

9th Surdel Scouts 2008 Bowron Lakes Adventure

Risk Management Report

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Hazard Statement

The 9th Surdel Scouts (7 youth, 3 leaders, 3 parents) plan to canoe the Bowron Lakes circuit in the summer of 2008. This is a wilderness excursion which is considered a category 3 adventure as per Scouts Canada guidelines. The circuit is 116 km including 10.8 km of portages. The circuit is entirely within a BC provincial park with several ranger stations around the circuit but no road access except to the start. The duration of the trip is expected to be 10 days – 2 driving and 8 paddling.

Background to this Assessment

This risk assessment was started on 10 May 2008. However considerable preparation and risk mitigation had already been accomplished. The goal of completing this circuit was set in June 2007. Through the 2007/2008 Scout season most major activities built on the canoeing goal. There have been 4 camps which used our canoes. All Scouts, 2 Leaders and 1 parent conducted canoe capsizing training in a local pool. The Scouts have all earned the Paddling badge. 3 Leaders and 4 Scouts have taken a Wilderness First Aid course. The Scout canoes were refurbished in early 2007.

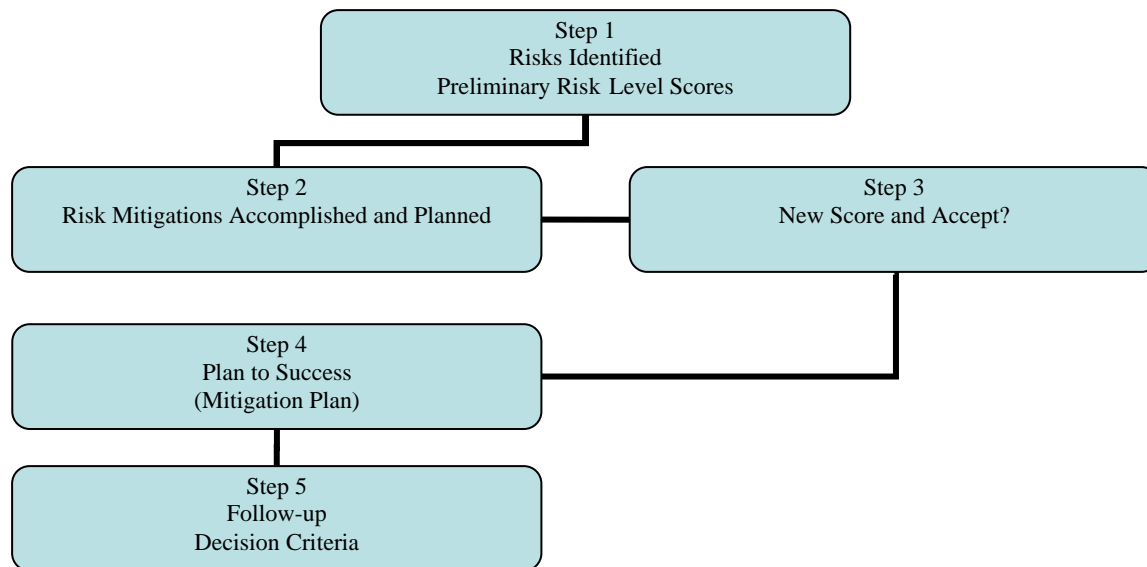
The first Risk management meeting on 10 May 2008 identified most of the risks and the lion's share of the required risk mitigation. Several risks needed further mitigation. A second risk management meeting was held on 23 June 2008. At this point further mitigation for many risks had been conducted, all risks were re-assessed and the remaining items were captured in a to do list. The troop and participating parents were briefed on this plan and provided a copy of this report on 25 June 2008.

Risk Management Process

The risk management process is borrowed and adapted from the Canadian Forces Technical Airworthiness Risk Management as documented in the DGAEPM Technical Airworthiness Manual. It has been adapted by removing aviation terms and the removing the risk acceptance sign-off levels specific to that culture. It has also been adapted to address multiple risk scenarios.

Probability	Consequence			
	Catastrophic	Hazardous	Major	Minor
High	Red	Red	Yellow	Green
Medium	Red	Yellow	Green	Green
Low	Yellow	Green	Green	Green
Negligible	Green	Green	Green	Green

The process is explained by the following flow chart. The risk scoring uses the table above.



