

Continental Field Manual

Risk Management

Risk Management is the foundation to all we do in the field, from bigger risks that we analyze for weeks or months leading up to a project to daily hazards that are a part of any fieldwork. Understanding the hazards and how we manage them as a team can ensure that we have successful field seasons.

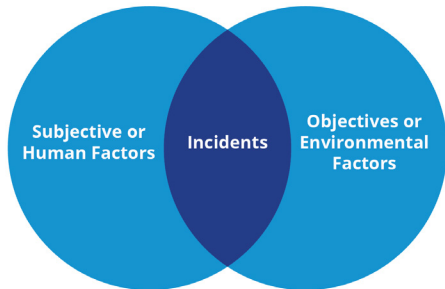
Defining Risk Management

Hazard and risk assessment are the foundations for risk management. They form the basis of how we make decisions and plans while in the field. The terms hazard and risk are often used interchangeably, but it is helpful to think of them as two distinct terms. Simply put, a hazard is a source of danger and risk is the possibility of loss or injury due to exposure to the hazard. Generally, we identify hazards and manage the risks associated with them. We cannot change the hazard, but we can manage our interaction with it.

When thinking about risk management, we often are concerned with “accident potential”, which is the interaction of subjective/human factors and objective/environmental factors. Objective hazards are those aspects of the natural world and its forces that present risks. These include weather, terrain, ice, snow, rockfall, moving water and wildlife.

Subjective or human factors are the characteristics, personalities and behaviors of people. These include communication styles, fatigue, complacency, personalities, risk perception and tolerance, overconfidence, and experience level.

Incidents occur when the subjective and objective intersect. For example, while traveling on a glacier, crevasses can exist (objective - out of our control), yet how we communicate and plan for managing them is the key to not falling in one and getting injured (subjective - within our control).



Risk Management Process

The risk management process involves the systematic application of management policies, procedures, and practices to the activities of communicating, consulting, establishing context, and identifying, analyzing, evaluating, treating, monitoring, and reviewing risk. From the proposal stage to implementation, risk management is taken into account on all levels – from big picture oversight to everyday decisions.

Daily decision making and managing risks ultimately allow for projects to be successful. Teams need tools to be able to recognize hazards, mitigate the risk, and communicate effectively with their team.

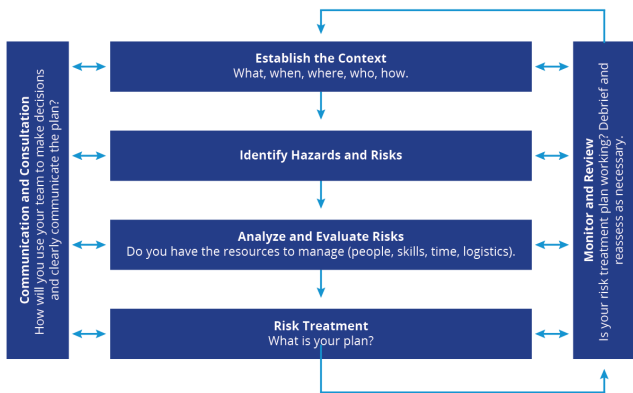
Using sets of questions in the risk assessment and evaluation process has proven successful. The following set of questions could be considered the fundamental beginning of the risk assessment process:

1. What can happen?
2. How likely is it to happen?
3. If it does happen, what are the consequences?

Considering these three questions helps us identify a scenario or set of scenarios that describe (in a hypothetical sequence of events) the exposure of the element(s) at risk to the hazard. The sequence of events includes the initiating conditions through to one of the final states (e.g., reduction of hazard or loss to the element at risk). A second set of questions builds on the general answers gained from the questions above:

1. What is tolerable?
2. How safe is safe enough (i.e., what is acceptable)?
3. What needs to be done?

This latter set of questions arrives at a choice of mitigation measures.



The risk management process is shown in the diagram above. It is deliberately not presented as a flow chart to demonstrate the continuous iteration between the steps and that communication, consultation, monitoring and reviewing occurs at all stages.

