

Mountain Safety Manual 38

OUTDOOR SAFETY

RISK MANAGEMENT FOR OUTDOOR LEADERS

OUTDOOR SAFETY
NEW ZEALAND MOUNTAIN SAFETY COUNCIL

DISCOVER MORE, SAFELY.

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Tel: 04 385 7162 | Fax: 04 385 7366
Email: info@mountainsafety.org.nz
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Author: Cathye Haddock
Managing editors: Karen Corcoran and Andrea Corrigan
Cover and design: Danielle Millar and Richard Patterson
Illustrations: Scott Pearson and Henry Sunderland
Cover photograph: Kerry Adams
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Disclaimer: The information contained in this manual is based on the latest risk management information available. The New Zealand Mountain Safety Council has sought advice from experts to ensure the situations described in the manual reflect current best practice, however the information given is general in nature. This manual is designed to support trained outdoor leaders. It does not replace practical training courses.

The New Zealand Mountain Safety Council accepts no liability or responsibility for any incidents occurring as a result of following or not following information in this manual. All readers are responsible for their own safety in the outdoors.

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PREFACE

The New Zealand Mountain Safety Council (MSC)'s mandate is to encourage safe participation in land-based outdoor activities. One of the ways we do this is by ensuring safety standards are developed for all levels of outdoor activity, and these are communicated through the development of quality resources and media as well as through training and education. This revised *Outdoor Safety: Risk Management for Outdoor Leaders* manual is one of those resources. It is a central resource for outdoor safety and risk management.

This manual is suitable for all outdoor enthusiasts and is especially useful for group leaders and those responsible for taking others into the New Zealand outdoors. It contains essential information about risk identification and mitigation for a range of outdoor activities: commercial, community-based, educational or personal. These activities could be anything from a family walk in the local park to a multi-day tramp, hunt, climb, kayak or mountain bike ride. While you might never experience a significant incident in the outdoors, we hope this manual will give you the knowledge and confidence to anticipate what could happen, to better plan and prepare, and to help you respond should an incident occur.

While we know this manual will be of immense value as a resource, outdoor safety and risk management awareness, skills, knowledge and attitude are best developed by putting the theory into practice. We strongly encourage you to attend a practical course. This will give you the opportunity to learn about outdoor safety and risk management before you need to apply it in a real situation. If you love the outdoors and want to learn skills and techniques to enhance your outdoors experience, then visit the MSC website or contact your local MSC branch for details.

I present this manual to you with a sense of achievement and pride. Our team have worked diligently in its review and production to ensure we have included the latest in outdoor safety and risk management standards and practice. We have introduced information, tools and techniques that have been developed since the last edition. I acknowledge and appreciate the energy and enthusiasm that have gone into completing this work.

I wish you many years of safe and enjoyable outdoor recreation.



Darryl Carpenter

Chief Executive Officer

New Zealand Mountain Safety Council

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RISK

To laugh is to risk appearing a fool,
to weep is to risk appearing sentimental or weak,
to reach out for another is to risk involvement,
to express feeling is to risk exposing one's true self,
to share ideas and dreams before a crowd is to risk their loss,
to love is to risk not being loved in return,
to live is to risk dying,
to hope is to risk despair,
to try is to risk failure.

The greatest hazard in life is to risk nothing.
They who risk nothing, have nothing, are nothing.
They may avoid suffering and sorrow,
but fail to grow, to be as much of themselves as they can be, and to have as much of time and life as there is

only a person who risks is free.

Janet Rand

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ACKNOWLEDGEMENTS

The New Zealand Mountain Safety Council acknowledges the important spiritual and functional relationship Māori continue to have with Maunga and Ngahere. Māori have walked, explored, created trails and passes and kept this land warm for a thousand years. Their stories, place naming, and naming of flora and fauna give added dimension for those who share these beautiful surrounds. As an acknowledgement of the relationship, there is a Māori whakatauki/proverb at the beginning of each chapter of this manual that best describes each theme.

The MSC would like to thank the following people and organisations (in no particular order) for their invaluable contributions to this edition of the text.

- Nathan Watson, for advice on emergency preparedness
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INTRODUCTION

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HOW MUCH RISK IS TOLERABLE?	3
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WHY MANAGE RISK IN OUTDOOR ACTIVITIES?

He mate i te marama[1]

Adventure-based outdoor activities involving risk are used as a medium for personal growth and development and team building.[2] They are a popular component of many education, recreation, adventure tourism, and community programmes. Society, however, expects outdoor leaders to keep risks at acceptable and tolerable levels.

The concept of risk management is not a new idea. Māori have a proverb about risk taking. 'Tēnā te ngaru whati, tēnā te ngaru puku. There is a wave that breaks, there is a wave that swells'.[3] Would-be adventurers must be prepared for either eventuality. Indeed our country's heritage was founded on this principle. Kupe and Toi, Tasman and Cook were leaders of legendary voyages to Aotearoa/New Zealand. The uncertainty of the first voyages heightened the risks they took. Although risking their lives on the journey, their successful discovery and settlement of Aotearoa/New Zealand turned the dangers into opportunities.

The Chinese express the concept of risk and its relationship to the development and education of the individual with the term *wei-jan*. Translated, it means 'opportunity through danger'. This is the essence of why we place people into risky situations, whether the danger is real or imaginary. Without the danger the opportunity evaporates![4]

Modern adventurers want to experience a sense of adventure and challenge in outdoor activities, without being injured. They expect outdoor leaders to protect them from harm. Adventurers should also take responsibility for keeping themselves safe, whether or not they are with a leader.

This manual is for outdoor leaders: anyone who, during an outdoor activity, assumes overall responsibility for the duty of care and safety of a group of people who are less experienced than they are, regardless of whether they are doing it in a professional capacity.

Providing quality outdoor experiences requires outdoor leaders to be aware of and manage many aspects of risk: psychological, emotional, physical, cultural, social and other. If a participant is not willing or able to complete an activity, it is worth considering whether it was a safe activity for them in the first place.

Outdoor leaders have legal and moral responsibilities to effectively manage risks in outdoor activities. The law requires outdoor leaders to provide a standard of care in keeping with accepted best practice in the activity. Chapter 9 details the legal requirements and professional responsibilities of outdoor leaders and the organisations they represent.

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HOW MUCH RISK IS TOLERABLE?

While the public tends to accept the deaths of adventurers who have gone into the hills of their own accord, it views public safety in activities led by outdoor leaders in a totally different manner. If outdoor leaders wish to win the trust of society and establish credibility as a profession, they must establish and follow responsible safety management procedures supported by stringent incident data collection procedures.[5]

Society's tolerance of risk and outdoor leader moral responsibilities is summed up in the following statement: Knowingly imposing a risk on oneself is 'right' while imposing a risk on someone else is 'wrong'.[6]

There are risks faced by people in everyday life that society tolerates and allows them to assume voluntarily. But this is not the case where involuntary risk is involved, especially if the risk is imposed in an institutional framework (for example, a school, adventure tourism business or outdoor organisation). Therefore these organisations have a strong obligation to ensure their facilities and programmes meet high standards of public safety. Moreover, society is likely to be outraged and consequently harsh on failures to meet such standards. Outrage is likely to be greater in circumstances where:

- Activities are unfamiliar to the community.
- Participants are under the care of a professional organisation or leader.
- Professional standards are compromised.
- Participants are not informed of possible dangers.
- The community is predominantly risk averse and motivated to apportion blame.[7]

HOW MUCH RISK IS ACCEPTABLE?

Some researchers have attempted to assess the degree of risk associated with human activities and from this derive a measure of acceptable risk that is practical and defensible. Many large outdoor organisations keep incident data on their programmes.[8] But data collection in the outdoor industry is inconsistent as methods vary widely. Conclusions and comparisons are therefore inconsistent and do not take account of the concept of societal risk tolerance described above. So it is difficult to make a confident assessment of acceptable risk.

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Other researchers claim that it is unrealistic to eliminate fatalities and serious or disabling injuries from adventure-based programmes.[9]

A study of 12 professional New Zealand outdoor education centres found incident rates to be comparable with those organisations in the United States that are regarded as having the highest standard (the National Outdoor Leadership School and the five Outward Bound Schools).[10] This study showed the New Zealand Accident Compensation Corporation (ACC) serious injury rate (all injuries at work and away) to be the same as that for New Zealand professional outdoor education centres (0.11 per 1000 participant days). The study concluded that outdoor education in New Zealand was no more dangerous than living a normal life in New Zealand. A British comparison showed that more people drowned in their cars than when canoeing![11]

It seems practical and defensible, therefore, to reduce fatality and disabling injury rates in outdoor activities to the level associated with common everyday activities.

A notable author and analyst of incident data in a large outdoor programme says 'regardless of the facts we choose to paint a picture of risk in our activities, society does not expect people to experience serious injury or death in educational or recreational endeavours. These expectations often have far more power than our data'.[12]

Examples and case studies are placed in shaded boxes throughout this manual. These are fictional examples designed to further explain the risk management principles in the manual.

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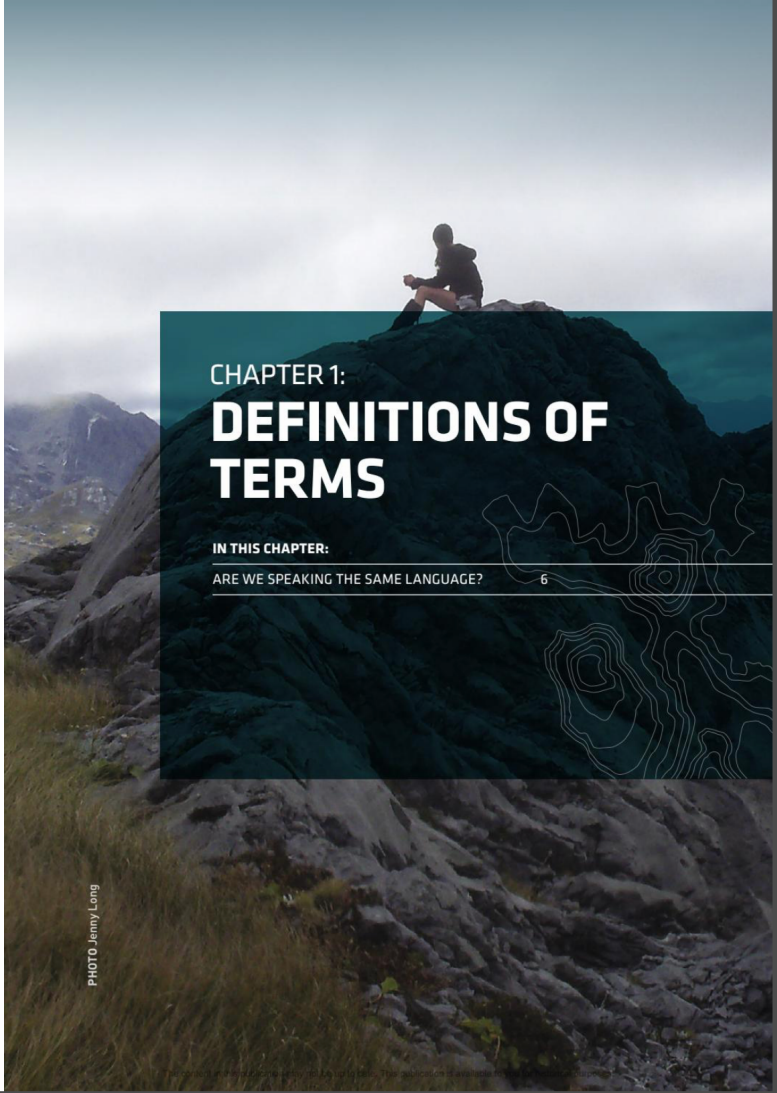

CHAPTER 1:

DEFINITIONS OF TERMS

IN THIS CHAPTER:

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PHOTO Jenny Long

ARE WE SPEAKING THE SAME LANGUAGE?

He waka eke noa

Terms are defined in this chapter to establish a common language for this manual. They are commonly accepted definitions based on the work of recognised experts in safety management and outdoor leadership. It is acknowledged that working definitions constantly evolve and are therefore contestable. Māori definitions have been translated especially for this manual.[1]

ADVENTURE

An experience where the outcome is uncertain because key information may be missing, vague or unknown.[2]

Tūwheta

He mātangatanga kāore i te mōhiotia he aha tōna otinga atu, nā te mea kei te hapa ētahi pārongo kāore rānei i te mārama, kāore rānei i te mōhiotia.

Although the adventurer's outcome is uncertain, it must appear possible to influence the circumstances in a manner that provides hope of resolving the uncertainty. Herein lies the challenge associated with adventures.

Adventure is a form of leisure that is:

- a state of mind
- freely chosen
- intrinsically motivating
- uncertain in outcome.

An adventure in a certain place and time may be experienced by one person, but not by another.[3]

PEAK EXPERIENCE

The pleasurable feeling someone gets when performing to their physical and sensory potential.

Panekiretanga

Ko te tino tau o te mauri nā te mōhio o te tangata kua taea e ia tā tōna tinana i tōiri ai.

Peak experiences can occur in many situations, including outdoor and adventure activities. When a person's competence matches the task, they enjoy what they are doing and experience a euphoric state. Focusing their attention on the task, they forget personal problems, lose their sense of time and of themselves, feel competent and in control, and have a sense of harmony and union with their surroundings. Risk and uncertainty are critical to the peak experience, as they heighten concentration.[4]

COMPETENCE

The ability of an individual to deal effectively with the demands placed on them by the surrounding environment.[5]

Āheinga

Ko te āhei o te tangata ki te whakautu i ngā whakahau mai i a ia a te taiao e karapoti ana i a ia.

In an adventure situation (such as mountaineering) a person's competence is measured by their ability to use their technical skill, knowledge, attitude, behaviour, confidence and experience to solve problems and avoid incidents.

RISK

The potential to lose or gain something of value.

Whatitata

Ko te torohū e ngaro ai tētahi āhuatanga e matoa nuitia ana ahakoa ā-tinana, ā-hinengaro, ā-tangata, ā-pūtea rānei.

The presence of risk creates uncertainty. Potential losses may be physical (broken bones), mental (fear), social (embarrassment) or financial (lost equipment).[6] The motivation for participating in risk activities is to gain something of value.[7] Potential gains include good health, increased confidence, increased self esteem, the challenge of an adventure and fun.[8]

CHALLENGE

The act of using personal competence in a risky situation.

Whakahoro

Ko te pā atu o te whatitata ki te āheinga o te tangata.

When engaging in a challenging experience, adventurers use their competence to resolve the uncertainty of the outcome. Without using some element of competence, adventure experiences are not considered challenging.[9]

HAZARD/CAUSAL FACTOR

Hazards (causal factors) are the contributing factors to incidents.[10]

Tatatuma

Nā te tatatuma ko te maiki.

Incidents arise from hazards. As defined in the Health and Safety in Employment Act 1992, hazards are the cause or source of harm.

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INCIDENT

An undesired event that could or does result in a loss. The loss may involve harm to people, damage to property, and/or loss to process.[11]

Maiki

He pāpono kāore i te hiahiatia, ko tōna otinga atu rānei ko te pā o te mate. Mēnā i rerekē noa atu kua whara kē ko te tangata, kua tūkino kētia ko ngā rawa, kua kore i ekea ngā taumata.

In this manual, incident is used as an umbrella term to describe fatality, injury, illness, damage to property or a combination of these events. When these outcomes have been narrowly avoided, the event is classified as an incident with high potential for serious harm (close call or near miss). Problems relating to behaviour and motivation also fall into the incident category.

Loss to process is an interruption or disruption to the programme or routine.

This manual uses the term incident rather than accident. A respected wilderness risk manager pointed out that an accident was an unplanned and unforeseen event, but many of the injuries encountered in adventure activities could be foreseen and as such prevented.[12] Because of this, some organisations are moving away from using the term accident to describe undesired events.[13]

Another author notes that while many outdoor leaders commonly used the term incident to indicate that no injury or accident occurred, the police, search and rescue, and local and government agencies used it to describe any event (accident or incident) requiring intervention.[14]

SAFETY

Freedom from hazards[15] through the control of accidental loss.[16]

Pareora

Ko te āhei ki te ārai i ngā hauata poka noa.

The major goal of **safety management** is to eliminate, isolate or minimise hazards and thus reduce the potential for harm to people, damage to property or loss to process.

The term outdoor safety management, or hazard management, is increasingly being used in New Zealand in place of risk management. Safety management, hazard management and risk management are compatible concepts. For the purposes of this manual, the term safety management may sometimes be used for the management of both safety and hazards.

RISK MANAGEMENT

Those collective procedures utilised to keep risks and losses within an acceptable range.[17]

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Ārai Whatitata

Ko te āhei ki te whakaiti i te mate torohū ki tōna pae e whakaaetia ai.

In a large outdoor organisation (such as an adventure tourism company or school) that delivers outdoor programmes, procedures will be comprehensive, covering everything from staff recruitment and induction to gear maintenance and activity safety.

For a one-off activity, such as a day tramp for a youth group, procedures will need to follow the organisation's health and safety policies. The activity will need a specific outdoor safety management plan that is consistent with accepted best practice for tramping (see Chapters 3 and 10 for more information).

SERIOUS HARM

Serious harm means death or harm of a kind that amounts to or results in permanent loss of bodily function or temporary severe loss of bodily function. It also refers to any harm that causes the person harmed to be hospitalised for a period of 48 hours or more commencing within seven days of the harm's occurrence.[18]

Ituā

He mate, he momo ituā rānei e ngaro pūmau, ngaro taupua rānei te mātātoa o te tinana. Pā atu anō te ituā ki te tangata i uru ki te hōhipera mō te 48 haora kō atu rānei, i tīmata i te 7 rangi mai i te wā o te ituā.[19]

SIGNIFICANT HAZARD

A hazard that is an actual or potential cause or source of serious harm.[20]

Mōrearea Nui

He mōrearea ake, mōrearea huna rānei e takea ai te ituā.[21]

As defined in the Health and Safety in Employment Act 1992, hazards are the cause or source of harm, therefore *significant* hazards are the cause or source of *serious* harm.

When completing a risk analysis form (such as a Risk Analysis Management System (RAMS) form) you are required by law to state whether a hazard is significant or not, and how you will manage this hazard using the eliminate, isolate or minimise strategies.

ELIMINATE

Eliminating a hazard means ensuring that it no longer exists or is no longer part of the activity. For example, do not undertake an activity with people under a certain age or without a certain skill set.[22]

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Whakakore

Ki te whakakorea he mea mōrea, kua kore taua mea e ora i nāianei, kua kore rānei e whakamahia. Hei tauira, kaua e tuku mahi ki ngā tāngata i raro i tētahi tau te pakeke, kāore rānei ētahi momo pukenga.[23]

ISOLATE

If you cannot reasonably eliminate the hazard, isolate it by putting in place a process or mechanism that keeps people away from the hazard. For example, establish a no-go zone or portage a rapid.[24]

Wehe

Ki te kore e taea e koe te whakakore i te mea mōrea, me wehe atu mā te whakatū tikanga e kore ai te tangata e whakatata ki te mōrearea. Hei tauira, whakatūria he wāhi kore-haere, kawe a-tāheke rānei.[25]

MINIMISE

If you cannot eliminate or isolate the hazard, minimise it by doing whatever can reasonably be done to lessen the hazard. For example, use appropriate river-crossing techniques and good site selection. You should minimise the hazard to the point where you no longer consider it to be significant.[26]

Whakaheke

Ki te kore taea te whakakore i te mea mōrea, te wehe atu rānei, whakahekea mā te mahi i ngā mahi whakaiti iho i te mōrearea. Hei tauira, kia tōtika ngā whakahaere whakawhiti awa me te kōwhiri tūranga wāhi. Me whakaheke te mōrearea kia taea e koe te kī kāore ōna tikanga ki a koe.[27]

STANDARDS

Specifications by which the qualities required of something may be tested.

Paerewa

Ko ngā whakaritenga e taea ai te whakamātau ngā pai, ngā kino rānei o tētahi mea.

According to Standards New Zealand, standards are set by the people involved in an industry by coming to a consensus on a set of specifications or guidelines for an activity or product within that industry. In the outdoor setting, the appropriate national body or the people involved in the activity develop standards. In the absence of a formal standard, accepted best practice becomes the informal standard (see Chapter 10).

Australia and New Zealand have national standards (AS/NZS ISO 31000:2009, superseding AS/NZS 4360:2004) for risk management. These have been adopted by some organisations.[28]

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CHAPTER 2:

PRINCIPLES OF MANAGING RISK

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WHY RISK IN THE FIRST PLACE?

Whāia te iti kahurangi, ki te tuohu me maunga teitei

Risk has already been defined as the potential to lose or gain something of value. Involvement in adventure activities involving risk can provide not just negative but many positive outcomes for people.[1] This paradox underpins outdoor and adventure activities.

One author talked about the outdoor leader's responsibility to not just manage risks, but to manage experiences.[2] He concluded that it may be more useful to practise risk/benefit management, where the task of risk identification is matched with identifying programme objectives; risk assessment is matched with outcome assessment; and risk management strategies are matched with opportunities for challenge.

The head of inspection for the UK Adventure Activities Licensing Authority (AALA) stated that conventional models of risk that balance hazards with controls will lead to adventure activities steadily getting dumbed down.[3]



Figure 1 Controls and hazards

It is often not possible to eliminate all hazards without fundamentally destroying the activity. Benefits need to be factored in to get a triangle, and a very different dynamic.

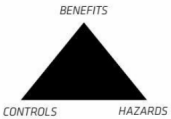

Figure 2 Controls, benefits and hazards

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For example, outdoor leaders can remove all hazards from the activity of mountain climbing, by choosing a route with no loose rock, ice, crevasses, steep ground, avalanches or bad weather. In doing so, the essence of the activity would be fundamentally destroyed. But by stating, at the start, the benefits of increased confidence, a sense of achievement, successful route finding and a safe return, hazards can be justified and managed. Using their knowledge, skills, competence and equipment to negotiate the hazards, a group can set out to achieve its goals.

One outdoor programme manager questioned whether it was possible for risk to act as a creative (growth) force unless there were also potential negatives that could happen.[4] He saw the negatives as the whetstone that sharpened the blade of creativity. In this sense he thought there may be a yin-yang relationship between risk as creator and risk as destroyer.

RISK AS CREATOR

Outdoor adventure activities hold a strong attraction because they provide opportunities to experience the uncertainty of risk, challenge and adventure. Some people seek such activities to fulfil their desire for memorable experiences and feelings. Outdoor adventure experiences can be extremely positive and self-validating so people often seek to repeat them.[5]

A student who had never tested her endurance and stamina before a tramp now realised that if she could survive the long, steep climb up the mountain in such foul weather, she could survive anything! Unconsciously, she had absorbed that she had a strength and determination she never knew she had. Consciously, she decided to take up tramping.

People have described outdoor experiences as 'magic', saying 'everything just gelled/came together/flowed', because they can be such powerful, even joyful times.

Adventure experiences can lead to:

- Increased self esteem
- Increased self confidence
- The exhilaration of overcoming or facing challenges
- A sense of achievement and wellbeing[6]

While these are generally accepted objectives for adventure activities, there is debate on the best means to achieve them. Adventure education is based on activities that create challenge and excitement and can expose participants to elements of risk. Diverse groups have surmounted seemingly impossible tasks and overcome many self-imposed perceptions of their capability to succeed through adventure education, so it has become a powerful medium for personal growth and development.[7]

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Some outdoor professionals question the value of outdoor leaders pushing participants out of their comfort zones by intentionally increasing risk.[8] They propose a move towards more intrinsic motivation[9] for positive change based on emotional safety and stability in programmes. They have found this approach particularly pertinent for at-risk individuals, such as novices, survivors of abuse and those prone to anxiety disorders. They say the greatest amount of change and growth comes from a place of comfort, security and acceptance, so these factors are an ideal basis for adventure. This refocuses attention on emotional safety in conjunction with physical safety.

MANAGING RISK

While there are many benefits of taking risks in outdoor activities, there can be serious losses if things go wrong. One programme manager explained it by saying:

> 'Managing risk is about allowing gain to occur through challenge that has risk. Risk management is developing practices, procedures and strategies for keeping losses within acceptable levels particular to a programme's mission or goals.
> For example, a programme that allows participants to forage for food and shelter with a knife and blanket exposes those participants to a different level of risk than a backpacking course using tents, stoves and carrying a kilo of food per person per day. We wouldn't tolerate risks associated with the former because they don't fit our purpose. Allowing students to travel without instructors on one of our courses may be too great a risk for a different programme that doesn't have the time or instructional staff to get students through the appropriate educational progression. Independent student travel is a cornerstone of a leader's education in our programme'.[10]

The rest of this chapter explores some principles of managing risk:

- Gauging risk levels
- Risk assessment
- Risk reduction strategies
- Understanding social and psychological factors that contribute to risk

GAUGING RISK LEVELS

There are three possible values for risk[11] that outdoor leaders should be aware of:

Absolute risk

The uppermost limit of risk inherent in a situation that has no safety controls present. Or, what is the worst that could happen?

Residual risk[12]

The amount of risk present once the absolute risk has been adjusted by safety controls. Residual risk is difficult to determine accurately. An astute outdoor leader aims to ensure residual risk falls within an acceptable range.

Perceived risk

Any individual's subjective assessment of the residual risk present at any time. Novices often have a different perception of the level of risk than outdoor leaders or experienced adventurers. People's perceptions are usually influenced by prior experience and personality traits (for example, whether they are bold or timid). Perceived risk usually differs from person to person, so people's perceptions of the risk could cover the range from absolute risk to no risk at all.

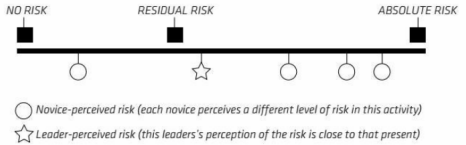

Figure 3 A risk continuum

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Outdoor leaders should be aware that perceptions of risk may vary greatly between individuals in a group. What appears to be risky to one person may not be to another. People may be influenced by factors such as:

- Confidence level
- Experience level
- Degree of tiredness
- Equipment familiarity
- Psychological make-up
- Location
- Perception of others
- Awareness of own limitations
- Leader approach
- Knowledge of the situation
- Fear of the unknown
- Mood
- Feeling of being safe
- Anxiety level

Outdoor leaders can manage risk by:

- Having clear goals for the activity, consistent with their organisation's goals.
- Judging the absolute risk associated with any activity planned.
- Using effective strategies to reduce risk to an acceptable residual level.
- Being aware of the perceptions of individuals within the group and using effective measures to ensure their physical, psychological and emotional safety.
- Promoting a culture of 'challenge by choice' rather than allowing participants to feel forced into doing activities.

The photographs in Figure 5 illustrate the diversity of risks associated with different environments and activities. Risk reduction strategies are equally diverse and a range of strategies is outlined later in this chapter.

MATCHING RESIDUAL AND PERCEIVED RISK

Problems can arise when there is a mismatch between residual and perceived risks. As illustrated in Figure 4, perceived risk does not always match residual risk, for a variety of reasons. For example, anxious individuals may enter an emotional and physical danger zone if their perception of risk is too high. Their performance may be affected, thus raising the level of risk for themselves and perhaps others in the group. Bold individuals, however, may enter a physical danger zone if their perception of the risk is too low.