Step 1 involves brainstorming all possible risks and scoring them in terms of probability and consequence. Step 2 considers the risk reduction steps accomplished to date and new risk mitigation steps planned. In practice steps 1 and 2 are typically merged since risks and mitigation steps naturally come to mind together.

Step 3 involves re-scoring the risk as if all risk mitigation (both accomplished and planned) has been accomplished. This step also includes the decision to accept the residual risk. If the residual risk is acceptable the planned mitigation is added to Step 4. If the risk is not acceptable, it is sent back to step 2 for further mitigation. As a general rule red risks will not be acceptable. Yellow risks will not normally be acceptable but can be if they have been reduced as much as feasible and if the potential reward is high. Green risks are usually acceptable but should be minimized to the extent practical.

Step 4 is a culmination or roll-up of all the planned risk mitigation. This plan should include trigger points for any contingency plans and milestones for the primary plan.

Step 5 is accomplished twice – just before the adventure starts and then again after it has concluded. The first follow-up ensures that the risk mitigation has been conducted satisfactorily and the residual risks are still acceptable. The final follow-up documents what went well and what went poorly as documentation for future adventures.

Risks Identified with Preliminary Mitigation and Score (Steps 1,2 and 3)

On 10 May 2008 Scouters Alan and Hal met with Scouts Ian and Russ and brainstormed the following 42 risks. After the group had run out of ideas, the Scouts Canada generic risk management paperwork was reviewed to see if they had been complete enough. The following table summarizes the discussion in no particular order. Other risks were added later as required.

Item	Risk	Mitigation	Score
1	Drowning	One parent former lifeguard All participants can swim (some well) PFDs to be used constantly Capsize training conducted and paddling badge earned Buddy system Wilderness first aid training	Negligible Catastrophic Green
2 *	Bears Other Dangerous Animals	Disciplined food management (caches) Scouts are noisy Training on bear behavior	Low Major Green
3	Sprains	Wilderness First Aid training limited hiking on prepared trails	Medium Minor Green
4 *	Capsize	Capsize training, watertight packing moving water strokes to be taught en route extra kit and paddles to be packed Canoe buddy system Practice loading lashing canoes at next camp	Medium Hazardous Yellow
5 *	Sickness	Go-No Go decisions before trip commencement Continue-Bail decision en route	Yellow
6	Run Out Of Food	Good preparation and planning accelerate circuit if required bum food from other campers	Low Minor Green
7	Broken Paddle(S)	One extra per canoe tools to carve makeshift paddle	Medium Minor Green
8	Lost/Broken Canoe	Repair kit 2 per canoe starting point Redistribute load into remaining canoes	Low Major Green
9	Broken Bones	Wilderness First Aid training evacuation plan	Low Hazardous Green
10	Bad Weather	Proper equipment Proper clothing Attitude and determination	High Minor Green
11	Ticks, Leeches, Mosquitos, Black Flies	Tick checks after portages repellants Bug nets	High Minor Green
12	Sunburn, Heat Stroke	Sunscreen, hats frequent water	Medium Minor Green
13 *	Bad Water, Dehydration	Extra bottles Purifier pumps (present stock insufficient) purifying tablets	High Major Yellow