Practical Risk Management in the Field

Daily, we are constantly making decisions, assessing hazards and communicating with our team. Risk management does not stop once the Field Plan is complete and you have arrived in the field. There are many ways to approach practical, everyday risk management. Here are a few:

- Daily briefing and debriefing.
 - Morning briefing can include:
 - Run down of activities for the day and associated hazards.
 - Mitigation plan for hazards.
 - Physical and mental check in for all team members.
 - Plan for self-care throughout the day (e.g., food, water, personal needs).
 - Equipment and resource check list.
 - Afternoon debrief can include questions such as:
 - Did we make good decisions or did we get away with it?
 - What happened, so what, what next?
 - What do people need to be at their best?

- Assess likelihood versus consequence.
 - We often do this unconsciously.
 - A quick check in: what is the likelihood of injury/incident and what would that consequence me for me and my team?
- Come up with common language and terminology to identify risks.
 - Red, yellow, green means stop, caution, or go.
 - This can be applied to all sorts of terrain and hazards.
- Practice situational awareness.
 - Observe, orient, decide and act.
 - Be observant of changing conditions – with individuals, the team and environment.
 - Effectively make decisions based on those observations.
 - Reflect (in real time) on those decisions to refine course of action.

Positive Work Environment

Successful fieldwork is a result of a high functioning team. Expeditions and teams with extended time in the field tend to have their own culture. The culture is characterized by team member's shared values and practices. USAP believes in, and supports, creating an inclusive, respectful, and welcoming work environment leads to teams that successfully manage and plan for risks. To help this happen, we ask that you as a team make time to discuss these ideas:

- Intent is to facilitate foundational conversations around equity, inclusion and respect as it relates to individuals and teams.
- Actively invest in a working culture that promotes proactive risk management and support for all team members.
 - Team creates an individualized Positive Work Environment (PWE) that is pertinent to team make-up, location, work, schedules, etc.
 - AM/PM meetings include dialog about both subjective and objective hazards.
- Be inclusive by being curious and appreciating other's individualities and identities.
 - Build in time that does not center around work. Ensure there is space for building relationships, morale and downtime.
- Interrupt behaviors that are counter to a PWE and actively solicit feedback about impact on others.
 - How does your group plan to hold one another accountable to this?
- Be inclusive of all people regardless of race, ethnicity, color, religion, sexual orientation, gender identity, national origin, language, age,

disability and marital status.

- Exclusion based on any of these factors will not be tolerated.
- Be mindful of humor, jokes and references that could alienate team members.

Sexual misconduct is a serious offence. Online and in-person meetings, both before deployment and at McMurdo Station, are good ways to understand and address team dynamics, review existing sexual misconduct policies of relevant institutions and employers, and consider the logistical impact of Antarctic field camp life has on the implementation of those policies. Early discussions are opportunities to build trust and rapport within the group, work through scenarios, and formulate agreements on how the group will process conflict and promote accountability while in the field. Teams are encouraged to memorialize these discussions in a field safety agreement and ensure all members are aware of and have access to the material.

Self-Care and Personal Leadership

Effective risk management starts with YOU! Having a good understanding of your skills, attitudes, comfort level and risk tolerance/perception allows you to be a solid team member.

Working in the cold and harsh environment of Antarctica has its challenges, yet learning to thrive and not just survive is the goal.

Self-Awareness

Situational awareness should be augmented with accurate self-awareness. Self-awareness, simply put, means being aware of both our mood and our thoughts about that mood. By being aware of our emotions we have greater knowledge of ourselves, and helps us understand how we will respond or react to a variety of situations. Self-awareness can be broken down in to three types: cognitive (thoughts, beliefs, biases, assumptions), emotional (feelings, moods), and behavior (language, actions).

Strong teams make a habit of giving and receiving performance feedback objectively and without creating defensive responses.

Pro Tips

- Prior to deploying to the field, consider talking with your team to express what you need to be successful. For example, I like to have my hot drink in the morning before talking to anyone, it's important to me to laugh and have fun, I like to find time to connect with loved ones at home.
- As part of field planning, discuss some scenarios and ask team members

- to be realistic about how they would respond or react.
- As a team, determine how you will make space for each other to get what you need.
 - What does leadership, communication and feedback look like?
 - Think about intent versus impact when communicating.
 - Curiosity over assumptions – we all come with our own belief system which causes us to act in a variety of ways. Ask questions before assuming there is ill intent.