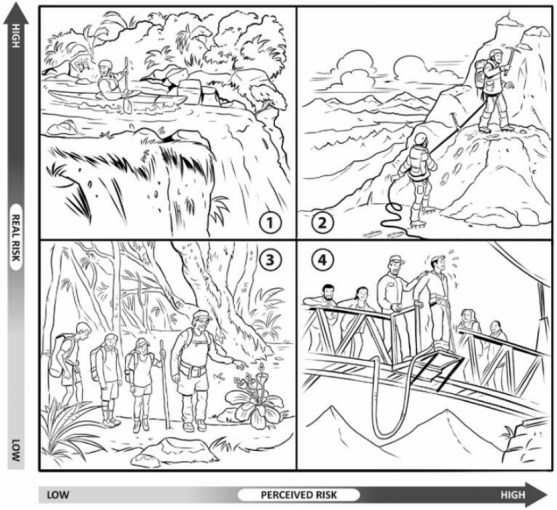

Figure 4 Matching of residual and perceived risk[13]

Area 1 *Mismatch*. The residual risk is high but the perceived risk is low. Participants in the activity may not recognise the residual risk. For example, people who are kayaking down an unknown river, oblivious to the waterfall at the bottom of the next rapids. There is a high chance of physical danger.

Areas 2 & 3 *Match*. Perception of the risk (high or low) matches the residual risk present. The people are aware of the situation and have the skills and experience to deal with it.

Area 4 *Mismatch*. High perceived risk in a low residual risk situation. For example, a bungy jumping participant may be so frightened that although they jump and come to no physical harm, they have nightmares for weeks afterwards, suffering ongoing psychological and emotional damage.

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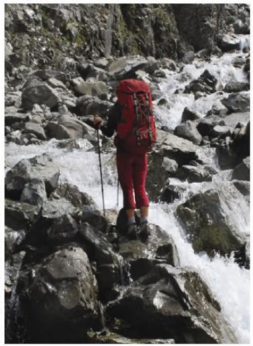

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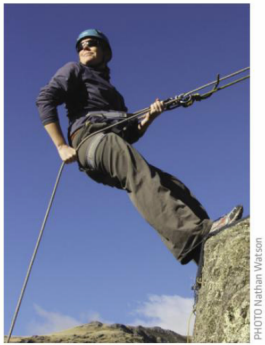

PHOTO Nathan Watson

Figure 5 The diversity of risks

'Those who venture out in order to take risks don't live long. The activity may appear risky to the uninformed outsider, but for someone who knows what they're about, it should not be risky at all'.[14]

A high level of perceived risk often manifests in fear or anxiety. Some people may be predisposed to anxiety. From an outdoor leader's perspective, it is important to judge how much anxiety is present and when it occurs in order to manage the activity effectively to reduce psychological, emotional or physical harm. In some cases the participant may opt out from the challenge that day. It is important to enable them to make that choice.

Conversely, a low level of perceived risk in a high residual risk situation can manifest itself in boredom and carelessness in some participants. This could lead to physical danger to the individual or group. The outdoor leader in this case needs to manage the activity in a way that brings the person's perception of the risk closer to reality. In some situations leaders can be the ones at risk of boredom and carelessness. They should be aware of this and try to avoid it.

There are few, if any, situations where exposure to absolute risk (high potential of physical or psychological harm) is the only way to achieve goals. Outdoor leaders should avoid putting individuals or groups into situations like this.

Many outdoor programmes deliberately include activities where participants perceive an element of risk. When a person overcomes a difficult challenge, using skills they have learned progressively, and with group support, a powerful feeling of success can be generated. This can occur when appropriate levels of risk are used and combined with well-considered objectives to achieve high quality experiences for the participants.

Some outdoor leaders say if the perceived risks are too high for a participant, the results can be counterproductive at best, and damaging at worst.[15] This is especially pertinent for victims of abuse or neglect or those struggling with mental health problems. Many outdoor programmes cater to at-risk youth, many of whom fall into these categories. But any group may have such a person in its midst.

Some outdoor managers observe that outdoor leaders are often encouraged to 'push' participants; increasing participants' perception of risk is seen as desirable and often essential for growth and change in participants. They advocate a shift away from this way of working. They suggest that the best scenario for growth and change is one in which participants feel safe, secure and cared about. They suggest outdoor leaders can create a safe atmosphere for participants, especially those at risk, by taking steps to reduce their perception of risk. They can achieve this by:

- Taking care of participants' basic needs such as food, water and shelter.
- Working just outside comfort zones and avoiding pushing students into the panic zone: participants should be challenged, encouraged and supported to try different activities and work through their fears.
- Putting equal emphasis on physical and emotional safety and learning to assess, and intervene with, anxiety.[16]
- Using collaborative and cooperative leadership styles to help foster security, stability and safety.

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PARTICIPANTS' NEEDS

Assessing participants' medical and cultural needs can also help ensure participants' emotional and physical safety. Leaders should consider:

- Issues such as head touching
- Cultural restrictions on swimming in mixed-gender groups
- Sleeping arrangements for overnight events
- Finding out food and medical treatment requirements from all participants, including particular religious/cultural groups
- Observing any site significance for particular cultural groups
- Avoiding a site that is tapu (sacred) or has a rahui (restriction) on it
- Obtaining consent and information about entering areas from local iwi[17]

RESPONSIBILITY

The freedom of the outdoors is a privilege that carries responsibilities.

BE RESPONSIBLE FOR YOURSELF AND THOSE IN YOUR CARE

When you go into the outdoors, you must become self-reliant. You must learn:

- What clothing, equipment and food to take
- How to use what you take
- How to cope with any situation that may occur, such as getting lost, a flooded river or a sudden storm
- About hazards that may be present in the area you plan to visit and how to deal with them

Don't rely on others to get you out of trouble. Self-reliance involves many skills that take time to learn well. However, when things do go wrong, you are more likely to get the help you need if you are well prepared.

PRE-TRIP PLANNING

A safe, successful and enjoyable trip is the result of careful planning and preparation. The MSC recommends that before you go into the outdoors, you follow the five simple rules of New Zealand's Outdoor Safety Code.[1]

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NEW ZEALAND OUTDOOR SAFETY CODE

1. PLAN YOUR TRIP

Seek local knowledge and plan the route you will take and the amount of time you can reasonably expect it to take. Department of Conservation (DOC) Visitor Centres and i-SITEs are a good source of local information.

2. TELL SOMEONE

Tell someone your plans and complete written Outdoors Intentions using the tools available at **www.adventuresmart.org.nz**

At the very least, tell a friend or family member where you are going. Tell them a date and time they should raise the alarm if you haven't returned.

3. BE AWARE OF THE WEATHER

New Zealand's weather can be highly unpredictable. Check the forecast and expect weather changes. Check track and hut conditions. Beware of rivers – if in doubt, STAY OUT.

4. KNOW YOUR LIMITS

Challenge yourself within your physical limits and experience. Learn essential skills and expand your limits through an MSC course.

5. TAKE SUFFICIENT SUPPLIES

Make sure you have enough food, clothing, equipment and emergency rations for the worst-case scenario. Take appropriate means of communication, such as a mountain radio or Personal Locator Beacon (PLB), and know how to use them.

LEARNING THE SKILLS

This manual has information about various skills and knowledge that you need in the outdoors. However, often there is no right or wrong method of doing things; people use a variety of methods, usually for sound reasons.

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There are many places to go and many challenges and adventures to enjoy. Don't be too ambitious to start with. Make some easy trips first to learn some skills and increase your self-reliance and confidence.

The outdoors is not hostile, but it can be unforgiving to the ill-prepared or unaware.

TRAINING COURSES

Quality instruction can enhance and speed up your learning and reduce the dangers for the inexperienced. Courses are offered by:

- MSC
- Tramping, mountain biking and mountaineering clubs
- Commercial and non-profit outdoors providers

See Appendix II: Training opportunities in New Zealand for outdoor leaders.

RISK ASSESSMENT

Risk assessment begins with identifying factors that contribute to risk. These include factors associated with the people, equipment and environment in which an activity takes place. Further hazards are inherent in the activity itself. (Risk identification is covered in detail in Chapter 3).

When the risks associated with an activity have been identified the next step is to assess the amount of risk present. This involves a process of judgement and decision making.

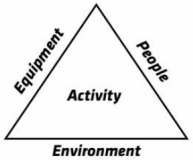

Figure 6 Interrelation of people, equipment, environment

JUDGEMENT AND DECISION MAKING[19]

One of a leader's key roles is to make decisions. Good decisions are important for safety and bad decisions often have unsafe consequences. Leaders' decisions are based on their experiences and include making judgement calls about recognising and acting on key information. The complexity of outdoor adventure situations should not be underestimated. Leaders are in an interwoven context where individuals interact with challenges in the environment while in social interaction with members of a group. Outdoor activities take place in natural environments such as rock, forests, water, snow and ice, each with unique features and risks. Participants come from a wide range of social backgrounds, and have different prior experiences and wide-ranging attitudes and values.

Some outdoor leaders recognise that group members have a perception of their own competence and the risks associated with an activity.[20] Likewise, a leader has a perception of the competence of group members relative to the demands of the activity. Leaders manage safety and quality experiences through challenge by balancing the demands of the environment with the competence of group members. This involves making small ongoing decisions to increase or decrease the level of challenge as well as the larger decisions that come with crises.[21]

Experience-based decision-making focuses on how experienced leaders make decisions in the real world. Some factors that operate in adventure-based situations are:

- Uncertain dynamic environments (for example, the weather)
- Changing and evolving goals (for example, an injury may force a change of plan)
- Action/feedback loops (for example, choosing to cross a river could result in people being swept away)
- Time constraints (for example, people getting cold demands action)
- Meaningful consequences (for example, a bad decision can result in a serious incident)
- Multiple players (for example, the group members)
- The influence of organisational goals and norms (for example, most adventure programmes operate from an institution or private operator)

A decision includes:

- The initial knowledge of a situation (situational awareness)
- Focusing on the key features (situational assessment)
- Option selection
- Decision implementation and resource management
- Reflection on the outcome

Situational awareness

Personal experiences underpin a leader's decision-making. Experiences should be field-based in a wide range of environments and conditions. Novice leaders often learn about leadership through personal experiences as group members, followed by roles as assistant leaders, before having enough experience to take full responsibility for a group. In addition, leaders' experience can be based on indirect sources like reading, training, discussions and organisational policies. All of this information forms the basis for pattern recognition, where

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information cues from the social or physical environment are recognised and interpreted.[22] The leader needs to make sense of this information to form a mental model of a specific situation. As the experience proceeds, the mental model grows and changes, building an understanding and context for creating and managing the situation. The mental model also provides the basis for the situational assessment phase or decision-making, where recognition of specific events as typical or atypical takes place.[23] By the time a decision is required, the leader is in a state of pre-primed readiness.[24]

Situational assessment

This includes perceiving and interpreting environmental cues such as rain, water flow and steep ground, along with their attributes, status and dynamics. At the same time lots of verbal and non-verbal cues come from people in the group concerning both individuals (for example, boredom, misbehaviour) and group functioning (for example, harmony, conflict). Experienced leaders can quickly recognize similar problems to those they have encountered or heard about before. Judgement is when leaders recognise critical cues amongst the information and can predict their implications. This includes what is likely to happen and when, and prepares the leader for action. Realistic goals can also be set.

Option selection

Considering typical options for action involves imagining how an option will be carried out, and anticipating likely reactions and implications. Imagery is generated from prior experiences, so time in the field is important. A feature of expert decision-making is that the best option is often the first considered. Providing no serious flaws are found, the option is adopted. If a potential problem arises then another option is considered until adoption or rejection. This is important when leaders are under time pressure, as they do not have time to generate a mental list of all of the options, then consider and compare the implications of each.

Decision implementation and resource management

Leaders may interpret cues from the environment and group and choose a course of action. They may then discuss cues and options with the group before coming to a decision in a democratic process.[25] This way, key information and deliberations are shared. This leads the group to an understanding of the situation, the strategies proposed, and the roles and responsibilities of everyone. Implementing the decision also involves managing available resources (for example, the use of a group member's first aid skills or seeking natural shelter).

Reflection on the outcome

Some great lessons are learnt from events where goals had to change. For goals to change, a decision has had to be made to increase or decrease the level of challenge. Hopefully a successful outcome eventuated. Reflecting on and discussing the experience are important for learning and improving practice. In this way, a leader's expertise and knowledge base continues to grow.

Overall, outdoor leaders are responsible for risk assessment and safety management before and during an outdoor activity. This involves using judgement, problem-solving and decision-making skills that are based on considerable first-hand experience.

RISK VERSUS SAFETY METER

Judgement and decision making are skills we employ every day. The outdoor setting is no different. The risk versus safety meter in Figure 7 shows how risk and safety balance on the leader's judgement. Leaders manage the risk so the group can reach their goals. Risk differs for novice and experienced groups. While novice groups need a more controlled low-risk environment, a more experienced group has the competence to cope with a more demanding environment.

Leaders need to continually assess a group's progress. If the activity is over-controlled, participants may get bored and try to increase the risk themselves, causing an incident. If the activity is under-controlled, it may result in an incident and be seen as reckless. Leaders should consider options and make decisions based on their judgement, to balance the scales appropriately.

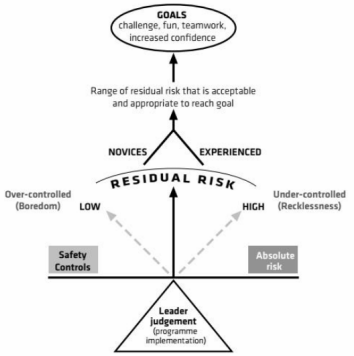

Figure 7 Risk versus safety meter[26]

Recovering from mistakes involves judgement and decision-making too. Leaders with sound judgement will have a history of extracting themselves from all sorts of situations and learning in the process.

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RISK REDUCTION STRATEGIES

When you are deciding on strategies for reducing risk, you should break them into three categories, consider each strategy in order and apply them to each hazard or risk that you have identified.

Let's take the example of a tramping trip that involves river crossings.

1. **Eliminate risk**: If the severity of the risk in the activity is identified as being at an unacceptable level, the risk should be eliminated by either removing the risk or removing the activity. For example, **eliminate** the risk by not crossing the river. This can be achieved by either turning back or choosing to do a different route that doesn't involve river crossings.
2. **Isolate risk**: If the severity of the risk in the activity is identified as being at an unacceptable level, but it is not practical to **eliminate** it, the next step is to try to **isolate** it, by putting in place a process or mechanism that keeps people away from the hazard. An example of managing the risk associated with river crossing would be choosing a route that uses structures such as bridges, walkways or aerial ropeways to cross the critical rivers.
3. **Minimise risk**: If you have attempted to eliminate and isolate the risk, but decided that these approaches are not possible (or practical), the next step is to **minimise** the risk. You should use your skills and knowledge of appropriate safety practices to minimise the risk in the activity. For example, wait for the river to drop to a safe level before attempting to cross; use correct river-crossing techniques, such as the mutual support method; carefully choose your crossing point and/or travel to a different part of the valley to cross, such as the head waters or braided river flats.

Risk reduction strategies need to be used even when deciding what kind of activity you will do. A good leader will have considered all of the above strategies to provide a safe experience that is aimed at the correct skill level, meets the aim of the activity and takes into account any limitations of the people, the equipment or the environment that may be present. Once the leader has decided on a plan, they will then need to identify which hazards are significant (a potential cause or source of serious harm) and record the strategies they will use to mitigate the risks associated with them as part of their risk management plan, such as their Risk Analysis Management System (RAMS) or Safety Action Plan (SAP).

It is important to note that this is NOT where the process ends. It is vital that, while the activity is being undertaken, a constant re-evaluation of the hazards is being done. As part of this, the risk reduction strategies should be adapted accordingly to ensure that all hazards are continuously managed.

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There are many ways to reduce risk levels before and during activities. Leaders can consider one or a combination of strategies to reduce risks, including:

- Involving everyone in safety
- Having appropriate rules, policies and guidelines
- Using appropriate leadership styles
- Knowing the group
- Offering challenge by choice
- Teaching by progression
- Developing safety consciousness
- Having competent leaders
- Disclosing the risk
- Pre-visiting the site
- Checking equipment (usage and maintenance logs)

INVOLVING EVERYONE IN SAFETY

Safety is a shared responsibility.[27] While outdoor leaders and the organisations they represent have an obligation to manage the safety of all involved in an outdoor activity, they cannot do this without the help of everyone involved. Just as a sailboat is steered, propelled, stabilised and supported by different people (see Figure 8), everyone needs to work together to achieve safe, high-quality outdoor experiences. Adventure is the driving force behind the sails. Safety is a braking force, when conditions get too rough.

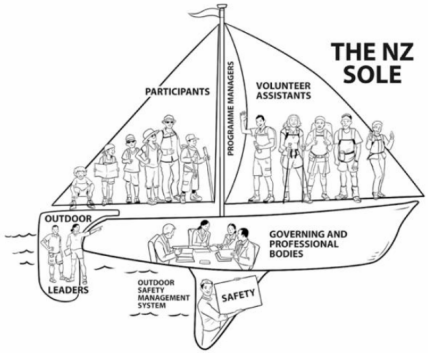

Figure 8 NZ SOLE – Safe Outdoor Learning Experiences

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Participants

Are the mainsail. Their learning of safe practices, knowledge and skills drives the experience. Involving them in safety management impacts significantly on activity safety.

Outdoor leaders

Are the tiller and rudder. They plan and steer the course, responding appropriately to changing conditions and obstacles, maintaining safety and high quality experiences.

Volunteer assistants

Are the spinnaker. They are essential to the success of some programmes. Some volunteer assistants, however, can be unpredictable. If well selected and briefed, they can become a strong and well-trimmed spinnaker that maximises the boat's performance. If not, they can become a sloppy, flapping spinnaker that blows out, hampering the boat's performance.

Programme managers

Are the mast. They support the sails and provide a strong connection to the hull, rudder and keel. They have an overview of the whole vessel and ensure all risk management procedures are in place.

Governing and professional bodies

Are the hull. They provide the structure and policy framework to support and monitor best practice, develop industry standards, and ultimately, provide safe outdoor learning experiences.

A robust safety management system (SMS)

... that involves everyone in safety processes, is the keel. It stabilises the entire vessel (programme) and prevents capsize. The SMS must be consistent with standards set by the national body or peer-accepted best practice for the activity.

While all of these groups contribute to safety during an outdoor activity, the outdoor leader and the organisation they represent are legally responsible for participants' safety (see Chapter 9).

Participants and leaders sometimes have different perceptions of their responsibility. But there should be no doubt as to where ultimate responsibility for safety lies, as aptly put by one outdoor leader:

> '... once it was over, the students had a totally different perspective to what the leaders did. They had no idea at all ... they didn't see that we were totally responsible for the incident happening. They saw it as a shared thing far more than we did. And that's partially the management style, you do involve people. And that gives them a sense of joint decision-making, but that's only their perception. I think that if you're the leader you're a hundred percent, a thousand percent responsible for making every decision that's critical for safety. Even if you might consult with everybody, where there's a huge difference in experience'.

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HAVING APPROPRIATE RULES, POLICIES AND GUIDELINES

There is no doubt that rules, policies and guidelines can help reduce risks. They can never be a substitute, however, for practical training, gaining experience and developing judgement skills. To be relevant, rules, policies and guidelines must be clearly tied in with desired outcomes for the activity or programme. To be effective they must be specific and not ambiguous.

A rule or policy is a non-negotiable regulation that must be followed. Rules and policies are usually based on legislation, national standards and/or accepted best practice.

A guideline is a strongly recommended practice that should be followed if appropriate. Deviations may occur in field situations based on leader judgement. Guidelines are usually based on accepted best practice.

For example, on a two-day tramp above the bushline in winter, with seven participants and a leader, a range of risks is present. Given good gear (polypropylene, fleece and wet weather gear), adequate snow travel skills and a hut to stay in, the risks to participants can be minimised. But incident potential can escalate when the tramp is complicated by undesired factors such as heavy rain and snow, a full hut, several participants with flu or a leader who is unfamiliar with the area.

Suitable policies can minimise or eliminate incident potential by keeping people out of undesired situations. The following policies could be effective in minimising risks for outdoor trips.

- Leaders must hold a relevant, current, industry-recognised award for the activity, for example, the New Zealand Mountain Safety Council Bush II award or equivalent.
- Leaders must have current logged experience and at least one recent trip in the proposed area.
- Alpine tramping trips must be postponed if strong winds, heavy rain or snow is forecast.

USING APPROPRIATE LEADERSHIP STYLES

Leadership styles are the ways a leader expresses influence in a group.[28] According to one outdoor leader, a group needs leadership rather than omniscient leaders.[29] The role of the leader then, is to facilitate rather than control, to distribute leadership functions rather than seek to fill them all, and to utilise the resources of the group rather than relying primarily on themself.

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The result is that participants themselves have opportunities to experiment with different leadership styles. This has become a mainstream model for leader development.

Outdoor leaders should be flexible in their leadership style as one style does not suit all circumstances. Three things that influence the choice of an appropriate leadership style are:

- Where the power lies
- Leadership orientation
- Conditions of favourability[30]

Where the power lies

Flexible leadership enables decision-making power to reside with the leader (autocratic), with the group (abdicratic) or to be shared between both (democratic). In the outdoors, being responsive to different situations can be crucial to risk reduction.

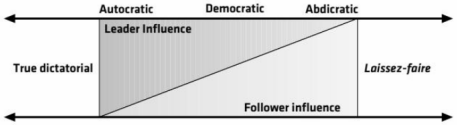

Figure 9 Outdoor leadership styles continuum[31]

In some situations, using a style with more leader than follower influence can reduce risks. For example, a leader may tell the group to:

- Put on life jackets and helmets for rafting
- Ride bikes slowly over rocky ground
- Keep away from cliff edges

This will work more effectively if the autocratic style is not used all the time, and the directions are accompanied by clear reasons why they must be followed. A directive style also has advantages in a crisis situation. When time is critical, people, resources and skills must be directed exactly where needed.

Using a style with more follower than leader influence has other advantages. For example, group members may be more likely to share their medical conditions, fear and anxieties with an approachable, less autocratic leader.

A group will often be happier to abide by certain decisions on an outdoor trip if they have been reached democratically. For example, if there is a wide range of fitness in the party and the choice must be made between an easier or more difficult route.

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Leadership orientation

Leaders may be oriented towards a task (climbing a peak), the group (keeping a positive, supportive atmosphere) or a mix of the two. Leadership orientations often determine styles chosen. For example, a leader determined to get the group to a campsite by dark may express an autocratic style. A leader wanting to build trust and cooperation on a day tramp may allow the group to make all decisions, expressing an abdicratic style.

Conditions of favourability

Some conditions are more favourable for certain leadership styles than others. For example, conditions that favour certain styles are listed below:



- Decision of minor consequence
- Few environmental dangers
- Competent individuals
- Proficient leadership
- Unified group

- Decision of major consequence
- Many environmental dangers
- Incompetent individuals
- Deficient leadership
- Divided group

While leaders might consult members of a less experienced party when decision stakes are low, they must make the final decision where high stakes are concerned, based on their judgement and accumulated experience.

There is no place for a leader responsible for a group of novices in a high risk situation to have a *laissez-faire* style of leadership. At the other extreme, a totally dictatorial leader may alienate the group and undermine their own leadership.

Leaders should use a personalised style that fits the context. They should remain responsive, flexible and adaptive to the changing needs of the situation and group.

KNOWING THE GROUP

The better a leader knows their group, the more aware they are of the group's capabilities, individuals' needs and goals, their reactions to stress and much more. Awareness can help a leader avoid putting participants into situations that are beyond them.

There are some excellent ways a leader can get to know their group better before an outdoor activity. Ice-breaker, trust and problem-solving activities can be effective methods of gaining immediate behavioural information about the group. It is well documented that where there is an atmosphere of trust and

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mutual support, not only will the group and individuals be more likely to reach their goals, they will reach them in greater safety.[32] Group leaders who take the time to facilitate such an atmosphere are employing good safety management.

OFFERING CHALLENGE BY CHOICE

'Challenge is a two edged sword. While it presents the opportunity for change and success, it also lays bare the issues we are afraid of: losing face, failure and injury'.[33] It is implicit within adventure activities that participants be taken out of their comfort zones and extended physically and mentally. If taken too far, however, the extension can become counterproductive.

One long-time programme encourager, instructor, and adventure educator recalled how pushing people beyond their perceived capabilities gave him a lot of validity as an instructor.[34] But with a change of location and student population, his approach to pushing changed overnight. He was amazed how much the simple affording of a choice could contribute to a participant's self growth, compared to his old style of large doses of performance pressure (force). He realised that with the pressure off, the opportunity for growth was palpably different. There was a remarkably new feel to instructing that had been blunted by years of ego satisfaction.

'Challenge by choice offers a participant:

- A chance to try a potentially difficult and/or frightening challenge in an atmosphere of support and caring.
- The opportunity to 'back off' when performance pressures or self-doubt become too strong, knowing that an opportunity for a future attempt will always be available.
- A chance to try difficult tasks, recognising that the attempt is more significant than performance results.
- Respect for individual ideas and choices'.[35]

A good question for leaders to ask is: 'Whose experience is this?' If the answer is 'the participant's', the power is with the participant, and leaders will know challenge by choice is in action.[36] Outdoor leaders who employ the philosophy of challenge by choice improve the physical and emotional safety of participants.

TEACHING BY PROGRESSION

Teaching by progression means sequenced teaching of a skill by breaking it down into its component parts, and building on each part to increase the complexity of the task until an eventual goal is reached.

Figure 10 shows a sequenced development of techniques such as body stance, hand positioning and use of the abseil device and safety rope on the flat ground before progressing to a cliff.



Photo Jimmy Ponsford

PHOTO Nathan Watson

Figure 10 Abseiling

Learning by progression is as simple as paddling an open canoe on a lake, then on a very easy river, then a slightly harder one, then another and so on. The advantage to the participant is a gradual exposure to risk and hence less fear while learning basic techniques. It is far easier for participants to concentrate and practise the techniques when there is no cliff dropping away behind them, or raging rapid up ahead! Consequently a participant's confidence increases in relation to their skill.

It is the leader's role to determine an appropriate progression for a given activity based on national standards and accepted best practice, then tailor this to the needs of the individual or group. Leaders need to be prepared to take a detour in a sequence of learning if the group is not ready to progress to the next step. In doing this, skills can be reinforced so participants are less likely to find themselves out of their depth in an activity. Leaders should also remember that 'within any group, individuals will progress at different rates, so treating everyone equally with respect to levels of fear and rates of learning does just about everyone an injustice'.[37]

DEVELOPING SAFETY CONSCIOUSNESS

As an outdoor leader gains more experience there is usually a corresponding increase in their safety consciousness and awareness. It is crucial that outdoor leaders never stop learning or questioning. This involves acquiring new skills and techniques and maintaining the ones they have.

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Safety consciousness is not something you can pass (like a driving test) or pull out (like a pocket knife). It is an ongoing process of continually applying skills and knowledge to new and changing situations, and exercising good judgement to reduce the chances of incidents happening. Exercising good judgement can be quite a juggling act!