Item	Risk	Mitigation	Score
14	Personal Meltdown	All youth accompanied by parent/leader Leaders/Parents are compatible	Medium Minor Green
15	Last Minute Cancellation	Youth and parent cancel no consequence Parent alone cancel will need endurance management for affected canoes	Low Minor Green
16 *	Car Accident	Vehicles have insurance pace will be controlled and unhurried	Negligible Hazardous Green
17	Forest Fire	Hazard level will be known in advance BC Parks will manage with campfire rules Cooking on camp stoves Never far from lots of water	Negligible Hazardous Green
18 *	Park Closed (Fire Or Other Calamity)	Will be known in advance of trip Possible reschedule Back-up destination (Broken Islands)	Negligible Major Green
19 *	Wet Gear	packing techniques pre-trip inspection purchase/rent of food barrels	Medium Minor Green
20	Lost Gear (Capsize Or Left Behind)	Retrace steps if important Camp walk-around before departure Gear lashed into canoes	Low Minor Green
21 *	Poison Plant Encounters	Wilderness First Aid Research into species likely	Low Major Green
22	Canoe Separation	Canoe tripping etiquette Rendezvous points FRS Radios Closer spacing in fog/rain	Low Minor Green
23	Lost Person	Buddy System Whistles on all PFDs	Negligible Major Green
24	Mutiny	Duty roster for camp chores lots of adults	Negligible Minor Green
25	Theft Or Other Crime (Other Campers)	Vehicles to be locked at trailhead Vehicles have insurance	Negligible Minor Green
26 *	Need To Rescue Other Campers	Wilderness First Aid Will share kit and food if needed	High Major Yellow
27	Stolen Car	Vehicles to be locked at trailhead Vehicles have insurance	Negligible Minor Green

Item	Risk	Mitigation	Score
28	Food Loss	Some surplus to be packed Food dispersed among canoes lashed into canoes Fishing possible	Low Minor Green
29	Damaged Equipment	Repair kit Extra stove	Medium Minor Green
30	Fire Burns	Wilderness First Aid	Low Minor Green
31	Holed Canoe	Repair kit Re distribute into others if required	Low Major Green
32	Large Unforeseen Costs	Credit cards	Low Minor Green
33	Hanky Panky	Segregated tenting Lots of adults	Negligible Major Green
34	Food Poisoning	Camp Hygiene Wilderness first aid	Medium Major Green
35	Food Or Plant Allergies	None presently known Antihistamine to be added to First Aid Kit Fitness forms to be reviewed	Negligible Hazardous Green
36	First Aid Emergency	3 Leaders and 4 Scouts have recent wilderness first aid training	Green
37	Communication Plan/Emergency Plan	BC Parks has emergency phones in several locations All youth have parent/leader accompanying 406 Mhz PLB to be borrowed for trip	Green
38	Nearest Dr/Hospital	Quesnel	Green
39	Accident Reports	blank forms to be available	Green
40	BPP Requirements	Bylaws Policies and Procedures to be reviewed	Green
41	Hygiene Plan	normal practices	Green
42	Routing/Float Plan	Will be created once BC Parks provides campsite reservations	Green

* Items to be addressed further

Risks Needing Further Mitigation (repeat step 2)

After the first risk management meeting on 10 May 2008 most of the risks had been deemed acceptable with the risk mitigations conducted or planned. The following risks were though to need further thought or plans. The second risk meeting 21 Jun added further mitigation and re-assess the score.

Item	Risk	Further Mitigation	Old Score	New Score
2	Bears and other dangerous animals	Bear awareness training needed.	Low Major Green	same
4	Capsize	Wet rehearsal camp done 21 June with no significant problems. Food barrels used and worked well. Canoe packing and lashing tried out with nearly full gear. One canoe (#6) identified as having less freeboard than others	Medium Hazardous Yellow	Low Hazardous Green
5	Sickness	Satellite phone to be borrowed. Can be used to phone for medical advice. Add thermometer into first aid kit.	Yellow	Green
13	Bad water, dehydration	Now have 4-5 water filtration pumps	High Major Yellow	Low Major Green
16	Car Accident	Early departure outbound. Reserved campsite at Beckers (no pressure). Possible ½ day return head start depending on float plan.	Negligible Hazardous Green	same
18	Park closed (fire or other calamity)	To be revisited 21 July. If park closure possible, alternate destination will be selected.	Negligible Major Green	same
19	Wet gear	have food barrels now Tent flies to be waterproofed.	Medium Minor Green	same
21	Poison plant encounter	further research indicates no significant risks here	Low Major Green	same
26	Need to rescue others	possible party split if situation warrants. With size of our party and depth of skills available considerable flexibility exists.	High Major Yellow	High Minor Green

Risk Reduction Plan with Triggers (Step 4)

As of 23 June an action list had been created. This 'to do' list covers both risk reduction items and other items such as budget. For simplicity, it has been copied in its entirety here.

