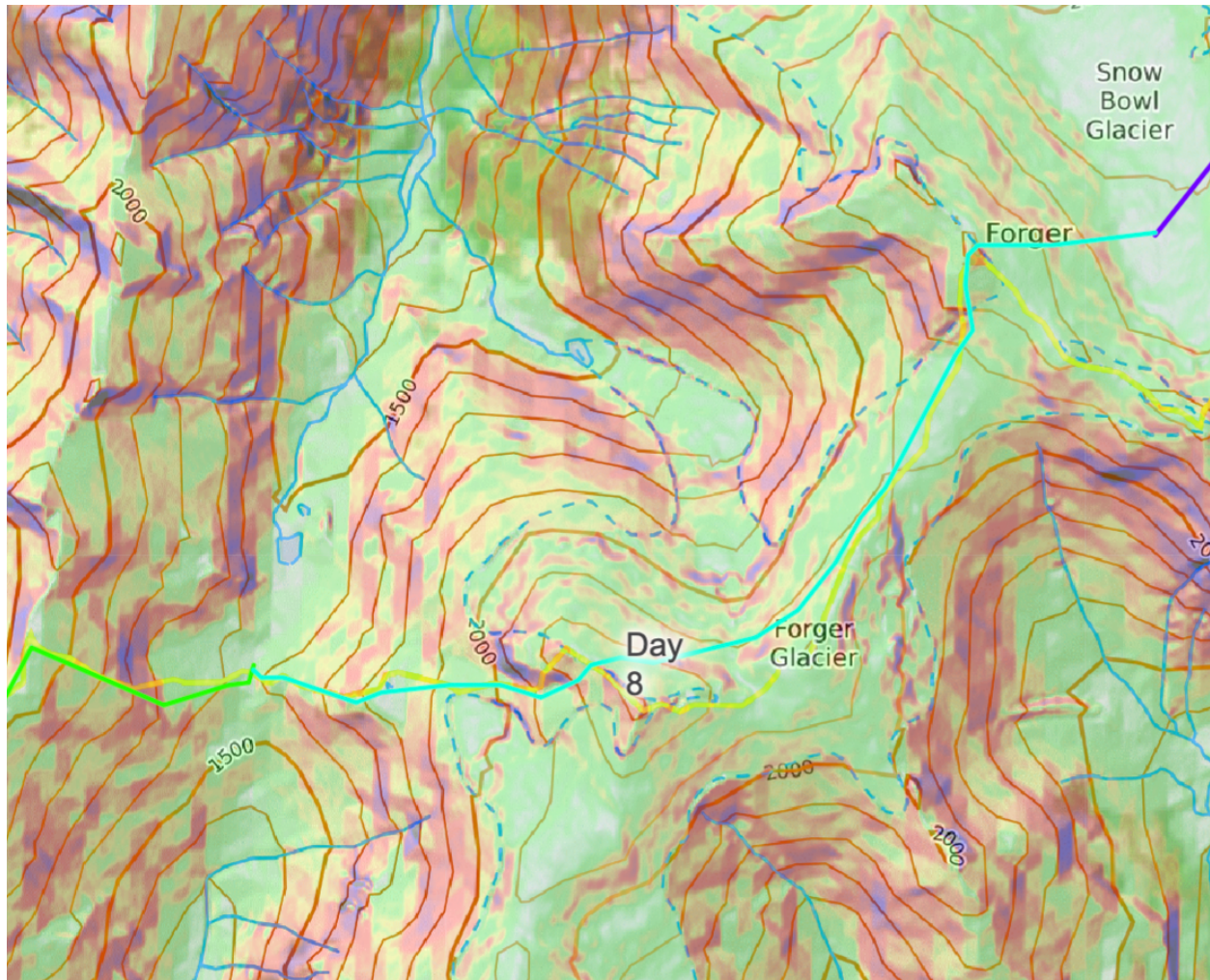
Route description: The day starts with a 2300 ft skin up from Drop Pass to Drop Peak, where we then traverse about two miles from Drop Peak to Forger Peak. This traverse travels down the Forger Glacier and back up the Southwest Ridge of Forger Peak. From Forger Peak, we will ski 1000 ft down to the Snow Bowl Glacier where we will make camp.

