# New Zealand Search and Rescue Consultative Committee Meeting

**Minutes of Meeting**
**NZSAR Consultative Committee**
**Thursday 8 February 2018**
**James Cook Grand Chancellor**
**147 The Terrace, Wellington**

**Attendees:**

Carl van der Meulen – NZSAR (chair)
Mike Ambrose – LandSAR NZ
Kevin Banaghan – RCCNZ
Dave Comber – NZSAR Council
Brendan Comerford – Kordia MOC
Mike Daisley – MSC
David Waters – Ambulance NZ
Rhett Emery – NZSAR
Duncan Ferner – NZSAR
Paul Craven – RCCNZ
Peter Healy – Coastguard NZ
Jo Holden – NZ Police
Don Roberston - AREC
Ian Coard – NZSAR Council
Jonty Mills – WSNZ
Allan Mundy – SLSNZ
Erana Sitterle - MOT
Stephen Ross - NZSAR
Brian Ruiterman - NZDF
Jeff Sayer – AREC
Leanne Gordon - NZSAR
Jerome Cvitanovich – NZSAR

## 1. Welcome

Carl opened the meeting and welcomed the attendees with particular welcome to new attendee, Ian Coard (new independent member of the NZSAR Council).

## 2. Apologies

Patrick Holmes – Coastguard NZ
Pat Waite – LandSAR NZ
Harry Maher – DOC
Ian Duncan – FENZ
Mike Hill – RCCNZ
Steve Kern – CAA
Simon Trotter – Antarctica NZ
Morgan Stevenson – NASO
John Pine – NZ Police
Rachel Roberts – NZSAR

## 3. Minutes of previous meeting

The minutes of the 23 August 2017 meeting were accepted as a true and accurate record.

## 4. Matters Arising from Minutes

There were no actions arising from the meeting on 23 August. The two recommendations regarding the risk matrix will be discussed during item 8.

## 5. SLA Monitoring Report

There was an issue with the data extract from the IT system this is being worked on by Hague Consulting.

Reporting requirements for the SLA have been met by all partners, with 1,816 volunteers involved in SAROPS, and 13,492 volunteer hours recorded for the quarter. Details are contained in the SLA monitoring report (attached to online minutes).

## 6. Sector Update

The sector update was distributed prior to the meeting. Allan Mundy provided a report on an international flood response training course that some members of SLSNZ attended in Tasmania.

**Action:** NZSAR Secretariat and SLSNZ to engage with FENZ and CDEM on issues relating to flood response training.

## 7. Environmental Scan

The completed environmental scan has been circulated in hardcopy and is available on the NZSAR website. This is intended to be a living document and feedback on it is welcome. Please present this to your Board and management groups for use while you are doing your planning.

## 8. NZSAR Risk Matrix

Duncan facilitated a strategic discussion on the following risk from the risk matrix.

a. Volunteerism

Risks exist around volunteer recruitment, retention, and training. With 94% of our sector being volunteers it is important that we have a good understanding of the voluntary component of the SAR sector. Some of the issues facing the sector include reduction in volunteer numbers, an aging volunteer base, and increases in training and compliance workloads.

After discussion about developing a national volunteer strategy for the sector, it was agreed that the Secretariat would assist agencies in developing or updating their own volunteer strategies, and that NZSAR would leverage off this work to update the dated 2010 Volunteer Study. It was noted that Volunteering NZ has some valuable information and experience and that the Secretariat should consult with them.

David Waters leading a piece of work regarding the mental health of the work force in the ambulance sector, which may be useful in the development of agencies volunteer strategies.

**Actions:**

- NZSAR will work with the four SLA partners to develop volunteer strategies.
- NZSAR will update the 2010 NZSAR Volunteer Study.

## 9. NZSAR Review Policy

Duncan briefed the Committee on the two main changes to the review policy: agencies can conduct their own internal reviews; and the updated policy seeks to create a permissive environment for regular reviews of SAROPs. The Committee endorsed the principles of the policy but requested that the language be amended so that it is not too prescriptive.

**Action:** NZSAR to amend the prescriptive language used in the policy and to circulate prior to the Council meeting on 28 February.

## 10. Review – Operation Mangatawai

Stephen provided an updated on the review of the operation. The preliminary report has been received, there are more interviews to be completed. The final report will be presented to the Council.

## 11. Aviation Engagement Framework

Stephen provided an update on the work to establish an aviation engagement framework that is being undertaken by Pappus Consulting.

**Action:** NZDF is to be consulted on the aviation engagement framework.

## 12. Nationally Significant SAR Issues

Carl provided an update on the four systemic issues that have been identified during the second series of Rauora exercises, and how these are being addressed through plan development and inter-agency working groups.

## 13. NZSAR Fatality Study

Carl outlined the process that was followed for this study. The report supports and complements the work the SAR is engaged in. The report is available on the NZSAR website.

## 14. National SAR Support Programme 2017/18

| 2017/18 NSSP | |
|---|---|
| **Workshops & Seminars** | **SAR Training** |
| Aviation Workshop | SAR(ACE) Training Survey |
| SAR Case Study Seminar / Police Planning | Evaluation Training |
| SAR Technology | START material |
| Safer Walking | **Prevention** |
| **SAR Information and IT** | AdventureSmart Communications |
| NZSAR Website update | Recreational Safety Partnership |
| Data Store | Visitor Intentions |
| SAR Information System (SARdonyx) | Safety Codes, printing and advertising |
| SAR (land) IMT IT | **SAR Research** |
| Portable Mobile Phone Location | Fatality Analysis |
| Update NZSAR Resources database | SAR Communications – Land (STWG(L)) |
| **SAR Documentation** | Survey of SAR Customers |
| SAR Forms and Guidelines | SAR Demand and Supply Study – Marine |
| Develop New Zealand's SAR Guidelines | SAR Demand and Supply study – Land |
| **Exercises** | Mass Rescue Study |
| Support Police SAREXs | SAR Aviation Engagement Framework |
| MRO SAREXs | SAR Assurance |
| Practical MRO SAREX | |
| Drifters / Trackers | |

The Committee was briefed on the 2017/18 NSSP (in the above table) with further updates provided as below.

SARdonyx

Duncan gave an update on the project. The contract has been signed with Beca, as this process took longer than expected it has resulted in the project end date being pushed out. Duncan is leading the governance aspect of the project with Carl leading the SMEs.

SAR Guidelines

Rhett briefed the Committee on the status of this project, this is expected to be completed in early 2018.

SAR exercises

Rhett gave a brief update on NZSAR supported exercises. We expect to have 20 trained evaluators by mid 2018.

SAR Prevention

Duncan provided an update on the status of the various projects currently being worked on.

Workshops

Carl provided an update on the status of various workshops. LandSAR will organise a Safer Working national workshop in March.

## 15. Wahine 50 & NZSAR Awards

Rhett gave an update on the planning for the 50th commemoration of the Wahine tragedy and the NZSAR Awards to be held in and around Wellington on 10 April 2018. There will not be a Committee meeting on this date.

## 13. General Business

ANZSAR Conference

Rhett gave an update on the planning for the conference this year and sounded out the Committee on the possibility of New Zealand hosting the conference in 2019. Feedback from members is there would likely be a low level of engagement, which Rhett will provide to the organising committee.

Dave Comber

As this is Dave's last meeting, Carl thanked him for his contribution to the Committee as the independent member of the NZSAR Council for the last two years.

Next meeting

- Wednesday 9 May 2018 (location to be advised)

Carl van der Meulen
Chair
NZSAR Consultative Committee

**Actions and Decisions**

| | Item | | Action (A) / Decision (D) | Responsibility |
|---|---|---|---|---|
| **6** | **Sector Update** | **A** | NZSAR Secretariat and SLSNZ to engage with FENZ and CDEM on issues relating to flood response training. | Secretariat and SLSNZ |
| **8** | **Risk Matrix** | **A** | NZSAR will work with the four SLA partners to develop volunteer strategies.<br><br>NZSAR will update the 2010 NZSAR Volunteer Study. | Secretariat and 4 SLA partners<br><br>Secretariat |
| **9** | **Review Policy** | **A** | NZSAR to amend the prescriptive language used in the policy and to circulate prior to the Council meeting on 28 February. | Secretariat |

# New Zealand Search and Rescue Consultative Committee

**AGENDA**

**Thursday 8 February 2018, 09.30am – 12.30pm**

**James Cook Hotel, Chancellor 3, level 16**

**147 The Terrace, Wellington**

| | | | |
|---|---|---|---|
| 1. | Welcome (Coffee & Tea available) | | |
| 2. | Apologies | | |
| 3. | Minutes of meeting 23 August 2017 | *for approval* | |
| 4. | Matters arising from the minutes | | |
| 5. | SLA Monitoring Report | | Snr Adv |
| 6. | Sector update | *paper* | All |
| 7. | Environmental scan | *update* | NSSP Co-ord |
| 8. | NZSAR Risk Matrix | *paper* | |
| | a. Strategic discussion - volunteerism | *discussion* | All |
| 9. | NZSAR Review Policy | *for endorsement* | Sec Mgr |
| 10. | Review – Operation Mangatawai | *update* | Assr Co-ord |
| 11. | Aviation Engagement Framework | *update* | Assr Co-ord |
| 12. | Nationally significant SAR issues | *update* | Snr Adv |
| 13. | NZSAR Fatality Study | *paper* | Snr Adv |
| 14. | National SAR Support Programme 2017/18 | *update* | |
| | a. SARdonyx | | Sec Mgr |
| | b. NZ's SAR Guidelines | | NSSP Co-ord |
| | c. SAREXs | | NSSP Co-ord |
| | d. Training | | NSSP Co-ord |
| | e. SAR assurance | | Assr Co-ord |
| | f. SAR prevention | | Sec Mgr |
| | g. Workshops: technology & case studies | | Snr Adv |
| 15. | Wahine 50 & NZSAR Awards | | NSSP Co-ord |
| 16. | General Business | | |
| | a. ANZSAR Conference | | NSSP Co-ord |
| | b. Next Meetings | | Office Manager |

# New Zealand Search and Rescue Consultative Committee Meeting

**Minutes of Meeting**
**NZSAR Consultative Committee**
**Wednesday 23 August 2017**
**Meetings on The Terrace**
**152 The Terrace, Wellington**

**Attendees:**

Carl van der Meulen – NZSAR (chair)
Mike Ambrose – LandSAR NZ
Kevin Banaghan – RCCNZ
Dave Comber – NZSAR Council
Brendan Comerford – Kordia MOC
Mike Daisley – MSC
Ian Duncan – FENZ
Rhett Emery – NZSAR
Duncan Ferner – NZSAR
Georgia Gerraty – RCCNZ
Peter Healy – Coastguard NZ
Mike Hill – RCCNZ
Jo Holden – NZ Police
Steve Kern – CAA
James Lamb - KORDIA
Jonty Mills – WSNZ
Allan Mundy – SLSNZ
Rachel Roberts – NZSAR
Stephen Ross - NZSAR
Brian Ruiterman - NZDF
Jeff Sayer – AREC
David Waters – Ambulance NZ
Jerome Cvitanovich – NZSAR

## 1. Welcome

Carl opened the meeting and welcomed the attendees with particular welcomes to new attendees:

Jerome Cvitanovich – NZSAR Communications Advisor
Ian Duncan – FENZ
Georgia Gerraty – RCCNZ
Stephen Ross – NZSAR

## 2. Apologies

Patrick Holmes – Coastguard NZ
John Nicholson – Aviation NZ
Harry Maher – DOC

## 3. Minutes of previous meeting

The minutes of the 10 May 2017 meeting were accepted as a true and accurate record.