Task	Assigned to:
Paperwork	
• Last risk management meeting	Alan Hal Ian Russ
• Contact lists	Hal
• Float Plan	

Task	Assigned to:
• Fitness/Permission/Driving forms	Hal
• BC Parks Reservations	Hal
• Reserve Carts (3)	Hal
• Book Campground start (Beckers)/finish (?)	Hal
• Refine Budget	Hal
• Start expense ledger	Hal
• Collect next monies	Hal
Food	
• 3(?) menu plans	Wayne
• Food preparation, drying packaging	All
• Shopping	Rob, Wayne
• Packing	All
• 3 food barrels enough?	Yes we think so
• Food repair kit (spices)	Jeff
Equipment	
• Borrow Satellite Phone	Wayne
• Water filtration pumps?	Wayne Alan have 4 or 5
• Muster all troop equipment	Alex Jeff
• Muster all personal equipment	Everyone
• Weigh packs and loaded canoes	
• Unload, tidy, reload canoe trailer	Alan
• Canoe repair kit	Alan
• Ensure safety gear per boat okay – add AA batteries to emergency kits	Alan
• Add painters	Alan
• Canoe #6 to be lightly loaded	?
• Fix leak, add tie-downs canoe #1	Alan
• Find fix leak kayak	Alan
• Waterproof maps for all	Rob
• Purchase Bear Pepper Spray	
• Waterproof all tent flies	Russ to organize
• Fuel for camp stoves. Estimate and buy. Extra MRS bottles?	
• Cleaning supplies for kitchen	
• Add thermometer to first aid kit	Hal
• Add multiple short ropes to each canoe for lashing	Alan
Travel	

Task	Assigned to:
• Plan times	
• Assign people to vehicles	
• Estimate gas costs	\$500 for truck with trailer
• Plan stops	
• Ensure Ruth's truck can tow trailer	Ruth done – okay
Training	
Before launch	
• Review Path of the Paddle	Alan
• Review Sweep, J, Reverse. Draw, Pry and Power strokes	Alan – everyone Done except for Ruth and Tara
• Teach High Brace and Low Brace	Alan – everyone Done except for Ruth and Tara
• Bear awareness training	Hal
Enroute on the Bowron circuit	
• Show moving water techniques	Alan – everyone
• Enlarge sections of Bowron book for illustration	Rob
• Practice ferries	Everyone
• Practice eddy turns	Everyone
• Safe banking	Everyone
Other	
• Create duty roster for camp chores and cooking	Zoe
• Planning meeting with whole troop and parents Wed 25 June	Jeff
• Separate food-planning meeting	Week of June 29
• Food preparation work parties (2?)	Mid to late July
• Fishing licenses for adults	

Pre-Trip Evaluation (Step 5)

1. Did we accomplish the risk reduction plan? Yes
2. Did we forget any risks that have to be dealt with first? No
3. Are we ready to launch? Yes
4. Do we accept the residual risk? Yes

Post Trip Evaluation (Step 5)

1. What went well?

- The use of the kayak as our 7th boat had many benefits. It was used to keep the slowest canoe up with the rest in high headwinds. It provided variety for all the paddlers and of course it was an exemplary safety boat in the rivers.
- The first aid kit packaged in its own dry-sack was used several times for small wounds. It was well equipped and always available.
- One leader wore a rescue throw bag on his waist. This turned out to be very handy in one crisis situation.
- The satellite phone although it was never used in need offered considerable piece of mind.
- Wearing a knife (almost everyone wore one) was more than just convenient. In one crisis situation it was very important.
- The FRS radios were used to coordinate events when we chose to break up the group. Another FRS radio in the safety boat would have been much better. **In the running water it would have been better to have the FRS on at all times.**

2. What went wrong?

There were 5 incidents of note all preventable: Three capsizes, one heatstroke and one stove fire. Additionally there were 4 areas for improvement that did not have any consequences on this trip.