Stress Management

Stress and fatigue are normal components of fieldwork. Working in the outdoors in general is characterized by a very strong work ethic. Team members work hard, both physically and emotionally, regularly putting in long days for the duration of the field season. Teams can be under enormous stress from the physical exertion of living outdoors in the cold, time pressure, aspects out of our control, living with strangers (for some teams), and adapting to a new diet and routine.

The effects of stress and fatigue on performance (personally and within a team) are well documented. Our strength, stamina, mental and emotional health, and immune responsiveness decline if we are chronically tired, under nourished or under stress. We can become more susceptible to injury when we are tired and hungry.

How to manage stress and fatigue:

- Make it normal to ask for help. Role model this regularly.
- It is not a character flaw to be tired or need time to recharge. Ask team members before deployment what they need to be successful in the field. Know how you will support one another before it is needed.
- Have a plan for your team to get good, consistent sleep.
- Ensure mealtimes are consistent and that meals are nutritious.
- Have regular check ins as a team and perhaps 1-on-1, depending on team makeup.
- Allow for personal time so people can recharge in the best way for them.
- Mix up camp responsibilities throughout the season.
- Use the stress continuum to use common vocabulary to describe how you are feeling.

Individual Stress Continuum

Green/Ready	Yellow/Reacting	Orange/Injured	Red/Critical
Healthy sleep	Sleep loss	Sleep issues/ nightmares	Insomnia
Healthy relationships	Distance from others	Disengaged relationships	Broken relationships
Spiritual/emotional health	Change in attitude	Feeling trapped	Intrusive thoughts
Physical health	Fatigue	Exhausted	Anxiety and panic
Emotionally available	Avoidance	Physical symptoms	Depression
Gratitude	Short fuse	Emotional numbness	Feeling lost or out of control
Vitality	Criticism	Suffering	Thoughts of suicide
Room for complexity	Lack of motivation	Isolation	Blame
Sense of mission	Cutting corners	Burnout	Hopelessness
	Loss of creativity/interest		

Using the Responder Alliance's stress continuum (<https://www.responderalliance.com/stress-continuum>), we can become attuned to our stress levels and communicate when they are green, yellow, orange or red. This helps teams approach situations that require heightened focus and risk mitigation.

Individuals closer to green are ready to respond when stressful situations arise. The ability to communicate stress levels will allow teams to better approach situations that require a higher degree of focus and risk mitigation.

Staying Warm

Staying warm and dry in the field is of the utmost importance for comfort and health. We make better decisions, sleep better and are happier if we are warm. It is far easier to stay warm than to warm up once you are cold.

Ways We Lose Heat

1. **Conduction:** Direct transfer of heat from one object to another: sitting on ice/snow with no insulation, picking up cold objects with bare hands.
2. **Convection:** Losing the warmed air close to the body to the colder air outside the body: through open collars, untucked shirts, unzipped jackets, no warm hat, etc.
3. **Radiation:** Transfer of electromagnetic energy from a hot object to a cold object, primarily through exposed skin.
4. **Evaporation:** Wet clothing or perspiration has a cooling effect as it

evaporates.

5. **Respiration:** Heat is lost through breathing and can cause rapid heat loss through heavy breathing, particularly in cold weather.

Ways We Generate Heat

1. All of the above ways to lose heat can also be ways to get warmer.
2. Activity or exertion can produce heat: i.e., shoveling snow.
3. Food, especially simple sugars that are quick to break down, can produce some quick heat.
4. Dress for warmth (see Clothing section below).
 - a. Layer: wearing layers of lightweight, medium weight and heavier weight clothing allows “dead” air space which can trap warm air in between your clothing.
 - b. Wear materials that “wick” moisture away from the skin such as synthetic and wool materials.
 - c. Wear clothing that will retain warming properties even when wet such as wool or fleece.
 - d. Do not wear constricting clothing - let circulation take place. *Tip: try all layers on together and play with a variety of strategies before going into the field.
 - e. Avoid wearing too many clothes while being active. This will cause your clothes to get wet through perspiration and eventually cause cooling through evaporation.