## 4. Matters Arising from Minutes

| Item | Action | Responsibility | Update |
|---|---|---|---|
| **7 Risk Matrix** | | The Committee endorses the addition of a 'SAR Demand' risk to the NZSAR Council's risk matrix. | Complete |
| **12 Training SAR (ACE)** | | The Secretariat will arrange a meeting to discuss future SAR training options. | |

Duncan reported that Council had considered the issues facing the SAR (ACE) training model at its May meeting and the Council chair, Peter Mersi, wrote to Tertiary Education Commission CE, Tim Fowler, expressing concerns with the funding mechanism. TEC has responded by inviting NZSAR to a meeting between the Ministry of Education, TEC, and NZQA to explore funding options. The status quo will remain for 2018 as any changes would be linked to the budget process.

## 5. SLA Monitoring Report: 1 April – 30 June 2017

Reporting requirements for the SLA have been met by all partners, with 1,679 volunteers involved in SAROPS, and 9,747 volunteer hours recorded for the quarter. Details are contained in the SLA monitoring report (attached).

The LandSAR CEO resigned on 18 August and Dave Robertson, Board chair, is the interim CE.

## 6. SAR activity report 2016/17

A summary of SAR activity for the 2016/17 year was presented. Of note is that category 2 incidents increased by 7% last year. In 2010/11, 26.5% of incidents were category 2 whilst in 2016/17 the figure had increased to 35.7%.

## 7. Sector Update

The sector update was distributed prior to the meeting (copy will be available on NZSAR website).

## 8. NZSAR Risk Matrix

Duncan facilitated a strategic discussion on the following two risks from the risk matrix.

a. SAR Information

Currently, the Data Standard is 85% complete and will be further refined through the SARdonyx project. Duncan then updated the Committee on the current status of project SARdonyx – to replace our existing single agency datastore(s) with a multi-agency solution that will deliver a new data collection and business intelligence (BI) solution for NZ's SAR sector.

The Committee noted that SAR demand is changing. SLSNZ commented that they are currently placing an emphasis on analysing prevention data that is currently being collected by their patrols. This has identified crab fishers as a risk on unpatrolled beaches.

To understand the nature and impact of changes in SAR demand, the SAR sector requires good data analysis. The analysis of operational data (demand) needs to be compared with data about the supply side of the SAR sector. The challenge for the SAR sector is to be agile enough to react to trends identified by the operational analysis. This requires early identification of trends.

Information on changing SAR demand also needs to be provided to the appropriate authorities (e.g. DOC or Territorial Authority) to support preventative activities, such as new or improved signage. Duncan advised the Committee that the Secretariat is planning to engage directly with Territorial Authorities on SAR activity that occurs in their areas of responsibility.

**Decision:** The Committee **recommended** an update to risk treatment *2017/01/D: SAR Operational Analysis* that decisions need to be based on adequate information.

b. Recreational knowledge

Many organisations provide safety advice, but until the establishment of the AdventureSmart website there was no 'one stop shop' of collated safety information. AdventureSmart allows the promulgation of consistent sector messaging. Some of the information contained on the website is overdue for a review.

Rachel Roberts will be the NZSAR lead person for the implementation of the NZ Inc Recreational Safety Strategy. The Committee noted that the recreational landscape has changed, which leads to the question of whether more targeted information is required or not.

SLSNZ commented that Regional Council's do not seem willing to place beach signage to warn beach-goers of the immediate risk of rips, however they will place signage for tsunamis. SLSNZ will continue to engage with Council's to have appropriate signage on beaches.

MSC reported they have had good engagement with the Wanaka and Queenstown Regional Councils, with the Wanaka Council embedding safety information from MSC onto its own website. However, MSC does not have the capacity to have this engagement with all Councils in NZ. They will focus on the seven hot spots identified in the *There and Back* project. MSC are now starting a deep dive into tramping, which will also inform safety messaging.

**Decision:** The Committee **recommended** no changes to the risk treatments for the Recreational Knowledge risk.

## 9. Water Safety NZ Capability Review

Jonty Mills briefed the committee on the Water Safety NZ Capability Review, which is a key outcome of the Water Safety Sector Strategy 2020. The 'business as usual' attitude will not prevent drowning so a step change was required. The Capability

Working Group has been established to provide expert advice and a 'reality check' to WSNZ project manager.

Four core organisations (Coastguard NZ, Swimming NZ, SLSNZ and Water Safety NZ) approached government at the end of 2015 seeking assistance. They were advised to look at their own organisations internally first. The sector needed to look at how they would work together to meet the targets mandated.

Membership:

| | |
|---|---|
| Paul Dalton, SLSNZ | Patrick Holmes, Coastguard NZ |
| Duncan Ferner, NZSAR | Davin Bray, WAI |
| Jonty Mills, WSNZ | Mark Lindsay, WSNZ |
| Neil McInnes, WSNZ | |

The Working Group will meet with project owners (four sector chairs) at key points in the process.

The Five Phases

1. Project plan and set up (November 2016)
2. Environmental scan – what's coming at us (mid August)
3. Sector stocktake – current state (end September) – 1.5 hour interviews with CEOs
4. Sector Capability Plan (October 2017)
5. Plan implementation

The plan is to seek more sustainable funding through ACC and Government. Phases two and three are near completion.

The next steps are to:

- Complete drafts of environmental scan and sector stocktake reports (for Project Owners meeting mid September)
- Working Group – 19 September – to revise capability plan
- CSRG – 28 September – to review capability plan proposals
- Project owners – mid October – to sign off capability plan

It will be over to the sector to consider the findings from the review and decide what changes organisations may wish to make.

## 10. Learnings – exercise *Rauora*

NZSAR briefed the Hazard Risk Board (HRB) in May on four systemic issues that have been identified during the current series of *Rauora II* MRO exercises. NZSAR has been asked to provide the HRB at its September meeting, with information on how these issues will be addressed. The issues and proposed responses are:

Issue 1: *The development of a single plan for nationally significant SAR operations (Mass Rescue / Extensive Search) remains an urgent requirement.*

Response: NZSAR will provide HRB with a clear plan and milestones for the development of a single MRO response plan

Issue 2: *Incompatible organisational IT systems is a major impediment to gaining and maintaining situational awareness.*

Response: FENZ is leading the development a non-operational COP interagency platform. The Incident Management Reference Group (IMRG) is developing guidance for the role of Liaison Officers during operational response activities – they have a key role to play in providing situational awareness.

Issue 3: *Many people in response organisations at the District level possess an inadequate understanding of CIMS (particularly at the multi-agency/multi-response level).*

Response: The National Security System Training Development Group (NSS TDG) is working on CIMS training, unit standards, and expectations on agencies. They will be reporting to HRB separately.

Issue 4: *No common system or process for the reconciliation of large numbers of distressed / missing people exists.*

Response: Police and MCDEM are leading complementary projects for two of the sub-functions under 'Welfare'. Police have a project for the 'inquiry' function, and MCDEM have a project for 'registration and needs assessment'. NZSAR will be hosting a workshop to articulate the SAR sector's requirements for reconciliation, and will provide this to Police and MCDEM.

## 11. National SAR Support Programme 2017/18

| **2017/18 NSSP** | |
|---|---|
| **Workshops & Seminars** | **SAR Training** |
| Aviation Workshop | SAR(ACE) Training Survey |
| SAR Case Study Seminar / Police Planning | Evaluation Training |
| SAR Technology | START Material |
| Safer Walking | **Prevention** |
| **SAR Information and IT** | AdventureSmart Communications |
| NZSAR Website update | Recreational Safety Partnership |
| Data Store | Visitor Intentions |
| SAR Information System (SARdonyx) | Safety Codes, printing & advertising |
| SAR (land) IMT IT | **SAR Research** |
| Portable Mobile Phone Location | Fatality Analysis |
| Update NZSAR Resources Database | SAR Communications - (Land) (STWG(L) |
| **SAR Documentation** | SAR Demand and Supply Study – Marine |
| SAR Forms and Guidelines | SAR Demand and Supply Study - Land |
| Develop New Zealand's SAR Guidelines | Mass Rescue Study |
| **Exercises** | SAR Aviation Engagement Framework |
| Support Police SAREXs | SAR Assurance |
| MRO SAREXs | |
| Practical MRO SAREX | |
| Drifters/Trackers | |

The Committee was briefed on the 2017/18 NSSP (in the above table) with further updates provided as below.

SARdonyx.

Duncan gave an update on the timeline of the procurement process for project SARdonyx. This will include an opportunity to revise/finetune the system approximately 9 months after development is completed.

SAR(Land) IMT IT.

Rhett briefed the Committee on the process of selecting an IT system that best meets the Land IMT Process requirements. After evaluating five IMT management systems SARTrack was identified as the system which best meets most of the process requirements.

SAR Customer Survey.

Rachel will manage this research survey as part of the prevention work. This project will survey people who have required assistance by the SAR sector. Rachel will engage with appropriate agencies for the survey design and content. The survey will be conducted around May 2018.

Recreational Safety Partnership – Future options

The Committee considered the draft report which outlined the partnership background and current situation, and provided three options for discussion:

a. The safety partnership remains largely as the status quo but with group-defined scaled-up tasks, accounted for annually by agency heads.
b. The safety partnership is dissolved into the implementation of the NZ Inc Recreational framework. Collaborative activity flowing from the Framework will be agreed by agency heads.
c. Collaborative efforts are not formalised under any structure. Organisations and agencies find ad hoc ways to connect and collaborate.

Rachel reported that communication representatives from each partner agency meet on a six-monthly basis. There have been changes in the representatives over the five years of the partnership, however the partnership arrangement is working well.

SAR Assurance.

Stephen gave the Committee an overview of his role in the newly established position of NZSAR Assurance Coordinator. His currents focus areas are:

- Implementing the recommendations of the Search and Rescue Telecommunications Working Group (Land)
- Implementing the seven recommendations of the Aviation Framework,
- Maintaining the existing Datastore
- Responsibility for the Occupational Health and Safety Committee.

New Zealand's SAR Guidelines.

Rhett reported that a project steering group is to be established this year to create and maintain an agreed, unified and documented *doctrinal* base for the conduct and operation of Search and Rescue in New Zealand. CEOs of the stakeholder organisations listed in the brief will be approached seeking senior operational personnel to provide cross sector assurance for the content and format of the Guidelines. Subject matter expert groups will be convened next year to provide expert knowledge relevant to SAR in the Land / Air / Water environments.

Documents of relevance are listed in the Project brief and if people know of other relevant documents they should let Rhett know. A Project Manager and Writer will be contracted.

Training.

Rhett provided a brief on the SAR(ACE) training system, with an update on the Evaluation and Air Observers courses.

The purpose of the Evaluation course is to introduce the basic principles of evaluation methodology, and in doing so enable a consistent standard of evaluation reporting practice.

The Air Observer's courses for March 2017 were cancelled due to weather, with a course scheduled for October 2017.

START material.

The following resources have been uploaded to the START library of SAR knowledge.

- SAR in Antarctica – video
- CIMS Training information for CIMS 2nd Ed
- Family Liaison – video
- Marine SAR and Air Observer resource material
- Resources Database Guidelines for use

SAR exercises.

Rhett gave a brief update on NZSAR supported exercises.

## 12. Wahine 50 & NZSAR Awards

Duncan gave an update on the planning for the 50th commemoration of the Wahine tragedy to be held in and around Wellington on 10 April 2018. There will be an associated SAR agency display and NZSAR Awards that evening. Rhett will be NZSAR's point of contact for the SAR agency display and Awards.