Water: We will melt glacier ice throughout the day as needed, starting with full bottles from Drop Pass. Snow Bowl Glacier will have meltable water as well.

Evacuation Routes: If a non-rapid evacuation is needed on this day, we will backtrack our route to The Bookworms where we can descend the Sphinx Glacier to Garibaldi Lake and down to Rubble Creek. Days 7-10 are the farthest into the backcountry, so any evacuation would be more challenging than previous days so the threshold for manual or rapid evac is different. In the event of an emergency, we will have to adjust our evac plan based on conditions, injury and feel.

Notable Hazards: : We will be travelling in and around avalanche terrain for a majority of the day, so as always, being heads up for clues and terrain traps will be important. We will be traveling across glaciers for a large part of the day as well, so being aware of our path and avoiding crevasses is a top priority. Forger Glacier is one of the more heavily crevassed features of our traverse, so roping up through this section is a possibility. We will make a decision prior to descending through the feature.

Map:



Day in field: 9

Starting location: Snow Bowl Glacier Camp (49.93674 N, -122.77820 W) Elevation 6965 ft.

Ending location: McBride Glacier Camp (49.99037 N, -122.69649 W) Elevation 5840 ft.

Mileage: 5.88 miles

Elevation gain/loss: +3605' -4750'

Route description: Beginning at Snow Bowl Glacier, we will ski down the ridge to the east of the glacier. This ridge will have fairly steep terrain on either side of it, but by following the ridge for 2.5 miles, we will end up on the Ubyssy Glacier, just south of Mt. Sir Richard. From this point we will ascend 1000 ft up to a saddle between the Lecture Cutters and Mt.

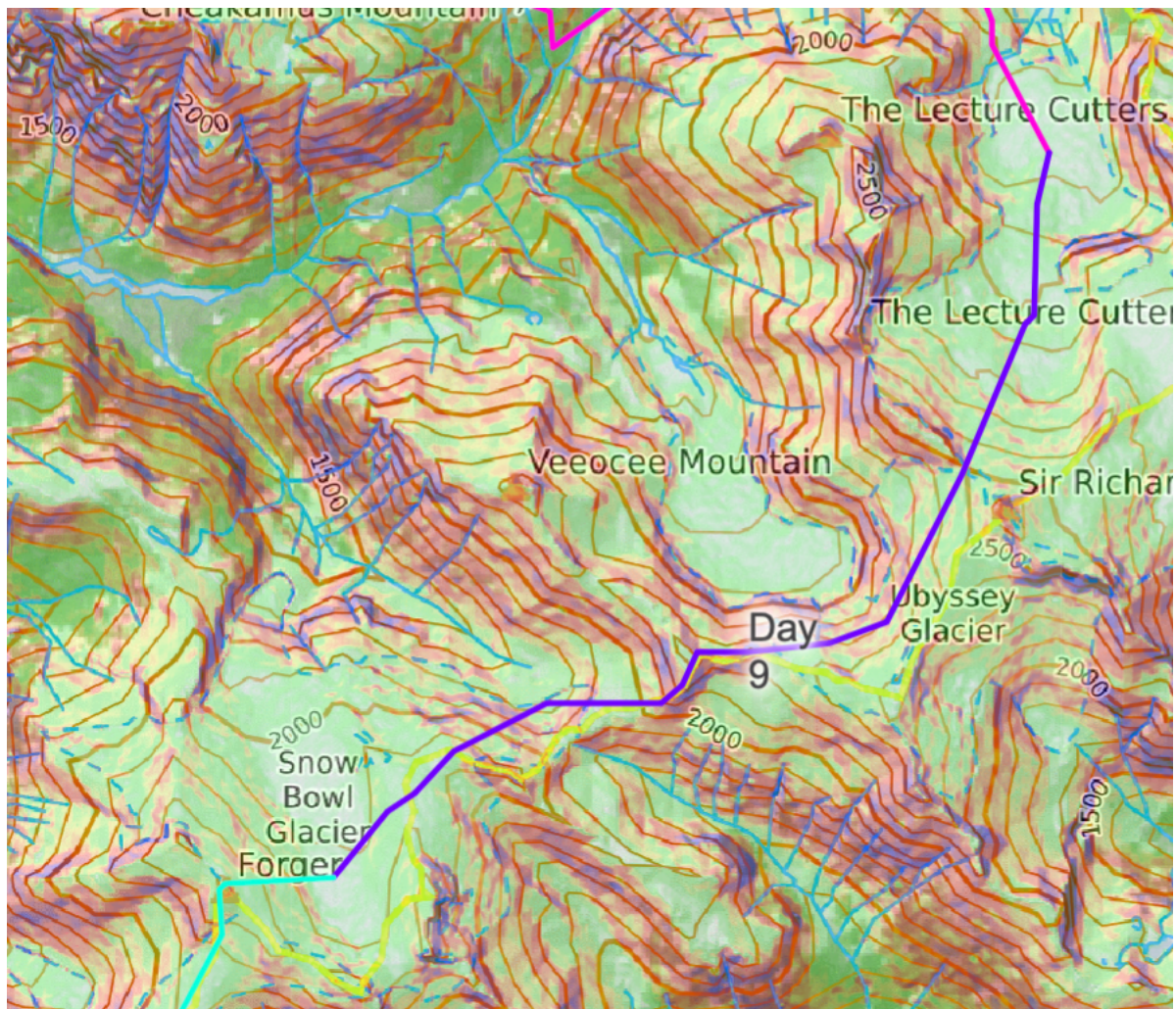
Sir Richard. From the saddle we will have. A 2300 ft ski descent down the McBride Glacier to our proposed camp near the foot of the glacier.