Pro Tips

- Take short, frequent breaks while doing strenuous work to avoid sweating, which can cause chills through evaporation and perspiration.
- Change out of wet clothes or, if clothes are only damp, layer up and do light activity. Synthetic and wool will dry as your body produces heat.
- Eat throughout the day! Remember that lunch starts as soon as breakfast is over and ends when dinner begins. This will help regulate body temperature throughout the whole day.
- Stay hydrated! Not only will the dry environment take its toll on your body but drinking fluids will keep you warm.
- Wear a warm hat and gloves most of the time.
- Always have layers available so you can fine tune for activity and location.

Sleeping Warm

Part of thriving in the field is getting a good night's rest! If sleep is missed or inadequate, it can affect our physical and psychological well-being. Everyone has different sleeping needs and metabolic rates so you may need to experiment during the first few days.

Pro Tips

- Always use multiple pads for both comfort and insulation from the ground (foam and air mattress are standard issue from the BFC).
- Eat well before going to bed, making certain there is a combination of fats and carbohydrates (fats will take longer to digest thus keeping the furnace fueled for the entire night).
- Don't wear all your clothes to bed. Start with base layers and add if needed. The goal is not to sweat.
- Urinate before getting into your sleeping bag and don't ignore the call to urinate in the middle of the night. Use your pee bottle!
- Do some light calisthenics as you get into your bag to heat up your body.
- Consider wearing a warm hat as so much heat loss happens through your head.
- Take a hot water bottle (or two) to bed with you. Place them under your arm pits, in between your legs or at your feet. You won't regret it!
- Have a pair (or two) of sacred sleeping socks that are solely for the bag.
- If your sleeping bag is little big for you, consider filling the voids with other dry clothing to warm up the dead space.
- Keep snacks nearby for the midnight need to fuel the furnace.

Clothing

In addition to your extreme cold weather gear that is issued to you from the program, you will need a variety of layers to assist in your comfort and "thriving" in the field. Before leaving home, your team should provide a gear list to help guide you in acquiring the proper gear.

In general, a good rule to live by for living in cold environments is to get lots of insulation between you and environment, and to remove that insulation layer by layer when you get warmer. You need a clothing system that allows you to shed layers quickly and easily before you get damp from perspiration. Several thinner garments will serve this purpose better than one bulky layer.

Layering

Having a choice of layers will ensure that you can be comfortable in a

multitude of temperatures and work conditions.

Base Layers: Your first layer should fit snugly against your skin and be lighter weight. This layer works by wicking away water and keeping your skin dry. Synthetic fabrics, such as “polypro”, or merino wool work great. Cotton is a poor choice and should be reserved for hanging out around camp and sleeping in warmer temperatures. Depending on location, you may wear 2-3 base layers of varying weights. This will help trap air and prevent heat loss.

Insulation Layers: This can be a thicker long underwear layer (light fleece or wool) and their role is to absorb. Thickness is warmth! Often, insulation layers are worn while working and it is best to ensure that you are not wearing the thickest layers for high output. For sedentary activities or extreme cold, an outer garment with several inches of loft is recommended. Down is great for dryer locations, and synthetic insulation is preferred for wetter locations.

Shell Layers: This is often the most important part of your layering system, and the most used besides your base layers. Windshells worn over any garment can add up to 25°F of warmth and 50°F in very windy conditions. In a place like Antarctica, we need constant protection from the wind. Ensure your windshell can fit over all layers before going into the field.

Pro Tips

- Bring comfortable, synthetic fabric underwear, which is easy to wash and quick to dry. If you are allergic to synthetic fabrics, you can bring merino wool underwear. Also, bring some cotton underwear for sleeping.
- Sports bras are popular and comfortable, but many are thick and slow to dry (even in the cold, you will sweat). Try out a few before deployment to see which are comfortable and dry quickly.
- It is tempting to go to sleep with all your layers on, but best to take off any wind resistant clothing and sleep in breathable layers so as not to sweat.
- Bring lots of socks. Our feet can be some of the hardest working parts of our body so do not skimp on good quality socks. Change into sleep socks at night (affectionately called “sacred sleeping socks” which live in your sleeping bag only).
- Wear materials that “wick” moisture away from the skin such as synthetic and wool materials.
- Wear clothing that will retain warming properties even when wet such as wool, fleece, synthetic insulation (i.e., Primaloft).
- Do not wear constricting clothing - let circulation take place. *Tip: try all layers on together and play with a variety of strategies before going

into the field.

- Avoid wearing too many clothes while being active - this will cause your clothes to get wet through perspiration and eventually cause cooling through evaporation.