## 13. General Business

Next meeting

- 22 November 2017 - combined workshop with Council

  Topic – environmental scan

Carl van der Meulen
Chair
NZSAR Consultative Committee

**Actions and Decisions**

| | Item | | Action (A) / Decision (D) | Responsibility |
|---|---|---|---|---|
| **8a** | **Risk Matrix** | **D** | The Committee **recommended** an update to risk treatment *2017/01/D: SAR Operational Analysis* that decisions need to be based on adequate information. | Secretariat |
| **8b** | **Risk Matrix** | **D** | The Committee **recommended** no changes to the risk treatments for the Recreational Knowledge risk. | N/A |

1 February 2018

NZSAR Council
NZSAR Consultative Committee

# Search and Rescue Sector Update

The Search and Rescue sector update for the NZSAR Council and NZSAR Consultative Committee meetings for February 2018 is contained below.

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## Ambulance NZ

Nil report

## Antarctica NZ

Nil report

## AREC

Nil report

## Coastguard NZ

**Pacific Maritime Safety Training**

The first Pacific maritime safety training course of its kind is underway in Niue, coordinated by the Ministry of Foreign Affairs and Trade (MFAT) and Maritime New Zealand, working in partnership with Coastguard New Zealand.

The course is part of MFAT's Pacific Maritime Safety Programme (PMSP), for which Maritime NZ is providing technical support, and will be provided to all countries provided with search and rescue vessels under PMSP.

Niue received a SAR vessel from New Zealand in October, with three crew members trained by Coastguard NZ in Rangiora. In Niue, Coastguard NZ is providing a further 15 Niueans with training in VHF radio, GPS, and radar use, as well as elements of the Coastguard Day Skipper course.

## Department of Conservation

Nil report

## FENZ

Nil report

## LandSAR NZ

Key initiatives advanced during the reporting period include;

- Mike Ambrose has been appointed to a new position of Manager Group Support, responsible for providing an overview of the support provided to LandSAR Groups through the four Group Support Officers. The position also has national responsibility for safety management.
- The vacancy created as a consequence of the above appointment has been filled. Kelly Hoskin has been appointed as the Group Support Officer for the Lower South Island. Kelly is based in Alexandra.
- A MOU was signed with trustees from Wander NZ Charitable Trust and Delanie Halton has been appointed as the national coordinator for the Safer Walking/ Wander Search programme. In addition, the CE of LandSAR has been appointed a Trustee of Wander Search NZ Charitable Trust.
- Reports have been received for the LandSAR Success Indicators Project and the Training Feasibility Study.

- The LandSAR Board engaged an expert to assist with its governance practices and have been preparing for the recruitment of a permanent Chief Executive.

## Maritime Operations Centre

Nil report

## Mountain Safety Council

Nil report

## NZDF

Nil report

## New Zealand Helicopter Association / Aviation NZ

Nil report

## Police

### SAR STATISTICS

In the reporting period from October to December 2017, 422 Category I incidents were reported - 249 Land and 173 Marine. These are similar figures to the same period in 2017.

### TRAINING

Police National SAR Course

This is scheduled to be held at Dip Flat from April 30 – May 11 2018; approximately 25 Police will attend this course, and invitations have also been sent to LandSAR, DOC and Woodbourne BCF members. A request for helicopter support for the second week has been submitted to 3 Squadron.
AREC have been invited to provide assistance with Comms for this year's course.

SAR Managers Course

The 2018 course is scheduled for June 25 to July 6. Given the cancellation of the 2017 course, we are looking at extending the numbers of Police SAR members on the 2 week course. We are also seeking nominations from our SAR Partner agencies for volunteers to join the second week of the course to undertake IMT roles in multiple SAR syndicate scenarios.
Martin Paget has been contracted by TPP to manage the SAR Managers course following the resignation of Hamish Maclean last year.

SARACE programme – Initial Response and Extended Search Planning

A number of Land and Marine Management courses for Police Incident Controllers have been scheduled for 2018; the courses are also open to partner agencies.

TPP are managing the administration and logistics for the courses; dates for Land courses have been posted on the LandSAR website; Marine course dates will appear on the TPP website shortly.

SAR Coordinators' workshop

The annual meeting of Police District SAR Coordinators will be held at the Brentwood Hotel in Wellington on April 16/17/18 2018. NZSAR and SAR partner agencies will update Police on developments of relevance; this session will be followed by the presentation of a number of Case Studies that will provide a forum to share ideas and to learn from the operational experiences of colleagues.
Rhett Emery is coordinating invitations to our partner agencies.

## POLICE POLICY REVIEW

The Search and Rescue chapter within Police Instructions has been reviewed and will be circulated for feedback shortly by Inspector John Pine.

## EXERCISES

MASS RESCUE – RAUORA II

Two exercises in this series were held in Tasman (November 1) and Auckland (November 7). Evaluations from both exercises have been posted on the NZSAR website

2 more exercises are scheduled as follows:

- Wellington, March 13 2018; and
- Napier, March 27 2018.

NZSAR-funded SAREXes

A number of multi-agency SAREXes were held during the last quarter of 2017, with several more scheduled between February and May this year.
In an effort to improve the consistency of the evaluation reports coming out of NZSAR-funded SAREXes, an Evaluator Training course was held late last year in Wellington. 20 people from the wider SAR sector attended the training; Rhett Emery is coordinating the allocation of those trained evaluators to the NZSAR-funded exercises.

## STAFFING UPDATE

Inspector John PINE is the new Manager for Operations and Emergency Management, having replaced Peter Baird in October 2017.

## RCCNZ

**Highlights from the first half of 2017/18:**

The recent period has been busy for RCCNZ with the following key highlights:

- RCCNZ hosted the ICAO/IMO Joint Working Group in Wellington in October 2017. The meeting was primarily focused on the development of the international guidance for Search and Rescue and– the IAMSAR manuals.
- The New Zealand LEOLUT and GEOLUT at the Morison in the Wairarapa site were shut down at midnight on the 31st December 2017. Emergency 406 MHz beacons activated within the New Zealand SRR will now be detected by Medium Earth Altitude Orbiting Satellites (MEO) as well as the GEO.from the single site in Goudies Road, Taupo. Currently there are 20 United States and 11 European MEO satelittes available. These satellites are being tracked by a number of ground stations around the globe.
- RCCNZ is well down the track of the update to the NZ beacons registration system. The existing database is being replaced along with a new online system for beacons owners to enter and update their own details. RCCNZ will provide the SAR sector with relevant updated information on this new system, along with some current issues within the 'beacons world' so that the correct messages are distributed.
- In October two new SAROs graduated – Julian Tovey and Drew Coleman. RCCNZ trained two Fijian Navy staff who qualified as SAROs. The Fijian connection has already proved valuable in SAROPs.
- RCCNZ involvement in MRO exercises Auckland and Tasman.
- Pacific SAR support and training in Kiribati, Cook Islands and Niue
- SARdonyx support for NZSAR Secretariat

**Our Core Business:**

Incident breakdown by environment type, October- December 2017:

| | | Sea | Air | Land | Unknown | Quarter | YTD |
|---|---|---|---|---|---|---|---|
| **CAT II** | SAROP involving tasking | 17 | 7 | 62 | 1 | 87 | 122 |
| | Resolved by comms action | 72 | 67 | 42 | 32 | 214 | 358 |
| **CAT I** | Active involvement by RCCNZ | 3 | 0 | 3 | 0 | 6 | 7 |
| | SAD Produced by RCCNZ | 9 | 0 | 0 | 0 | 9 | 11 |
| | Active involvement & SAD | 2 | 0 | 0 | 0 | 2 | 4 |
| **Other** SAREX'S/ MAS/ Medevac | Operation involving tasking | 3 | 0 | 8 | n/a | 11 | 18 |
| | Resolved by comms action | 2 | 0 | 1 | n/a | 3 | 6 |
| **Total (Quarter)** | | 108 | 74 | 116 | 33 | 331 | 525 |
| **Total (YTD)** | | 169 | 124 | 173 | 59 | | |

| People Involved in incidents for the Quarter | |
|---|---|
| Number at Risk | 1750 |
| Lives Saved | 19 |
| Lives Rescued | 51 |
| Lives Assisted | 72 |
| Perished | 8 |
| Not Located | 5 |
| Self-Assisted | 1579 |

**Beacons**

Beacon alerts made up 69% (228) of all incident alerts.

- Almost 30% of these were resolved to other Search and Rescue Regions 68)
- Another 6% (14) were undetermined.

Of those that were activated in the NZSRR:

- 43% were real distress situations (69), there were no incidents that were deliberate with questionable need for a SAROP
- the remainder were inadvertent or false activations.

**Our Work Programme:**

RCCNZ's strategic work programme for 2017/2018 includes:

- Continued progress with the Pacific SAR capability work including a visit to SAR authorities in Fiji in March 2018.
- Implementation of a new on-line beacon registration system and a new education and communications campaign connecting to current and potential emergency distress beacon users to ensure appropriate understanding and use of beacons.

## SLSNZ

**SAR Operations:**

| Search and Rescue Operations: Second Quarter | # |
|---|---|
| Category 1 Search and Rescue Operations | 12 |
| Category 2 Search and Rescue Operations | 0 |
| Lives saved | 12 |
| People rescued | 12 |
| People assisted | 8 |
| Perished | 1 |
| Other incidents | 2 |
| Unknown | 0 |
| Search and Rescue Operations: hours | 19 |
| Search and Rescue Operations: personnel | 43 |
| Search and Rescue Operations: total hours | 53.5 |

**SLSNZ Operations:**

| Surf Life Saving Operations: Second Quarter | |
|---|---|
| People rescued | 169 |
| People Assisted to Safety | 594 |
| People treated (first aid) Major | 58 |
| People treated (first aid) Minor | 462 |
| Preventative Actions | 16301 |
| People assisted through preventative activity | 60404 |
| Searchers Conducted | 54 |
| Surf Life Saving Operations: hours | 48809 |

**SLSNZ Organisational Update:**

The following organisational changes or progress has occurred of relevance to the search and rescue sector:

- Following the four CD deployments of IRB Crews in flood responses throughout the country last quarter, two of our members attended the Flood Fighters Conference and Training in Tasmania. A combined workshop and practical program, the workshops covered implementation strategies, development of standard operating procedures, equipment presentations and lessons learned from jurisdictions and rescue organisations from UK, South Carolina USA, Australia and New Zealand. The practical component was a two-day intensive technical skills program where Rescue boat driving in flooded environments were simulated. The simulation was not too difficult for the organisers as the whole State of Tasmania was placed on a Flood Warning by the SES while we were training. It did mean the first day's practice was cut short due to high waters at the training site. A full report on the recommendations from the conference will be sent to Civil Defence and NZSAR by March 2018.
- The trialling of new rescue equipment is underway throughout the country. The new hull design for the current IRB the "Explorer Boat" has made its way around most of the country and will complete the tour period of the trial in Auckland by May. Following the tour a recommendation for inclusion as an SLSNZ rescue asset will be passed onto the SLSNZ Board for ratification.
- The trialling an underwater dive scooter "SEABOB RESCUE"™ for surf rescue has seen the equipment in Christchurch , the West Coast ,Tasman, Coromandel, Bay of Plenty, Taranaki and later this month Hawkes Bay . Initial feedback has been encouraging with the only fish hook being the price.