Water: We will melt glacier ice throughout the day as needed, starting with full bottles from Snow Bowl Glacier. McBride Glacier will have meltable water.

Evacuation Routes: Day 9 is the first day where our non-rapid evacuation involves continuing forward to the exit point. From the Snow Bowl Glacier, Backtracking would include about 20 miles and 15k vert, which is not ideal as an evacuation route. As acknowledged in the previous two days' evacuation plan, days 7-10 are the furthest in the backcountry, so being aware and cautious of the evac potential will be important. There are no reachable trailheads or civilization points to the east of our route and no other options other than Rubble Creek and Whistler Mountain.

Notable Hazards: The descent from Snow Bowl Glacier is fairly steep (average slope of 29 degrees) on a ridge, so being aware of fall risk will be important. This day is the most technical of the traverse so making sure our route-finding decisions are always the best will be necessary. There will be avalanche and crevasse risk throughout the day, so managing these hazards as normal per our protocol will apply.

Map:



Day in field: 10

Starting location: McBride Glacier Camp (49.99037 N, -122.69649 W) Elevation 5840 ft.

Ending location: Diavolo Creek Camp (50.01242 N, -122.76269 W) Elevation 5136 ft.

Mileage: 4.9 miles

Elevation gain/loss: +1080' -1777'

Route description: This day has two options depending on weather and conditions. Route A will start by skiing 1000 ft down the McBride Glacier, working to stay high on the north slope of the Lecture Cutters. At around 3 miles from camp, we will begin looking for snow bridges to cross the Cheakamus River. This route will hopefully have snow bridges as the river levels will be peaking this time of year. In the case there are no snow bridges, we will