HAVING COMPETENT LEADERS

One of the keys to reducing risks in outdoor activities is having the personal skills appropriate to the activity. Leader competence should exceed the level required in the activity so they have a margin to cope in an emergency (see Chapter 7 for more details on leader competence). Outdoor programmes must assess the level of competence required for planned activities and ensure leaders meet or exceed this. If leader competence falls short of that required, several options can be considered:

- Curtail the activity or use an alternative.
- Use a more skilled leader.
- Upskill the leader by appropriate professional development.

DISCLOSING THE RISK

Telling participants about specific risks, or guiding them to identify the risks themselves, keys them into hazards they may not be aware of due to lack of experience. The next step is to teach them strategies to maximise safety. The following are some examples of risk disclosure:

(a) On a tramping trip there is a possibility that someone may be separated from the party and go the wrong way. This could lead to a night out in bad weather. To minimise this risk the leader can:

- *Encourage* the group to identify *how* someone could get separated from the group and what the consequences might be.
- *Explain* to the group exactly *where* they will be tramping for the day, give them maps and involve them in the navigation.
- *Teach* the group *what* they should do if they are separated from the party and get them to practise these skills.

(b) When using a stove there is a possibility of serious injury if it is used incorrectly. To minimise this risk the leader can:

- *Explain* the risk to the group.
- *Instruct* the group *how* to light a stove and let them practise before they need to use it.

Risk disclosure reduces the chances of an incident happening because of ignorance. It can also improve the response to an incident. Merely giving information to the group will also reduce the level of risk perceived by some group members. 'The greater the perceived risk in the situation, the greater the individual's felt need for information. In practice, this means the instructor can create feelings of anxiety and fear by merely withholding information'.[38] Involving the group in the process of risk disclosure, encouraging them to identify the risks themselves and discuss how they will be managed, can give participants ownership and encouragement to be safety managers themselves.

Effective risk disclosure should be an integral part of an outdoor journey or experience. This enhances learning opportunities for people and can empower them for the future. It can also reduce the chances of the following type of incident occurring:

A youth group out for a day tramp was travelling up river, scrambling along a track above the river bed. The leader slipped, knocked her head on a rock, and fell into the river unconscious, clutching the only map. The map floated away. No other leaders were with the group. The group had limited first aid knowledge and no idea where they were as they were not told in the first place.



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PRE-VISITING THE SITE

Leaders should make themselves aware of any likely environmental hazards before they enter an area with their group. Ideally, outdoor leaders should have been into an area before they lead participants there. In some cases, a reconnaissance trip may also be required just before the trip to check out any recent hazards. Leaders should also gather as much current information as possible about the area and its specific hazards. For example, up-to-date information should be gathered on:

- Recent changes to the environment such as land slips and track washouts
- Water flow and water levels
- Tides and tidal streams
- That day's weather forecast plus a long range forecast if required
- Poison bait programmes
- Seasonal hazards such as wasps
- Avalanche danger
- Area or facility closure such as for lambing or hut maintenance

Unexpected occurrences can affect safety so leaders need to be as well informed and prepared as possible.

CHECKING EQUIPMENT

Outdoor leaders should ensure that all equipment required for an activity is up to an acceptable standard. This includes equipment provided by the programme and the participants. Procedures should be in place to ensure all equipment critical to safety meets the required standard, and users are trained to use it safely. Standards should be specified by the organisation, and be consistent with relevant national standards (see Chapter 10 for examples).

Outdoor organisations should record the use and maintenance of outdoor equipment, and ensure equipment is repaired or replaced when required.

Participant equipment that does not meet the required standard (for example, a ripped tent) should not be allowed to be used in the programme. Organisations should have procedures in place to ensure suitable equipment is available for participants to use (for example, tents to borrow or hire).

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SOCIAL AND PSYCHOLOGICAL FACTORS

It is well documented that social and psychological factors associated with individuals and groups are significant contributing factors to incidents. These factors can affect an individual's evaluation of risk and lead to accepting an increased level of risk, resulting in an incident. Social and psychological factors are at play whenever people take part in an outdoor activity. Being aware that these factors exist, and at times disclosing them to participants, can have a positive effect on actions and decision-making.

The following social and psychological factors have been shown to contribute to incidents:

- Familiarity
- Risk shift
- Dropping your guard
- Get-home-itis
- Wild cards
- The behaviours associated with attribution theory
- Emotional misperception (confirmation bias)
- Risk homeostasis[39]

FAMILIARITY – BEING TOO FAMILIAR WITH THE SITUATION

This is where experienced people who know the territory have a reduced perception of the risks present. Several analyses identified that serious incidents examined were preceded within one year by a near miss or incident of a similar nature in the same area.[40] This implied that in spite of a previous incident, the group did not think it could happen to them. Previous incidents may have been seen as freak or chance events, or perhaps repeated exposure to a hazard desensitised people to it.

The following example illustrates this point. While on Mount Everest, British climber Chris Bonington wrote about being conditioned to danger.

> 'Entering the ice-fall has an element of Russian roulette. There is no possibility of making a safe route ... all you can do is pick out a route which is as safe as possible, but there will always be sections which are threatened by ice towers which, sooner or later, must collapse'.

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Later, Bonington understood the effects of exposure to continuous danger.

> 'It is strange how one's attitude to a route through a glacier or ice-fall changes. The first time through, one's progress is slow and nerve-wracking, but once the route is made, even though it gets no safer, one treats the glacier in an increasingly blasé manner'.[41]

Being too familiar with a situation can lead to an attitude of 'it can't happen to me'. This in turn can result in dropping your guard, which can lower a leader's perception of the risks involved. In an outdoor situation, leaders who have responsibility for others should remain alert at all times, even in familiar situations, as dropping their guard could have dire consequences.

RISK SHIFT

A social aspect of risk taking is that 'groups make riskier decisions than the individuals that comprise them'.[42]

Risk shift can occur on a trip when the going gets tough. Individuals within the group become increasingly unsure about how they are going to cope and wish to turn back. But each one is reluctant to be the one to suggest turning back so the trip continues. During discussion, group members with more knowledge and experience induce a riskier decision from the less experienced members. This occurs when the less experienced individuals realise they are less bold than others in the group, and adjust their risk-taking attitudes upwards.

One explanation for risk shift is that risk taking is a socially valued behaviour. Taking risks indicates courage and forcefulness, and is generally more highly valued than conservatism. Most people tend to respect and admire others who are willing to take risks. Being in a group reinforces the importance of the social desirability and thus tends to make individuals move towards the more desirable, risky alternative.[43]

It is not surprising that some individuals in a group are reluctant to be seen as conservative when the valued behaviour is to be daring. In risk-taking situations the bolder members of the group are often the most influential. The shift occurs partly because the consequences of decisions are borne by the group, not the individual.[44] Risk shift can also put the group at risk.

A tramping party using mutual support to cross a river finds out halfway across that one person has never crossed a river before. The person panics and as a result the party breaks up in swift water. One person drowns while a number of others are traumatised after pack-floating to safety.

DROPPING YOUR GUARD

This is linked to get-home-itis and being too familiar with a situation, but has its own characteristics.

It was the end of the week at Year 10 camp. The group had been through thick and thin together. They had 'gelled' together on the overnight tramp, and individuals had pushed themselves on the confidence course and other activities. The culmination of the week was to get the whole team over 'the wall'. They used their planning time effectively then began to put their ideas into practice. Everyone was involved in maximum support, spotting and lifting member by member over the three-metre featureless slab. Half the team was over. Lisa was assisted up and over by people on the ground and on top of the wall. After a few tense moments she was there.

The team reorganised for the next person while Lisa, legs still trembling, began the climb down. Team energy was now focused on the next to go over, when a scream, followed by a thump and groan, came from behind the wall. Lisa had slipped and fallen from a height of two metres on the downside of the wall – injuring her arm on the way down.

While the team had given maximum attention to Lisa's safety on her way up, they dropped their guard once she got to the top, expecting her to get down unassisted. Meantime they focused their attention on the next person. Lisa also relaxed her concentration (dropped her guard) on the way down, leading to the incident.

The same thing can happen, with much more serious consequences, on the descent from an alpine climb.

GET-HOME-ITIS

Get-home-itis results from trying to adhere to a schedule or simply forgetting everything else once the end is in sight. This phenomenon affects the level of risk an individual or group is prepared to take at the end of an outdoor experience.

(a) A primary school class is at the local park before lunch observing the spectrum of autumn colours. The activity has gone over time and several children pressure the teacher to allow them to return to school on their own as they have lunch order duties. They are allowed to go. Other children see these children go, and stop the activity and wander off too. Before long a third of the class is making their way back (one block) and the teacher, realising she has an appointment, sends the rest of the class back to school unattended while she heads off to school at a very quick pace. This is in contrast to the controlled manner in which they walked to the park. Two children are not in class at 1pm.

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(b) A youth club tramping party of two adults and six young people came to a swollen river one hour before the road end at the end of their weekend tramp. The weather deteriorated overnight and they had been walking in steady rain all day. They were due back home that evening and at school the next day. Everyone was wet and tired, but determined to get back to the car, a hot shower and a roof over their heads. The leaders decided to give the crossing a go, as they had no tents, and it was three hours back to the hut; besides, the parents would be worried sick if they didn't turn up that night.

These are both cases of get home-itis, the result of psychological and social pressure to get home on time. Getting back is perceived as so important that additional risks and hazards diminish compared to the importance of the goal. Get-home-itis may be a contributing factor to why outdoor education incidents are more likely to occur in the afternoon than the morning.[45]

WILD CARDS

Wild cards are unpredictable, irresponsible behaviours that threaten safety by taking the leader by surprise, putting them in a reactive mode, often without all the information.[46] Being covert, wild cards add confusion and often mask important information that would help the leader to manage or resolve the situation.

Two leaders agreed that one would work with the group for the afternoon while the senior leader checked out avalanche and track conditions at the national park visitors' centre. This was in preparation for a day trip up an alpine valley the next day. The senior leader told his co-leader, Michaela, that conditions were fine, so the group proceeded the next day. On the return trip the group split in two, travelling some 10–15 minutes apart. In Michaela's words:

'... an enormous avalanche had ripped out a kilometre around the headwall, it just came bursting out of the gully. An absolutely enormous freight train of an avalanche, it scares me even now to think about it, and it was rolling. It slopped up both sides of the gully as it came, in a tongue, and it looked as though it was going to come down onto us, and that was the scariest moment for me. And then it stopped. My immediate concern was where the hell was the other half of the group? I found out later they were similarly concerned for us. I just quietly had a look around. I was looking for bodies hanging out the other side of it. I was looking for anything human down in the lake ...'

Michaela later discovered that national park staff had told her colleague that the avalanche danger was high and he was advised not to take the group on that particular trip. She also found out the colleague's motivation for ignoring the advice. He had a friendly rivalry going with another person who led this trip on alternate years. Whoever got their group up the valley to the hut and back each year obtained kudos. If she had known this, Michaela would have approached everything in a different way.[47]

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While outdoor leaders may plan and respond very well from a safety management perspective, wild cards can defy management.

ATTRIBUTION THEORY (TAKE THE CREDIT, SHARE THE BLAME)

A basic understanding of attribution theory can help leaders understand their behaviour after an incident. The attribution process deals with the human tendency to take credit for positive behaviours or outcomes but blame bad or negative outcomes on external factors.[48] This stems from a strong desire to protect self-esteem and present themselves in a positive light.

An orienteering team accounted for their wins at a national event largely in terms of internal causes (their group's high ability, its heroic efforts). In contrast they attributed their losses to external factors (faulty compass, poorly set-up course, bad weather).

When people are unwilling to accept responsibility for negative outcomes, it can be difficult to find out the genuine cause/s of an incident. Without this information, it is difficult to put measures in place to reduce the chances of the incident happening again.

A leader with poor navigation skills had no desire to disclose this to colleagues or participants. Their group got lost for several hours, and walked three hours longer than necessary, causing stress to all involved. At the end of the trip the leader blamed the incident on the lack of a clear sign at the beginning of the track. A sign was put up but the leader's poor navigation skills remained unchanged.

There is a need for the outdoor sector to separate responsibility from blame. They are different. While an outdoor leader or organisation may not be to blame for an incident that has happened in the outdoors, they have the responsibility to ensure action is taken to reduce the chances of it happening again. Part of this is honestly acknowledging the factors that have contributed to an incident.

EMOTIONAL MISPERCEPTION (CONFIRMATION BIAS)

Stag or buck fever

Stag or buck fever is often felt by hunters when they become excited about sighting game animals. Emotions may override rational thinking, especially when tired. Perception can play tricks and you 'see' what you expect to see, so objects – often people – look like game animals.

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Stag/buck fever can happen to any hunter, whether new or experienced. For example:

- The keen hunter who sees a tree branch above their mate's head as antlers
- The hunter who thinks they have shot a winning trophy stag only to find a collection of bushes
- The hunters whose 'roaring' lures other hunters, rather than stags, into their telescopic sights and who fire a shot at a partially viewed animal, only to find it was not an animal at all

Ask yourself: 'Is this a person?' This will help focus your mind toward expecting to see a person, rather than assuming it is an animal. You should be aiming to prove beyond all doubt that your target is NOT a human rather than proving that it is an animal.

Wishful thinking

Emotional misperception has also been observed in areas other than hunting. For example, trampers or alpine climbers might convince themselves that the terrain on the map matches what they are seeing in the field (the hoped-for peak or the spur that leads to the hut), when the reality is quite different.

This is often brought about through fatigue and/or dehydration where the emotion may be one of strong desire rather than the adrenaline surge of excitement.

Although 'stag/buck fever' and 'wishful thinking' stem from different emotional responses they have similar outcomes, with altered perception and potentially impaired judgement.

RISK HOMEOSTASIS (HAVE CELLPHONE, WILL TRAVEL)

How many outdoor people take greater risks because they are carrying a cellphone or a locator beacon? The *risk homeostasis* theory suggests that people adjust the amount of risk they are prepared to take upwards if a new safety device comes out.[49] This acts like a self-regulating, closed-loop control process, much like a thermostat, that maintains injury, disease and death rates at a constant level. Basically, people are willing to live with a certain amount of risk. This is called the target level of risk.

An example of risk homeostasis is when anti-lock brakes have been fitted to cars to improve safety. With increased confidence, drivers of these cars drive faster, more carelessly, and closer to the car in front. They brake more abruptly and their accident rate is no lower than cars without the devices. Similarly, cars with air bags tend to be driven more aggressively, offsetting the effect of the air bag for the driver and increasing the risk of death to others.[50]

If we think that certain factors make us safer in our cars, we simply adjust our speed or how close we tailgate to make up for the safety advantage. If you prevent young people from doing dangerous things, they will merely do safe things in a dangerous way.[51] Some outdoor examples follow:

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- Some experienced outdoor people can be more error prone because they aren't as careful as novices. Some are more comfortable taking greater and more risks.
- Education and preparedness might make someone more dangerous due to false confidence. After adding some training in crevasse or river rescue, some people just take more risks.

Having a cellphone in your pack, an avalanche transceiver on your body or the latest GPS might make you feel more comfortable while taking risks, but it won't make you safer, and it might make you less safe.[52]

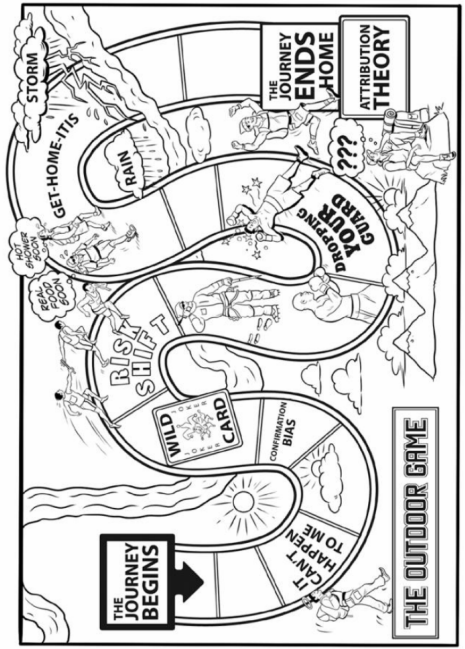

Figure 11 The outdoor journey – Social and psychological factors to watch out for along your way

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Risk homeostasis theory suggests we can make activities safer, not just by adding safer equipment or teaching safer techniques, but by actively decreasing people's tolerance for risk. Safety can be decreased when participants are given the latest equipment, and are taught how to use it without emphasising safety concerns. Safety can be increased when common incidents are highlighted to help raise awareness.[53] For example:

- Incident rates on high ropes courses are negligible compared to the high rate recorded on low ropes, games and initiatives.[54]
- Incidents on serious white water, such as on the west coast of the South Island, with 'play boats' (low volume kayaks) are higher than incidents in 'creek boats' (high volume kayaks).[55]
- Men are greater risk takers than women when instructing. This is evidenced by male instructors having a greater ratio of high severity injuries to low severity injuries in their groups.[56]

Increasing participants' awareness of such facts may motivate them to adjust their target risk level and hence improve their own and others' safety. Most importantly, safety can be improved when people perceive the rewards of safe behaviour to outweigh the costs. Incidents depend not upon the ability to be safe (training), nor upon the opportunity to be safe (technology), but on the desire to be safe (motivation).[57] Senior outdoor leaders can influence safe practices in many ways – as this respected instructor did in an instructor newsletter:

> '... playboats are designed to do all the manoeuvres that you absolutely don't want them to do on harder runs at the edge of your comfort/life zone. They have sharp edges and minimum buoyancy and pointy ends that fit neatly into the cracks between boulders.
> Now seriously assess your boat. Is it a surface boat? Has it got enough buoyancy to keep you on top of the aerated water when you are paddling over this series of man/woman traps? If not, what are you doing in it? Are you stupid? Blindly optimistic? ... how much is your life worth?
>
> I've seen trips where the better boaters have brought bigger, more modern creek boats but the rest of the rank and file are in playboats on what for them are the hardest runs they have ever done. I repeat "how much is your life worth???'[58]

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SUMMARY

An awareness and understanding of the safety management principles discussed in this section are essential for effective management of risks in outdoor activities. They have been well analysed through research and practised by many outdoor leaders over the years. These principles underpin safety procedures covered in the rest of this manual.

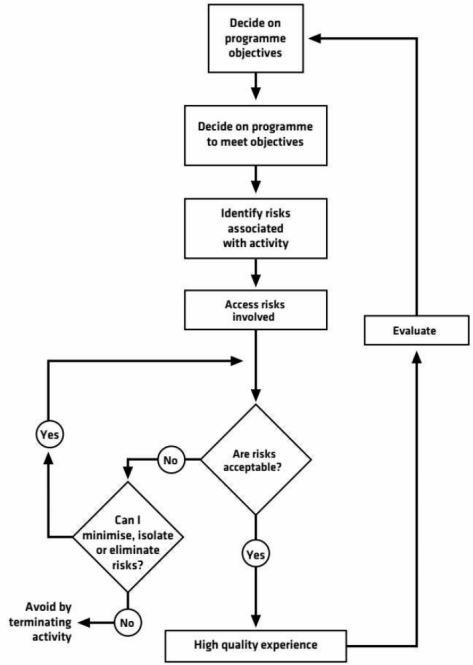

Figure 12 Planning for safety management

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PHOTO Kerry Adams

CHAPTER 3:
TOOLS

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WHAT ARE THE TOOLS FOR OUTDOOR SAFETY MANAGEMENT?

He iti te toki e rite ana ki te tangata

Some useful tools and templates have been developed to help those who lead or manage others in the outdoors. These are available from websites such as:

- www.mountainsafety.org.nz
- www.supportadventure.co.nz
- www.adventuresmart.org.nz
- http://eotc.tki.org.nz

Understanding the range of tools that are available, where they can be accessed and how they are used will allow those leading and managing others to more effectively manage safety and set up a solid outdoor safety management process.

The following five stages are essential in the safety management process.

- Initial planning and approval
- Planning and preparation (people and programme management)
- Pre-event planning check and final approval
- Running the event
- Post-event review and evaluation

SAP AND RAMS

Rather than repeat the information available elsewhere, this chapter takes an in-depth look at two safety management planning tools that form a critical part of the stages above. The Safety Action Plan (SAP)[1] and Risk Analysis Management System (RAMS)[2] are planning templates that are commonly used in the New Zealand outdoor sector. They are used to identify, assess and manage the hazards and risks associated with specific activities. The SAP and RAMS, however, are often used poorly due to a lack of training, so this chapter is intended as a guide for how to use the tools effectively.

Note: The most up-to-date SAP and RAMS forms are available from **www.mountainsafety.org.nz**

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The SAP and RAMS are underpinned by key questions that outdoor leaders need to ask when planning an outdoor activity. The questions relate to five areas of planning:

1. **Set programme goals**
   What are the desired gains/outcomes of this activity?
2. **Identify risks/losses**
   What could go wrong with the activity? If it went wrong, what are the potential losses? What could the outcome be?
3. **Identify causal factors**
   What would cause these losses? (people, equipment, environment factors). How will I assess and determine the significance of these losses?
4. **Decide on management strategies**
   How could it be prevented from going wrong? (risk reduction strategies, including a plan B). Whose responsibility is it? When/where will it be done?
5. **Emergency response**
   What is the process for responding if something does go wrong? What actions/steps should the leader take?

In addition to these questions, leaders need to ensure that:

- Their activities are consistent with accepted best practice/industry standards.
- They are acting as role models.
- The activity is reviewed after it is completed to assess whether goals have been met and to analyse any incidents and ensure lessons learned are incorporated into future planning.

Leaders are encouraged to incorporate the above questions into their planning in the same way that they think about required resources. Before they leave the home base (such as the scout hall, school, polytechnic or adventure tourism base), it is recommended that they record these questions and responses in writing. The SAP and RAMS forms are useful templates for this.

SAP or RAMS are an excellent focal point for several people planning the same activity. Leaders and assistants can 'brainstorm' through it together, identifying common, clear objectives and strategies as well as sorting out individual responsibilities.

The SAP or RAMS for various activities should be included in an organisation's safety manual, along with policies, guidelines and operation plans for specific activities. Any policy contained in an organisation's staff handbook should also be able to be traced to the appropriate RAMS, SAP or other safety procedure document (such as the code of practice).

The following is a step-by-step guide for outdoor leaders on how to use SAP or RAMS, assisting them to answer the key questions above.

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1. SET PROGRAMME GOALS

What are the gains/benefits of this activity?

The first step in the process is to set the educational or recreational goals for the activity. These goals should be consistent with the organisation's philosophy. For example:

As part of a science and language thematic study of New Zealand's rare birds, a teacher takes a Year 3 class to a native bird sanctuary. The objectives of the visit include giving children first-hand experience of the birds in their native bush habitat, and threats to their survival. It is important, therefore, to go to the native bush sanctuary rather than going to a zoo or learning about native birds in the classroom. Benefits include that, in future, these children will be more aware of conservation issues for native bird life in their area.

2. IDENTIFY RISKS/LOSSES

What could go wrong?

The next step is to identify the significant risks (losses) associated with the activity. Risks need to be specific and relevant to the activity. Finding out what incidents have occurred on similar trips in the past is a good starting point. Going to incident black spots is ethical; having the same incident is not.

The teacher planning a trip to a bird sanctuary in native bush may identify the following risks/losses:

1. Death (from car crash, ingesting poison, hypothermia, medical condition)
2. Injury (from car crash, fall, falling tree or branch).
3. Lost child or children.
4. Psychological damage (due to 1,2,3).
5. Process of learning impaired (due to any of the above).

3. IDENTIFY CAUSAL FACTORS

What would cause it to go wrong?

Once the risks (losses) have been identified, the next step is to identify the likely causal factors (hazards) that could lead to each loss. These fall into three categories: people, equipment and environment. A numbering system (demonstrated here) can be used to show the relationship between each risk (loss) and the causal factors that could lead to it.

People *(20 children aged 7–8 yrs, 4 parent helpers and a teacher supervising)*

1,2,3,4,5	Unsuitable helpers.
1,2,3,4,5	Helpers poorly briefed on role and responsibilities.
1,4,5	Medical problems not known or treated adequately, for example, child has severe asthma attack.
1,2,3,4,5	Behavioural problems of children inadequately managed.
1,2,3,5	Inadequate ratios of experienced supervisors to children.
1,2,4,5	Careless or dangerous drivers

Equipment/Resources

1,2,3,4,5	Car breaks down, gets separated from convoy or crashes. Car not warranted or registered.
1,2	Inadequate staff first aid knowledge and skills – lack of adequate first aid kit.
2,4,5	Inadequate clothing for conditions.
1,3,4,5	Inadequate food and drink intake.
3,4,5	Not enough or inadequate maps.

Environment

1,2,3,4,5	Stimulating environment – could distract attention.
1,2,4,5	Possible danger areas – creek, steep banks, poison bait stations.
3,4,5	Tracks poorly signposted at junctions.
1,2,4,5	Changeable weather in spring, cool temperatures, strong winds, rain.
3,4,5	Bush dense in places.
3,4,5	Winding tracks, limited places where whole party can be seen at once.
1,2,4,5	Wet road conditions, poor visibility.

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4. DECIDE ON MANAGEMENT STRATEGIES

How could we prevent it from going wrong? Whose responsibility is it? When/where will it be done?

Risk reduction strategies should reflect accepted best practice and aim to eliminate, isolate, or minimise each causal factor (hazard) that could lead to a loss. Risk reduction strategies need to be implemented before and during the trip.

For example, on the school trip to the bird sanctuary:

CAUSAL FACTOR	STRATEGY
Unsuitable helpers	School to invite helpers with known capability and use police vetting system.
Poorly briefed helpers	Teacher in Charge (TIC) to conduct briefing to clearly outline roles and responsibilities prior to trip. Assign specific five children to each helper to supervise. TIC to offer support during trip. TIC free to supervise overall group.
Medical problems	TIC send health profile form (available from **http://eotc.tki.org.nz/EOTC-home/EOTC-Guidelines/Tool-Kit**) home and collate summary sheet. Parents brief TIC on treatment. Supervisor to carry spare medication. TIC to brief helpers on medical conditions and treatment of all in their group.

Every planned activity should have a plan B in case plan A proves to be too risky on the day. Outdoor leaders should consciously build plan B into their plans, in their heads if not fully on paper, and think it through carefully before the day.

5. EMERGENCY RESPONSE

What will I/we do if a loss does occur?

The next stage is to plan emergency response procedures for significant, foreseeable risks/losses identified at the start. These should be site specific. Think through the consequences of each loss and work out the best response. Pre-planning can minimise emergency response times and may mitigate loss. Chapter 5 covers this topic in depth. The following is an example of an emergency response plan in the case of lost children on the bird sanctuary trip.

RISK FACTOR	EMERGENCY PROCEDURE
3. Lost children	Conduct head count, call roll to establish who is missing. Ensure rest of group is secure with adult supervision. Establish where missing children were last seen, and in what state of mind. Check if missing children have medical conditions. Use maps and local knowledge to establish possible routes taken or hazards in vicinity. Use spare responsible adults (including trained first aider) to search area immediately. Simultaneously alert sanctuary authorities to assist or have on standby. If not found in reasonable time, call police. Notify school. School to notify parents and liaise with media as per school's emergency response plan. **EQUIPMENT REQUIRED** Cellphone, first aid kit, lists of children with medical details and next of kin, children's essential medication, phone numbers of bird sanctuary office and school contacts, good map of sanctuary, emergency vehicle. At school, lists of all children and adults on trip with next of kin details.