## WSNZ

### NZ drowning fatalities 2017 full calendar year (provisional)

| Gender | NZ fatalities five year avg 2012-2016 | NZ fatalities 2016 YTD | NZ fatalities 2017 YTD |
|---|---|---|---|
| **PREVENTABLE** | | | |
| Female | 13 | 11 | 19 |
| Male | 64 | 67 | 69 |
| **Total Preventable** | **77*** | **78** | **88** |
| **NON-PREVENTABLE** | | | |
| Female | 7 | 8 | 4 |
| Male | 19 | 21 | 12 |
| **Total Non-preventable** | **26*** | **29** | **16** |
| **TOTAL** | | | |
| Female | 20 | 19 | 23 |
| Male | 83 | 88 | 81 |
| **Total** | **103*** | **107** | **104** |

** Totals may not equal due to rounding*

### NZ drowning fatalities 2018 YTD (as at 26th Jan 2018)

| Gender | NZ fatalities five year avg 2013-2017 | NZ fatalities 2017 YTD | NZ fatalities 2018 YTD |
|---|---|---|---|
| **PREVENTABLE** | | | |
| Female | 15 | 2 | 2 |
| Male | 65 | 7 | 8 |
| **Total Preventable** | **80*** | **9** | **10** |
| **NON-PREVENTABLE** | | | |
| Female | 7 | 0 | 0 |
| Male | 18 | 3 | 1 |
| **Total Non-preventable** | **24*** | **3** | **1** |
| **TOTAL** | | | |
| Female | 22 | 2 | 2 |
| Male | 82 | 10 | 9 |
| **Total** | **104*** | **12** | **11** |

** Totals may not equal due to rounding*

******* The official holiday period preventable drowning toll (4pm 22nd Dec 2017 to 6am 3rd Jan 2018) was 5 versus a five year average for the same period of 8)*

### Political advocacy

A government advocacy plan has been developed with a view to meeting key ministers in February/March 2018 (post 100 day period). Key messages will include findings of the Capability Review, securing the future of frontline water safety and rescue services, and emphasis on the decline in aquatic education through the school system.

**Capability Review**

Initial findings of the Water Safety Sector Capability Plan were presented to Sport NZ and ACC on 23rd November 2018. Whilst the final plan format is yet to be determined (1Q 2018), findings suggest a highly vulnerable sector at risk of failure due to perilous balance sheets, income declines and reliance on uncertain funding, coupled with stretched resources and an increase in demand and expectation. Next steps include engagement with our funders and Government following a robust analysis of the sector, to include costed recommendations/solutions.

**Summer Campaign**

The highly successful 'Swim Reaper' campaign was launched in early Dec 2017, targeting young Kiwi males (15-34yo). Delivered predominantly via social media channels, the campaign runs through to the end of Feb 2018 and has attracted over 200,000 instagram followers with extremely high levels of reach and engagement.

**Data and Research**

WSNZ has commissioned Litmus Market to undertake a business case project for integrated sector data by beginning to quantify the drowning problem through comprehensive data collection and analysis on mortality, morbidity, incidents and total aquatic participation figures. The project will then work to create an enterprise data environment providing a sector-wide data resource that allows the flexible interrogation of all key datasets. This will form the basis for ongoing insights into the drowning problem.

**Cross Sector Reference Group**

The CSRG remains the driving force behind the collective approach toward delivering the goals of the sector strategy 2020. A reset of format has been proposed and will take place 1Q 2018 as a mid-way sense check to refocus combined efforts, ensuring the right people are attending and value is both input and derived from the forum. Specific working groups have been formed to drive the work agenda, resulting in the requirement for (a probable) fewer CSRG meetings in 2018.

**New Commercial partner - The Warehouse**

In November, we were pleased to announce a new 2 year partnership with The Warehouse, who are getting behind aquatic education in New Zealand as naming rights sponsor of 'Water Skills for Life', NZ's national standard for aquatic education for 5-13yo's. The Partnership will see an injection of funding to reach more children as well as in-store funding and marketing opportunities.

SURF LIFE SAVING NEW ZEALAND

Report to NZSAR consultative committee Flood Rescue

Flood Fighters Conference Tasmania 30 November – 5th December 2017

Following the increase in flood related deployments in 2017 from FENZ and CD, SLSNZ began to seek advice from abroad, for appropriate information to better equip our guards heading into this hazardous environment. Seeking the necessary knowledge to keep them safe and enable them to execute their tasking to the best of their ability I along with Seth McPhee attended the Flood Fighters Conference in Tasmania.

The Flood Fighters Conference an international coalition of Fire Lifesavers and Police from the UK, USA and Australia, who were either just starting out on this quest like us or, well down the path and running a highly effective flood recovery team from training to deployment. Unlike us these groups were motivated from coroner's reports indicating shortfalls in training and equipment following fatalities of Rescue personnel in their services. A number of government enquiries following flood relief operation that were managed poorly such as "Flood Rescue National Enhancement Project, Flood Rescue Concept of Operations Issued by Defra, www.defra.gov.uk. And Cyclone Trina.

The Conference was split into two sections, initially the first two days were theoretical workshops looking into among other things Flood Terminology, case history of events that went wrong and their learnings, Core flood hydrology , PPE equipment , Rescue Boat set ups and hazard identification. The Second section was a two day intensive practical skills camp on a large river. Both Swift water rope work and rescue boat driving were run alongside each other.

The concept of flood recovery is commonly confused with Swift Water Rescue. Swift water rescue is undertaken by River Guides or Mountain High Angle rescue teams and it carried out in White Water Rivers or Phase two flooded channels.
Flood Relief is just that. There are two key concepts to consider. Firstly the River. There are 4 Phases a river will be in during a flood cycle

Phase 1 Normal Flow outside a rain event or hydrological anomaly (burst Dam, Mud Slide)

Phase 2 A flooded river still within its banks, this is the most dangerous Phase as the water speeds are at their greatest, the hydrology is the most unpredictable and due to the increase force of the flow the water carries large debris items from huge boulders, fully grown trees to even buildings. Rescues undertaken in Phase 2 Rivers are often fast to develop – fast to elevate either by swift water rescue teams or fate. They number few in relation to Phase 3 and Phase 4 events. The risk factor in Phase 2 rescues is extreme.

Phase 3 Food Barrier Breach. Due to the spilling over of the water into uncontained but wider flood plains the velocity of the water drops dramatically. The inundation can be immense spanning many $Km^2$ .Phase three deployments are hazardous due to the unknown contaminants in the water such as raw sewage and concentrated pesticides. The debris is numerous and can foul engines crippling craft. The operation will have boats working over submerged hazards such as road signs, barbed wire fences and Arial's onto of roofs to name a few.
Rescues in Phase 3 are many in number two common deployments are dwelling clearances and Medical Evacuations. With dwelling clearances, crews go street to street evacuating those who have not vacated the area yet. Medical Deployments can be from Status 1 Patients to the common stable patients in rest homes who need extra assistance to get to safety.

Phase 4 occurs when the flood waters retreat, this phase can last months. The velocity of the waters are minimal, mud becomes a major impediment to transportation. Contamination of water borne pathogens increases and public's pressure to return to their homes can cause added risks if not managed appropriately.

Flowing the conference and leading up to summer SLSNZ sent out the below advisement to the SLSNZ staff who would be overseeing and Flood deployments. The memo is just a beginning of the efforts we in SLSNZ are applying to this developing problem.

SURF LIFE SAVING NEW ZEALAND

Food Rescue Advisement sent out to SLSNZ Managers and SAR Coordinators 4/1/2018

With the possibility of wide spread flooding throughout the country over the next few days I am passing on some key lessons learnt from the International Flood Rescue Conference I attended in Tasmania in December 2017.

I will release a more comprehensive report later this month but this is a list of simple do's and Don'ts.

Keep in mind most flood rescue is done in slow moving water when a river has broken its banks and inundated the surrounding low lying areas.

Most rescues are of persons on structures such as roof tops or balconies, there is no need for unplanned haste.

**If the rescue is to be carried out in fast moving water be very mind full and aware of the limitations of your craft and lack of training in this environment.**

## Don'ts

**Don't** Undertake the task if you are unsure of the safety of all your crew.

**Don't** Enter into a flood without back up, this may be at least another IRB downstream or an air asset helicopter (request this rom the declaratory authority either Police or Civil defence)

**Don't** Deploy in the dark**,** with debris, unfamiliar water and nil visibility this is extremely dangerous

**Don't** Immerse yourself in flooded waters even if you have a wet suit on!

There potentially will be raw sewage containing human pathogens in the water ¾ of all first responders in Cyclone Trina ended up in hospital due to contamination and skin infections, the warm layer of water between your wetsuit and your skin is a perfect breeding ground for the incubation of the pathogens.

In industrial areas and Rural areas there will be any number of piousness contaminants from concentrated chemicals. Pesticides in rural areas are particularly dangerous , they are used to kill animals just like us and do so in very small concentrations , however in a uncontrolled flooded environment you may be exposed to high concentrations .

**Don't** Enter into a flooded river that has NOT yet broken its banks

The river channel will be full of large unforeseen debris such as large logs and trees, wire from demolished fences and lose building materials all of which can rip an IRB's hull.

**Don't** Approach Vehicles in flooded waters from behind, come at them from the side and ferry glide across the current and hover alongside to make the extraction. Joining from the rear can alter the hydrology of the vehicle and reduce its weight causing it to float off downstream taking the IRB with it.

**Don't** Drive at speed, you should never cause wake!

You will be driving over many unforeseen obstacles, hitting them at speed may damage your boat. The wake will cause unnecessary damage to property by enhancing the level of the flood water, wake may break windows when it hits the houses.

SURF LIFE SAVING
NEW ZEALAND

## Do's

**Do** Crew all boats with three crew. The new rescuer position is needed as, often high speed patient pickups are not possible in the confined areas around buildings within cars etc. With three crew you may need all the help to get larger patients into the craft.

**Do** Approach vehicles in rivers from the side NOT directly behind the car. Come at them from the side and ferry glide across the current and hover alongside to make the extraction. Joining from the rear can alter the hydrology of the vehicle and reduce its weight causing it to float off downstream taking the IRB with it.

**Do** Decontaminate all gear that has been used in the floods with industrial strength disinfectants.

Hazardous chemicals will continue to interact with all equipment and you if not properly washed away. Pathogens will become activated once the gear become wet again and infect those using the gear some time down the line.

Talk to your fire department they will point you in the right direction and may even have a hazardous chemical decontamination unit set up.

**Do** Keep the Bow of the IRB pointed upstream at all times wherever possible. All Patient Pick-ups should be executed in this direction.

Approaching a patient is BEST done from downstream op towards the target, hovering in the current to pick up the patients at a standstill Bow into the current.

If approaching from upstream in fast flowing water use the reduction in throttle to reduce the water speed and have the boat drift down onto the patient

Allan Mundy
National Lifesaving Services and Education Manager
Surf Life Saving New Zealand

a PO Box 4667, Mount Maunganui 3149
t 07 574 2061
m 027 245 2660
w surflifesaving.org.nz