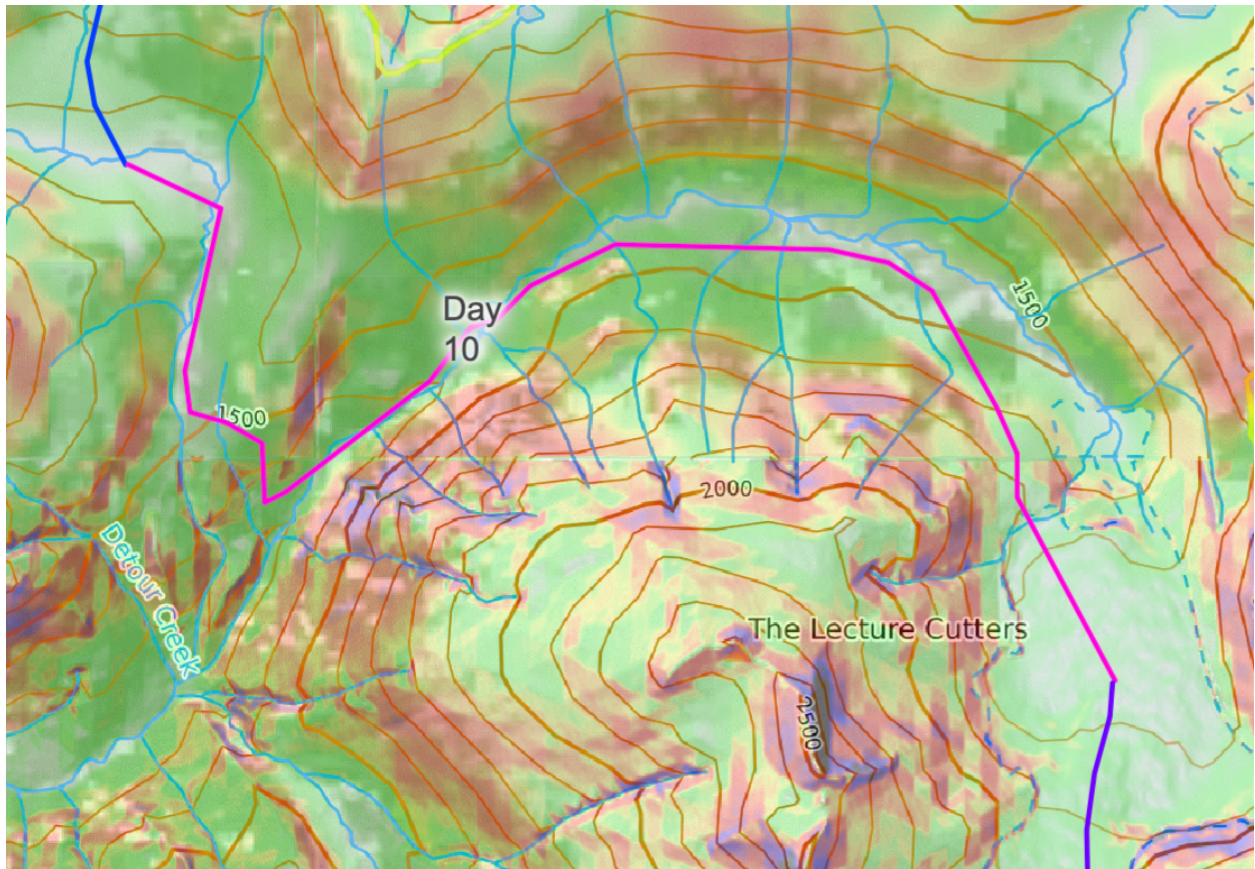
seek out the lowest point in the river, remove straps from backpacks and cross either with a rope aid or linked arms throughout the group. The alternative route B will start with the same ski descent of the McBride Glacier but we will trend slightly right which will put us to the right of the Cheakamus River headwaters, preventing us from having to cross the river. The reason this is not the first option is because most skiers tend to use the snow bridges, which means the north side of the river would be untracked and could be challenging terrain. At 3.5 miles on the day we will hit the Diavolo Creek where we start ascending to the Naden Glacier. Once we reach treeline we can make a camp along the Diavolo Creek. We can make a decision on the route the evening before based on previous snow conditions like on Garibaldi Lake.

Water: We will start with full bottles from McBride Glacier and fill up bottles in the Cheakamus River and Diavolo Creek.

Evacuation Routes: Our non-rapid evacuation for day 10 involves continuing forward to the exit point. From the Snow Bowl Glacier, Backtracking would include about 20 miles and 15k vert, which is not ideal as an evacuation route. As acknowledged in the previous two days' evacuation plan, days 7-10 are the furthest in the backcountry, so being aware and cautious of the evac potential will be important. There are no reachable trailheads or civilization points to the east of our route and no other options other than Rubble Creek and Whistler Mountain.

Notable Hazards: Crossing the Cheakamus River will be the biggest hazard of the day, so we will be doing so in an efficient and safe manner. Since we are below treeline along the Cheakamus River, risks associated with trees will be a factor as well as heightened wildlife risk. While the glacier travel on this day is minimal, avalanches are still possible, especially while ascending up the Diavolo Creek Basin.

Map:



Day in field: 11

Starting location: Diavolo Creek Camp (50.01242 N, -122.76269 W) Elevation 5136 ft.

Ending location: Tremor Glacier Camp (50.06530 N, -122.81442 W) Elevation 7257 ft.