ACCEPTED BEST PRACTICE

A good safety management plan will show that the activity will be run in accordance with:

- National standards or accepted best practice for the activity.
- Local guidelines specific to the site, group, etc.

National standards are those set by the appropriate national body for the activity. At the time of revising this manual, Activity Safety Guidelines for outdoor activities are being developed. Once complete, these will provide best practice guidelines for everyone in the industry. More information (and, in future, the completed guidelines) can be found at **www.supportadventure.co.nz/activity-safety-guidelines**

If no formal written guidelines exist for the activity, the outdoor leader can run their plan past a colleague or another group that runs the same activity. They are trying to establish that what they are planning is consistent with what their professional peers are currently doing (peer-accepted best practice).

For the trip to the bird sanctuary, a bush walk with primary school children, the trip should be run in accordance with the *Education Outside the Classroom (EOTC)* Guidelines (available from **http://eotc.tki.org.nz/EOTC-home/EOTC-Guidelines**) and the general information contained in the MSC's *Bushcraft: Outdoor Skills for the New Zealand Bush manual 40*.

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Finally, the leader must ensure that the skills and abilities required to run the activity match those of the staff and supervisors/helpers they intend to use. If there is a mismatch, options include:

- Modifying the activity to match existing staff expertise.
- Hiring external expertise.
- Professional development to improve the skills of existing staff.
- Postponing or cancelling the activity.

BE A ROLE MODEL

It is critical that the leader is actively involved in the planning process. They must be careful to plan for each specific activity, as using forms written by others for a different group and location could have serious limitations. A growing number of these forms have now been scrutinised by coroners and other authorities involved in investigating fatal incidents in the outdoors. Some have been found to be out of date, seriously lacking in specifics or not followed in the field.

As well as being carefully planned by the leader and assistants, the strategies on the forms need to be known and put into practice by everyone involved. Filling out or reading a form is one thing, putting it into action is quite another! The leader should be a role model in putting the strategies into practice.

Organisations have a responsibility to ensure that valuable planning and written procedures are followed through in the field. This has implications for staff induction, staff and participant checklists for specific activities, and outdoor leader handbooks or operational manuals. Furthermore, managers of outdoor programmes need to check from time to time that procedures are adequate, up to date and being followed in the field. The following section covers this, as does Chapter 8, Safety Reviews.

POST-EVENT REVIEW AND EVALUATION

On returning from an outdoor activity, it is important to review the event. Leaders and participants should evaluate the desired outcomes of the activity and review any incidents that occurred. This process can identify areas for improvement and ways to achieve these improvements. It can also help highlight areas where risks were managed effectively and risks that went unidentified. A review of the bird sanctuary visit analysed the following incident:

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Two children were missing at the end of the walk through the sanctuary. Although the children were paired up, and adults were assigned groups to look after, some children couldn't see anyone in front or behind them as the party spread out near the end of the walk. Consequently, two children took a wrong turn at a junction.

This incident was broken down into the following stages:

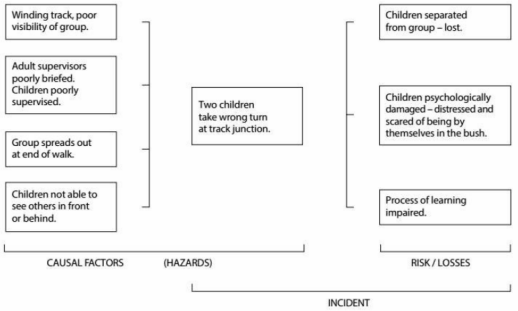

Figure 13 Simplified causal sequence[3] – Lost children incident

Figure 13 shows that a variety of factors combined to cause the incident. It shows the importance of identifying causal factors so leaders can plan to reduce their effects in future. These features give the causal sequence a striking resemblance to a safety management plan (SAP or RAMS), indicating important areas for preventative action. So we have come full circle.

Some examples of safety management plans follow. A SAP for optimist yachting and a RAMS and operation plan for a tramp above the bushline illustrate how the processes discussed in this chapter have been put into action. The following are samples only and may not be complete.

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Figure 14 Partly completed SAP form for optimist yachting

Outdoor Safety Action Plan

Example – only partly completed

Activity: Optimist Yachting | Date: 10 February | Teacher in charge: LA

No. of staff: 2 | No. of helpers: 6 parents, Outdoor provider (OP) | No. of students: 24

Class level: Yr 6 | Location: Pandora Pond | Approved by: SP

Departure time: 11:45am | Return time: 3:15pm

What could go wrong?	Is this significant?	What would cause it to go wrong?	How could we manage this?	Whose responsibility is it?	When/where will it be done?	Emergency plan
Child injured or drowned by tipping out of boat	Y	Rough weather conditions or sudden change in weather	**Eliminate** – Not practical **Isolate** – Not practical **Minimise** – • Sail only if conditions are suitable for the group and within operational guidelines (attached) • Regular weather checks, before and during. • Be guided by Outdoor Provider regarding suitable conditions	Teacher/outdoor provider	At pond or in morning if conditions are forecast to be particularly bad	Assess situation, carry out rescue, administer first aid, and call ambulance if necessary Child accompanied by a parent, teacher to remain with group
		Inadequate or misunderstood instructions	• Teach boat safety, ensure boats rigged correctly. All children and parents to wear life jackets	Teacher/outdoor provider	At school and at pond	School to be contacted and asked to contact parents, etc
		Activity too difficult (or too easy) for some children	• Check children have a level of physical and emotional readiness • Use other activity for some e.g. safety craft, land-based activity. Pair children so strong confident swimmers with less confident swimmers • Thorough preparation to cover emotional fears	Teacher	At school preparation At pond, watch for signs of stress	Ensure at least one person on shore knows where first aid kit and phone are kept
		Inadequate supervision	• Written brief for adults and outline their role	Teacher	Before leaving school with back-up at pond while children are getting changed	
Sunburn	N	Insufficient or low protection clothing No sunscreen protection	**Eliminate** – Not practical **Isolate** – Not practical **Minimise** – Ensure all children regularly apply sunblock, wear sunhats and t-shirts and seek shade	Teacher/Parents	At pond, regular checks	

Group members requiring special consideration			
Health:	**Asthma:**	**Joe, Daniel, Anne**	**(Parents & OP advised of medical conditions)**
	Epileptic:	**Sam**	
	Hearing impaired	**Tom**	
Behaviour:		**George not to be with John**	
Other:		**Lacking in water condfidence: Chris, Tama, Kama**	(To wear life jackets at all times near the water)

Pre activity checklist		On the Day		Comments
Off site venue visited	☐	Medication	☐	
Trip application approved	☐	First aid kit	☐	
Permission slips returned	☐	Cellphone	☐	
Medical records checked	☐	Intentions left at office	☐	
SAP form to all teachers	☐	Equipment checked	☐	

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RISK MANAGEMENT PLAN

Activity: Tramping expedition above the bush line from Rotoiti Lodge
Instructors: Resident Teacher or approved Teacher or Instructor **Date:** All Year
Group: Year 9 **Location:** Bushline Hut

Risks (potential losses)

1 Hypothermia
2 Injury from fall, for example, twisted ankle or broken bones
3 Severe blisters
4 Burns
5 Group or student/s missing
6 Anaphylactic shock
7 Environmental damage

	CAUSAL FACTORS	RISK REDUCTION STRATEGIES
People skills, attitudes, age, fitness, ratios, experience, health etc	1, 3, 4, 5, 6 Inexperienced and inadequately skilled instructor.	» Have systems in place to ensure that appropriately skilled and experienced staff only lead the tramps (e.g., staff logs)
	1, 2, 3, 4, 5, 7 Poor group supervision (e.g., inadequate ratios)	» Keep group together at a suitable pace for entire expedition (slower members setting pace and appoint tail-enders) Ratio = 1:12 or better, buddy system. Close supervision of cooking.
	1, 2, 3, 5 Expedition too difficult for ability of group in given conditions	» Adjust expedition goal to suit conditions and group's ability (e.g., do not complete circuit, return same way)
	1, 2, 6 Student/s have medical conditions, e.g., recent flu, asthma, anaphylaxis, diabetes, weak ankles or knees or special needs	» Check medical forms thoroughly, check students on day one for recent illnesses and undisclosed conditions, ensure they carry medication and you have duplicates in first aid kit and know how to use them. Students with weak ankles wear boots, students with problem knees go on different tramp or carry walking stick. Special needs students have support
	1, 2, 3, 4, 5, 7 Student/s do not follow instructions and/or lack teamwork skills	» Staff to work to gain student cooperation and build teamwork (before and during tramp). Consider leaving grossly uncooperative students behind
	1, 4, 5 Group splits up on journey	» Be vigilant at keeping together, give students responsibility too.
Equipment clothing, shelter, transport, activity-specific gear, safety gear etc	1. Inadequate food intake	» Brief students on importance of food, specifically observe them
	1, 3 Inadequate gear briefing and gear check. Inadequate clothing for conditions	» Brief students and staff fully on correct gear (use checklists), thoroughly check gear before departure, issue extra from gear shed, monitor students' gear on journey
	1, 3, 4, 5, 6, 7 Instructor does not see that adequate safety and emergency gear is carried	» Instructor carries first aid kit, including anakit, map and compass. Group carries gear as per expedition box checklist: spare warm dry clothing, stoves and fuel, so do not have to light fire, 2 flies, bivvy sack, sleeping bags, bed rolls (foam mats), food
	1 Current weather forecast not obtained or notice not taken of it (e.g., heavy rain, wind or snow warning)	» Obtain MetService forecast prior to departure. Take into account and curtail trip if necessary (e.g., tramp to Lakehead or Coldwater instead)
	2, 3 Inappropriate footwear	» Boots for ankle support, leather boots if snow. Tape hot spots early, wear woollen socks for warmth and prevention of blisters
	4 Staff and students inadequately briefed and/or supervised while using stoves for cooking	» All staff briefed on correct use of stoves by Resident Teacher on first day, as per checklist. Students also taught correct usage before tramp. Students closely supervised during cooking
	1, 2 Ice-axe not carried to cut steps in firm snow	» Staff carry ice-axe
	5 No Outdoors Intentions left	» Leave Outdoors Intentions with someone you trust
	6 No mountain radio carried in case of medical emergency	» Carry mountain radio, arrange schedule in advance
Environment weather, terrain, water, season, etc	1 Wind, wet and cold is a common combination of weather in an area (rain, hail and snow possible all year, particularly winter), especially above the bushline	» Ensure group is well geared up, monitor on journey, be prepared to alter plans according to conditions, instructors. Know your escape routes/times, use hut for shelter if weather too wet and windy for tents or flies, check flies/tents are well pitched
	6 Bush infested with wasps Nov–April	» Reduce chances of students being stung: • Get allergic students to wear loose clothing covering body • Get allergic students to walk at front of party • Do not linger around black beech areas • On your return, tell DOC or the local council the location of wasp nests
	1, 2 Snow and ice present during winter	» Make conservative decisions, alter plans to suit conditions (e.g., go up and down Paddy's track in bad weather, to avoid exposed tops)
	5 Mist and poor visibility possible any time of the year	» Ensure staff have navigation skills, particularly map, compass and route-finding skills
	2 Some steep, uneven, narrow sections of track	» Caution students to take care, ensure pace suitable for all
	7 High use area and environment sensitive to abuse	» Brief students on minimum impact as per Lodge environmental guidelines
	2 Firm snow or ice sections in winter	» Staff have snowcraft skills and cut steps with ice-axe or retreat

Figure 15a Completed RAMS form for tramping above the bushline

CRITICAL INCIDENT MANAGEMENT

	EMERGENCY PROCEDURES TO MANAGE EACH IDENTIFIED RISK	EMERGENCY EQUIPMENT REQUIRED
1.	**Hypothermia** • Recognise the signs and symptoms of hypothermia. • Stop the group. • Consider current location and camp in place if possible. • Erect shelter where practical to protect patient from rain and wind. • One staff member assist patient to change out of wet clothing and into warm, dry, windproof clothing. Put patient in sleeping bag to re-warm. Ensure insulating mat is placed underneath patient. • Give warm drink if conscious. Place in the recovery position if unconscious. • Other staff member or reliable student ensures remaining group members change out of wet clothes into warm, dry, windproof clothes where appropriate. • Use other students to assist re-warming patient by getting them into their own sleeping bags and lying next to the patient. Watch for signs of hypothermia among the remainder of the group. • Reassess when the situation is stabilised. Turn the patient every two hours and continue to re-warm. Use warm water bottles or warm packs on head, neck and chest to assist re-warming. • Do not allow the patient to move or exercise for 48 hours. • If outside help is required, use a cell phone or the mountain radio to contact emergency services. If this is not possible, send two people out to contact emergency services or gain assistance from DOC or lodge staff.	• Tent fly • Bivvy bag • Spare warm, dry, windproof clothing • Thermal mat • Stove, fuel, billy and water bottles for hot drinks and for re-warming hot water bottles • Thermos of warm drink (winter) • Group members to assist • Mountain radio
2.	**Injury from fall – sprained ankle** • Stop the group. • Minimise movement to prevent further injury • Apply something icy cold, such as a cold compress, to the area for 20 minutes or place the injured limb in a nearby waterway. • Apply a compression bandage that covers the injured area completely. Elevate the limb. • Repeat the above every two hours for 48 hours. If the patient can walk, apply the above during rest breaks. Consider strapping to add support. • If the patient can't walk or is having difficulty after 48 hours, consider evacuation. Consider assisted walking to achieve this, for example, one-person human crutch or a walking stick. • Use members of the group to assist with evacuation if necessary.	• First aid kit – crepe bandage (compression), strapping tape • Plastic bag • Cold pack • Walking stick • Group members to assist

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3.	**Injury from fall – broken bone(s)** • Stop the group. • Minimise movement to prevent further injury. • Control any bleeding. • Immobilise the fracture using improvised splints and/or slings, for example, thermal mat around injury or triangular bandages. • Attempt to minimise pain. • Evacuate using improvised stretchers and/or group members to assist. • If outside help is required, use a cell phone or the mountain radio to contact emergency services. If this is not possible, send two people out to contact emergency services or gain assistance from DOC or lodge staff.	• First aid kit – crepe bandage, dressings, triangular bandage • Thermal mat • Group members to assist • Transport • Mountain radio
4.	**Severe blisters** • Stop the group. • Apply tape or gel dressings to hotspots/blisters to prevent worsening. • Change footwear and/or socks if necessary. • For large fluid-filled blisters wash the area then drain using a flame sterilised needle or knife. Cover raw or drained blisters with a dry, non-stick dressing, cover with gel pad and/or tape. • Monitor for infection. • Arrange evacuation if required.	• First aid kit – gel pads, tape, needle, dry non-stick dressing • Knife • Lighter or stove to sterilise needle/knife
5.	**Burns** • Extinguish any flames by having person stop, drop and roll on the ground. • Cool the burned area with running water for at least 20 minutes. This can be in a running waterway or by pouring water over the area. Collect water with raincoat and reuse if necessary. • Remove any rings or jewellery from the patient. • After cooling, apply sterile dressings. Clean absorbent coverings can be used if necessary. • Give the patient small amounts of fluid orally. • If necessary, move the patient to an area where evacuation is possible.	• Cold water • First aid kit – sterile dressings and bandages • Raincoat • Group members to assist • Transport

6.	**Participant(s) missing /lost** • Stop the group. • Establish when person/s last seen, and their state of mind, body (for example, upset, cold). Your priority is to look after the rest of the group. • Carry out a search of the immediate area they were last seen, with clear control of group. • If outside help is required, use a cell phone or the mountain radio to contact emergency services. If this is not possible, send two people out to contact emergency services or gain assistance from DOC or lodge staff.	• Map • Local knowledge • Information about the lost person/s • Emergency gear – shelter; warm, waterproof gear; food; whistle • Mountain radio
7.	**Anaphylaxis** • Stop the group. • If the patient has known allergies and is carrying an Epipen/Anapen or an anaphylaxis kit, assist them with administering their adrenaline. • Assist with administering an antihistamine tablet if the patient is able to swallow. • Lay the patient flat with their legs raised. If the patient is having breathing difficulties then place them in a semi-sitting position with legs raised. If they lose consciousness place them into the recovery position. If they stop breathing, start CPR. • Arrange for an urgent evacuation. If necessary, move the patient to a location where evacuation is possible. • Remove any stings and apply cold compresses to relieve pain and swelling for more mild allergic reactions. • If outside help is required, use a cell phone or the mountain radio to contact emergency services. If this is not possible, send two people out to contact emergency services or gain assistance from DOC or lodge staff.	• Anaphylaxis kit (patients' own) • Cold compresses • Transport • Mountain radio
8.	**Environmental damage** • Intervene if students are willfully or unknowingly destroying or damaging environment. • Brief them on responsible care of and for the environment.	• Rotoiti Lodge Environmental Care Guidelines pamphlet. • Leave no trace www.leavenotrace.org.nz • The Environmental Care Code

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OPERATION PLAN

Tramping Expedition – Above the Bushline

Bushline Hut, Prospect Ridge

DESCRIPTION OF ACTIVITY

This activity is an overnight expedition involving tramping up Mount Robert through beech forest and open terrain to the bushline and above. The destination is usually the Bushline Hut with an optional side-trip to Prospect Ridge in the winter to play in the snow. The expedition goes through exposed areas which are susceptible to strong winds, mist, white-out, driving rain and snow. Therefore, it is not a trip to be taken lightly, especially in winter.

Duration 1.5 days

Required ratio 2 : 16 (max)
(1 instructor and 1 assistant: 16 students maximum)

INSTRUCTOR REQUIREMENTS

The following National Awards meet the minimum requirements for running this activity.

Summer conditions

NZMSC or NZOIA Bush 2 instructor and Bush 1 assistant instructor or equivalents.

Winter conditions

NZMSC or NZOIA Alpine 1 with avalanche stage 1 instructor and Bush 2 assistant instructor or equivalents.

Skills required – any time of year

- Current first aid certificate.
- Basic navigation skills and experience – locate position on map, follow planned route, plan and execute an escape route.

Skills required – winter

- Ability to find a safe route in the snow when the track and snow poles are obscured or the route is icy.
- Ability to cut steps with an ice-axe.
- Ability to assess the avalanche hazard on the terrain being traversed.

Skills recommended

- Tramping experience.
- Experience tramping in snow or above the bushline in alpine conditions..
- Respect of participants.

EQUIPMENT REQUIREMENTS

All participants must wear (or have handy):

- Polypropylene long johns and tops
- Shorts
- Woollen socks
- Wool or fleece jersey
- Wool hat
- Wool gloves
- Raincoat
- Overtrousers

All participants must take:

- Pack and waterproof pack liner
- Sleeping bag
- Bed roll (foam mat)
- Torch
- Lunch
- 2 wool or fleece jerseys
- 1 compass, 1 map
- Full 1.5L water bottle
- Spare clothing

Group gear:

- 2 tents or flies (emergency)
- Group food
- 1 bottle methylated spirits (meths)
- 4 billies and billy grips
- 3 methylated spirits stoves and matches
- 2 first aid kits
- Bushline Hut key

Extra gear carried by instructor and assistant:

- Ice-axe
- Snow shovel
- Bothy bag
- Spare emergency warm clothing
- Extra waterproof matches and lighters
- Mountain radio

Figure 15b Completed operations plan for tramping above the bushline

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OPERATION REQUIREMENTS

Route choice

Paddy's Track is the more sheltered, gentle route and recommended if weather is inclement. With Paddy's Track, once you have finished climbing, you are at the Hut. Whereas, once you have finished climbing up Pinchgut Track, there is still half an hour of tramping over the exposed top of Mount Robert before you reach Bushline Hut. If the weather is bad on the way home, it is recommended to return via Paddy's Track. A side trip to Prospect Ridge to see the views and play in the snow is recommended in good weather with a capable group only. Students may leave their packs at the Relax shelter, but they must take: warm clothing, raincoat, overtrousers, food, hat, gloves. Staff must take their full packs, including first aid kit, stove, billy, fuel, bothy bag.

Before trip

- Instructor to brief students thoroughly on gear to take and how to pack their packs.
- Instructor and/or assistant to check students' gear thoroughly using checklist provided.
- Any missing gear to be issued to students and re-checked before departing on tramp.
- Weather forecast, and avalanche forecast if required, to be obtained and discussed with resident teacher in relation to tramp planned, adjust plans as necessary – conservative judgement made if snow forecast.
- Outdoors Intentions to be completed and a copy left with someone you trust. For a school trip, this should be someone at the school.

During trip

- Keep group together at all times.
- Buddy system set up.
- Appoint pair to set pace and pair to be tail-enders – define these roles.
- Everyone else keep between these people.
- Instructor keep close to front to make any route choices necessary in snow and monitor pace.
- Re-group at any section of route obscured by snow, assess best method and route to proceed, supervise tricky sections.
- Monitor students' warmth and food/drink intake needs.
- Check for blisters early on and tape up if necessary.
- Have planned rests and enjoy the tramp!

- Keep wet gear out of hut.
- Be considerate to other track and hut users.
- Supervise cooking groups with stoves, reiterate safety procedures if necessary.
- Check tents or flies are pitched well if camping.
- No fires outside, and only in hut if extremely cold.
- Utilise gear in hut cupboard if necessary (sleeping bag, food, fuel, clothing).
- Clean hut and leave intentions in book before departure.

After trip

- Let your Outdoors Intentions contact know that you are out and safe.
- Dry any wet gear (tents/flies, bed rolls), return all party gear to expedition boxes in classroom.
- Debrief trip with students before their next activity.
- Report any damage or issues to resident teacher or DOC staff.
- Fill in an incident form if required.

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CHAPTER 4:

RISK MANAGEMENT FOR PARTICIPANTS WITH DISABILITIES

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Haere ki wīwī, ki wāwā

With careful planning and risk management, the outdoors can be a fun and safe environment for people with disabilities. Disabled adventurers participate in outdoor activities for the same reasons that able-bodied people do: to satisfy their need for self-accomplishment and achievement, to connect to the outdoor environment, to make friends, to test their limits and challenge themselves, to improve their outdoor skills and to overcome obstacles.

A lot of people with disabilities have the mentality: 'with a few adjustments to how we do things, we can achieve the same things as other people'.

Joseph broke his neck playing rugby, an accident that left him with C4 tetraplegia. The injury left him with little hand and arm function, very little trunk stability and no use of his legs. Yet Joseph didn't let his disability get in the way of his outdoor adventures. By making a few adjustments to equipment and method, Joseph was able to participate in climbing, abseiling and kayaking.

For the climb, instead of using a traditional harness, Joseph sat in a paragliding harness, which provided him with more trunk stability. A safety line was then attached to him using a standard sit harness. A 3:1 pulley system was used to lessen the load, so Joseph only had to pull up one third of his body weight. An extra drop length of rope was tied off so that he could be lowered at the end of the climb. So that Joseph could hold on to the ascension device, a short pole was fitted to the hand hold – he was able to attach his hands to the pole by wearing special gloves with Velcro attachments. Joseph completed a seven-metre rope ascension using this method.

For the abseil, the main abseil line was attached to slings that were then attached to structural parts of Joseph's wheelchair. As with the rope ascension, a safety line was attached to Joseph using a standard sit harness. To enable Joseph to hold on to the stop device lever, a short pole was fitted to the lever. Using this method, Joseph successfully carried out a 25-metre abseil.

So that Joseph could also participate in kayaking, two outriggers (made from sealed down piping) and a garden chair with the legs cut off were fitted to the top of the kayak. Joseph was strapped to the chair with a quick release strap. These adjustments to the kayak provided Joseph with additional stability and support. For extra safety measures, a rescue boat was specifically assigned to Joseph and he wore a self-righting personal flotation device (PFD). Using this gear, Joseph was able to kayak down a section of the Tukituki River. Since then, Joseph has bought his own kayak and additional equipment, and, using the support of one of the ferry boats at Lake Waikaremoana, he completed a four-day kayak trip around the lake with friends. He can also regularly be found kayaking with a friend in estuaries around the country.

It is experiences like Joseph's that lead people to generally perceive disabled adventures with awe and amazement. People are often inspired by what people with disabilities can achieve and their positive 'can do' attitudes.

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TRIP PLANNING AND DECISION MAKING

There are extra risks to consider when planning an outdoor activity for people with disabilities. The types of risks depend on the disability – each participant will have different abilities and needs. Therefore, outdoor leaders need to assess each participant individually when making a risk and safety management plan.

Outdoor leaders should plan all outdoor activities with the participant, as they will often have a clearer understanding of their own abilities and limitations. For instance, one person with visual impairment may need constant verbal commentary and to be led by a guide while tramping, another may only require the person in front to wear a brightly coloured backpack and provide some verbal commentary. In a way, people with disabilities are less 'risky' than able-bodied people, as they are more aware of their limitations. However, keep in mind that a participant with a cognitive impairment may have trouble understanding the risk involved in some activities.

Some important factors to consider when planning an outdoor activity for a person with a disability are:

- Suitability of the route (level of difficulty, types of terrain, length, accessibility)
- Weather and environmental conditions (reactions to weather can be amplified or muted depending on the disability)
- Participant's fitness levels
- Fatigue management (people with disabilities can tire more easily and quickly)
- Access to toileting areas (catheters cannot be drained in the bush, wheelchair access)
- Participant's sense of balance and their trunk stability and function (what level of extra support is required in activities)
- Mental comprehension factors (people with cognitive impairments may not understand all the risks involved)
- Extraction access (can you safely and quickly evacuate a person with impaired mobility in an emergency?)
- Special equipment needed (self-righting PFDs, chest harnesses)
- Ability and training of leader and group members to provide assistance (moving a person with limited mobility, assisting in personal care, interpreting for the hearing impaired)
- Health and well-being factors (medication, allergies, special diets, emergency contacts)

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TEMPERATURE

With spinal conditions and other conditions that compromise the neurological system (muscular dystrophy (MD), multiple sclerosis (MS) and cerebral palsy (CP)) the body does not always sense temperature changes. This means that the body does not activate its natural cooling down (sweating) and warming up (shivering and goosebumps) functions. Amputees are affected in a similar way, because due to reduced skin area and less body mass, they cannot sweat or shiver as much.

To stimulate sweat, use a spray bottle to spray a fine mist on a participant's skin. In cold conditions, carry out regular temperature checks of limbs. For amputees, adapt warm clothes and sleeping bags to the size of the amputated limb so that the body has less space to generate heat for. For example, if the participant has had their arm amputated, either fold and pin up the arm of their jacket or tuck it back inside the body of the jacket.

IN AND AROUND WATER

Prior to water activities, determine a participant's level of water confidence and swimming ability. People with limited balance and function are at higher risk in and around water, because if an incident occurs they may not be able to swim to shore or hold onto an aid. For example, if a person's hand function is impaired, they will not be able to grip onto a throw-bag rope. In these situations, it may be necessary to make a contact rescue, which is when the rescuer holds on to the victim and the aid.

Participants with limited trunk function often require a self-righting PFD, which automatically rolls the victim so that they are floating on their back. They may also need additional support (garden chairs with legs cut off and/or outriggers on kayaks) in activities such as kayaking or rafting. When using additional support, you may need to strap the participant in. In these cases, ensure that a quick release system is in place.

With amputees using prosthetics, there is a risk that the prosthetic could fill with water, float away or sink.