# New Zealand Search and Rescue

28 February 2018

**NZSAR RISK MATRIX**

| Risk # | Risk Description | Reasons or Causes | Consequences | Likelihood | Impact | Risk Level (reviewed) | Risk Treatment(s) | Post Treatment (Effective from…) | Comments/Examples |
|---|---|---|---|---|---|---|---|---|---|
| 2018/01 | **SAR Information**<br><br>The collection and analysis of Search and rescue information is inadequate or insufficiently reliable for future planning. | SAR data collection is fragmented, lacks cohesion and is typically collected to meet the requirements of individual organisations. Properly analysed longitudinal information is difficult for decision makers to access. Data gaps and omissions render sound analysis difficult. In some instances, excessive detail is being collected.<br><br>Insufficient focus is placed on the analysis of existing data.<br><br>Drivers of SAR demand such as activity participation is not well understood. | Without reliable information, NZSAR will be unable to identify strategic changes and opportunities for the SAR community.<br><br>Effective decision making is compromised by the lack of reliable, analysed data. Information can also be hard to access as it can reside within silos.<br><br>The sector is significantly limited in its ability to respond or adjust with sufficient speed to identified trends or risks. | Possible | Moderate | (Sep 17) | **Risk treatment 2018/01/A: SAR Data Standard**<br><br>In consultation with operational SAR agencies, develop and document an agreed SAR data standard for collection, collation and analysis. | 2017 | Changing patterns in, for example, society, demographics, tourism, recreational activities, participation rates and technology is likely to impact on SAR needs and resources. |
| | | | | | | (Sep 17) | **Risk treatment 2018/01/B: Data exchange and storage**<br><br>Establish and maintain a single repository for all SAR data. | 2018<br><br>(Project SARdonyx) | |
| | | | | | | (Sep 17) | **Risk treatment 2018/01/C: Data analysis**<br><br>Analyse SAR data to identify trends and patterns in SAR events. Such analyses should be used in conjunction with other data to show broader trends and patterns. The resultant products will be made available to decision makers and stakeholders. | 2018 | |
| | | | | | | (Sep 17) | **Risk treatment 2018/01/D: SAR Operational Analysis**<br><br>Conduct an operational analysis of SAR need mapped to SAR resources. Assist SAR providing agencies to reshape their organisations to match proven SAR need. | 2018/19 | |
| 2018/02 | **SAR Funding**<br><br>The sector experiences funding sufficiency and volatility risks. | **Sufficiency**. Funding for the wider SAR sector has a variety of sources. Funders may choose to lessen or withdraw their funding support. | Inadequate funding for part or some of the sector may limit investment in training or equipment and lead to inadequate operational responses. | Possible | Moderate | (March 15) | **Risk treatment 2018/02/A: SAR Funding**<br><br>Maintain an overall SAR funding picture. Work with other key SAR funders to sustain adequate supply. Maintain adequate PLA funding to meet Council goals. | Ongoing | |
| | | **Volatility**. The funding levels for SAR agencies can be volatile due to profit variances with key gaming or lotteries trusts & boards. Grants policies also frequently change which can affect eligibility. Public appeals & donations are susceptible to change. | Volatile funding inhibits long term planning and investment. It also degrades sector effectiveness and efficiency. | Possible | Moderate | (March 15) | **Risk treatment 2018/02/B: Funded SAR SLAs**<br><br>Continue to support key SAR providing agencies with appropriately funded three year Service Level Agreements. | Ongoing | |

| Risk # | Risk Description | Reasons or Causes | Consequences | Probability | Impact | Risk Level (reviewed) | Risk Treatment(s) | Post Treatment (Effective from…) | Comments/Examples |
|---|---|---|---|---|---|---|---|---|---|
| 2018/03 | **Cohesive and effective SAR Training**<br>The competence and capability of SAR individuals is dependent on effective training and assessment. SAR training is largely decentralised and varies significantly. | SAR training can be delivered within organisational silos and can differ within organisations. The perspectives of individual organisations have frequently taken precedence over the needs and goals of the wider sector.<br>Continuation or refresher training is often absent allowing skills to degrade over time<br>Search management arrangements and skills can be deficient resulting in inadequate search effectiveness and potentially external investigation and/or criticism.<br>The SAR sector's training is largely conducted within organisational silos and is not united by collectively agreed doctrine. | Training variances can impact on sector collaboration and degrade inter agency and internal cohesion. Training divergence can lead to incompatible incident management systems, different understanding of language and incompatible expectations, SAR processes and priorities.<br>These factors can contribute to deficient SAR services, inefficiencies and potentially avoidable loss of life.<br>They can also lead to damage to the reputation of the NZ Search and Rescue community. And harm New Zealand's international reputation as a safe destination for adventure tourism. | High | Moderate | (May 17) | **Risk treatment 2018/03/A: Suitable individual SAR skill acquisition training is available, funded and sound.**<br>SAR (ACE) funded skill acquisition training is made available for SAR people so that they may achieve the relevant SAR competencies at no cost to themselves. | Ongoing | Skill acquisition training is effective. SAR(ACE) arrangements are problematic |
| | | | | | | (May 17) | **Risk treatment 2018/03/B: Collaborative SAR training and exercising**<br>Undertake cooperative and collaborative training, exercising and relationship building. | Ongoing | NZSAR supports the conduct of Police District SAREXs and the Raoura Mass Rescue Exercise series |
| | | | | | | (May 17) | **Treatment Option 2018/03/C: IMTEX.** Undertake independently planned, delivered and assessed regional IMTEX's involving multiple agencies to broaden, update and standardise search management practices. Also to maximise the pool of competent and current regional search managers. | 2019 | |
| | | | | | | (May 17) | **Risk Treatment 2018/03/D: Continuation/Refresher Training**<br>Encourage all SAR agencies to plan and undertake continuation or refresher training in order to retain skills and maintain engagement with SAR. | Ongoing | Continuation or refresher training is the responsibility of the SAR sector as an "industry". |
| | | | | | | (May 17) | **Risk Treatment 2018/03/E: Revalidation**<br>Work with Police to develop a SAR coordinator revalidation system. | 2019-2020 | |
| | | | | | | | **Risk Treatment 2018/03/F: Incident Review**<br>Independent review of randomly or targeted SAROPs. Use the results to inform and update SAR doctrine and training material | 2019 | |
| | | | | | | (May 17) | **Risk Treatment 2018/03/G: Doctrinal Basis**<br>Develop and maintain agreed, unified doctrinal documentation for the conduct of SAR in New Zealand. | 2018 | New Zealand SAR Guidelines |

| Risk # | Risk Description | Reasons or Causes | Consequences | Probability | Impact | Risk Level (Reviewed) | Risk Treatment(s) | Post Treatment (Effective from…) | Comments/Examples |
|---|---|---|---|---|---|---|---|---|---|
| 2018/04 | **Volunteerism**<br><br>Risks exist around volunteer recruitment, retention and training. | Changing demographics and attitudes, increasing work demands impact on volunteer recruitment, availability and longevity with the SAR sector. | The SAR sector is highly reliant on volunteers for the safe delivery of effective SAR services.<br>• Insufficient numbers of volunteers in the right locations is likely to impact on the safe delivery of effective SAR services.<br>• Volunteer turbulence increases the training burden and inhibits the formation of SAR leaders.<br>• Excessive training demands, poor or infrequent exercises and/or onerous administrative requirements deter people from volunteering and discourage existing volunteers from remaining.<br>• Infrequent utilisation for SAROPs can be dispiriting and discourage long term engagement. | Unlikely | Moderate | (Nov 15) | **Risk treatment 2018/04/A: Maintain good information on SAR volunteers**<br>• Maintain good information about SAR volunteers and their expectations.<br>• Assist SAR organisations with information around recruitment and retention of volunteers to help ensure a sufficient number in areas and types of need.<br>• Ensure administrative requirements are not excessive. | 2018 - 19 | |
| | | Growing public and legal expectations of SAR performance and competence impacts upon the training and commitment levels of SAR volunteers. | | | | | | | |
| | | Trained SAR Volunteers can be difficult to retain and motivate in areas where little SAR activity occurs. | | | | (Nov 15) | **Risk treatment 2018/04/C: Quality SAR individual skill acquisition training and collective exercises**<br>Refer Risk treatments 2017/03. The conduct of good quality, appropriately focussed and well evaluated SAR exercises is important as they enhance readiness, reinforce training and build cohesiveness and morale within the SAR sector. | NZSAR supports the conduct of Police District SAREXs<br>Ongoing | |
| 2018/05 | **Nationally Significant Search and Rescue Event.**<br>Certain search and/or rescue events may overwhelm normal SAR capabilities and trigger the involvement of the National Security System. | Nationally significant SAR events may: require considerable resources to resolve; involve significant numbers of people and/or fatalities; attract substantial domestic and international attention; introduce reputational risks to SAR agencies and New Zealand.<br><br>New Zealand's SAR sector has very limited capacity to respond to large scale SAR events and we have a very large SAR region with little or no SAR assets able to cover much of the region.<br>Significant numbers of vessels and aircraft with large amounts of passengers transit the NZSRR. | • Significant numbers of people injured or killed that could have been rescued.<br>• Severe reputational damage to SAR agencies.<br>• Severe reputational harm to New Zealand as a tourist destination. | Rare | Severe | (Mar 17) | **Treatment option 2018/05/A: Develop mass rescue /abnormal flight policy and plan.**<br>In conjunction with partner agencies, develop appropriate search and rescue policies, plans and procedures. | SAR Policy Complete<br>MTI Policy under development 2018<br>Unitary Plan under development 2018 | This risk is seen as very high consequence but low likelihood. |
| | | | | | | (Mar 17) | **Treatment option 2018/05/B: Conduct regular mass rescue /abnormal flight exercises.**<br>In conjunction with partner agencies, exercise the relevant plans regularly in order to practise, validate and refine them. (see also risk treatments for Risk 2017/03) | Exercises ongoing. Personnel Turbulence limits progress. | |

| Risk # | Risk Description | Reasons or Causes | Consequences | Probability | Impact | Risk Level (Reviewed) | Risk Treatment(s) | Post Treatment (Effective from…) | Comments/Examples |
|---|---|---|---|---|---|---|---|---|---|
| 2018/06 | **Personal Safety**<br><br>Inadequate public understanding of personal risks taken during recreational activities. | A significant number of the public demonstrate a lack of understanding or underestimation of the risks involved with the recreational activity they are undertaking. Due to:<br>• Decrease in public knowledge about recreational safety.<br>• Increase in the range of recreational activities.<br>• Lack of understanding by inbound tourists about New Zealand's conditions and weather.<br>• Inadequate coordination and cohesion between the plethora of competing agencies which provide safety advice. | • Individuals fail to take adequate precautions and/or responsibility for their own safety.<br>• Unacceptable levels of harm to New Zealand residents and foreign tourists.<br>• Harm to the reputation of New Zealand as a tourist destination.<br>• Unrealistic public expectations of the SAR sector. | Likely | Moderate | (Sep 17) | **Risk treatment 2018/06/A: Ensure the public has access to good quality, consistent safety advice.**<br>Maintain the NZSAR Adventure Smart website (http://adventuresmart.org.nz/) and support the promulgation of consistent sector messaging. | Ongoing | Treatments must include widespread engagement – incl regional councils, appropriately targeted information, and influence relevant decision makers.<br><br>Council to be updated on progress for 2018/06/D in Sept 2018 or before. |
| | | | | | | (Sep 17) | **Treatment option 2018/06/B: Recreational safety - provision of consistent information to the media.**<br>Support the relevant agencies to provide timely information to the media on personal responsibilities and better preparation when undertaking outdoor recreational activities. | 2018 | |
| | | | | | | (Sep 17) | **Treatment option 2018/06/C: Support domestic safety organisations.**<br>Support the SAR prevention efforts of domestic safety information providing agencies. Encourage and harmonise collaborative action. | 2018 | |
| | | | | | | (Sep 17) | **Treatment option 2018/06/D: Implement the NZ Inc Recreational Safety Strategy.** | 2018 | |
| 2018/07 | **Health and Safety**<br>Incident of avoidable harm to one or more SAR persons occurs. | NZ's H&S regulatory environment has changed. The SAR sector needs to adapt to the new requirements and implement the required changes for the SAR context. | SAR organisations, team and individuals fail to implement appropriate / necessary H&S processes and procedures. An Avoidable harm situation results.<br>Audit or investigation detect and report on seriously deficient H&S arrangements.<br>For all three circumstances, the sector may be:<br>• Exposed to risk of prosecution. Audit exposes SAR sector health and safety deficiencies.<br>• Suffer reputational damage.<br>• Experience an outflow of personnel due to perceived risk.<br>• Experience an outflow of personnel due to excessive H&S process requirements.<br>• Likely to expect significant external pressure / investigation / regulation / over watch following the trigger event. | Unlikely | Major | (Mar 17) | **Treatment Option 2018/07/A: Implement sound H&S processes and procedures**<br>NZSAR Council H&S processes and procedures for the SAR sector have been approved and are being implemented. The five SLA documents include H&S provisions. SAR sector H&S monitoring and reporting occurs at the SAR strategic H&S Committee and a variety of other interagency SAR forums. H&S experiences and lessons are shared between SAR partner agencies. H&S Advice for the use of non-standard SAR assets is being developed. | Ongoing | |
| | | One or more SAR persons is harmed or killed due to avoidable, and reasonably predictable circumstances. | | Rare | Severe | (Mar 17) | **Treatment Option 2018/07/B: H&S incident contingency planning**<br>SAR providing agencies and coordinating authorities are encouraged to develop contingency plans for use in the event of a SAR related severe H&S incident. Plans may include media, internal personnel and SAR partner engagement as well as grief & trauma counselling etc. | 2018 | |