Mileage: 4.64 miles

Elevation gain/loss: +3772' -1656'

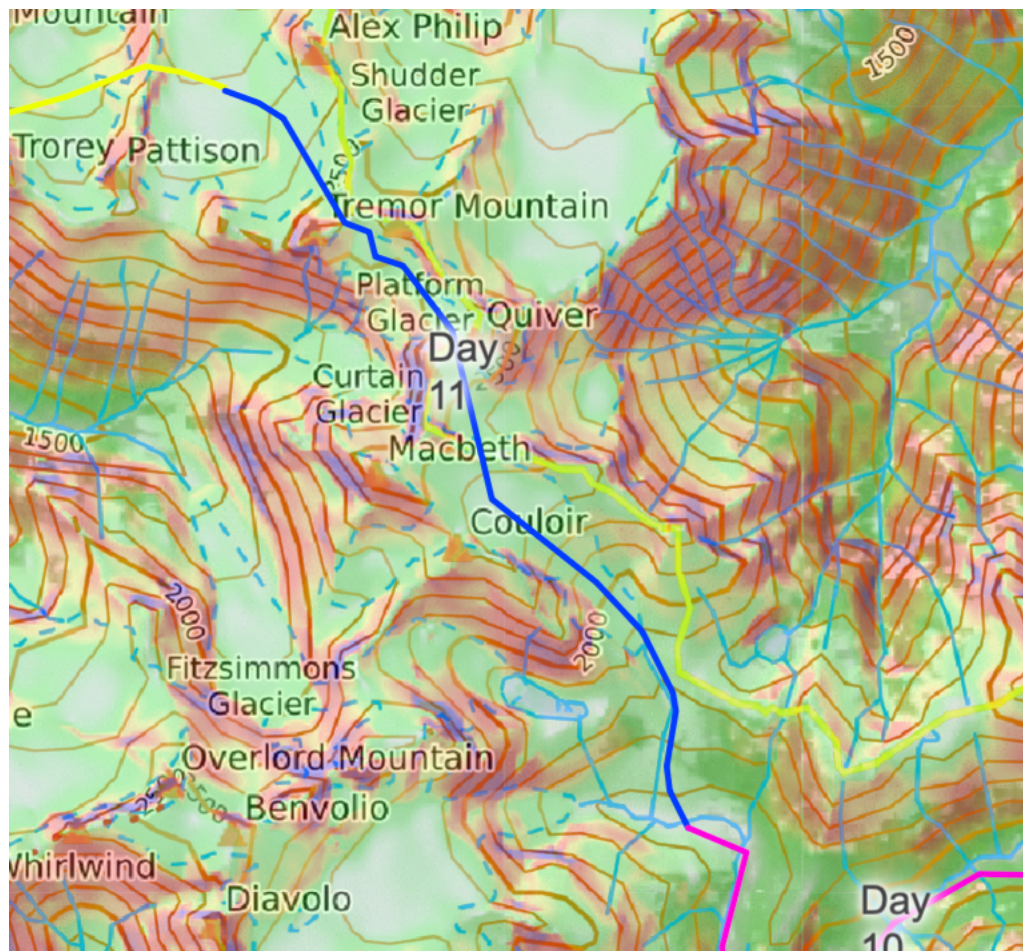
Route description: From our camp along Diavolo Creek we will skin up 3350 ft on the Naden and Ripsaw Glaciers where we will reach a saddle between The Ripsaw and Quiver Peak. From this point we will make a short traverse to Tremor Mountain before skiing 1300 ft to our camp on the Tremor Glacier.

Water: We will be starting with full bottles from Diavolo Creek, Then melt glacier snow as needed and when we get to Tremor Glacier.

Evacuation Routes: Our non-rapid evacuation plan for day 11 involves continuing forward to the exit point. At this point Whistler could be reached in a single day, which is quite ideal as an evac route.

Notable Hazards: We are back on glacier terrain, so the crevasse and avalanche risks will be a heightened factor once again. We will manage these risks by proper route-finding and avoiding terrain traps. The terrain we are traveling on this day is low angle and with lower risk than most days prior.

Map:



Day in field: 12

Starting location: Tremor Glacier Camp (50.06530 N, -122.81442 W) Elevation 7257 ft.