What to Do When Clothes Are Damp or Wet?

More times than not, clothes will not dry on their own or when hung outside when working in the field in Antarctica (maybe in the Dry Valleys). Keeping clothes dry is work!

Pro Tips

- Your body can often be the best “dryer” for layers. Sandwich damp clothes in between your layers as you work around camp. Your body heat will dry them.
- Often simply putting layers in your sleeping bag won’t be enough to dry them. Hot water bottles in the bag will aid in a quicker dry.
- Socks are often the most likely to become damp from wearing them all day while working. To dry them overnight, you can put socks in between layers on your body while sleeping and your body heat will dry them.
- Beware of hanging clothes too close to heaters!

Staying Found

While most fieldwork happens during the summer months with 24-hour daylight, the possibility of getting disoriented can happen. As you set up camp, part of the plan should be to discuss a plan should anyone become disoriented.

It can be easy to become disoriented in the wind when moving between tents or huts at larger camps. In really bad conditions, visibility can be considerably diminished in a matter of minutes. To stay found, have a plan if you are moving around camp in bad weather:

- Tell someone where you are going.
- Carry a radio.
- Have a check in time.
- Have rope lines set up in advance of weather.
- Determine how one would signal distress if lost in or around camp (e.g., use of whistle, radio).
- Determine a time away from camp that one would need to carry extra supplies (i.e., survival bag, food, layers). Suggested time would be 15 minutes or more, but this may change due to location.

If you do become lost or disoriented:

- Stay calm, positive and alert.
- STOP once you know that you are disoriented. Make a plan and take a deep breath.
- Do not wander around aimlessly. You are better off staying where you are.
- Make contact or noise.
- Minimize heat loss by putting on layers if you have extra clothes.
- Stop and think. Try to remember your movements and figure out a way back.

Hygiene

A big part of self-care is personal hygiene. If you are comfortable, you will be more focused and able to make good decisions. It may be the first time you will spend a prolonged time camping in a wilderness environment and you may feel some anxiety regarding hygiene. The tips below should help alleviate this anxiety.

Bathroom Hygiene Tips

You'll learn how to 'pee and poo' in the field in a way that is environmentally responsible and sanitary. Depending on the field location, there will be different parameters on human waste containment. Many camps require all gray water (pee) and human waste (poop) to be contained in buckets and barrels. Some deep field camps simply dig large holes in the snow in which to deposit all human waste. Toilet paper is provided for all camps.

You will be issued at least one pee bottle along with your sleep kit. If you have a vagina, you can ask for a pee funnel (i.e., "Lady J", "Shenis") from the BFC. It is best to practice before leaving for camp in the comfort and warmth of your dorm bathroom stall.

Hand washing is an important aspect of maintaining backcountry hygiene and health. Alcohol-based hand sanitizer is readily available, but traditional hand washing is preferred when possible. All camps should plan to have a hand washing system with soap and water.

If you have a vagina you are encouraged to wash your pubic area with mild soap and water daily and bring an extra bandana to clean yourself after urinating. Baby wipes are also a good alternative to soap and water. Bandanas can be hung outside of your tent in the sunlight to dry. Consider sleeping in cotton underwear instead of synthetic fibers.

Menstrual Hygiene Tips

For those who menstruate, your menstrual cycle may change while living in the outdoors, so plan to bring extra supplies.

You could also consider using a reusable menstrual cup in lieu of tampons or pads. If you are using a new method, practice before your deployment so you are comfortable using the method in the field.

All camp outhouses should have both a human waste bucket and a “sani” waste bin. Used menstrual products can be disposed of in the sani waste. As an added measure, it is always a good idea to carry a stuff sack with menstrual products and a zip lock to dispose of products if away from camp for the day. An aspirin tablet or two (not Tylenol) placed in the bag will help keep odors down.

Changes in Your Cycle or Abnormal Symptoms

If you experience changes in your menstrual cycle or abnormal signs such as itching and/or soreness in the vaginal area, excessive and/or smelly discharge, increased frequency or pain on urination don’t hesitate to bring this to the attention of your team (Field Medical lead or with whomever you feel most comfortable discussing). USAP field medical kits have medication to treat the more common genito-urinary infections, including urinary tract infections and yeast infections.