| Risk # | Risk Description | Reasons or Causes | Consequences | Probability | Impact | Risk Level (Reviewed) | Risk Treatment(s) | Post Treatment (Effective from…) | Comments/Examples |
|---|---|---|---|---|---|---|---|---|---|
| 2018/08 | **SAR Expectations**<br>Stakeholders and public develop unrealistic expectations of SAR capacity and capabilities | A lack of knowledge about SAR sector capabilities and limitations may lead to unwarranted expectations.<br><br>Regular reporting of successful SAR operations may lead to a false sense of SAR capabilities by the media and significant stakeholders. | In the event of a mass rescue, mass search or a SAR incident at the extremities of the NZSRR, the media, public and senior stakeholders may unduly criticise SAR agencies and/or demand actions by SAR agencies that are beyond our capabilities.<br><br>Inappropriate SAR sector investment due to a misunderstanding of SAR expectations<br><br>Members of the public may suffer undue hardship or cause unnecessary cost on the SAR system due to misunderstanding its capabilities and limitations. | Rare | Major | (Jul 15) | **Treatment Option 2018/08/A: Advise senior stakeholders of SAR Sector capabilities and limitations**<br><br>Provide update briefs to HRB and Ministers regarding SAR capabilities and limitations. | Ongoing<br><br>HRB note Nov 15, May 2017 | |
| | | | | | | (Jul 15) | **Treatment Option 2018/08/B: Advise media stakeholders of SAR Sector capabilities and limitations**<br><br>Distribute the NZSAR annual report to media outlets. RCCNZ and NZ Police hold an annual SAR media briefing and specifically note SAR sector capabilities and limitations. | Ongoing | |
| | | | | Likely | Moderate | (Nov 15) | **Treatment Option 2018/08/C: Undertake a benchmarking survey of SAR expectations**<br><br>Engage with the public on occasions to ascertain what their expectations of SAR are and measure trends in expectations. | Undertaken 2016, next 2018 | |
| 2018/09 | **SAR Technology**<br>The SAR community may not know of or be able to acquire technologies that have the capacity to significantly increase SAR effectiveness. | Technology development and change occurs at a very fast pace. Technologies which might aid or transform SAR are difficult to identify and hard to fund.<br><br>Different SAR agencies might select different, non-compatible SAR technologies. | The sector may be challenged operationally and criticised by not utilising the most appropriate technology for an operation.<br><br>Non compatible technologies may hinder our capacity to collaborate and cooperate. | Likely | Moderate | (Mar 17) | **Treatment Option 2018/09/A:** Organise occasional SAR technology workshops to identify technological trends and opportunities relevant to SAR. | Planned 2018 | |
| | | | | | | | **Treatment Option 2018/09/B:** Monitor and report on technologies relevant to SAR. | Ongoing | |
| | | | | | | | **Treatment Option 2018/09/C.** Identification (and possible support) of incident management team support software. | 2017/18 | |

| Risk # | Risk Description | Reasons or Causes | Consequences | Probability | Impact | Risk Level (Reviewed) | Risk Treatment(s) | Post Treatment (Effective From…) | Comments/Examples |
|---|---|---|---|---|---|---|---|---|---|
| 2018/10 | **SAR Demand**<br>Changes to the nature of SAR demand. | Change in SAR demand may be caused by shifts to New Zealand's demographic profile, population growth (or shrinkage), urban spread, tourism growth, climate / meteorological / geological change, new or changed recreational pursuits and/or locations.<br><br>Change may also occur in personal risk appetite and/or preparedness to request SAR assistance. | The sector may find itself inadequately prepared and resourced to respond to changes in SAR demand.<br><br>Resources / capabilities / coordination may not be appropriate nor possess the relevant skills and equipment to effectively respond.<br><br>Conversely – costly existing capabilities may be excessive to meet a changed SAR demand profile.<br><br>Changes to SAR capacity can be very costly. Volunteers in Units / Clubs / groups may be resistant to change.<br><br>The ability of SAR agencies to respond or scale to identify change is limited.<br><br>The sector has very limited internal capacity to recovery from natural disasters.<br><br>Sector may have the 'right' resources in the 'wrong' locations. | Likely | Moderate | (May 17) | **Treatment Option 2018/10/A. Environmental Scan** NZSAR will maintain a clear picture of SAR demand and trends. Integrated this picture with demographic, population, recreation and tourism trend projections prepared by other agencies. Information will be shared as appropriate.<br><br>**Treatment Option 2018/10/B**. The sector will work collectively to recognise and then adapt to observed or likely changes.<br><br>**Treatment Option 2018/10/C.** The sector acts rapidly to address sudden or unforeseen changes.<br><br>**Treatment Option 2018/10/D.** Develop 'demand change' projects to identify, explore and make change recommendations for SAR organisations.<br><br>**Treatment Option 2018/10/E.** NZSAR to shape and influence identified change needs through its work programme and service level agreements. | Develop and maintain a clear picture of SAR demand. (2018)<br><br>Work with SAR sector agencies via existing channels to adapt to change. (ongoing) | Initial focus on:<br>• Wander SAR<br>• Antarctic SAR |

28 February 2018

**DRAFT**

**New Zealand Search and Rescue (NZSAR)**

**Review, Investigation or Inquiry Policy**

## Background

1. New Zealand's Search and Rescue (SAR) system comprises an array of governmental, charitable and commercial organisations who typically come together only for specific SAR operations (SAROPs) or training. The decentralised nature of the system and the challenges this imposes on operating effectively in time of need makes it imperative that we, as a sector, take every practical opportunity to understand ourselves and improve our operational efficiency. Reviews, investigations or inquiries into SAR operations are a powerful tool to achieve this intent.

2. The NZSAR Vision notes '*we will learn from our individual and collective experiences*'. The NZSAR Goal relating to the attainment of a robust and integrated SAR system also states that '*we will continue to improve our understanding of… our performance, … our operations ….*'.

3. NZSAR Council Risk #17 around cohesive and effective SAR Training includes Risk Treatment 2017/03/F: Incident Review: '*Independent review of randomly or targeted SAROPs. Use the results to inform and update SAR doctrine and training material'.*

4. Finally, the NZSAR Operational Framework states that: *'SAR case studies or reviews will be conducted on a regular basis, even when no problems are apparent. There is almost always room for improvement, especially in large or complex SAR incidents. Early detection and correction of apparently small problems or potential problems will prevent them from growing into serious deficiencies later'.*

## Execution

5. Three types of NZSAR Council endorsed SAR review, investigation or inquiry (review) may occur.

a. NZSAR Council directed reviews.

b. NZSAR Secretariat SAROP reviews

c. SAR Agency reviews

6. In addition to the SAR reviews outlines in paragraph 5, a range of other reviews, investigations or inquiries by other agencies may occur. The establishment of a review endorsed by the NZSAR Council or any other SAR agency does not inhibit, supersede or restrict the occurrence of any other form of governmental investigation. These may include:

a. Commissions of inquiry;

b. Statutory inquiries (i.e. CAA, Coroner, Maritime NZ);

c. Ministerial inquiries;

d. Select Committee inquiries;

e. Independent Police Complaints Authority;

f. Ombudsman inquiries; and,

g. Statutory Commissions.

7. **NZSAR Council Directed Reviews.** The New Zealand Search and Rescue (NZSAR) Council may, on occasion, wish to direct a review, investigation or inquiry into a Search and Rescue (SAR) matter. These matters may typically (but are not restricted to) be:

a. of considerable public importance;

b. of concern to the NZSAR Council or one or more of its component organisations;

c. in response to an identified need or concern raised by NZSAR Council members;

d. in relation to matters of procedure, policy, administration, jurisdiction, finance or operation;

e. in response to a complaint; and,

f. where a review or inquiry is deemed the most appropriate method to establish the specifics about a matter and make recommendations about appropriate remedial action.

8. The establishment of an NZSAR Council directed review should be endorsed by a majority of its members and recorded in the minutes of the next available NZSAR Council meeting. The funding for a directed review will be met by the NZSAR Council.

9. The NZSAR Council is solely responsible for determining the terms of reference for any review, investigation or inquiry it directs to establish.

10. **NZSAR Secretariat SAROP Reviews**. The NZSAR Council delegates to the Manager of the NZSAR Secretariat permission to initiate and conduct reviews of selected SAR operations. Secretariat SAROP reviews may be conducted into any SAROP that presents good opportunity for identifying systemic learning.

11. The selection of operations for Secretariat SAROP review and the person conducting the review must be agreed by the Manager of the NZSAR Secretariat, the Manager Rescue Coordination Centre NZ and the Manager: Police Operations and Emergency Management. SAR agencies may make a request to the Secretariat that a particular SAROP be considered for a Secretariat SAROP review at any time.

12. The Council expects:

a. A wide range of SAROP types to be reviewed over time.

b. Four to six Secretariat SAROP reviews to occur each financial year.

c. Secretariat SAROP reviews to be conducted as expeditiously as practicable following the conclusion of the SAROP.

d. To be notified at its next meeting of the initiation of and/or summary results of Secretariat SAROP reviews.

e. The outputs of Secretariat SAROP reviews to be used to improve SAR system processes, standard operating procedures, documentation and teaching materials. They may also indicate future SAR exercise need.

f. Where relevant, case studies based upon these SAROPs and the results of the routine review will also be developed and shared.

g. The Secretariat to monitor and report on the implementation of agreed recommendations or actions resultant from Secretariat SAROP reviews.

13. Secretariat SAROP reviews will typically utilise a standard Terms of Reference as per Annex A. These may be varied as required with the agreement of the three mangers described in paragraph 11.

14. Funding for a Secretariat SAROP reviews will be met by the NZSAR Council.

15. **SAR Agency Reviews.** Any SAR agency may choose to review their own role in any SAROP at any time according to their needs. The two SAR Coordinating Authorities, NZ Police and RCCNZ, may also choose to review SAROPs they coordinate and the role of entities they coordinated (at their cost) to provide themselves internal assurance around their own processes and procedures. SAR agencies are encouraged to share the results of these reviews at their discretion.

## Principles

16. The principles that underpin NZSAR Council directed and Secretariat SAROP reviews include:

a. The starting point is to investigate the SAR issue, not the assumption that a person or organisation is at fault.

b. The review, investigation or inquiry process must be independent, non-conflicted, competent, proportionate and timely.

c. Where possible, the focus should be on identifying lessons and identification of measures needed to prevent recurrence of the issue, not apportioning blame.

d. SAR agencies and personnel will cooperate and share information as appropriate for the successful conduct of these reviews.

Duncan Ferner
Manager
NZSAR Secretariat

**Annex A**. NZSAR Secretariat SAROP Review Sample Terms of Reference

## Annex A

### NZSAR Secretariat SAROP Review Sample Terms of Reference

1. To gain an understanding of the sequence, times of events and key decisions relating to the Search and Rescue Operation (SAROP) XXXX conducted at XXX during XX XXXX to XX XXXX 20XX inclusive.

2. Ascertain the appropriateness for an operation of this nature of the search and rescue arrangements, capabilities, documentation and procedures utilised for this SAROP, its Incident Management Team (IMT) and SAR teams. Identify areas of excellence, sufficiency, lack, relevance, appropriateness and those that may need improvement.