Ending location: Top of Blackcomb Gondola (50.09604 N, -122.90182 W) Elevation 6093 ft.

Mileage: 5.08 miles

Elevation gain/loss: +2323' -3496'

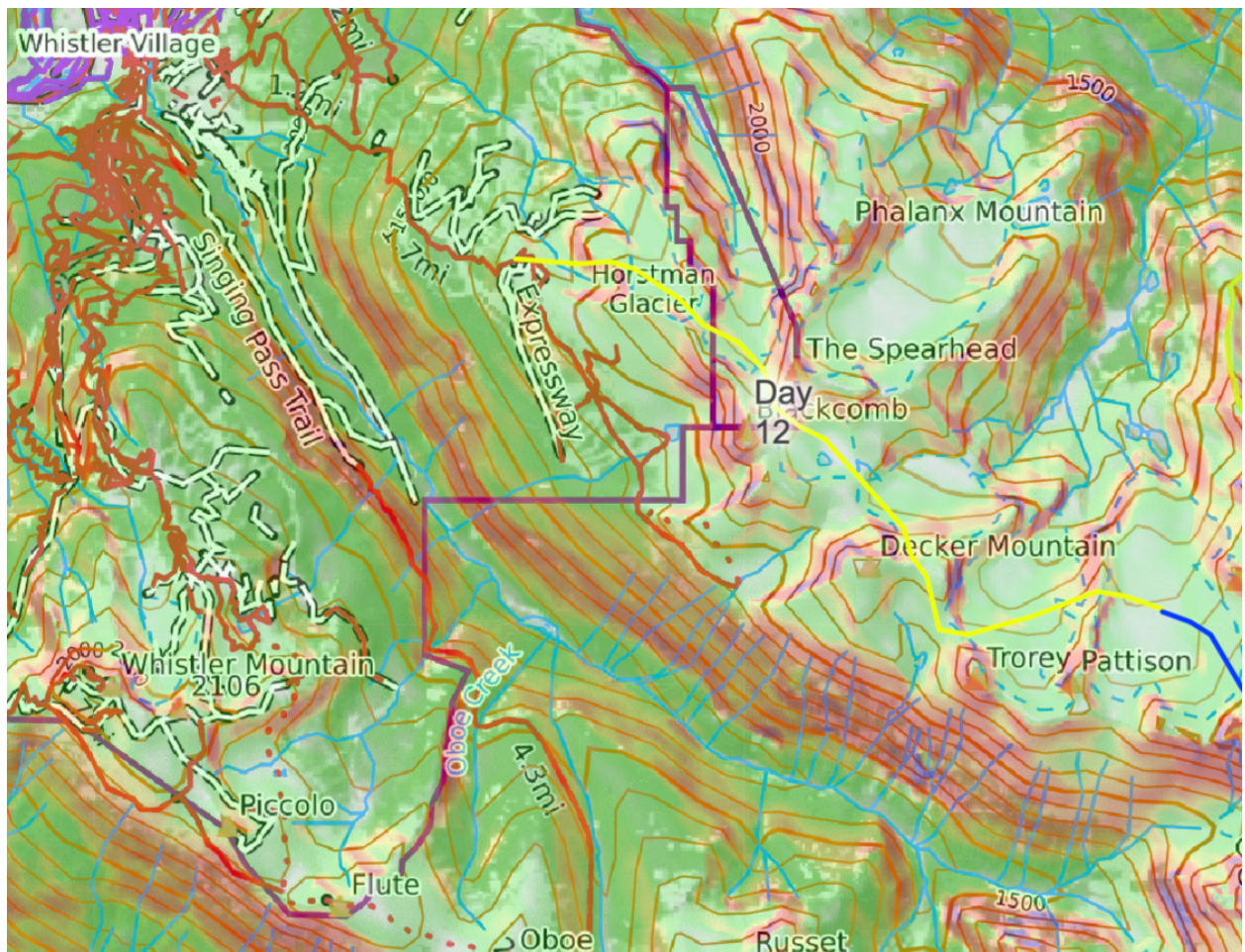
Route description: Beginning on the Tremor Glacier, we will ski over the North Ridge of Mt. Pattison onto Trorey Glacier. From Trorey Glacier we will ski up the South Face of Decker Mountain for 500ft, then descend down Decker Glacier in the Northwest direction before a short climb to the saddle between Blackcomb Peak and The Spearhead. From this saddle we will descent into Whistler-Blackcomb Ski Area to the top of the Blackcomb Gondola. Due to resort conditions we may download the gondola, but if conditions permit we will ski down to Whistler Village where our expedition concludes.