The three capsizes all occurred to the same crew in the same canoe. This was probably due to a combination of the least responsive canoe being manned by one of the lesser skilled crew. The first capsize happened while launching from the shore in the typical unstable situation with stern paddler seated and bow paddler just boarding. Consequences were minor. The second capsize was in moving water (class 1 or 2) and also had minor consequences. The third occurrence was in flat but fast moving water (class 1) but resulted in the canoe being wrapped around a deadhead and destroyed. The crew and most of the equipment were rescued not without some further challenges and risk to crew and the rescuer. The initial rescue offered little worse than a cold dunking for consequences. Collecting the gear presented the danger of the kayak rolling under a sweeper which was close to happening. On the next sweeper collecting the gear involved wading across the fast moving water and then climbing along the sweeper hauling various pieces off it and roping them across the river. Although not as scary as rolling under the first sweeper this exercise involved some danger of hypothermia from a longer period in the river. The final hazard of this adventure was getting the rest of the way down the river with 3 people and a 2-seat kayak. We chose to float the scout and some of the gear behind the kayak while the two adults paddled. We constantly monitored his spirits and condition for hypothermia. There was some mild hypothermia at the end of this river that was quickly corrected. In hind-sight our actions during the incident were mostly appropriate although we could have gone about the gear retrieval a bit differently. In the final analysis the consequences were minor with the loss of one canoe of low value and some personal equipment lost.

The way these capsize incidents could have been avoided was in the previous canoe training. Although all the needed skills were covered, it seems that not all the lessons had sunk in. A skill-based evaluation could have been used to reinforce and evaluate the effectiveness of the

training. As well, we could have recognized the sluggish nature of this canoe earlier and adjusted the crews accordingly. It is also worth noting that one parent participated in the trip that had joined none of the training sessions. She was not involved in any canoe incident.

The heatstroke happened on a very hot day after we had a late start with the longest single day's mileage to cover. The individual (an adult) recognized his problem and took corrective action himself. Consequences were minor but earlier recognition of the problem by the rest of the group could have eased the discomfort considerably.

One camp stove turned into a fireball when the fuel tank was opened by an adult. The valve was probably not fully in the off position and in any event these stoves burn for a couple of minutes after shutoff. A consequence to the adult was a loss of much of his manly chest hair (no serious burns). The stove suffered a melt down of the pressure pump which is repairable. We discussed this at the time and realized that not everyone knew the idiosyncrasies of these particular camp stoves. We should have reviewed this with everyone beforehand.

Four minor items of note are added below. The first was that we went on this trip without a safety kit in each canoe and without a whistle on every lifejacket. Somehow one canoe ended up without a safety kit and quite a few lifejackets had no whistles. Although we were no doubt legal with coast guard regulations with all the available ropes (all buoyant) and personal gear (including the 10 essentials), having this equipment ready and identifiable was not done well.

Although the group had a satellite phone and it was proven functional on outgoing calls, one parent at home tried to contact the phone during the 8:00 scheduled open time on more than one occasion and was unable to connect. There appeared to be an issue with permission to use the phone that should have been clarified prior to the trip. Unfortunately, the contact person providing the phone was out of town and the parent picked up the phone from a member of the office that did not know how it worked.

Another related issue was that our contact list was not complete. While we had home numbers for all family members, we were missing the contact details for one family that was not at home. As a result, we were unable to contact them to notify them the trip had been extended one day.

The spacing of the group during the daily paddles was not always tight. We should have kept to a canoe buddy system more of the time.

3. Did we overkill some risks? No
4. Did we forget some risks? No
5. Was the risk mitigation appropriate? With the exception of the quality of the training – yes.
6. What would we do differently next time? As noted above a few things could have been done better.

7. Was it worth the risk?

This trip had numerous strong benefits. The scenery was incredible; the wildlife was plentiful; the sense of accomplishment, pride and confidence that resulted for both youth and leaders/parents was simply wonderful. Many camping and canoeing skills were learned and practiced. This trip exemplified some of the very best of scouting goals.

Summary

This risk management plan addressed 42 risks identified prior to the adventure. At the start of the trip the troop had thought they were well prepared and had addressed all risks adequately. For the most part this was an accurate evaluation. In hind-sight the training could have been better done. Consequences of the few incidents were minor due in large part to the other preparatory work. On the whole the rewards of this trip were fantastic and well worth the risks encountered.