3. Review and consider the appropriateness and/or utility of the following specific aspects of the SAROP with a view to confirming, improving and/or refining SAR documentation, systems, processes, skills, equipment and technology:

a. The IMT tools and arrangements including search tools, planning, investigation, intelligence, information flow and information analysis used and applied during this SAROP.

b. The positions and sizes of areas to be searched and the capabilities, teams, skills and equipment applied to those search areas, given the information available at the time.

c. The ability to scale, resource and support the search with appropriately trained personnel throughout the SAROP.

d. Search suspension and/or conclusion.

e. Family and Iwi liaison and support arrangements.

f. The management of family and other spontaneous search volunteers.

g. The SAR capabilities, skills and equipment of SAR personnel involved.

h. Media relations.

4. Identify any skill, equipment, technology, document, process or procedure that may contribute to a significant information and / or performance improvement for this SAROP or a SAROP of this nature.

5. Make recommendations as appropriate to the New Zealand Search and Rescue Council relevant to improving New Zealand's SAR system, its people, equipment, documentation, skills, processes and procedures.

6. Develop a 20 – 30 minute case study presentation of the SAROP and your recommendations.

Routine SAROP reviews Terms of Reference will typically be based on that shown above. These may be varied as required with the agreement of the Manager of the NZSAR Secretariat, the Manager Rescue Coordination Centre NZ and the Manager: Police Operations and Emergency Management.

# NZSAR Fatality Study

New Zealand Search and Rescue


Callum Thirkell
Ken MacIver
Glenn Mitchell
Dr Elizabeth Asbury

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# Executive Summary

Whitireia New Zealand were contracted by New Zealand Search and Rescue (NZSAR) to analyse their fatality data recorded for the period between April 2010 and July 2017. Firstly, the database was cleaned to allow meaningful analysis. Cases were initially divided into six prescribed categories:

1. Land
2. Water
3. Wanderer (children, people with dementia, etc.)
4. No incident/false alarm
5. Out-of-scope: suicide, criminal, disaster victim identification (DVI), aviation, outside of SAR region
6. Uncertain – for cases that did not clearly fit into one of the above.

Events categorised as 'uncertain', were then discussed by the team in order to establish categorisation by consensus. The 72 cases that could not be categorised due to a lack of information were then referred back to the study's NZSAR liaison. NZSAR made the decision to exclude these cases from the analysis due to a lack of accurate information.

Following categorisation, demographic and thematic analyses were completed on each category, creating a demographic profile of victims while identifying trends and patterns from the narrative descriptions. Land, Water and Wanderer fatalities were considered to be within scope, and were the subject of full analysis. Categories four and five (suicide, criminal, DVI, aviation, out-of-region and no incident) were considered out-of-scope but were still the subject of full demographic analysis and partial thematic analysis, where the data allowed.

## Land

Land-based activities resulted in 194 fatalities. Five activities were most frequently associated with death and accounted for 75% of the land-based fatalities. They were:

1. Tramping (29%)
2. Hunting (15%)
3. Walking (12%)
4. Mountaineering (11%)
5. Commercial (8%)

Three mechanisms of death accounted for 81% of the Land-based fatalities. They were:

1. Falls (31%)
2. Drowned (26%)
3. Medical (24%)

### *Recommendations*

- Consider buoyancy devices when engaged in activities where a fall into the water is possible (rocks, mouth or bank of river, in tidal waters)
- Education around falls prevention, targeting tramping and mountaineering clubs

## Water

Water-based activities resulted in 320 fatalities. Three sub-categories resulted in 79% of deaths:

1. Boating (30%)
2. Commercial (27%)
3. Swimming (22%)

Attempts to breakdown the mechanism of death was less useful in this category due to difficulties confirming the actual cause and because drowning was almost always the final result. Contributing factors included:

- Being swept out to sea
- Lack of a buoyancy device
- Alcohol or drug use
- Medical
- Jumping

### *Recommendations*

- Wear a buoyancy device when engaged in activities where falling into the water, or being swept away, are possibilities (boating, net setting, fishing)
- Consider issuing an emergency position indicating radio beacon (EPIRB) to each person on board a vessel, to be worn at all times
- Specifically target the Māori and Pacific communities in relation to water safety

## Wanderers

Eleven people died as a result of wandering incidents and were split into two distinct cohorts; children (45%) and the elderly (55%). Drowning was the mechanism of death for four of the five children (80%) and three of the six adults (50%).

### *Recommendations*

- Immediate water hazards, including those thought to be secure, should be a priority for searchers.

## Out-of-scope activities

This category accounted for 452 deaths, suicides (41%) and DVI cases (40%) being the two most common.

## Non-events

The majority of non-events were water-based (86%) and most of these were activations based on members of the public reporting a flare sighting.

### *Recommendations*

- Create an educational awareness programme to advise the public on how to correctly identify a flare and how to react.

## Conclusions.

The data highlights the importance of buoyancy devices whilst undertaking both water and land-based activities, including net-setting and fishing from rocks. Immediate water hazards are associated with wanderer fatalities, while falls and slips are associated with land-based fatalities. While the database was incomplete, with missing data skewing all analyses, the data suggests that significant fatality rates are present for Māori and Pacific peoples in water recreation, and that water safety advice should be targeted towards these specific populations.

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# Introduction

The New Zealand Search and Rescue (NZSAR) Secretariat provides a link between the operational and strategic roles of New Zealand Search and Rescue. They support and advise the NZSAR Council who in turn provide high level oversight. They also provide leadership to the NZSAR Consultative Committee; this committee comprises of a wide range of NZSAR stakeholders including the Rescue Coordination Centre (RCC) and NZ Police.

This report has been commissioned by the New Zealand Search and Rescue Secretariat (NZSAR Secretariat) to review all NZSAR related fatalities (or presumed) from 2010 to mid-2017.

The purpose is to provide;

- A high level overview of all fatalities;
- An analysis of in-scope recreational fatalities;
- Recommendations for prevention messaging if appropriate

Recreational cases were divided into 'land', 'water' and 'wanderer'. Out-of-scope cases included suicides, criminal, body recover or disaster victim identification (DVI), aviation, commercial and those occurring outside the NZSAR region.

The database received by the study team contained approximately forty three fields, many of which were completed sporadically. Two fields provided a narrative of the event; this ranged in detail from an empty field (no narrative at all) to 2000 word descriptions that had computer code interspersed throughout. Significant time was spent cleaning this data.

Next, an iterative re-categorisation process took place. Initially the 'not located' or 'no SAR required' cases were excluded (although a high level overview is included). The located fatalities (988 cases) were then categorised by activity using a coding system, which indicated whether they were in-scope or out-of-scope. The next stage involved assessing the in-scope fatalities (430 cases) for sub-activities, cause of death and associated trends. Out-of-scope fatalities (452 cases) were sub-categorised by cause with a high level overview provided.

## Terminology

It should be noted that the terminology used throughout the report, especially in relation to ethnicity and behaviour, were a reflection of the data labels used within the database. Terminology such as 'Polynesian', 'Caucasian' and 'NZ Caucasian' are at best unhelpful when extracting meaningful ethnicity data, and therefore would urge the NZSAR to take guidance from Statistics New Zealand for terminology around ethnicity coding (see Database section) in future iterations of the database.

A common term used to describe the demographic data was 'no correct data'. This involved fields which were empty and where the information presented was unclear. For example, if three genders or three ethnicities were provided and only one fatality occurred, the study team were unable to determine an accurate gender or ethnicity of the victim. The team used database narratives and publicly available sources in an attempt to consolidate the data, although confirming data definitively using coronial reports was beyond the scope of the agreement. NZSAR requested reasonable assumptions to be made regarding specific information where appropriate.

## Database irregularities

The database had not been comprehensively completed, resulting in a large amount of missing data. Seventy two events, representing 7% of located fatalities were excluded from the analysis following consultation with NZSAR due to missing data.

Not every field was relevant for each case (e.g. boat length isn't relevant for a wanderer or a tramper), and there was no distinction between fields that were left intentionally or unintentionally blank. The number of deaths associated with a case often didn't match the demographic data and consequently large portions of the demographic statistics for the 'water' category are unknown. Refresher training in database completion for all NZSAR staff may help improve data quality.

## Case Categorisation

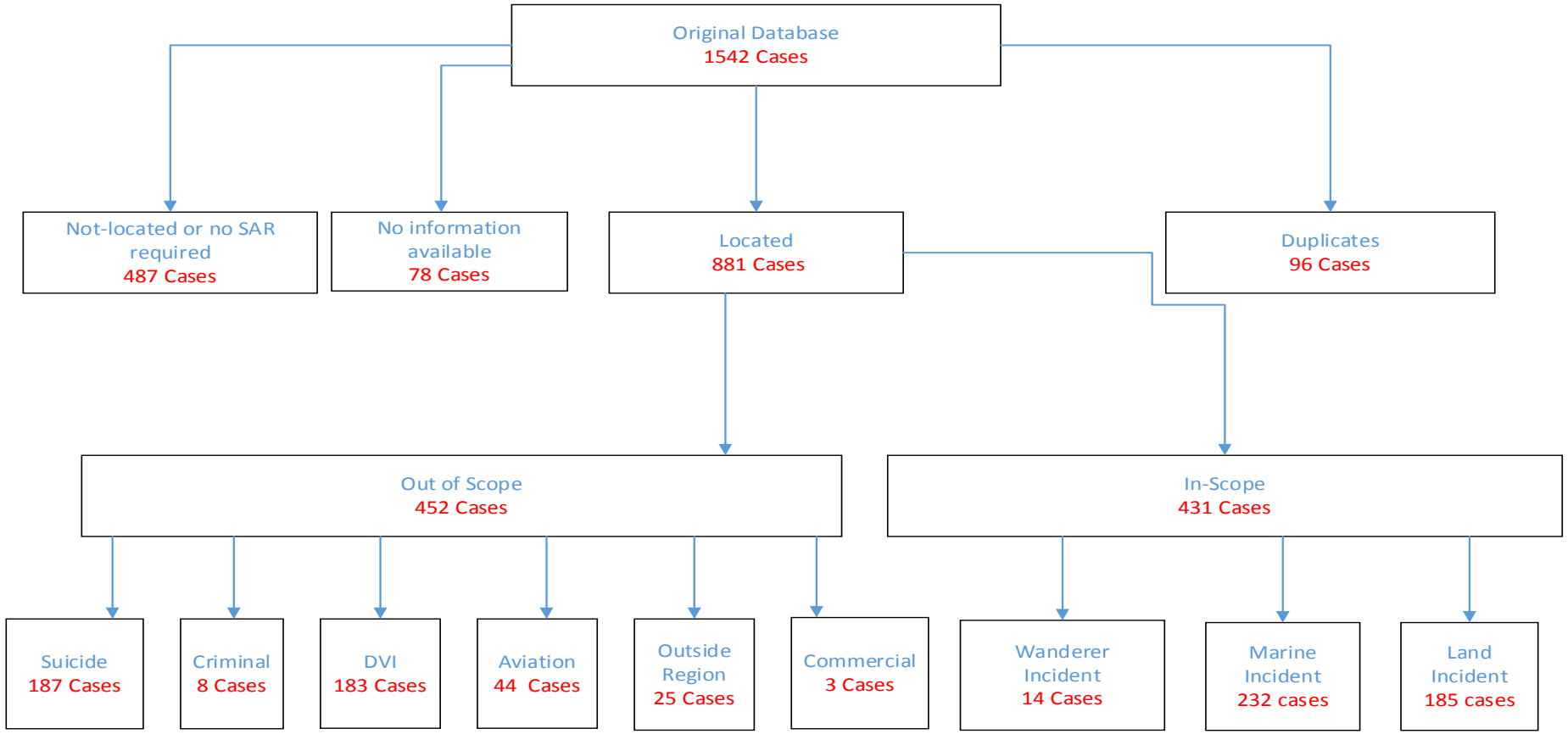


*Figure 1: Case Categorisation and Exclusions (in-scope, out-of-scope)*

This diagram (figure 1) provides a high level overview of the supplied database in its raw form through to the different categories created by the study team. Analysis was focused on the 'in-scope' cases and an overview provided of the out-of-scope and not located categories.