Water: We will melt glacier ice throughout the day as needed, starting with full bottles from Tremor Glacier and finishing at Whistler.

Evacuation Routes: Our non-rapid evacuation for day 12 involves continuing forward to the exit point. Our day plan for day 12 is short and the resources available at the top of Blackcomb make this evac ideal.

Notable Hazards: There is some steeper travel on this final day, especially when ascending to Decker Mountain and the Spearhead. We will be in both crevasse and avalanche terrain, so managing these risks with proper route-finding will be important.

Map:



PERSONAL CLOTHING

SOFIA:

- Long Sleeve Layer (pink and gray)- x2
- Sports Bra/ Tank - x2
- Softie jacket - x1
- R1 Layer - x1
- Patagonia puffy jacket - x1
- Shell/rain Jacket - x1
- Leggings - x2
- Wool Ski Socks - x3
- Underwear - x9
- Ski pants - x1
- Ski buff - x2
- Toiletries

VINCENT:

- Dry-Fit t-shirt - x3
- R1 layer - x1
- Patagonia DAS parka - x1
- Shell jacket - x1
- tights/long underwear - x2
- Ski socks - x3
- Puffy pants
- Himali shell pants
- Uphill gloves
- Downhill gloves
- Buff x2

EMMET:

- Wool base layer - x2
- Senchi thin base layer - x1
- Lightweight down jacket
- Arc midlayers - x3
- Shell jacket - x1
- long underwear - x3
- Ski socks - x5
- Bib shell pants
- Uphill gloves
- Downhill gloves x2
- O'shit mitts
- Buff x2
- Toiletries- Toothbrush and toothpaste

PERSONAL SKI EQUIPMENT

SOFIA:

- Backcountry Skis - 2242g
- Skins
- Atomic Backcountry Ski Boots
- Ski Poles
- OR Uphill Gloves
- Downhill/ camp gloves
- Sun hat
- Sunglasses
- Warm hat
- Approach shoes
- Water Bottle
- Avalanche shovel
- Avalanche beacon
- Avalanche probe
- Climbing Helmet
- Harness
- Crampons
- Headlamp

VINCENT:

- Avalanche shovel -660g
- Avalanche beacon -255g
- Avalanche probe -243g
- Dynafit Blacklight 88
- Skins
- Ski crampons
- La spo boots
- Poles
- Climbing helmet 225 g
- Approach shoes 500g
- Blue ice harness 150 g
- Crampons 875 g
- Water bottle 1495
- Sun hat
- Glasses

EMMET:

- Skins
- headlamps
- Ski crampons
- tecnica boots
- Poles
- Climbing helmet 225 g
- Approach shoes 500g
- harness
- Crampons 875 g
- Water bottle 1495
- Sun hat
- Glasses
- goggles
- Skis
- Avalanche shovel
- Avalanche transceiver
- Avalanche probe

GROUP EQUIPMENT

TECHNICAL GEAR

- Inreach x2
- 6mm 30 M - Climbing rope x1
- 3x ice screw
- V thread tool
- Belay Device x1
- microtraxion
- Backpacking packs x3
- Locking carabiners x3
- Ski straps
- Adventure Medical Mountaineering First Aid Kit x1

COOKING

- Burner x1
- Large Butane canister x3
- Spork x3
- Small pot and lid x1
- Lighter x3
- All purpose mug/cup/bowl x3?
- Aquamira x1
- 1g Ziplock Bags x8

- Bear cans x3

OVERNIGHT / CAMP

- 3 person Tent x1
- Sleeping pads x3
- Sleeping bags x3
- Headlamps x3
-

MISC

- Solar Portable charger x1
- Extra batteries
- Sunscreen x1
- cards
- Toilet paper
- Fire starter
- Repair kit for skis

Contents of [Adventure Medical guide Kit](#)