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PRESSURE AREAS AND STUMP CARE

Any person with limited sensation needs to be careful of pressure areas in any outdoor activity. A pressure area occurs when one part of a person's body is in contact with something, such as a harness or a seat, for a prolonged period of time. To prevent pressure areas, ensure that the seat or harness is padded and move the participant regularly. Participants with neuromuscular disabilities are more prone to pressure areas and will need to monitor these throughout the activity or programme.

Stump care is important for amputees. Irritants in the outdoor environment such as sand and dust can make stump issues worse, and uneven terrain can also increase stump care problems.

WORKING AT HEIGHTS

People with cognitive impairments may not realise the risks involved with working at heights. This creates a major safety risk, as an eager participant may try to do the activity without giving the instructor time to ensure safety ropes are attached correctly.

People with balance limitations, especially trunk function, may need additional support (for instance, they may need to abseil while they're sitting in a wheelchair or a paragliding harness). Using a chest harness as well as a seat harness helps keep the climber upright when hanging and protects lesions or breaks in the spine by taking the weight off them. At the top of a climbing wall or hill, secure not only the client but also their wheelchairs and other aids to avoid them rolling down or falling over the edge.

Compartmentalisation and suspension injury can occur more quickly in someone with circulation or sensation issues. Take particular care when someone with these disabilities is suspended for any amount of time.

When working with amputees, ensure that the prosthetic is securely attached to the body, as leg suction socket type prosthetics can fall off during activities at heights.

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RISK MANAGEMENT FOR DIFFERENT TYPES OF DISABILITIES

The table below outlines the key considerations for different activities and disabilities.

DISABILITY	ACTIVITY	KEY CONSIDERATIONS
Visual impairment	General	• Verbal commentary – clearly describe terrain and gradient, use a clock face for directions, indicate when hazards are coming up (hanging branches, rivers, uneven terrain, sudden drops). • Physical leading – allow them to grasp your arm or elbow rather than the other way round. Physically leading someone may not be possible on narrow single-file tracks. • Clear explanations of activities and regular updates needed because a participant's time perception may be skewed (that is, they may not be aware of the difference between day and night or how long an activity is taking).
	Abseiling/ climbing	• Verbal commentary – tell participant when they are nearing the bottom of an abseil.
	Kayaking/ rafting	• Verbal commentary – clearly describe upcoming rapids, pools and eddies. • Swimming ability. • Level of confidence in water.
Cognitive impairment	General	• Clear communication of rules and instructions prior to commencing any activity. • Explanation of risk and activity at appropriate levels. • Behaviour management plans. • Additional supervision. • Constant reminders – memory retention may be impaired.
Hearing impairment	General	• Clear communication of instructions prior to commencing any activity. • Ways of communicating – if possible, use an interpreter rather than writing things down as people with hearing impairments often word things differently in sign language. • Agreed-upon hand signals prior to an activity.
Spinal Cord Injury (SCI) and other neuromuscular conditions (MS, MD and CP)	General	• Pressure area care. • Toileting – increased risk of urinary tract infection. • Suitable and accessible route. • Extraction routes. • Appropriate bedding choices (thick mattress needed to avoid pressure areas while sleeping).
	Abseiling/ Climbing	• Route choice/suitable gradient (vertical climbing not appropriate for limited stability). • Padding harnesses. • Equipment choice: · For example, a self-breaking descender with automatic locking function, such as the Petzl stop or the Kong Indy, may be needed when abseiling with limited hand function . · Different harness choices for balance and to keep pressure off lesion. · Rope-assisted pulley systems for those with limited hand/arm function. • Higher risk of suspension and compartmentalisation injuries. • Securing wheelchair as well as client at height.
	Kayaking/ Rafting	• Keep participants warm. • Appropriate PFD choice. • Balance and stability adaptations. • Contact rescue training and appropriate extraction routes. • Swimming ability. • Level of confidence.
Amputees	General	• Stump care. • Route choice.
	Abseiling/ Climbing	• Securing prosthetics to client. • Route choice.
	Kayaking/ Rafting	• Securing prosthetics to client. • Swimming ability.
Traumatic Brain Injury (TBI)	General	• Many of the risk management suggestions above may need to be used as people with TBI can have a range of issues, including many similar problems to SCI, cognitive impairment, behavioural management, time perception and memory issues.

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RISK AVERSION

In the outdoor recreation instructional community, there can be an attitude of 'with disability comes risk', which can create a heightened sense of risk aversion. Some instructors are put off working with people with disabilities. With this attitude, many disabled adventurers end up carrying out outdoor activities alone, working things out as they go along. This can be dangerous, as without a leader and other group members, the participant may not have considered a risk management plan.

In some cases, people with disabilities are considered a liability to the team, for instance, they may slow the group down or rely on other team members for assistance. Therefore, some programmes segregate people with disabilities into their own groups rather than using inclusive practice techniques. In inclusive programmes, many abled-bodied people achieve greater results and put more effort in when they witness what someone with a disability/mixed abilities is able to achieve.

Outdoor leaders should try to include people with disabilities in activities where possible, making decisions about participation based on the nature of the activities, the risks involved, the available resources and the abilities of the participant.

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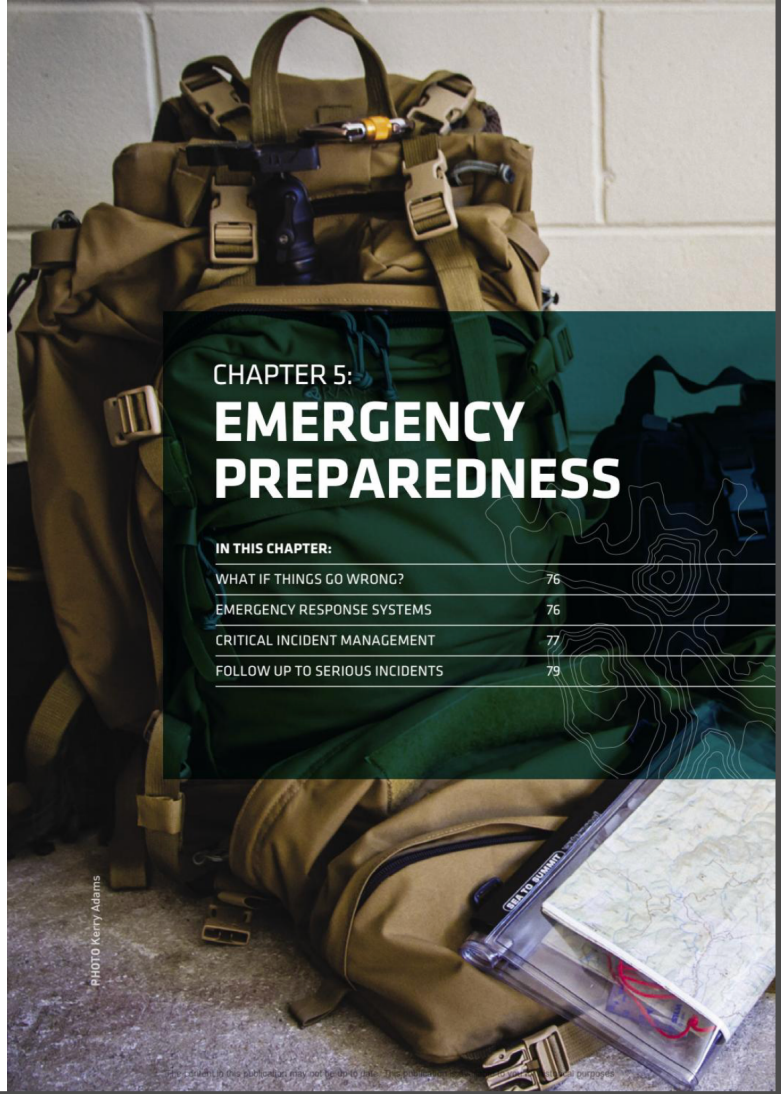

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CHAPTER 5:

EMERGENCY PREPAREDNESS

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WHAT IF THINGS GO WRONG?

Whanātu poho ki roto, haere mai tāiki ki waho, nohoia te whare, ko te hē tonu

It is the responsibility of outdoor leaders, and the organisations they represent, to be prepared when things go wrong. This chapter gives an overview of:

- Emergency response systems (ERS)
- Incident management
- Follow-up to serious incidents

EMERGENCY RESPONSE SYSTEMS

The following emergency response system (ERS)[1] assumes that competent outdoor leaders are running the programme. Many outdoor organisations rely on staff expertise in a pinch, sometimes at the expense of more formal planning. This is understandable when our industry is staffed by people with field experience, judgement and savvy who can act on the hoof to resolve emergencies.

The aim of an ERS is to form adequate protocols that link incident management in the field with all the resources and knowledge available at the base organisation. An ERS will identify all available medical, search and rescue, and evacuation resources in the area, and hopefully some form of working communications.

An effective emergency response system should:

- **Provide logistical support to outdoor leaders in the field.**
  Leaders usually handle the immediate situation and just report the results. Rarely, they may need human (for example, searchers), material or communication support to manage the incident.
- **Provide emotional support to outdoor leaders in the field.**
  In simple cases, leaders may need reassurance on a difficult decision they have made (for example, sending a participant home), managing a disagreement between outdoor leaders, or arranging support for a group in the case of a fatality.
- **Govern internal communication**.
  May involve senior staff, safety officers, organisation heads, the board chair and legal advisers, including 24-hour contact numbers for all.
- **Govern external communication**.
  Including next of kin and the media.
- **Include incident documentation**.
  Field notes and a standardised incident report form to record facts – analysis of the incident happens later (see Chapter 6).

The ERS is not designed to begin the evaluation of the incident and how it was handled. Leaders need to feel supported, not analysed, through this stage. Leaders in the field have the best knowledge of the situation, so they should continue to make the decisions. The ERS is to support leaders in the field and get any required resources to them.

Four key tools for implementing the emergency response system are: a written plan; suitable communications technology; staff training; and a review of the plan and its effectiveness in managing incidents.

- The written plan should contain protocols for the five bullets listed above.
- The communications technology chosen should suit the programme's philosophy, requirements and location. A programme may use a range of technology to suit different situations, for example: cellphones in the front country, mountain radios or satellite phones in remote areas and back country.
- Staff training in how the ERS works is essential. Training may involve other agencies such as the police, Search and Rescue or national park staff. Regular practices can help sort out any glitches, especially when systems or staff change.
- An annual review of the whole system can be beneficial in refining it to better meet the organisation's needs. The system can be amended as required.

CRITICAL INCIDENT MANAGEMENT

As well as having an emergency response system, outdoor organisations need to ensure their outdoor leaders have specific incident management strategies for likely incidents in each activity they run.

In the field, confusion and disorganisation can be the initial reaction to an incident if leaders and participants have no incident management training. People involved may refuse to believe what is happening; they may be overwhelmed and immobilised by the events, and suffering from shock. The situation is often made worse when unreasoned or ineffective attempts are made to resolve the incident. The headless chook syndrome may take over or the party may genuinely not know what to do, as in the sea kayak incident described in Chapter 6.

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By estimating the relative stress felt during a crisis, a typical crisis can be graphed.

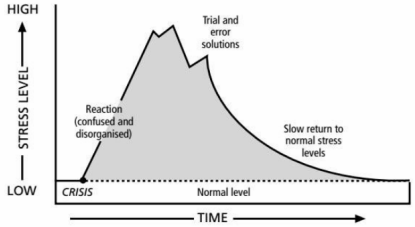

Figure 16 A typical crisis[2]

Figure 16 shows a slow reaction time when the incident happens. Time is wasted due to trial and error solutions, and consequently there is a slow return to normal stress levels once the incident is resolved. There are three obvious ways to improve the situation:

1. Avoid the crisis in the first place through good safety management practices.
2. Speed up reaction time and reduce the number of trial and error solutions by having a specific emergency action plan ready for each significant risk identified for the activity (on the SAP or RAMS). Ensure leader/s and participants have the skills and experience to put the plan into action. Preferably, they should have practised this in simulations.
3. Use the organisation's emergency response system (ERS) to access any support required to resolve the incident.

Implementing these steps would result in a new crisis profile (see Figure 17 below).

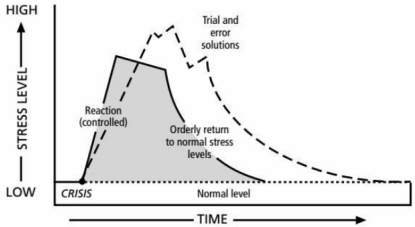

Figure 17 Profile of a managed crisis[3]

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INCIDENT MANAGEMENT PLAN

The following five steps can help hasten a return to normal stress levels.

1. **TAKE CONTROL** Assess and contain the situation, prioritise actions, look after the rest of the group.
2. **STRATEGY** Use incident management strategies appropriate to the situation (for example, rescue climber from crevasse or remove victim/s from a potentially life-threatening location).
3. **FIRST AID** Treat victim/s for injuries or activate fatality plan.
4. **COMMUNICATION** Activate emergency response system (ERS). Notify emergency services and your organisation's contact person, who should in turn notify next of kin, media spokesperson, support agencies.
5. **EVACUATION** Transport victim/s from the incident location to professional health care, look after the rest of the group.

An incident may require implementation of only one or two of these steps or it may require all five. Figure 17 (the profile of a managed crisis) provides a sensible structure to aim for when resolving the complicated events that are part of successful incident management. Use the incident management case studies in Appendix IV to practise using the plan.

See the MSC *Outdoor First Aid Manual 33* for more information on accident management, fatalities, and evacuation.

FOLLOW-UP TO SERIOUS INCIDENTS

A follow-up plan should be implemented after all serious incidents. When formulating a follow-up plan consider these questions:

- With the incident resolved, should the trip continue?
- Are there loose ends that need consideration?
- What is the plan to deal with the media?
- Have all appropriate authorities been contacted?

On return to base, an incident report should be filed. The report should consider the following questions:

- What specific losses occurred?
- Why did this happen?
- What events led to the incident?
- Could the incident have been prevented?
- What specific points of learning came from the event?

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- What changes can be implemented to prevent similar incidents?
- In retrospect, how might the incident have been better managed?
- What additional resources (human, physical, material) might have improved management of the incident?
- How can the emergency response plan be improved?

Incident reporting is covered in detail in Chapter 6.



PHOTO Keiran Paton

CHAPTER 6:

INCIDENT REPORTING, ANALYSIS AND TRENDS

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WHAT CAN WE LEARN FROM INCIDENTS?

Ka motu te māhanga i te weka e kore a muri e hokia

Organisations should have a policy on reporting, investigating and analysing incidents that have affected staff, participants or volunteers. Reporting workplace incidents that have caused or might have caused serious harm to staff is compulsory under the Health and Safety in Employment Act 1992 (Section 25 (1) (a)).

This manual encourages outdoor organisations to contribute to the National Incident Database (NID) for outdoor activity-related incidents and to learn from the information held in it to improve their safety management. The New Zealand NID can be accessed at **www.incidentreport.org.nz**.

The NID is managed by the MSC on behalf of the outdoor sector. There are two distinct databases:

- Outdoor Education/Recreation NID
- Snow Sports NID

The NID is a way of collecting information about incidents or near-miss events that occur in the outdoors. The information is collected so that the outdoor community can learn to manage their operations in a safer manner and prevent similar things from happening. Each registered organisation can review and use their own data stored in the database, but does not have access to other organisations' data. The MSC can access all data, but does not identify any person or organisation in reports using the data. These reports are publicly available at **www.incidentreport.org.nz**

The NID also allows participation rates to be recorded for each activity. Knowing participation rates allows an organisation to calculate incident rates, which provides a greater context to the incident and near-miss information held.

The NID works best if there is active participation from the whole outdoor sector: such as clubs, outdoor pursuit centres, schools, adventure tourism operators and ski-field operators. Any organisation can register. There are no costs associated with registering or using the NID.

Once registered with the database, an organisation can provide access for multiple people to input their incident data directly. Alternatively an organisation may have their members complete a form which is later entered into the database on their behalf by a relevant person within their organisation. You can find the most up-to-date copy of this form on the NID website. This form also meets the requirements for compulsory reporting to the Ministry of Business, Innovation and Employment (MBIE). Remember, in the case of serious harm to a staff member, MBIE must be notified within seven days.

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This chapter looks at what can be learned from reporting, investigating and analysing incidents, looks at how this can be applied in the outdoor sector, and suggests useful procedures. This shifts the emphasis off what may go wrong onto what has gone wrong in the past, as both are important in safety and risk management.

INCIDENT REPORTING

Effective incident reporting procedures are crucial to effective safety management and have the following components:

- No-blame forum
- Goal of learning/prevention
- Informal atmosphere
- Formal process
- Involve everyone
- Minimum of paperwork
- Suitable analysis
- Follow-up action

Establishing a no-blame forum is crucial to the success of incident reporting and investigating procedures. Outdoor leaders need to feel supported in revealing the contributing factors to an incident. If there is a threat of laying blame, a culture of reluctance to accurately report significant incidents may permeate an organisation. An error-embracing organisation, where there is a culture of openly discussing and learning from incidents, is most conducive to effective incident reporting and investigation. There is a range of effective ways to achieve this. One way is to get all staff, helpers, and in some cases participants, together at the end of an outdoor event (camp, activity, etc) to discuss:

- Incident reports and follow-up strategies
- Suggestions to improve the activity
- Things that worked well
- Things that did not work well

During an informal discussion of incident/s, information can be gathered and recorded. Contributing factors can be identified and recorded and analysed later. As soon as possible after the event and the debrief, one of the key people involved should fill out an NID form (either complete online or download a hard-copy from **www.incidentreport.org.nz**]. Reports should be filed in a central place in the organisation and submitted/entered in to the National Incident Database. If more than one report (or a more detailed report, such as a full accident investigation) is completed for an incident, it should be filed with the original report within the organisation. Finally, recommendations (strategies for preventing the event recurring) can be made and implemented later.

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SIGNIFICANT INCIDENTS

While all incidents should be recorded, not all of them need to be investigated and analysed. Investigating serious incidents and those with high potential for serious harm is more useful in safety management than investigating all incidents.[1] For example, investigating 100 stubbed toes is not going to reveal how to prevent a river drowning. Serious and potentially serious incidents are predictive of future incidents in ways that typical first aid cases are not.

Tools have been developed to help determine the significance of an incident. One such tool, the incident severity scale, is included in Appendix III. The scale can assist outdoor leaders and managers to rate the severity or potential severity of an incident, so time-consuming investigations can be targeted. An incident that rates a six or more on the scale is a serious or major incident requiring investigation and must be reported to MBIE.

NEAR MISSES

'Near misses' or 'close calls' with high potential for serious harm should be investigated as thoroughly as incidents that result in serious injury. Near-miss incidents have been shown to have similar causes to serious incidents,[2] yet are grossly under-reported and are often 'shrouded by a veil of silence'.[3] They differ from serious incidents in that no injury or damage results. But the type and degree of loss are often a matter of chance, depending partly on luck and partly on the actions taken to minimise the loss. Consequently, the effect could range from insignificant to catastrophic, from a scratch or dent to multiple fatalities or loss of plant (equipment or buildings).[4] For example:

A group of 10 students and an instructor were returning from a half-day mountain bike ride. The road was quite rough including a steep rocky downhill section. Two or three kilometres from base and before a steep rocky section, the group decided to ride down a small flooded creek which had some shallow waterfalls in it. On the first waterfall one cyclist went head over heels into the creek, without hurting himself. On retrieving the bike he lifted the handlebars to find the front forks had parted company from the stem. If this had occurred on the steep rocky section of the track the cyclist and possibly others following could have been seriously injured.

Although no one was harmed in this incident, there was high potential for serious harm so it needed thorough investigation. The investigation found the bike was old and ill-maintained. Like all bikes used for the trip, it had been given voluntarily for use on the programme. As a consequence of this near-miss event, the organisation decided to hire newer, well-maintained bikes for future programmes.

One outdoor leader described four important indices of near misses:

- People involved expressed relief, often through exaggeration and humour
- They often did not identify it as a true incident so did not report it formally
- Therefore no analysis was made
- No analysis meant no intervention to stop or alter the near-miss circumstance, tending to promote a recurrence, often with escalating seriousness[5]

He suggested information learned from a near miss should be documented, analysed and networked among peers in that and other programmes.

Any organisation wanting to prevent injuries and reduce loss and damage should pay close attention to recurring incidents that they can and should do something about. The following is an example of a recurring near-miss incident that was investigated in order to prevent a serious incident occurring.

Over a period of six months in an outdoor programme, four incidents were recorded where a methylated spirits stove slipped off a hut bench while students were cooking. In each case a billy was being stirred on top of the stove when the stove slipped out from under the billy, fell to the floor and spread burning fuel around. No one was physically hurt in any of the incidents although students got a real fright. There was no damage to property. An investigation found these common factors contributed to the incidents:

- The stainless steel benches in the huts provided a smooth surface for the legs of the stove.
- Students stirring the contents of a large billy while it was on the top of the stove caused the stove to slide.
- The billies being used had very uneven bottoms, increasing the instability.

To prevent similar incidents the following changes were made:

- Billy grips were provided with each billy.
- Students were instructed to use billy grips to remove the billy from the stove before stirring.
- New billies were purchased to replace old battered ones.
- Students were instructed to carry billies inside packs to reduce damage.

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INCIDENT ANALYSIS

Incident analysis can be conducted on four levels with different information gained from each. Gathering data on incidents and accidents on a local, national and international basis can be useful for several purposes:

- Individual incidents can be examined in depth to determine what happened and why. The aim is to find out root causes and ways to prevent future recurrences.
- Local programme analysis should be carried out regularly to determine trends that need to be addressed by an organisation. This can benefit the programme quality immensely.
- National analysis across many organisations can identify incident rates and trends that may not be apparent in a single incident or programme.
- International analysis comparing incident rates and trends of different countries can highlight similarities and differences and may indicate useful safety strategies.

Analysing a multitude of incidents in one organisation or across multiple organisations can highlight incident trends. When pooled, this data can provide information from which better quality decisions and programmes can evolve. Hence outdoor leaders can learn from other people's experiences as well as their own. The rest of this chapter summarises some useful techniques for incident analysis on the four levels outlined above.

INDIVIDUAL INCIDENT ANALYSIS

Incidents have been shown to be complex events involving a multitude of people, equipment and environmental factors interacting over time. They have been shown to be more web- or tree-like than sequential. A number of simplified models have been proposed to assist outdoor leaders and managers to identify the causes of incidents with the goal of improving safety. Two models are presented here.

- The lemon analogy is well known to Kiwi outdoor leaders as a useful method of identifying factors that contribute to incidents. Lemons can be spotted both before and after an incident.
- The pathways to change model has been adapted from several models to assist in identifying contributing factors after an incident, and to show pathways to intervene to prevent the incident.

JUDGEMENT

Determining what constitutes a risk, hazard or danger while in the outdoors is an ongoing process. It involves continually thinking about what the outcome of a certain decision, action or inaction will be.

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One of the more difficult aspects of outdoors risk assessment is transferring the knowledge and principles from a formal risk-management or leadership training course to the reality of the environments we explore.

There are some effective methods of enhancing this knowledge transfer.

- Find an experienced mentor. Travel with them, learn how to identify and analyse the risks, and see if your judgement matches theirs.
- While on a trip, consciously identify risks, dangers or hazards and determine how you would overcome them yourself.
- Go through the same process with some friends, but discuss with them what you have identified and the various options you would take.
- Learn what constitutes a near miss and learn from a near-miss event.

After a while, you will start to see things in the outdoors differently. Your judgement will have improved, and as you analyse each potential risk, you will start to make the types of decisions that will keep you safe in the outdoors.

THE LEMON ANALOGY[6]

While many leaders do first aid and rescue courses and learn safety management procedures, it is not long before details are beyond quick recall. Hence it is useful to condense some risk management principles into images that can serve as constant reminders.

Imagine a 'pokie' machine, bolted to a tree. Imagine too that every time you take a group into the outdoors you are putting a coin into the slot and pulling the arm. Each time a factor that could lead to an incident is overlooked or ignored, up pops a *lemon* in one of the windows. As more contributing factors are overlooked, more lemons pop up. The process continues until the activity is finished or there are enough *lemons* to hit the jackpot – in this case disaster!



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But unlike gambling, where a row of lemons is desirable, a row of lemons is not desirable in the outdoors. Leaders should avoid stacking up lemons and hitting the jackpot, as they do not wish for disaster. Instead, the lemon analogy is much like that of buying a car or appliance that is faulty and continues to have problems. The thing is a lemon! The longer you keep it, the more problems it will cause, so you want to identify the cause/s of the problems and eliminate them.

Competent, experienced leaders should always be on the lookout for lemons and deal with them before they cause incidents. For example:

A youth leader preparing a group for an overnight tramp checks everyone's gear and finds two people without adequate jackets and one without any polypropylene, fleece or woollen clothing (three lemons). The leader fits the students with the clothing they need from a box of spare gear.

Checking the medical list, the leader finds there is an asthmatic in the group and one person allergic to bee and wasp stings (two lemons). The leader explains to the latter that if they travel at the front of the party, the chances of being stung will be reduced significantly. In the first aid kit are a spare inhaler and an ana-kit to treat severe allergic reactions. If the leader continues to be as conscientious as this throughout the trip, most disasters will be avoided. If the leader overlooks the lemons, circumstances could combine and the jackpot could be struck.

Sea kayak incident

Not all leaders recognise and eliminate lemons in outdoor activities. This is illustrated in the following incident in which many lemons contributed to the tragic outcome.

SCENE SETTING

As part of a 10-day sea kayak programme, a trip was planned for members of a tertiary outdoor course. A southerly front with gale force winds was forecast around midday, so the tutor's preferred option was a trip in sheltered water. But the contracted instructor team arrived with a tow-ball on their vehicle that did not fit the trailer of hired kayaks. This caused delays in departure, as had happened the week before, so options for the trip were limited to the open coast. Two groups of seven students and two instructors intended paddling in opposite directions along the coast from an estuary, then returning to the estuary. Three instructors were contracted and the fourth instructor was the course tutor.

THE TRIP

The briefing by contracted instructors was inadequate and students were not taught any rescue skills. The tutor stepped in on the beach and demonstrated a wet exit and self rescue to students before departing.

Students planned the trip and practised leadership skills along the way. The groups decided they needed to complete the journey and be back in the estuary ahead of the weather change. They left the estuary at approximately 10am.

The group that went north, which included the course tutor, arrived at their destination at 11.45am. They decided not to go ashore as the surf was up to 1.5 metres. Hemi and Paul wanted to play in the surf, so they and one instructor headed off after some negotiation. The rest rafted up and waited. Hemi and Paul came out of their kayaks in the surf and were rescued by the instructor. The tutor decided to head back to the estuary with the other five students and indicated this to the instructor who was with Hemi and Paul.

HIT BY THE SOUTHERLY

The tutor saw the front approaching after half an hour. As it got closer he told the students to paddle with maximum effort, angling towards the shore. The front hit them at 1.15pm, 100 metres offshore, opposite the coastguard base (boating clubrooms). An immediate 45kph wind gust with a 0.5m to 1m chop and breaking crests capsized Ann and Jack. The tutor got in position to rescue Ann but she let her boat go. It flew across the water out of reach. Jack swam to Ann and they got into a huddle. The tutor struggled with his boat. Susan grabbed Jack's boat and tried to get it ashore but was soon forced to let it go, then fell out herself. Susan held on to her own boat and drifted slowly towards shore.

Ben and Matt reached shore in their double kayak and alerted the coastguard of the situation. Rescue boats and a rescue helicopter were dispatched. The tutor got Jack and Ann to grab the bow of his boat. The coastguard checked they were okay, then headed out to search for others. After 25 minutes Ann and Jack were hypothermic. Ann began losing consciousness, and eventually lost her grip on the boat. Jack grabbed her, trying to keep her head above water in the breaking waves with one hand, while hanging onto the tutor's boat with the other. Eventually, the second rescue boat picked Jack and Ann up. Ann had stopped breathing by this stage so CPR was begun by one of the coastguard crew. CPR was continued for 40 minutes but she never regained consciousness. A post mortem later revealed she had drowned.

Ann's boat was recovered one mile offshore. Susan and Jack were treated for hypothermia and taken to hospital overnight. Hemi paddled ashore while Paul was picked up by the first rescue boat after capsizing again. Hemi arrived at the clubrooms in a 4WD that had gone up the beach to get him. The instructor paddled ashore at the clubrooms.

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The group that had gone south from the estuary got to shore just south of the estuary. They had been closer in to shore when the front struck. Several students had capsized and been rescued by the instructors. A local resident warmed them up and gave them hot drinks. A local fishing boat picked up some of their paddles.

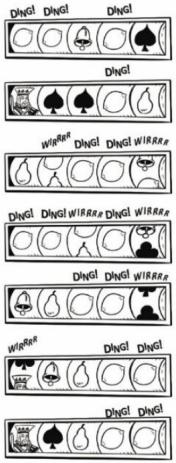
EQUIPMENT

Each group was carrying a cellphone; one had a marine VHF radio, the other had a locator beacon. Both groups carried flares, a tow line, a spare split paddle, a paddle float, a first aid kit, spare clothing, food and water. One group had a thermos of hot coffee. Everyone was wearing polypropylene underwear, windproof paddle jackets and buoyancy aids.

RATIOS

On this trip, with two instructors/tutors per group of seven students, the ratio was 1 leader to 3.5 students. When the group split, the sub-group ratios were 1:2 and 1:5. The Sea Kayak Operators' Association of New Zealand (SKOANZ) Code of Practice recommends a ratio of one instructor to eight novices.

This incident concurs with research that shows incidents are the result of a multitude of factors.[7] One study of 11 incidents found up to 25 factors contributed to each incident.[8] Using a lemon-spotting process, the tutor identified the following contributing factors to the sea kayak incident:



Contributing factors (lemons)

- The wrong-sized tow-ball on the contractor's vehicle caused delays, reducing options for the sea kayak trip to the open coast.
- Lack of a sequenced programme. The contracted company did not teach the students any rescue skills prior to going on the open sea journey. The briefing was inadequate.
- No clear time limit was set for the journey before leaving the beach. The groups knew they should be back before the storm but decided to 'play it by ear'.
- Students were allowed to make decisions as part of their leadership and planning opportunity, but did not yet have adequate experience for this.
- The northern group paddled too far up the coast, reducing their time safety factor by up to one hour.
- Instructors did not stop two male students from going surfing, regardless of the effect on the safety of the whole group

  (a) risk shift was at work here

  (b) this lost valuable time for the group – estimated at 30 minutes.

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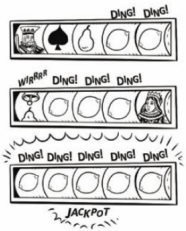

Students became tired and on the return journey were incapable of paddling quickly to beat the front.

When the storm hit, Ann and Jack fell out almost immediately and let go of their boats, making them reliant on outside rescue. They had not been taught or practised rescues.

The first rescue boat bypassed three students who were in the water which led to one drowning and two suffering hypothermia.

It is unlikely that a single contributing factor (lemon) would have resulted in this tragedy. It was when the factors combined and compounded that the odds for disaster rose. A number of factors were already at play before the group even left the beach. A leader must be prepared to postpone or cancel an outdoor activity when lemons are apparent at this stage.

Another striking element of this incident was the lack of involvement of the students in the safety management process. Had they been encouraged to go through the five questions below, they may have postponed or modified the activity.

- What is the purpose of the activity?
- What could go wrong?
- What could cause it?
- How will we prevent it?
- What will we do if things do go wrong?

Safety management is most effective when the participants take part in the process. Sharing the responsibility may be the impetus for taking stock and getting off the tracks that can lead to a poor decision.

The lemon analogy is similar to the causal sequence (page 55) in that it shows an incident is not simply an unavoidable freak event, but the logical consequence of a series of unmanaged factors. Wanting to please others, carelessness, ignorance, short sightedness, bad judgement or arrogance can further compound the situation. The word crisis, meaning a crucial turning point in a series of events, more accurately describes the situation.

CRISIS PROFILE, TRIAL AND ERROR SOLUTIONS

In the sea kayak incident, the crucial turning point was when the students' kayaks began to capsize. The tutor, rescuers and students tried various solutions to the problem:

- Getting into a huddle together
- Holding on to the tutor's boat
- Bow-carrying two swimmers towards shore on tutor's kayak

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- Holding head out of water
- Grabbing a boat that someone let go of and trying to tow it ashore
- Swimming ashore holding onto kayak
- Swimmers picked up by coastguard rescue boat
- Swimmer assisted ashore by others
- Kayaks and paddles retrieved by the coastguard and fishing boats

The final outcome of the trial-and-error solutions was that a student drowned, two suffered hypothermia and all others suffered emotional/psychological trauma. All equipment was retrieved. Things could have been very different, but events progressed to a point where the chances of Ann surviving were eroded. Unwittingly, many outdoor leaders take unnecessary risks. Are there any outdoor leaders who have not had a near miss?

LESSONS LEARNED

A review of the event concluded the outcome may have been different if:

- The tutor was prepared to cancel the trip due to the forecast and other factors.
- The leaders had a rescue plan for multiple capsizes.
- The tow-ball was the correct size so delays were avoided.
- The leaders had set a clear time limit for the trip to avoid the storm that was forecast.
- The students had adequate rescue training and practice before the trip.
- Student decision-making remained within the limits of their experience and knowledge of marine and weather conditions.
- The northern group had not paddled so far north.
- The instructors had been decisive and not allowed the two students to surf.
- On the return journey, the instructors had found a place for the group to land their boats rather than continuing on, assuming they would beat the front.
- The first rescue boat had picked up the three swimmers immediately. This would have got them out of the water 25 minutes earlier, preventing Ann's death, and Susan and Jack's hypothermia.

RECOMMENDATIONS

Following the incident, the organisation implemented the following recommendations.

1. Contracts will be drafted by the institution to clearly spell out the responsibilities of instructors.
2. Skill building will be progressive and basic skills such as paddle strokes, mutual rescues and self-rescues will be practised before students are taken onto exposed coastal waters.
3. Students will not be given leadership opportunities in any outdoor discipline until they are competent with personal skills appropriate to the situation.
4. A conservative approach to impending weather/sea conditions will be adopted.
5. A marine VHF radio will be carried by the tutor/instructor of each group while on marine-based field trips.

CONCLUSION

In the tutor's words:

'There were mistakes made by all of the parties involved, including the police and coastguard. Decisions were made in the heat of the moment that, in hindsight, could have been different. This incident was preventable. As an outdoor programme we constantly seek to identify and manage the risks such a programme presents. Our challenge in the future is to prevent a recurrence in any of our activities'.

THE PATHWAYS TO CHANGE MODEL[9]

While lemon spotting is a good start to incident analysis, research shows that serious incidents are complex events involving numerous variables interacting in different ways. Therefore, serious incidents are highly complex events that are difficult to manage and predict. Incident analysis has also been shown to reinforce the 'hindsight bias': that we tend in looking back, to overestimate our ability to foresee actual consequences.[10] This can give a false sense that incidents are easily preventable.

Loss analysis models have been designed to identify all possible contributing causes after an incident. Authors have sought to simplify the complex models, retaining key points to enable identification of critical factors that led to the incident.

The pathways to change model goes a step further than spotting lemons. It is a five-stage causal sequence that elaborates on the simplified causal sequence (Chapter 3, page 55).

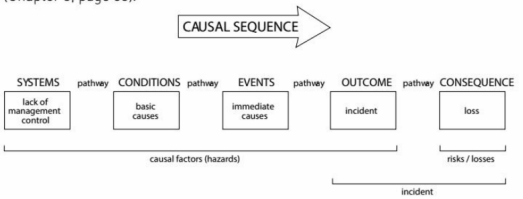

Figure 18 The causal sequence

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The causal sequence in Figure 18 shows that multiple causes are spread throughout several stages of an incident: immediate causes, basic causes, and lack of management control factors. Between these stages are pathways where intervention can reduce loss. Notably, incidents are often the result of factors that only management has control over. For example, a lack of skilled and experienced outdoor staff was an underlying cause of several incidents in a New Zealand outdoor education centre case study.[11]

Thus, the complexity of events leading to incidents can be viewed quite positively. The pathways provide opportunities to intervene and ultimately reduce the chances of an incident happening.

Student fall incident

The following incident will be used to illustrate how the pathways to change model can be used to identify causes and rectify problem areas (see Figure 20).



A teenager fell backwards from the top of a stair bannister onto the floor three metres below. The student was on a camp based at a lodge. There was no comfortable meeting area for co-ed students to socialise. Dormitories were out of bounds to the opposite sex so students had a habit of congregating on the carpeted stairs between the two dormitories. The student was sitting on the bannister. As she went to jump off, she overbalanced and fell backwards, landing on the floor three metres below. She got a real shock, and a few bruises. Staff were stressed dealing with the incident and dinner was delayed as a result. This accident had the potential for serious injury, so was fully investigated and analysed.

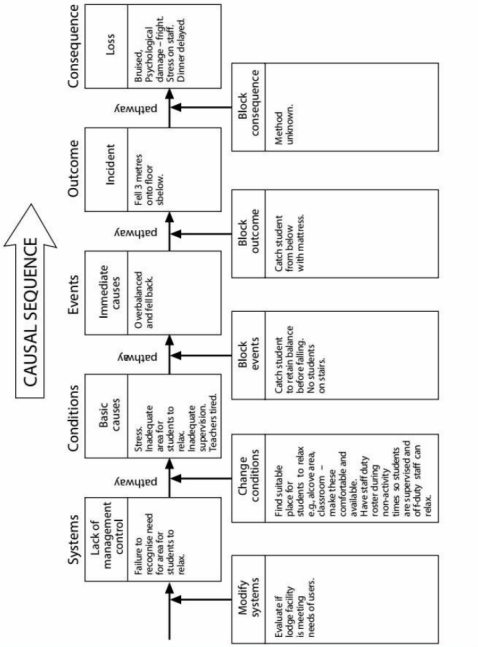

Figure 19 Pathways to change - student fall incident

An investigation revealed the root causes of the incident, and made recommendations to remedy the situation. These recommendations were implemented after the event.

1. Find suitable space in lodge for co-ed students to socialise.
   (a) Consider finding alternative space to store tables and chairs which are stored in small annex room which is carpeted, so this area could be utilised for above purpose. Have new area for storage of tables built.
   (b) Consider getting carpet for classroom (attached to lodge) to create similar area. Make classroom available to be used in the evenings (locked at present).
2. Programme 'time out' and 'on duty' times for staff so students are not left unsupervised during structured breaks and staff get adequate rest.

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Notably, incidents do not only happen during programmed outdoor activities. Perhaps our guard is dropped most often during the unstructured times at outdoor activities such as camps. Unsupervised time at base facilities or during activities were found to have a relatively high incidence of injury or potential injury to participants in two studies.[12]

TRENDS FROM INCIDENT DATA

The collation of incident data can provide valuable information for outdoor safety. Data can be collected locally, nationally and internationally. Trends from one sector can sometimes inform safety management in another, for example, industrial safety research has provided some insights for outdoor safety.

Local

There are factors specific to each outdoor programme that should not be overlooked. Factors that are not common causes of incidents in all programmes may be quite significant to a particular programme. Ignoring such factors could have disastrous consequences.

For example, the following causes were derived from incident data at one New Zealand outdoor education centre:

- Wild card factors
- Environmental conditions, particularly cold, poor visibility, snow, short day (winter), bad weather, dark, difficult terrain for evacuation
- Misplaced responsibility (where inexperienced staff or students were routinely relied upon for tasks critical to safety)
- Pre-existing health conditions
- A shortage of skilled, experienced outdoor staff
- Missing or failed gear
- Inaccurate assessment by staff of required physical fitness of students for the activity
- Poor hygiene[13]

The information resulted in significant changes to how the programme was run, including employing more skilled staff and up-skilling existing staff.

National

National surveillance of incidents has revealed valuable information for the outdoor sector. Both outdoor and industrial studies have indicated areas to focus on for safety management, and are detailed later in this chapter.

International

Few international comparisons of outdoor incident data have been completed. Those that have been done are fraught with problems as data collection methods are inconsistent and incomplete. Comparisons of data between countries have the potential to highlight trends specific to each country. Such comparisons can also confirm whether conclusions from one country's data apply to another country. Currently, we have no idea whether findings from northern hemisphere data apply down under or vice versa.

TRENDS FROM INDUSTRIAL DATA

An accident ratio study (see Figure 21 below) suggested that incidents that resulted in serious injury were just the tip of an iceberg. The study analysed nearly 2,000,000 events, reported by 300 companies, involving 2,000,000 employees, who worked 3,000,000,000 person hours. It found that for each serious injury or fatality there were 10 minor injuries, 30 cases of property damage and 600 incidents with no visible injury or damage (a 1:10:30:600 ratio).



Figure 20 Accident ratio study[14]

This study concluded that since there were so many more no-injury incidents than serious-injury incidents, organisations would be unwise to concentrate only on the few, serious incidents as much could be learned from no-injury incidents that had high potential for loss.

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A national study of 12 professional outdoor education organisations in New Zealand produced a ratio of serious to less serious incidents of 1:16.[15] This was comparable to the ratio of 1:10 shown in Figure 21.

TRENDS FROM OUTDOOR INCIDENT DATA

Trends often emerge from comparing incident data within an industry. Trends can indicate areas for attention in safety management in the industry. The following trends were identified from the study of New Zealand professional outdoor education organisations mentioned above.

- Near misses had a 50% chance of signalling conditions that might lead to serious incidents whereas minor injuries had a 6% chance of leading to a serious incident. A severity rating system was used to rate reported near misses and injuries (see Appendix III). This helped target investigations to incidents with high potential for serious loss so underlying causes could be found.
- The 10 activities with the highest incidence of actual or potential serious injury included some activities that are traditionally touted as having high perceived risk and low residual risk (for example, abseiling and ropes courses). In contrast, of the 34 activities listed, caving had the second lowest incidence of actual or potential serious injury, even though this activity was often considered to be dangerous and risky.
- Male instructors had a greater ratio of high severity to low severity injuries in their groups.
- Incidents are more likely to happen in the afternoon than in the morning. No difference in the severity of the outcome was found between morning and afternoon.
- Outdoor education in New Zealand was found to be no more dangerous than living a normal life in New Zealand.

TRENDS FROM RECREATIONAL INCIDENTS

An analysis of early New Zealand studies of fatal outdoor incidents showed equal numbers of experienced and inexperienced people among the victims.[16] Furthermore, 92% of the fatalities were considered *avoidable*. Only 8% were beyond the control of the participant. The findings strongly supported the view that physical events (such as lightning) were much less important than human actions.

This highlights the importance of suitable skills and experience for the environment and adequate planning and information gathering in order to reduce the chance of incidents. It also reinforces risk homeostasis theory (see Chapter 2), where experienced outdoor people often take a higher level of risk, compensating for their greater confidence and skills. So it is not surprising that equal numbers of experienced and inexperienced people were among the victims as greater risk can lead to greater loss if things go wrong.

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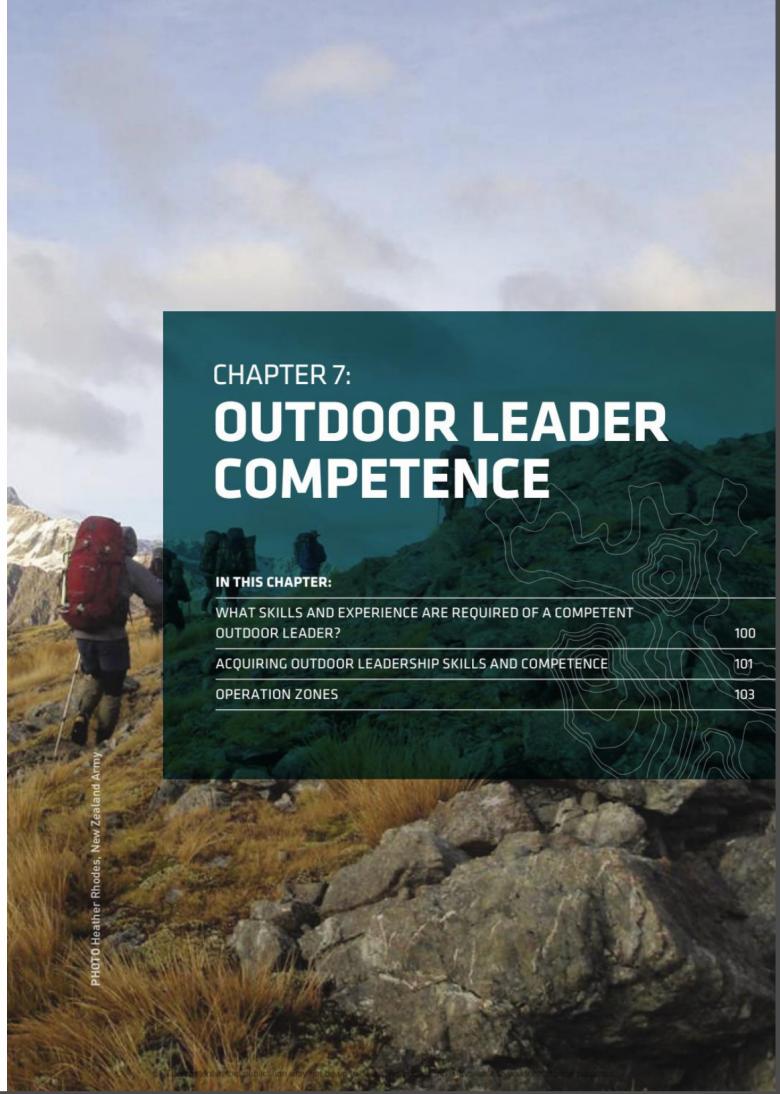

PHOTO Heather Rhodes, New Zealand Army

CHAPTER 7:

OUTDOOR LEADER COMPETENCE

IN THIS CHAPTER:

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WHAT SKILLS AND EXPERIENCE ARE REQUIRED OF A COMPETENT OUTDOOR LEADER?

He rei ngā niho, he paraoa ngā kauae

The competence of an outdoor leader is inextricably linked to the safety of their group. So competence is extremely important in reducing risks.

The Ministry of Education has recommended that leaders of outdoor programmes in schools have the following core competencies and personal attributes.[1]

CORE COMPETENCIES

- Ability to teach/instruct
- Outdoor pursuit skills: qualification *or* attestation of equivalent skills/experience
- Current first aid certificate
- Ability to identify and manage risks
- Crisis management skills
- Outdoor leadership skills
- Group management skills
- Environmental skills
- Cultural values

DESIRABLE PERSONAL ATTRIBUTES

- Empathy
- Communication skills
- Flexibility
- Motivation
- Positive self concept
- Sound judgement
- Problem-solving ability
- Physical fitness
- Safety consciousness
- Approachability
- Assertiveness
- Ability to say no

Figure 21 Core competencies and desirable personal attributes for leaders of school trips

As well as the technical skills traditionally associated with outdoor leader competence it is important that they have people skills such as the ability to start the group off on a good note, effective facilitation of group dynamics, the ability to work with violent behaviours and assertiveness. They need skills such as listening, conflict resolution and negotiation, anger management, basic counselling, self awareness, stress management and decision-making.[2]

An international survey of Australian, Canadian, British, New Zealand and American outdoor leaders identified the following components of effective outdoor leadership.[3]

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SKILLS

- Technical activity skills
- Safety skills
- Organisational skills
- Environmental skills
- Instructional skills
- Group management skills
- Problem solving skills

ATTRIBUTES

- Motivational philosophy and interest
- Physical fitness
- Healthy self concept and ego
- Awareness of and empathy for others
- Personable traits and behaviour
- Flexible leadership style
- Judgement based on experience

Figure 22 Components of effective outdoor leadership

ACQUIRING OUTDOOR LEADERSHIP SKILLS AND COMPETENCE

In New Zealand there are many pathways to becoming an outdoor leader. There are formal courses of one to three years duration and many informal ad hoc routes, all producing fine leaders. The following are some ways an outdoor leader can gain the competencies required to lead outdoor activities and improve their judgement and decision-making skills.

- Attend suitable training courses, for example, outdoor leadership, safety and risk management, bushcraft, outdoor first aid, group facilitation, rescue techniques (river, sea kayak, crevasse, etc). See Appendix II for training opportunities available in New Zealand.
- Work alongside experienced leaders in an assistant role.
- Seek opportunities to lead and co-lead groups on activities within your own personal capabilities. Take on more responsible roles as your competence increases.
- Contribute to decision-making in many different settings: on trips with peers, when in an assistant leader role, when co-leading.
- Accumulate experience through personal recreation. This is where personal skills can be maintained and extended, and boundaries pushed. Get out of your comfort zone once in a while. Enjoy yourself!

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- During your personal trips, stretch yourself, make small mistakes, solve problems and recover from them (for example, navigation, kayak capsize, travel in darkness). This process will hone your judgement and give you skills to extract yourself from big mistakes if they ever happen.[4]
- Analyse incidents and reflect on what can be learned from all outdoor experiences.

SELF ASSESSMENT AND FEEDBACK FROM OTHERS

Acquiring the skills and competence to lead outdoor activities should go hand-in-hand with accurately assessing your own limitations and strengths. This process can be assisted by feedback from peers and participants. This type of feedback is useful for an outdoor leader's professional development. The aim is for the leader to get to know and understand their leadership qualities better. This information can help them develop and refine their skills in order to make sound judgements in the outdoors.

Self-assessment should be an ongoing process for the outdoor leader. Learning does not stop once you begin to lead activities. In many ways, it is just beginning. It is widely acknowledged that experience is the best way to gain skills appropriate to leading groups in the outdoors. Leaders new to leading others should seek out opportunities to learn.

LOGBOOKS

Outdoor leaders are encouraged to record their professional development and experiences in the outdoors in an *outdoor logbook*. This is an excellent tool for ongoing self-assessment as it can provide a means to record accumulated experience and training, identify weak areas, and help set goals to strengthen them.

Relevant experience can be recorded under the following headings:

- Personal outdoor experience (recreational)
- Training undertaken
- Leadership experience
- First aid qualifications
- Outdoor awards or attestation/s of equivalents

In the outdoors, all leaders are on a training path and a logbook provides a great way to record and plan professional development. In short, a logbook is an outdoor leader's curriculum vitae. Logbooks are available from outdoor agencies such as MSC, Education Outdoors New Zealand and the New Zealand Outdoor Instructors' Association (contact details are in Appendix I).

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OPERATION ZONES

The operation zones model is a useful tool to help outdoor leaders understand the importance of their own and participants' competence in relation to the level of difficulty of an activity. It can also help leaders work out the appropriate ratio of competent leaders to novices for the trip.

An outdoor leader should strive to keep a good safety margin between the demands of the activity and their own competence, to enable them to look after their group and cope under stress. For example:

A grade 2+ kayaker leading a group down a grade 2 river may have trouble coping if something goes wrong, as their concentration will be on their own paddling. Whereas a grade 4 kayaker leading a trip on a grade 2 river is likely to be paddling without conscious effort, enabling them to focus on the group, cope with the unexpected and avert or resolve any incidents.

Outdoor leaders are most effective when operating within their field of competence. The operation zones model (Figure 23) for adventure activities is a useful tool to look at this. The model can help leaders to determine the appropriate operation zone for themselves and participants. The model can also help leaders find an appropriate balance between competence and difficulty when planning an activity for a particular group.

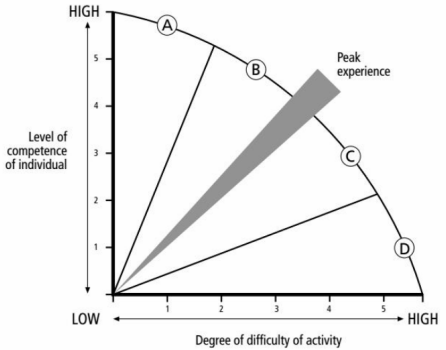

Figure 23 Operation zones model for adventure activities[5]

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Operation zones

A – Play: The skill level of the leader or participant far exceeds the degree of difficulty of the activity. There is no challenge or excitement in the activity. This can lead to boredom, a lack of concentration and incidents if leaders or participants decide to create excitement for themselves. For the leader, careful management of the group is often required in this zone.

B – Cruising: The skill level is above the degree of difficulty of the activity so leaders and participants can cope easily with challenges or emergencies. There is often enjoyment without stress.

P – Peak experience: People's competence matches the difficulty of the task. It is a zone where participants can experience the euphoric state described in Chapter 1. It can be the ultimate goal of an adventure experience.

C – Challenge: The degree of difficulty of the activity is slightly above participants' skill levels. A lot of learning takes place in this zone as participants rise to the challenges. Maximum concentration is required; there may be some anxiety or excitement and there is potential for mishap. Support should be readily available from leaders, who should aim to be operating in A or B zones. Leaders should not aim to be operating in C zone.

D – Distress: The degree of difficulty is way above the skill level of participants. Lack of skill, anxiety and fear can lead to mishaps, serious injury or death. Leaders should aim to keep their participants and themselves out of this zone.

The operation zones model can help an outdoor leader determine the right level of activity for a particular group. For example:

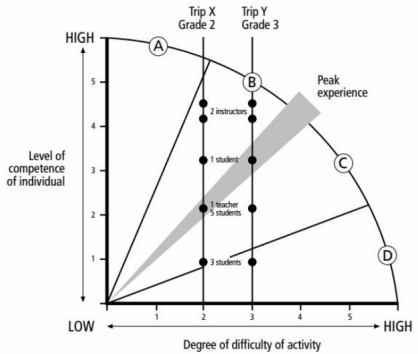

Figure 24 Operation zones model for a river kayak trip

Two instructors plan a kayak trip for nine students and a teacher:

- Three students can paddle flat water and grade 1 competently.
- Five students and the teacher can paddle grade 2 competently.
- One student is a competent grade 3 paddler.
- The two staff can paddle grade 3/4 competently.

On trip X

The instructors will be operating in the upper B zone, cruising, although they will be challenged by managing the group. One student will also be operating in B zone, cruising. Five students and the teacher will be operating in P zone. Three students will be operating in C zone. They will find the trip very challenging.

On trip Y

The instructors will be operating in the lower B zone, cruising. One student will be operating in P zone. Five students and the teacher will be operating in C zone, challenge. Three students will be operating in D zone, distress.

It does not take an expert to decide which trip is more suitable trip for this group.