- 1 – Patient Assessment Form
- 5 – Adhesive Bandage, Fabric, Knuckle
- 10 – Adhesive Bandage, Fabric, 1" x 3"
- 1 – Wound Closure Strip, 1/4" x 4"
- 1 – Duct Tape, 2" x 5 Yards
- 1 – Cloth Tape, 1" x 10 Yards
- 3 – Sterile Gauze Dressing, 4" x 4"
- 3 – Sterile Gauze Dressing, 2" x 2"
- 2 – Bandage, Conforming Gauze, Sterile 3"
- 3 – Sterile Non-Adherent Dressing, 3" x 4"
- 1 – Trauma Pad, 5" x 9", 1 ea.
- 1 – Trauma Pad, 8" x 10"
- 1 – Triangular Bandage, 42" x 42" x 59", 1 ea.
- 1 – Elastic Bandage, 3"
- 2 – Moleskin, Pre-Cut/Shaped
- 1 – Digital Thermometer
- 1 – Wound Irrigation Tool, 20 cc
- 1 – Splinter/Tick Remover Forceps
- 1 – EMT Shears, 4"
- 1 – C-Splint, 36" x 4"
- 1 – CPR Face Shield
- 3 – Safety Pin
- 2 – Cotton Tip Applicator
- 1 – Pencil
- 2 – Plastic Vial, Large
- 2 – Latex-Free Gloves
- 3 – Triple Antibiotic, Single Use
- 13 – Easy Care Alcohol Antiseptic
- 2 – Tincture of Benzoin
- 2 – GlacierGel Blister & Burn Dressing, (Small Rectangular)
- 1 – QuikClot Z-Fold Gauze 2 Ft
- 1 – Wilderness & Travel Medicine: A Comprehensive Guide
- 3 – Triple Antibiotic Ointment
- 4 – Anti-Diarrheal (Loperamide HCl 2 mg)
- 4 – Pain Reliever/Fever Reducer (Aspirin 325 mg)
- 4 – Antihistamine (Diphenhydramine 25 mg)
- 8 – Pain Reliever/Fever Reducer (Ibuprofen 200 mg)
- 4 – Pain Reliever/Fever Reducer (Acetaminophen 500 mg)
- 1 – SAM Splint
- 1 – Rescue sled / tarp shelter

	Amount	price	calories
Breakfast			
Oatmeal	1x 36	11.79	5760
Granola	2x 11oz	11.98	2500
Lunch			
Tortillas	72	12.64	9360
Nutella	3x	13.47	15000
Sun Butter	2x	13.98	11200
cheese	3x 8oz	14.37	2880
Summer Sausage	6x	44.94	10800
Sardines	6x	6	720
Poptarts	48	12.49	8880
Dinner			
frozen meals	21	251.79	17150
Pasta Noodles	2.5 lbs	3	5040
Pasta Sauces	x3	4.99	1380
mac and cheese	x9	17.91	6075
canned tuna	x6	6	540
canned chicken	x6	9	480
Snacks			
Gels	24	24.99	2400
Honey Stingers	12	19.2	1920
Clif Bars	26	19	6760
Clif protein bars	18	26.99	5130
gorp	x6 gallon bags	20	15000
chocolate	x6	19.74	3150

Drink Mixes			ss
Electrolytes			1500
hot coco	1 can 22 oz	5.99	2600
tea	36 tea bags	8.98	0
		579.24	136425

We compiled a list of food that we think will best support the caloric needs of our expedition. Our nutritional needs will be supplemented throughout the day with primarily oatmeal, granola and pop tarts for breakfast, tortillas with nut butters or sausage/cheese, and a combination of freeze dried meals and pastas. This gives us about 3,800 calories per day, per person. We think that this will be an adequate amount of food for 12 days, with it divided upon a restock as well.

Expense	Cost	Quantity	total
Flights	602.30	3	1861.08
Checked bags	75.00	3	225.00
Squamish Adventure Inn	64.73	2	129.46
Wilderness Camping Permits	10.00 per person, per day	27	270.00
Designated Campground fees	6.00	2	12.00
Bus tickets	119.69	3	359.07
Resupply porter	400.00	1	400.00
Food	579.24	1	579.24
Fuel canisters	6.95	3	20.85
Carbon offset	16.93	1	16.93
Med Kit	99.99	1	99.99
			3973.62