Trip X

This trip might be suitable for this group in the right conditions, that is, river normal, fine weather, water not too cold, adequate gear, etc. The five students and teacher in P zone will be relatively independent, having the skills to cope in the conditions and assist each other. The three students in C zone will find the trip a big challenge. Leaders and students must expect 'can-outs' and have strategies to cope. The student in B zone, plus the two leaders, could buddy up to assist these students one-on-one, with the leaders supervising the overall group as well (a ratio of 1:4 or 5). With adequate risk management planning and good emergency procedures in place it could be a peak experience for the group.

Trip Y

On this trip, three students would be in D zone, five students (and the teacher) in C zone and one student in P zone. Leaders should not plan to put anyone in D zone from the start of a trip. This is sure to be a negative experience for them and may end in serious injury or death. Nine people will be reliant on the two leaders for assistance on this trip, a ratio of 1:4 or 5. If several people needed the assistance of each leader at once, the leaders would be in D zone themselves, creating serious potential for loss. This trip is beyond the resources of this group.

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Trip XY

The environment is dynamic so trips may not remain static. A change in the weather or river flow may cause a trip to fluctuate between X and Y. Or trip X may turn into trip Y part way through. Leaders need to take these dynamics into account in their planning and decision-making. Escape routes and a Plan B are essential in a risk management plan. So is calling the trip off if fluctuations that take the group out of their safe operation zone are likely.

Points to note:

- There will be a range of abilities within a group.
- The activity chosen should be within the capabilities of everyone involved. Most people's ability should match or exceed the difficulty of the task.
- There should be adequate support for those in C zone.
- The ratio means the number of skilled/experienced people to the number of novices in an activity. This does not always equate with the number of adults to the number of students.
- The environment is dynamic, so trips can fluctuate between zones.
- The leader/s must be operating in A or B zones in the activity. If they find the activity challenging, they will have no safety margin to assist if others require support or get into trouble.
- The leader/s should seek their challenge in managing the group, not from the activity itself.
- It is important for leaders to seek challenges on trips with peers so they can continually improve their skills. This is why personal trips are an important area of professional development for an outdoor leader and need to be logged along with leadership and training experience.

TRIP REVIEW

The operation zones model can also be used to review a trip and learn from it, as happened with the following trip:

Two friends were planning a summer trip over the Copland Pass. Bob, the leader, had extensive climbing experience and Peter had extensive bush and alpine tramping experience. Other members of the party were Bob's wife, Jane, and another friend, Jim, who had both done a lot of tramping and would be challenged by this alpine trip. Planning went ahead. Shortly before the trip began Jim talked Bob into letting his wife Naomi (who he said had tramping experience) join the party. Jim then persuaded Naomi to accompany them, playing down the difficulty of the trip.

On the trip it quickly became apparent that Naomi had very limited tramping experience and had come along only to please her husband. She needed constant encouragement and physical assistance, which held the whole party up. On reaching the top of the pass Naomi sat down and refused to go any further or back the way they had come. She was distressed, frightened and totally out of her depth. It took several hours of cajoling, encouragement and worry on everyone else's part to persuade Naomi to start moving again. The party finally made it down to shelter rocks on the West Coast side for a late bivvy. Luckily the weather was favourable throughout. The trip was the most stressful the leader had ever encountered and was such a horrific experience for Naomi she never wanted to tramp again.

Let's see how this party fits the model on page 103:

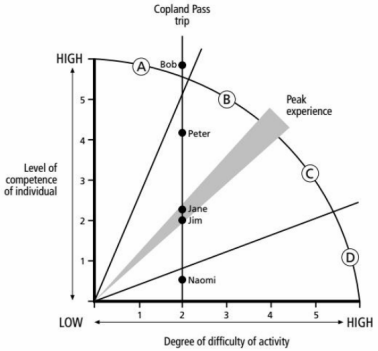

Figure 25 Operation zones model for a trip over the Copland Pass

This trip rated a 2 on the difficulty scale, while the skills in the party ranged from 5 to 1.

- Bob was operating in A zone. He had plenty of experience to be leading this trip.
- Peter was operating in B zone, well within his capabilities.
- Jane and Tim were operating in C zone. The trip was a challenge for them.
- Naomi was operating in D zone and was in a state of distress for most of the trip.

At the end of the trip, the leader vowed never to take an 'unknown' on a trip again. Not only had the trip been a negative experience for Naomi, it had been so for the whole party. Naomi's state of distress also put everyone at risk. If they had encountered bad weather at the top of the Pass, the party could have got into real difficulty. This trip could be described as a near miss.

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RATIOS AND COMPETENCE

Competence is central to the concept of setting ratios for outdoor activities. A ratio is the number of experienced people compared to the number of inexperienced people involved in an outdoor activity. For example, Garth, an experienced outdoor leader, ran a snow craft course for 23 students, with two other experienced instructors, plus a teacher and student teacher assistant. The course went well, but one student got very cold on the mountain. Garth reviewed the ratios as part of the incident review.

Of his fellow instructors he said:

> 'One of the most positive things about that whole trip was we worked so well together and we were thinking of the other people's groups. For that reason, I felt very confident, comfortable with their experience and it seemed to go the other way as well. And it made the whole thing very easy'.

Of the other teacher and student teacher he said:

> 'They weren't really aware of what was happening (when one student got very cold). That is one event that did disturb me. But they were useful in terms of some practical things if they were given really clear guidance as to what to do, but they weren't really capable of making a judgement call.
>
> With the teachers, it's this whole thing of when are they a liability? It may sound conceited but I don't ever count teachers (re ratios) in an alpine environment. I mean, the first thing I do is start assessing them to find out if they're going to be any help at all, or whether they're going to be like an increase in numbers'.

Garth, understandably, did not count the teacher or student teacher assistant as leaders on this trip. Although helpful for some tasks, given clear guidance from the instructors, they were additional novices who the instructors were responsible for. So the ratio of experienced leaders to novices on this trip was 1:8 (approximately), not 1:5 as would be the case if all adults were counted as leaders.

Decisions on ratios should take account of the following as part of the risk assessment:

- Competence of staff
- Competence of volunteers/assistants
- Gender, age, behaviour, ability of participants
- Medical and learning needs of participants
- Duration and nature of activity
- Nature of site
- Site requirements (for example, permits)
- Contingency options
- Accessibility of emergency services
- Season, weather forecast

Once ratios have been decided on, it is important that outdoor leaders allocate specific groups of participants to supervisors. This will help ensure that supervision is carried out effectively as each supervisor is responsible for a specific group. Supervisors will need medical and other information relevant to their group members' safety.

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CHAPTER 8:

SAFETY REVIEWS

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HOW DO I KNOW HOW SAFE MY PROGRAMME IS? 112

PHOTO Jenny Long

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HOW DO I KNOW HOW SAFE MY PROGRAMME IS?

He manga wai koia kia kore e whitikia

An effective means of determining programme safety is to carry out a comprehensive programme review against accepted best practice. Three ways of accomplishing this are set out below. Organisations should consider incorporating all three types of review into their SMS.

Self review

In a self review, key members of an outdoor organisation – those people responsible for safety management – check the organisation's systems, operations, practices and equipment. The aim is to assess whether they meet specified standards, using a standardised safety management checklist. Findings will assist the organisation to set priorities for improving their safety systems over time and will affirm the areas they have well covered. It is recommended that organisations carry out an annual self review.

Peer review

In a peer review, an outdoor organisation invites representatives of one or more similar organisations, and perhaps MBIE, to assess the extent to which the programme meets specified standards, using a standardised safety management checklist. The representatives need to be familiar with programme activities and management practices. The peers responsible for the review will identify good practice and make recommendations for improving safety management. It is recommended that organisations undergo a peer review every two or three years.

External reviews

In an external review, an outdoor organisation's governing body employs a suitably qualified safety reviewer to carry out a safety assessment of the programme. The process usually involves audit criteria being negotiated between the two parties, and an agreement by the outdoor organisation to implement any recommendations made. It is recommended that organisations undergo an external review at least every five years, depending on the extent of the programme. It is a good idea to seek an external safety review after a serious incident. This review may focus on a specific activity or the programme in general.

A number of suitable checklists are available to assist outdoor organisations with self and peer reviews, and to help them prepare for an external review, for example, the checklists available on **www.supportadventure.co.nz**, and the *Health and Safety Management Systems Assessment Checklist*, available from **www.mbie.govt.nz/**

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CHAPTER 9:

LEGAL REQUIREMENTS

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PHOTO Kerry Adams

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WHAT IS LEGALLY REQUIRED OF OUTDOOR LEADERS?

Kia ū, kia mau, kia mataara

NOTE

For the most up-to-date information on the legal requirements for outdoor leaders, see: **www.supportadventure.co.nz/legislation**

Support Adventure was created by the Tourism Industry Association New Zealand (TIANZ) (with support from Outdoors New Zealand) to provide safety guidance for outdoor activities in New Zealand.

This chapter focuses on the legal responsibilities of professional outdoor leaders – leaders who manage outdoor activities on behalf of an organisation or controlling authority. However, it is recommended that outdoor leaders in personal recreational activities still follow the same standards in their practices.

Professional outdoor leaders have legal responsibilities, whether they are volunteers, commercial guides or teachers. The employers or controlling authorities of these groups also have legal responsibilities.

Legal obligations include those set out in legislation and those that arise out of general law.

EMPLOYERS AND CONTROLLING AUTHORITIES

School boards of trustees, adventure tourism company directors, and boards of outdoor organisations that offer training courses are examples of employers or controlling authorities in the outdoor sector. The employer or controlling authority is legally responsible for the safety of all participants involved in an outdoor activity they offer. If there is a serious incident during an outdoor activity, they may be held accountable for circumstances caused by the actions or omissions of an employee, volunteer outdoor leader, outside helper, participant or contractor. Legal liability for the incident will depend on whether the employer or controlling authority has complied with its legal obligations and acted reasonably when planning and carrying out the activity.

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LEGAL OBLIGATIONS UNDER LEGISLATION

The following is a summary of the most important legal obligations for outdoor leaders and their employer or controlling authority.

Health and Safety in Employment legislation Health and Safety in Employment Act 1992 Health and Safety in Employment Regulations 1995 Health and Safety Amendment Act 2002 Health and Safety in Employment (Adventure Activities) Regulations 2011	**Outdoor leader** • Ensure their own safety while at work. • Ensure that, while at work, no action or inaction on their behalf causes harm to any other person. • Disclose any trauma that may affect their own or others' safety in the workplace. Note: This legislation applies to employees at worksites. However, the site for an outdoor activity is interpreted as a place of work. A volunteer in charge of that site has the same responsibilities as an employee. **Employer/Controlling authority** • Take all practicable steps to ensure the safety of employees and other people. • Identify hazards and take steps to eliminate, isolate and/or minimise them. • Develop emergency procedures. • Identify drug and alcohol use as a hazard and manage that hazard. • Provide training to employees, including regular volunteers. • Ensure the safety of vehicles that are being used as a place of work. • Keep a register of incidents that have seriously harmed or might have harmed employees or participants. • Ensure no action or inaction of any employee harms any other person while at work.
Crimes Act, 1961	**Outdoor leader and employer/controlling authority** • Provide the necessaries of life, including food, clothing and medical treatment. • When in charge of dangerous things, use all reasonable care to avoid danger to human life.

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Education Act, 1989 For more information on legal requirements for school outdoor activities, see Chapter 6 of the EOTC Guidelines, eotc.tki.org.nz/EOTC-home/EOTC-Guidelines	**Outdoor leader (teacher, parent volunteers)** • Follow all safety procedures set by the school. • Notify the designated teacher in charge (TIC) of any hazards they identify. • If the TIC, be responsible for the actions of parents and assistants. Note: Health and Safety in Employment legislation means that the TIC has the same responsibilities as an employee at a worksite.
	Employer/Controlling authority • Prepare charters in accordance with the National Administration Guidelines (NAGs). • Under NAG 5, boards must also · Provide a safe physical and emotional environment for students. · Comply in full with any legislation currently in force or that may be developed to ensure the safety of students and employees.
Arms Act 1983 For more information on the lawful and safe possession and use of firearms, see the *Arms Code*, www.police.govt.nz/service/firearms/arms-code.pdf	**Outdoor leader and employer/controlling authority** • Handle firearms safely. • Store firearms and ammunition safely.
Transport legislation Primarily the Land Transport Act 1998	**Outdoor leader and employer/controlling authority** • Ensure safe road user behaviour. • Ensure vehicle safety.

LEGAL OBLIGATIONS UNDER GENERAL LAW

This section explains the scope of an outdoor leader's duty of care and the standard of care required, and explores the legal effects of informed consent.

DUTY OF CARE

Outdoor leaders (and their controlling authorities) owe a duty of care to outdoor activity participants. This means that outdoor leaders need to actively protect participants from foreseeable harm. This responsibility continues whether activities are located in urban, rural or wilderness areas, and when they involve unskilled volunteer helpers such as parents.

Accident compensation legislation means that people cannot sue outdoor leaders (and their controlling authorities) for any breach of this duty resulting in personal injury. But they could still sue for exemplary damages (where the court decides to make an example of poor behaviour), for compensation, for property damage, or for damages for mental injury.

STANDARD OF CARE

The standard of care required during an outdoor activity is the standard that could be reasonably expected of the professional outdoor leader. In other words, the outdoor leader is expected to follow the best practice set down by the national body responsible for the particular activity they are leading.

To ensure that volunteers or employees meet this standard of care, controlling authorities should:

- Establish policies and procedures that are based on best practice guidelines (see Chapter 10).
- Ensure that the outdoor activity operates in accordance with the organisation's own policies and procedures.
- Ensure that the outdoor activity is in the best interests of participants.
- Ensure that people chosen for special skills exercise those skills in a professional manner.

Standard of care for young people

Sometimes there is reference to *in loco parentis* in relation to the standard of care owed to young people involved in outdoor activities. *In loco parentis* means the degree of care that a reasonably careful and prudent parent would give. Sometimes an outdoor leader performs a similar supervisory function to that of a parent, such as during an overnight trip. But, legally, the standard of care required is the standard of a professional outdoor leader – not a parent.

Breach of standard of care

Putting aside the issue of accident compensation, for an injured participant to succeed in a claim of negligence against an outdoor provider (such as a school or commercial operator) in New Zealand, the participant must establish that:

- The organisation owed a duty of care to that participant.
- The organisation was in breach of that duty.
- The damage/harm was foreseeable.
- As a result of the organisation's breach of its duty, the participant suffered damage/harm.
- The damage or harm suffered was not too remote from the organisation's breach of its duty.

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WAIVERS

A signed waiver does not release the organisation or individual staff or person from their legal responsibilities for the prevention of risk. Even with a signed waiver:

- A high standard of care is still owed.
- Quality equipment is still required.
- Activities need to be supervised by competent staff.
- Emergency procedures need to be planned and followed.

The standard rises for those with special needs.

Waivers do, however, alert participants to the risks involved in an activity. Most outdoor organisations provide informed consent and risk disclosure forms instead of waivers.

INFORMED CONSENT AND RISK DISCLOSURE

As with waivers, informed consent and risk disclosure forms do not remove an organisation's legal responsibilities towards participants. They do, however, alert participants to the risks involved in an activity, state that measures are taken to prevent risks, and assert that everyone is obliged to continually monitor risks.

Organisations should get participants' consent before their involvement in an outdoor activity. Where minors are involved, consent must be obtained from a parent, caregiver or other adult responsible for the minor.

- An informed consent and risk disclosure form should tell participants/parents of any risks associated with the activity (risk disclosure). Ideally it should contain an indication of the likelihood and consequences of a particular loss.
- There should also be provision for the participant/parent to inform the provider of any risks associated with their/their child's involvement. For example, special requirements; skills or lack of them; medical, behavioural and health conditions; language needs; cultural practices.

Informed consent and risk disclosure forms will be most effective when:

- Risks are fully explained so participants/parents understand them.
- Participants/parents are given the opportunity to ask questions.
- Participants do the activities voluntarily according to the principle of challenge by choice; that is, the participant chooses their own level of challenge within a supportive peer environment.

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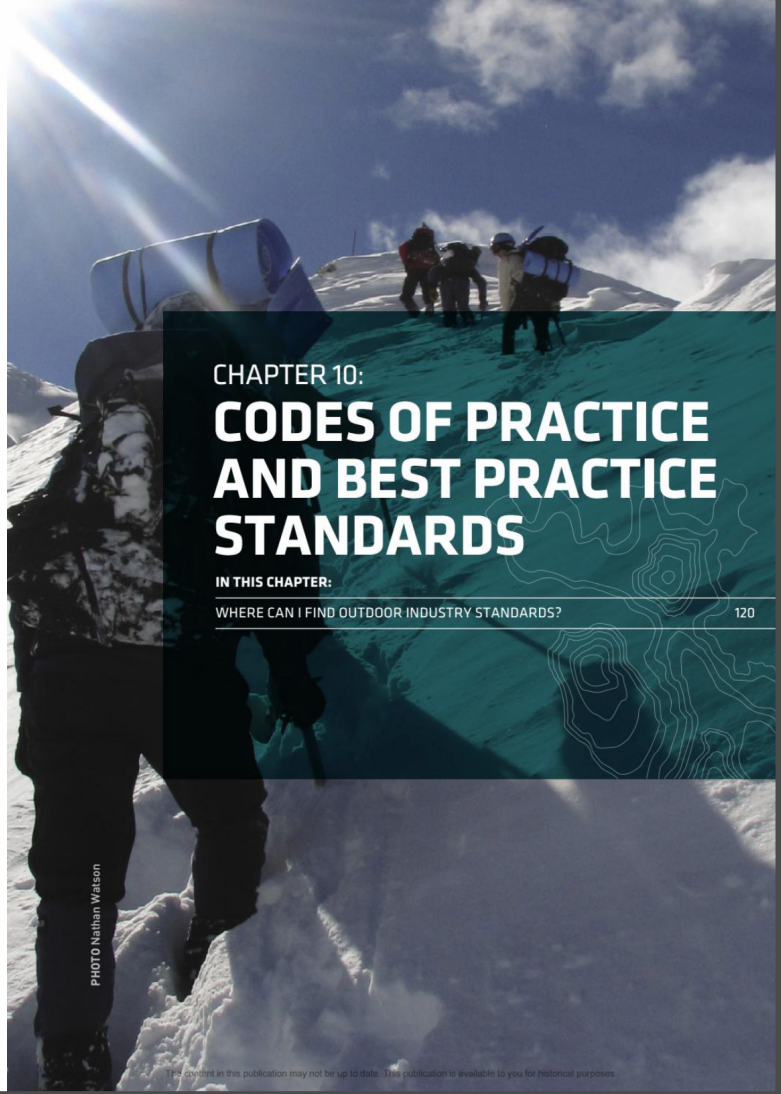

CHAPTER 10:

CODES OF PRACTICE AND BEST PRACTICE STANDARDS

IN THIS CHAPTER:

WHERE CAN I FIND OUTDOOR INDUSTRY STANDARDS? 120

PHOTO Nathan Watson

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WHERE CAN I FIND OUTDOOR INDUSTRY STANDARDS?

Me mate ururoa, kaua e mate tarakihi

NOTE

For the most up-to-date information on codes of practice and best practice standards for outdoor leaders, see: www.supportadventure.co.nz/activity-safety-guidelines

Support Adventure was created by The Tourism Industry Association New Zealand (TIANZ) (with support from Outdoors New Zealand) to provide safety guidance for outdoor activities in New Zealand.

For information on guidelines for school outdoor activities, see http://eotc.tki.org.nz/EOTC-home/EOTC-Guidelines

To meet statutory health and safety requirements, organisations must be able to show that their practices, not just their paperwork, meet standards of safety. Outdoor leaders and organisations must get their practices right. If their paperwork is immaculate but their practices are poor, they will still have incidents and may be prosecuted for them. If their practices are sound, but their paperwork is poor, they will probably have fewer incidents. Provided they can show they did the right thing on the day, they are unlikely to be prosecuted for deficient documentation. The ideal, of course, is to have both practices and paperwork up to scratch.

Standards are contained in codes of practice – statements of preferred work practices or arrangements. Outdoor organisations should be able to show that their practices comply with the relevant code of practice or, in the absence of a formal code, with accepted best practice for that activity. The national body responsible for each activity is responsible for establishing best practice standards. (See Appendix I for a list of outdoor professional bodies and national organisations in New Zealand.)

GENERAL OUTDOOR ACTIVITY GUIDELINES

Best practice guidelines for outdoor pursuits are available for outdoor leaders and their employers or controlling authorities. They are found in the following publications and websites:

- *Outdoor Activities – Guidelines for Leaders* (Sport New Zealand, 2005), booklet available for download at **www.sportnz.org.nz/en-nz/young-people/Guidelines--Resources/Outdoor-Activities---Guidelines-for-Leaders**
- *Support Adventure* Activity Safety Guidelines at **www.supportadventure.co.nz/activity-safety-guidelines**

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- Education Outside of the Classroom (EOTC) Guidelines at **http://eotc.tki.org.nz/EOTC-home/EOTC-Guidelines**
- *AdventureSmart* – A resource for recreational users, developed by several outdoor and safety organisations working together. Resources available include a series of basic safety codes for outdoor activities: **www.adventuresmart.org.nz**

CODES OF PRACTICE AND STANDARDS FOR SPECIFIC ACTIVITIES

Appendix I contains a table of national organisations that can provide codes of practice, best practice standards or training for specific activities.

When trying to establish best practice for activities that do not have written guidelines, outdoor leaders can contact a colleague or related organisation to ask them about their current procedures for running the activity. The aim is to establish that what they are planning is consistent with what their professional peers are currently doing (peer-accepted best practice).

This process can also be useful when written guidelines are outdated. In this case, making contact with the appropriate national body is a good idea. For example, contacting the MSC regarding current best practice in river crossing will keep you up to date with changes between editions of the MSC's *Bushcraft: Outdoor Skills for the New Zealand Bush* manual 40.

ACCEPTED PROFESSIONAL PRACTICE VERSUS COMMON PRACTICE

Accepted professional practice is safe practice in accordance with a profession's stated standards. Common practices are practices frequently used as short cuts – things that you might do with your buddies or on your own to save time and bother.

Examples of a common practice

An abseiling instructor abseils down a short rock face at the end of the day without a safety rope or backup Prusik – they feel confident enough in their ability to take the risk and they want to wrap up the lesson as quickly as possible.

After ensuring that a group has crossed a river safely using correct river-crossing techniques, the instructor proceeds to wade across the river alone without the support of a group or a pole.

While walking around a bluff section of track, a guide instructs the clients to ensure that there is nothing in their hands and to hold onto the pre-fixed cable at all times. However, the guide walks at the back of the group trying to adjust their walking pole as it is an easy track and they have walked this section so many times before.

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These types of shortcuts could lead to instructors injuring themselves, participants learning unsafe practices and/or the instructor's professionalism being undermined.

Working as a professional outdoor leader is about modelling best practice at all times. Professionalism requires a certain standard of performance. It is developed as part of belonging to and being responsible to a profession.

- Each member of the profession is a link in the organisational chain, which is only as good as its weakest link.
- Professionalism is the temper which gives the chain its strength and quality.

To function safely and effectively, an organisation must establish clear and concise policies and procedures. If the organisation is part of a larger profession, the policies must be consistent with those recognised by the profession as a whole. If we want our students in the outdoors to develop leadership, responsibility, compassion and safe practices, then these must be modelled to them at all levels.[1]

A code of conduct or professional practice is one way an organisation can make its standards of professional behaviour clear. The following is the code of conduct that the New Zealand Outdoor Instructors' Association (NZOIA) sets out for outdoor instructors.

Code of Conduct

A NZOIA member has responsibility for promoting the highest standards of outdoor instruction and guiding. Professional integrity is key to the credibility of an instructor or guide.

An instructor or guide has privileged interactions with people. This brings considerable responsibility regarding behaviour. It's important that NZOIA members are aware of these responsibilities, and realise that any breach could result in repercussions such as the loss of NZOIA qualifications.

Sustainability

- Respect environmental resources and do everything you can to ensure they're maintained for future generations.
- Where and when possible, act to enhance our environment.

Safety

- Take all practicable steps to safeguard yourself and clients.
- Balance opportunities and risks to develop effective strategies that manage risk.
- Use clear and understandable language to tell clients about the risks related to the activities.
- Encourage and support clients but never force them to do an activity, unless their opting out brings a risk to themselves or others.
- Refuse to follow any request or policy that compromises safety.
- Alert individuals and organisations when you notice unsafe practices and, if necessary, take direct action to protect the public from imminent danger.

Relating to clients

- Respect the confidentiality of private client information unless it reveals a chance of harm to others.
- Recognise the values that exist in all cultures and encourage others to appreciate that diversity too.
- Interact positively with trainees and assessment candidates.
- Avoid intimate relationships with course participants.
- Ensure your work isn't affected by illicit or prescription drugs.

Professional practice

- Accept responsibility based on current competence only, and decline work that is outside your level of current competence.
- Contribute time and expertise to activities that promote the value, integrity, and competence of the outdoor sector.
- Contribute to the knowledge base of outdoor instruction and guiding by sharing knowledge at conferences or in newsletters and journals.
- Help in times of public emergencies by offering leadership and technical skills, providing you don't endanger yourself or your clients.
- Be aware and considerate of other recreational users and colleagues.
- Support instructors and guides who are working to this code.
- Promote the value of qualifications to colleagues and support them to remain current.
- Respect staff concerns when acting as an employer.

Representing NZOIA

- Distinguish between statements you make as a private individual and those you make that represent NZOIA or your employer.
- Ensure you're currently registered when using an NZOIA qualification in promotional material or as a professional credential.
- Acknowledge NZOIA's intellectual property in your writing.

(Reprinted with permission from NZOIA. See **www.nzoia.org.nz/about/about-nzoia/12-about/24-code-of-conduct** for the most up-to-date Code of Conduct.)

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APPENDICES

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PHOTO Peter Waworis

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APPENDIX I:
PROFESSIONAL BODIES AND NATIONAL ORGANISATIONS

The following are professional bodies and national organisations that can provide codes of practice, best practice standards and guides, or training for specific activities.

New Zealand Mountain Safety Council (MSC)
www.mountainsafety.org.nz

Civil Aviation Authority
www.caa.govt.nz

Cycle Tour Operators of New Zealand
www.ctonz.co.nz

Education Outdoors New Zealand (EONZ)
www.eonz.org.nz

Industrial Rope Access Association of New Zealand (IRAANZ)
www.iraanz.co.nz

Kiwi Association of Sea Kayakers (KASK)
www.kask.org.nz

Maritime New Zealand
www.maritimenz.govt.nz

Ministry of Education
www.tki.org.nz

New Zealand Alpine Club
www.alpineclub.org.nz

New Zealand Deerstalkers' Association (NZDA)
www.deerstalkers.org.nz

New Zealand Mountain Guides Association (NZMGA)
www.nzmga.org.nz

New Zealand Orienteering Federation
www.nzorienteering.com

New Zealand Outdoor Instructors' Association (NZOIA)
www.nzoia.org.nz

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New Zealand Police
www.police.govt.nz

New Zealand Professional Hunting Guide Association
www.nzphga.com

New Zealand Rivers Association
www.nz-rafting.co.nz

New Zealand Snowsports Instructors Alliance
www.nzsia.org

Outdoors New Zealand (ONZ)
www.outdoorsnz.org.nz

Professional Fishing Guides Association
www.nzpfga.com

Project Adventure New Zealand
www.panz.org.nz

Service IQ (formerly the Aviation, Transport and Tourism Training Organisation – ATTTO)
www.attto.org.nz

Ski Areas Association of New Zealand
http://snow.co.nz/media/snowsports/saanz.htm

Skills Active Aotearoa (formerly the Sport, Fitness, Recreation ITO – SFRITO)
www.skillsactive.org.nz

Tourism Industry Association New Zealand (TIANZ)
www.tianz.org.nz

Water Safety New Zealand (WSNZ)
www.watersafety.org.nz

Yachting New Zealand
www.yachtingnz.org.nz

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APPENDIX II:

TRAINING OPPORTUNITIES IN NEW ZEALAND FOR OUTDOOR LEADERS

RISK MANAGEMENT AND OUTDOOR SAFETY MANAGEMENT TRAINING

Training courses are offered by the following organisations:

New Zealand Mountain Safety Council (MSC)
www.mountainsafety.org.nz

Education Outdoors New Zealand (EONZ)
www.eonz.org.nz

New Zealand Outdoor Instructors' Association (NZOIA)
www.nzoia.org.nz

Skills Active Aotearoa (formerly the Sport, Fitness, Recreation ITO – SFRITO
www.skillsactive.org.nz

Sir Edmund Hillary Outdoor Pursuits Centre of New Zealand
www.opc.org.nz

OTHER TRAINING

A number of organisations offer training and qualifications/awards suited to outdoor leaders in New Zealand.

- **New Zealand Mountain Safety Council (MSC)** offers a number of training and education opportunities including abseiling, alpine skills, avalanche awareness, bushcraft skills such as navigating and river safety, firearms and hunter safety, outdoor first aid, outdoor leadership and risk management. See **www.mountainsafety.org.nz**
- **Education Outdoors New Zealand (EONZ)** offers a range of safety management training opportunities for teachers. Training is school specific and generic in nature. It can be applied across the entire range of education outside the classroom (EOTC) events a school may run, from a farm visit to a multi-day journey. EONZ also offers the Outdoor 1 Award. This is a baseline award for teachers leading groups overnight on clearly formed tracks. See **www.eonz.org.nz**
- **Kiwi Association of Sea Kayakers (KASK)** offers training for volunteer trip leaders in sea kayak safety, rescue skills and leadership skills. See **www.kask.org.nz**
- **The National Outdoor Leadership School (NOLS)** takes students of all ages on remote wilderness expeditions ranging from 10 days to a full academic year where they are taught technical outdoor skills, leadership, risk management and environmental ethics. See **www.nols.edu/courses/locations/newzealand**
- **New Zealand Deerstalkers' Association (NZDA)** promotes safe, responsible use of firearms, and a respect for native flora and fauna. They offer training through the HUNTS (hunter national training scheme) programme to provide the knowledge and skills to operate safely as a hunter in the New Zealand outdoors. See **www.deerstalkers.org.nz**
- **New Zealand Kayak Instructor (NZKI)** offers awards and training for instruction and guiding in both sea kayak and whitewater kayak disciplines. See **www.nzki.co.nz**
- **New Zealand Outdoor Instructors' Association (NZOIA)** offers awards in abseiling, bush, caving, kayaking, wall and rock climbing, canoeing, outdoor safety management and outdoor (a baseline award). See **www.nzoia.org.nz**
- **Project Adventure New Zealand (PANZ)** offers training in adventure-based learning, facilitation skills, leadership skills and safety skills and standards. See **www.panz.org.nz**
- **Sea Kayak Operators' Association of New Zealand (SKOANZ)** offers awards in sea kayak guiding. See **www.skoanz.org.nz**
- **Skills Active Aotearoa and EONZ** offer the National Certificate in Recreation and Sport (Education Outside the Classroom) for EOTC coordinators and teachers. See **www.skillsactive.org.nz**
- **Sir Edmund Hillary Outdoor Pursuits Centre of New Zealand** offers training in skills for outdoor leaders and various outdoor pursuits such as tramping, rock climbing and kayaking. See **www.opc.org.nz**
- **Water Safety New Zealand (WSNZ)** offers training in water safety in beach, pool and river environments. See **www.watersafety.org.nz**

Some tertiary institutions offer qualifications in outdoor leadership, outdoor education, adventure tourism or environmental education. For example:

- Aoraki Polytechnic. See **www.aoraki.ac.nz**
- AUT University. See **www.aut.ac.nz**
- Canterbury Polytechnic Institute of Technology. See **www.cpit.ac.nz**
- Nelson Marlborough Institute of Technology. See **www.nmit.ac.nz**
- Otago Polytechnic. See **www.otagopolytechnic.ac.nz**
- Tai Poutini Polytechnic. See **www.tpp.ac.nz**
- University of Otago. See **www.otago.ac.nz**
- Whitireia New Zealand. See **www.whitireia.ac.nz**

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Severity Ranking	Impact on Participation	Injury	Illness	Social or Psychological Damage	Severity Ranking	Equipment Damage	Environmental Damage
1	**MINOR/SHORT TERM IMPACT on individual(s) that doesn't have large effect on participation in activity or programme**	Splinters, insect bites, stings	Minor irritant	Temporary stress or embarrassment	1	Minor cost	Littering
2		Sunburn, scrapes, bruises, minor cuts	Minor cold, infection, mild allergy	Temporary stress or embarrassment with peers	2	Greater than $50	Minor damage to environment that will quickly recover
3		Blisters, minor sprain, minor dislocation, cold/heat stress	Minor asthma, cold, upset stomach	Stressed beyond comfort level. Shown up in front of group.	3	Greater than $100	Scorched campsite, plant damage
4	**MEDIUM IMPACT on individual(s) that may prevent participation in the activity or programme for a day or two.**	Lacerations, frost-nip, minor burns, mild concussion mild hypothermia, mild heat stroke	Mild flu, migraine	Stressed, wants to leave activity, a lot of work to bring back in.	4	Greater than $500	Burnt shrubs, cut live branches, washed group dishes in stream
5		Sprains and hyperextensions minor fracture	Flu, food or hygiene related diarrhoea or vomiting	Distressed, freezes on activity, requires 'emotional rescue', and does not want to participate again	5	Greater than $2,000	Walked through sensitive ecological area destroying some plant life, toileting close to water course

Any incident ranked 6 or above *needs* to be reported to the Ministry of Business, Innovation and Employment.

6	**MAJOR IMPACT on individual(s) that means they cannot continue with large parts of the activity or programme.**	Hospital stay less than 12 hours e.g. frostbite, major burn, fractures, dislocations, concussion, surgery, breathing difficulties, moderate heat stroke or hypothermia	Hospital stay less than 12 hours e.g. serious asthma attack, serious infection, or anaphylactic reaction	Very distressed, leaves activity and requires on-site counselling, unwilling to participate in activity ever again	6	Greater than $8,000	Destroyed or killed flora or fauna
7		Hospital stay greater than 12 hours e.g. arterial bleeding, severe hypothermia or heat stroke, loss of consciousness	Hospital stay greater than 12 hours e.g. infection or illness causing loss of consciousness, serious medical emergency	Therapy or counselling by professional required	7	Greater than $20,000	Killed, destroyed or polluted small area of environment
8	**LIFE CHANGING effect on individual(s) or death.**	Major injury requiring hospitalisation e.g. spinal damage, head injury	Major injury requiring hospitalisation e.g. heart attack	Long-term counselling/ therapy required after incident	8	Greater than $50,000	Killed example of protected species
9		Single death	Single death	Post-traumatic stress disorder, changed profession because of incident	9	Greater than $250,000	Fire or pollution resulting in area of wilderness being destroyed
10		Multiple fatality	Multiple fatality	Suicide because of incident	10	Greater than $1,000,000	Major fire or pollution causing serious loss to environment

Davidson, 2005. Incident Severity Scale. Adapted and expanded from the Accident Frequency Severity Chart (Priest, 1996).

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APPENDIX IV:

CASE STUDIES

CRISIS MANAGEMENT EXERCISES

Complete the following exercises as suggested.

A. School tramp

B. Adventure tourism river canoeing trip

C. A Sunday paddle

INCIDENT A: SCHOOL TRAMP[1]

Mr Black has had a five-day geography camp with his class of 13–14 year olds at the bushline in a Canterbury valley, to study vegetation change with altitude, aspect and rain-shadow effects. The valley is part of a tramping route over an easy main divide pass. The camp is two hours' walk up valley from the road-end where the school bus has been left. (It is 11km from there out to the main road).

Part of the original plan (approved by the principal, board of trustees, and parents) was that, subject to the weather and other factors, Mr Black would take a group of up to eight students (who are in the outdoor education course) on a two-day tramp over the pass. Mr Black knows the route personally. The group includes two girls, five boys and Ms Kakariki, a fit, experienced tramper. The other four adults will return to the bus with the rest of the class led by their teacher from the previous year, an experienced tramper.

By lunchtime on Day 5 Ms Kakariki has a very sore throat and feels unwell so asks to be replaced by Mr Tan. In view of this, Mr Black and Ms Kakariki consider not letting the girls go on the trip, but there are howls of protest from everyone so the girls are allowed to go.

Day 5: After an early evening meal the small group moves on up-valley to a hut, one-and-a-half hours' walk away. They intend to use the hut to save weight. By moving up-valley in the evening they will shorten the next day's trip over the pass. It will also put them up-valley of the only questionable river crossing (it is a confined river and rises quickly during rain) which is just below the hut. The only mandatory river crossing on Day 6 is the West Coast river, which has a bridge.

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Day 6: The tent camp group breaks camp, walks back to the bus, crosses the main divide by road, and sets up camp again at the mouth of the west coast valley the tramping party will come down. The tramping party is to cross the pass and descend to a hut half-way down the valley. The intention for Day 7 is that as the group tramps down to the road (a four-hour walk), the tent group will come up-valley on a day walk to study vegetation and meet the trampers en route, descending with them to the bus, then home.

Both parties have radios. They plan a 6pm schedule each day.

The estimated times for Day 6 are two hours to the pass and three more to the hut. There are mares' tails in the sky and a weird light in the morning, but the radio forecast the previous night was for settled weather the next day, possibly north-westerly on Day 7.

It takes the trampers three-and-a-half hours to reach the pass. The ground is much more boggy than Mr Black remembers, Adam has complained of sore heels (but said he didn't want to put plasters on) and Bex is uncharacteristically pale and slow.

The party had planned to have lunch down at the creek on the west coast side of the pass but it is already noon when they reach the summit. At this rate, Mr Black guesses it will take four-and-a-half hours to reach the hut.

At this point Chas discovers he has left his asthma inhaler under the mattress in the last hut and Adam with sore heels now has blisters which need tending; they are huge and broken. Bex is slow but insists she is okay. Her pack is light and her feet are in good shape. Mr Black suspects menstrual-related discomfort but with two male leaders she won't say.

The route down the pass is over steep tussock slopes to the river from where a good track leads through the impenetrable scrub masking big boulders. The entrance to the track, however, is hard to pick up unless you know where it is. Mr Black is the only one who does.

In spite of the forecast, wind and cloud have increased rapidly all morning and the north-westerly rain is just starting. Mr Tan takes out the radio to try a 'sched', only to find that whoever dismantled the aerial last night broke off one of the input plugs and he can get no reception at all.

Clearly a decision is required.

TASKS[2] If you were Mr Black, what would you do?

Task 1 Identify at least 10 factors that are relevant to the situation and will influence the decision you make, for example, *it is raining*.

Task 2 Asterisk the factors in task 1 that you think are of most concern to you.

Task 3 Identify three courses of action (A, B and C) you could take to get the two sub-groups reunited.

Task 4 For each course of action (A, B and C) identify the environmental and people factors and how you would manage each. Some will apply to A, B and C, for example, *make sure everyone has their parka on*.

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Task 5 List the advantages and disadvantages of each course of action (A, B, C).

Task 6 Of the three courses of action, decide which you would take, A, B or C.

Task 7 Justify your decision with at least five reasons.

Task 8 In view of what happened on this trip, what would do if you were involved in planning a similar trip in the future?

INCIDENT B: ADVENTURE TOURISM RIVER CANOEING TRIP

An organised trip in Canadian canoes down the Wanganui River in April (autumn). The group consists of 10 women aged 30–60. They have two instructors in kayaks.

All arrive at the meeting point. The two instructors are a little late and under the weather after a late night out drinking the night before. They don't have much prior knowledge of how experienced the group is. The group is told how to handle the boats while on the bank (not in them) and are also told they don't need kneepads. The only chance they have to practise is in a side stream while waiting for speedboats to go by.

At the first rapid the instructors paddle down and wait. All five Canadians capsize in the rapid. Incorrect sitting position meant the paddlers had no means of bracing when the boats became unstable, so they went over.

One person was stuck under a boat for some time. She kept hold of her paddle while her partner let hers go. Luckily the boat was upside down in deep water so she could push herself down to get out. However, she also got caught in the webbing which was holding the gear in the boat. The women could not turn the boat over by themselves. The one who got stuck had difficulty breathing and a constricted throat (shock/relief?) once she was free. It took some time to calm her.

All paddlers got wet in the first rapid. They are now very worried about the rest of the trip, however they have had prior experience working together as a group in the outdoors.

Clearly some things need to be sorted out before this trip continues.

TASKS

Task 1 List the causal factors of this incident.

Task 2 Decide on an action plan.

Task 3 List the changes that need to be made to avoid a future recurrence of such an incident, that is, a follow-up plan.

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INCIDENT C: A SUNDAY PADDLE

Twelve paddlers from a sea kayak club, including someone new, met at 10am on a beach within a harbour. One paddler had a lunch appointment, got impatient at the time the group was taking to get ready and paddled off on a trip by himself. The group did not see him again. There was a 10–15 knot southerly wind blowing, with waves coming into the inner harbour and a 1-metre swell on the south coast. A brief discussion was held with most members and it was decided to paddle out into the wind and through the heads to see what it was like, and decide what to do from there. People got into their boats and paddled off when they were ready.

The last four to leave were the new person (Keith) who was relatively fit but inexperienced, Veronica, who was relatively unfit, and Bonnie and Bert who were moderately fit and experienced. As the four rounded the corner out to the heads, they saw the others rapidly disappearing behind waves, several hundred metres ahead of them. Keith put on the pace to catch them, while Bonnie and Bert kept a moderate pace. After 30 minutes of paddling, Keith was now obscured by waves on the right of the reef in the harbour entrance (as were the group) and when Bonnie and Bert looked back, Veronica was out of sight too. Bonnie and Bert slowed down and kept checking behind for her. Two paddlers from the original group came into sight on the left of the reef and surfed back through the heads into the harbour two to three hundred metres to the left of them, probably heading for an island in the harbour. Eventually, Keith returned, feeling uncomfortable in the big waves on his own and not knowing where the others had disappeared to. Not used to a following sea or the size of the waves, Keith was surprised by a large wave which came from behind, lifted him up, turned his boat sideways and capsized it 50 metres ahead of Bonnie and Bert. Keith surfaced holding his paddle and deck line.

Anxious about Veronica by now as well as the scene in front of them, Bonnie and Bert had a quick discussion and decided to split up. Both had pumps, tow-ropes, paddle floats and flares, and Bert had a split paddle. Bonnie went to assist Keith while Bert turned around to check on Veronica. They decided to regroup again in the direction Veronica was last seen or on the beach they had left from.

Bonnie rafted up beside Keith, who had never done a deep water rescue. He grasped onto her boat, letting go of his paddle in the process, and causing her to brace. Within two seconds they drifted out of reach of the paddle. She shouted to him to let go of her boat and hang on tightly to his own so she could get the paddle. They were broached to the wind and waves, drifting quickly toward rocks jutting a long way out from shore. He was upwind so she had to turn downwind to pull away before chasing upwind to recover the paddle. Paddle recovered, Bonnie returned to Keith who was swimming his kayak out to sea, away from the waves breaking over the rocks 50 metres away. Bonnie talked Keith through an assisted re-entry and they both paddled out further from the rocks, then rafted up while Bonnie helped him pump out his cockpit. Keith had no emergency gear.

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They returned the way they had come and on rounding the corner to the beach and calm water, they met Bert. He had found Veronica struggling slowly into the head wind and waves and a little uncomfortable in the conditions so had returned to the beach with her before going back to assist the other two. Over the next 30 minutes, the rest of the group arrived back on the beach in small groups, many commenting on the challenging and exciting conditions out to the southern end of the reef. Several said they would not have done this if they had not been in a group. The two heading for the island had not returned by the time the group had lunch and headed home.

TASKS

Task 1 List the contributing factors to this incident.

- Club factors
- Participant factors

Task 2 Consider:

- What could the club do to ensure their trips are safer?
- What could participants do to ensure trips are safer?

Task 3 What responsibility, if any, should a club take on with regard to people who participate in club paddles?

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ENDNOTES

INTRODUCTION

1 The whakatauki (proverbs) at the beginning of each chapter are from Brougham et al, 1992.
2 Ewert, 1989a; Mortlock, 1983; Priest, 1990.
3 Brougham et al, 1992.
4 Ewert, 1989a.
5 Davidson, 2002; Priest & Baillie, 1987.
6 Schulze, 1980.
7 Brown, 1999.
8 Gentile et al, 1992; Haddock, 1993a; Leemon, 1999; Paton, 1992; Schimelpfenig, 1995.
9 Bailie, 2002; Davidson, 1992 & 2002; Priest & Baillie, 1987; Ewert, 1989b; Meyer, 1979.
10 Davidson, 2002.
11 Bailie, 2002.
12 Schimelpfenig, (personal communication, email August 5, 2003).

CHAPTER 1: DEFINITIONS OF TERMS

1 Except where otherwise stated, definitions in te reo Māori were prepared especially for this manual by Professor Timoti S.Karetu, Commissioner, Te Taura Whiri i te Reo Māori (Māori Language Commission), 1993.
2 Priest, 1990.
3 Priest and Baillie, 1987.
4 Csikszentmihalyi & Csikszentmihalyi 1990.
5 Priest & Baillie, 1987.
6 Priest & Gass, 1997.
7 Adapted from Curtis, 2002; Priest and Gass, 1997, Snider, 1964. Williamson, 1997; Zink & Leberman, 2001.
8 Latess, 1992; Manning, 1999.
9 Priest & Gass, 1997.
10 Adapted from Williamson, 1997; Health and Safety in Employment Act, 1992.
11 Bird and Germain, 1992.
12 Leemon, (personal communication, email, 5 August, 2003).

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5 Davidson, 2002; Priest & Baillie, 1987.
6 Schulze, 1980.
7 Brown, 1999.
8 Gentile et al, 1992; Haddock, 1993a; Leemon, 1999; Paton, 1992; Schimelpfenig, 1995.
9 Bailie, 2002; Davidson, 1992 & 2002; Priest & Baillie, 1987; Ewert, 1989b; Meyer, 1979.
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2 Priest, 1990.
3 Priest and Baillie, 1987.
4 Csikszentmihalyi & Csikszentmihalyi 1990.
5 Priest & Baillie, 1987.
6 Priest & Gass, 1997.
7 Adapted from Curtis, 2002; Priest and Gass, 1997, Snider, 1964. Williamson, 1997; Zink & Leberman, 2001.
8 Latess, 1992; Manning, 1999.
9 Priest & Gass, 1997.
10 Adapted from Williamson, 1997; Health and Safety in Employment Act, 1992.
11 Bird and Germain, 1992.
12 Leemon, (personal communication, email, 5 August, 2003).

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13 Leemon, (personal communication, email, 5 August, 2003). Davis & Pless, 2001.
14 Williamson, 1997.
15 Health and Safety in Employment Act, 1992.
16 Bird and Germain, 1992.
17 Priest and Dixon, 1990.
18 Ministry of Business, Innovation & Employment, 2010.
19 Translation by Hone Apanui.
20 Ministry of Business, Innovation & Employment, 2010.
21 Translation by Hone Apanui.
22 Adapted from http://www.supportadventure.co.nz/safety-management-plans/hazards
23 Translation by Hone Apanui
24 Adapted from http://www.supportadventure.co.nz/safety-management-plans/hazards
25 Translation by Hone Apanui
26 Adapted from http://www.supportadventure.co.nz/safety-management-plans/hazards
27 Translation by Hone Apanui
28 Standards Australia/Standards New Zealand, 1999, 2002 and 2009.

CHAPTER 2: PRINCIPLES OF MANAGING RISK

1 Brown, 1999; Curtis, 2002; Snider, 1964; Williamson, 1997; Zink & Leberman, 2001.
2 Brown, 1999.
3 M. Bailie (personal communication, email, 12 August 2003).
4 Curtis, 2002.
5 Csikszentmihalyi & Csikszentmihalyi, 1990.
6 Hattie et al, 1997; Latess, 1992; Manning, 1999.
7 Ewert, 1989a; Mortlock, 1983; Priest, 1990.
8 Davis-Berman and Berman 2002; Haddock, 1996a; Leberman and Martin, 2002; Mitten, 1998; Mitten, 1999.
9 Through 'challenge by choice', for example, see page 32.
10 Leemon (personal communication, email, 5 August, 2003).
11 Adapted from Priest and Baillie, 1987.
12 Formerly known as real risk.
13 Based on Priest, 1987.
14 Aat Vervoon, cited in Chowdhury, 2001.
15 Davis-Berman and Berman, 2002; Mitten, 1999.
16 See for example: Gillis, 1995.
17 Based on Ministry of Education, 2002.
18 From www.adventuresmart.org.nz
19 The judgement and decision-making section was written for this manual by Dr Mike Boyes, Otago University, NZ.
20 Priest & Gass, 1997.
21 Boyes & O'Hare, 2003.
22 Klein, 1999.
23 Klein, 1999.
24 McLennan and Omedei, 1996.
25 Orasanu, 1990.
26 Adapted from Davidson, 1992. See also Boyes and O'Hare, 2003.

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27 Adapted from Periam, 2002 and Brown, 1999.
28 Priest & Gass, 1997.
29 Warren, 1990a and 1990b.
30 Adapted from Priest and Gass, 1997.
31 Priest and Gass, 1997.
32 Schoel et al, 1989.
33 Schoel et al, 1989.
34 Ronkhe, cited in Schoel et al, 1989, pp 130-131.
35 Schoel et al, 1989.
36 Panicucci, 1998.
37 Ewert, 1989c.
38 Ewert, 1989c.
39 Baron and Byrne, 1994; Haddock, 1996b; Helms, 1984; McCammon, 2004; NZ Police, 2007; Wilde, 1999.
40 Brett, 1994; Helms, 1984; Kauffman, 1989.
41 Allen, 1980.
42 Allen, 1980.
43 Allen, 1980.
44 Helms, 1984.
45 Davidson, 2002; Furlong et al, 1995.
46 Haddock, 1996b.
47 Haddock, 1996b.
48 Baron and Byrne, 1994.
49 Wilde, 1994 & 1999.
50 Wilde, 1999.
51 M. Bailie (personal communication, email, 12 August 2003).
52 Gookin, 1999.
53 Gookin, 1999.
54 Furlong et al, 1995.
55 Hopkinson, 2002
56 Davidson, 2002.
57 Bateman, 2002.
58 Hopkinson, 2002.

CHAPTER 3: TOOLS

1 This format has evolved from the work of Dalton, Hepburn and Education Outdoors New Zealand.
2 This format has evolved from the work of Dalton, Hepburn and Education Outdoors New Zealand.
3 Adapted from Kates et al, 1985.

CHAPTER 5: EMERGENCY PREPAREDNESS

1 This section is based on Satz, 1997.
2 Raffan, 1984.
3 Raffan, 1984.

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CHAPTER 6: INCIDENT REPORTING, ANALYSIS AND TRENDS

1 Bird & Germain, 1992; Davidson, 2002; Haddock, 1999b; Johnson, 1980.
2 Bird & Germain, 1992; Hale, 1989; Johnson, 1980; Kates et al, 1985; Kauffman, 1989.
3 Dwyer, 1991.
4 Bird & Germain, 1992.
5 Hale, 1989.
6 Adapted from Raffan, 1984.
7 Bird & Germain, 1992.
8 Haddock, 1999a.
9 Haddock, 1993b (adapted from Kates et al, 1985 and Bird & Germain, 1992).
10 Philipchalk, 1995.
11 Haddock, 1999a.
12 Davidson, 2002; Haddock, 1993a.
13 Haddock, 1999a.
14 Bird & Germain, 1992.
15 Davidson, 2002.
16 Johnston, 1989.

CHAPTER 7: OUTDOOR LEADER COMPETENCE

1 Ministry of Education, 2002.
2 Ringer, 1987, supported by Ford & Blanchard, 1985; Phipps & Swiderski, 1990.
3 Priest, 1987, p.34.
4 M. Bailie (personal communication, email, 12 August 2003).
5 Adapted from Martin & Priest, 1986; Priest & Baillie, 1987.

CHAPTER 10: CODES OF PRACTICE AND BEST PRACTICE STANDARDS

1 Kolb, 1989.

APPENDIX IV: CASE STUDIES

1 Adapted from Clark, c1977.
2 Adapted from Sutherland, 2002.

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Leave No Trace New Zealand – Outdoor ethics **www.leavenotrace.org.nz**
MetService – New Zealand weather forecasts **www.metservice.org.nz**
Ministry of Business, Innovation and Employment **www.mbie.govt.nz**
National Incident Database **www.incidentreport.org.nz**
New Zealand Avalanche Centre **www.avalanche.net.nz**
New Zealand Department of Conservation **www.doc.govt.nz**
New Zealand Mountain Safety Council **www.mountainsafety.org.nz**
New Zealand Outdoor Instructors' Association **www.nzoia.org.nz**
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CONTRIBUTORS

ABOUT CATHYE HADDOCK

Cathye Haddock has worked as an outdoor educator in school, outdoor education centre, college of education, polytech, university, voluntary and commercial outdoor sector settings. At the time of this revision, Cathye is a Lead Advisor responsible for Education Outside the Classroom (EOTC) at the Ministry of Education. She has served as the Convener of the MSC Risk Management Committee, and as a member of Outward Bound NZ's Executive Safety Committee, the Outdoors NZ Board, and the Kiwi Association of Sea Kayakers' Executive Committee. Passionate about the outdoors, Cathye is an active caver, sea kayaker, tramper, mountain biker, runner and skier.

ABOUT KAREN CORCORAN

Karen Corcoran is a tramper, rock climber, mountaineer and backcountry skier. She has combined her passion for the outdoors with a successful career as a professional outdoor instructor and adventure guide in these disciplines. As well as volunteering as a LandSAR Alpine and Cliff Rescue team member, she is an instructor for the Canterbury branch of the MSC. At the time of writing, she is bringing this wealth of knowledge and experience to the MSC full-time as the Programme Manager for Outdoor Land Safety.

ABOUT ANDREA CORRIGAN

Andrea Corrigan is an experienced marketing and communications professional with a passion for sports, recreation and the outdoors.

Andrea is a regular contributor to a number of magazines including *Adventure, Ki Waho, NZ Ski & Snow* and the *Fishing Paper & New Zealand Hunting News*. Her work has appeared in many other newspapers, websites and publications. She has also designed and implemented a number of successful outdoor safety promotional campaigns across New Zealand.

In her current role at the MSC, she manages a number of publishing projects and websites, as well as all aspects of social media, media engagement and communications.

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