# Located Fatality Demographics

## Located Fatalities by Gender

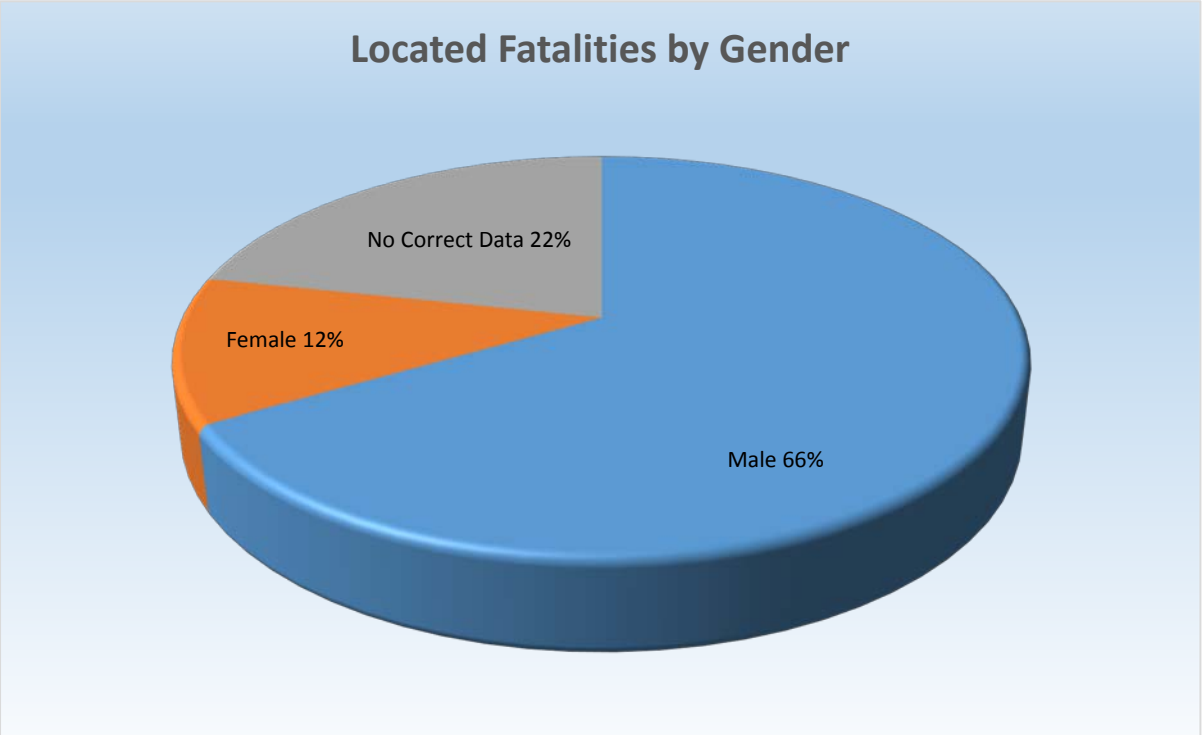


*Figure 2: Located Fatalities by Gender*

At least 66% of all located fatalities in the NZSAR database were male (figure 2), comprised of 881 cases and 975 deaths. Extrapolating this figure from the known data is likely to produce a male fatality rate of more than 80%. As noted above, missing data has created difficulty in extracting meaningful analysis.

### *Gender Recommendations*

Gender-based information can be collected as 'sex' or 'gender', depending on the requirements of the organisation (StatsNZ, 2017b).

"Sex is the distinction between males and females based on the biological differences in sexual characteristics, whereas gender identity is how you experience gender internally." (StatsNZ, 2017b)

The suggested terms for gender identity include:

1. Male
2. Female
3. Gender diverse
   If preferred this can be broken down further, however in the interests of gaining high compliance for completion these terms are not recommended for this database.

## Located Fatalities by Ethnicity

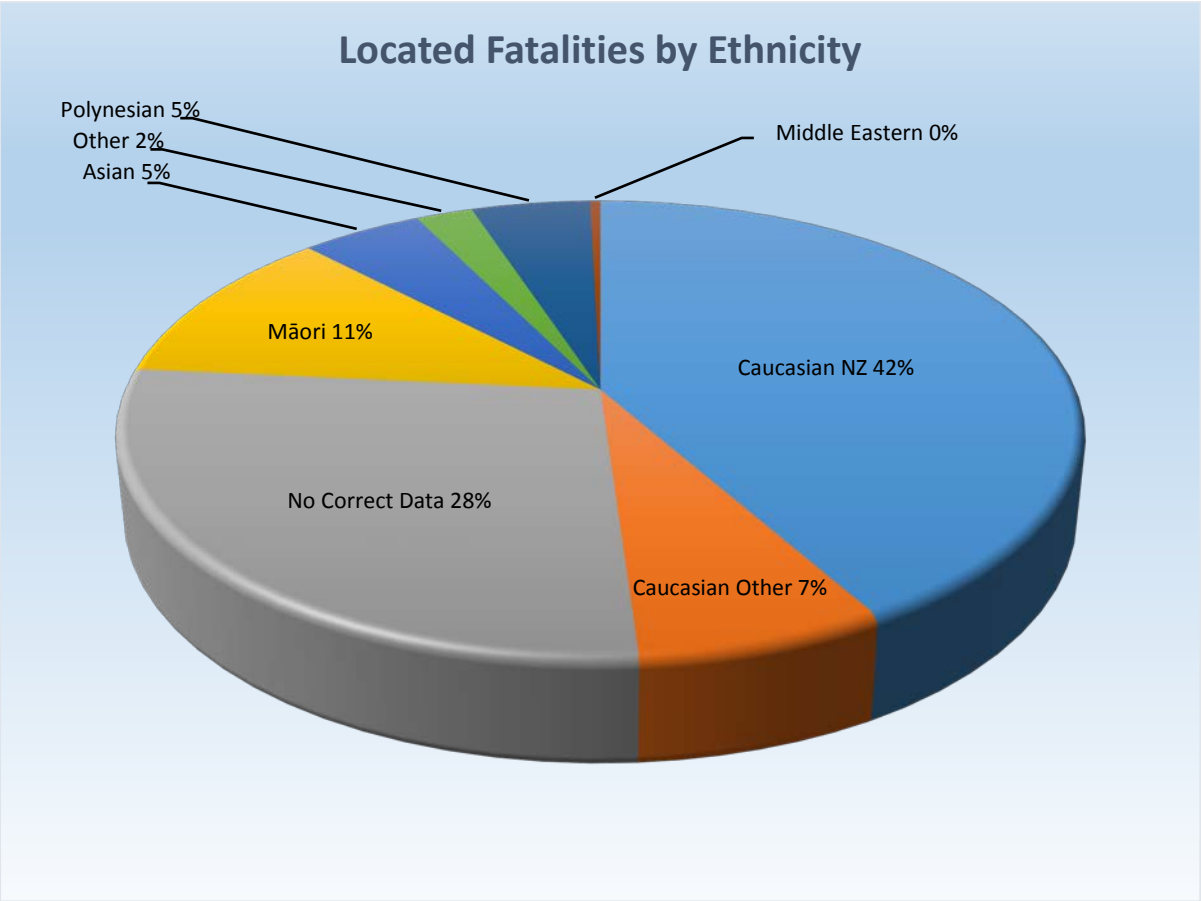


*Figure 3: Located Fatalities by Ethnicity*

Meaningful ethnicity data is difficult to ascertain as every ethnicity is essentially under-represented due to nearly 30% of the cases containing missing data (figure 3). The terms used within the database cannot be found in any official New Zealand publication, therefore the following changes are suggested below, developed and recommended by Statistics NZ in line with accepted terminology.

### *Ethnicity Recommendations*

A balance is required between gathering meaningful data and enabling high compliance with data capture. If all ethnic groups represented, then over one hundred options would be available. Statistics NZ captures five major ethnic groups which may be a suggested approach for this database (StatsNZ, 2017a). These groups are:

- European
- Māori
- Asian
- Pacific peoples
- Middle Eastern/Latin American/African (MELAA)

If the purpose is to identify broad trends and to influence public messaging, broad, manageable and appropriate ethnicity data would provide the most benefit.

## Located Fatalities by Age

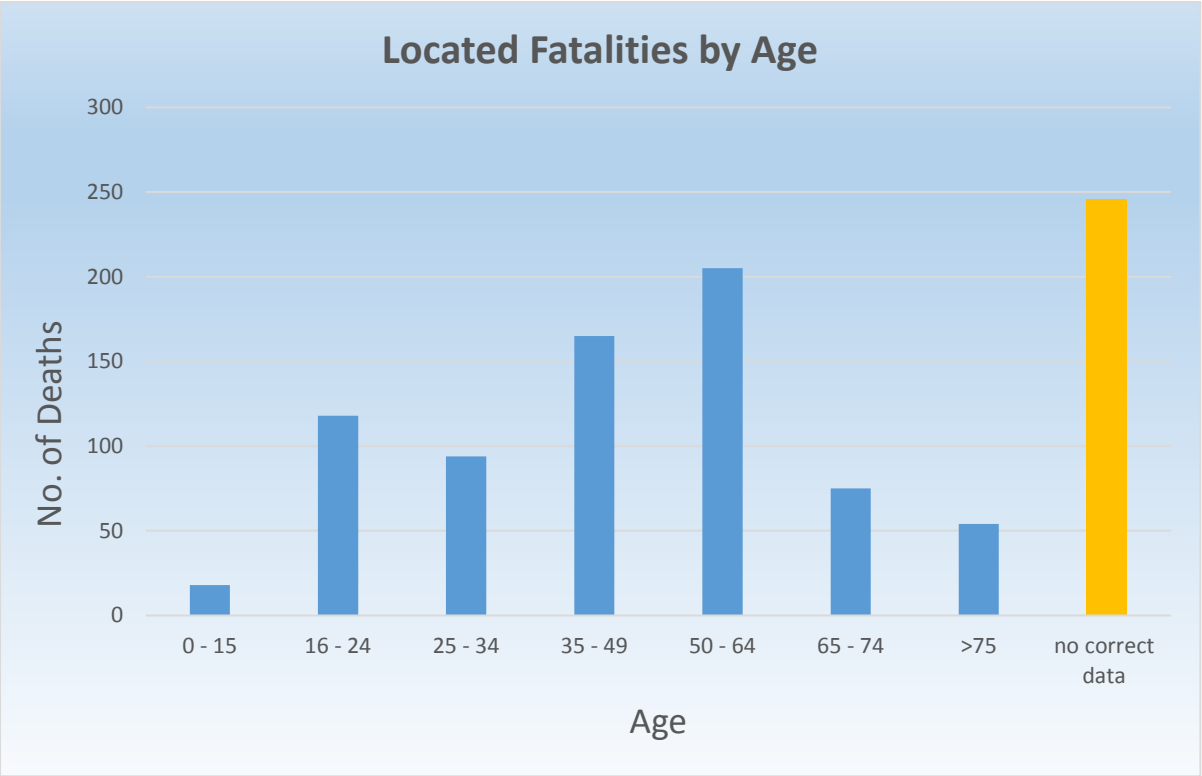


*Figure 4: Located Fatalities by Age*

It is interesting to note that while there a spike in the general trend around late adolescence, the highest proportion of fatalities occur in the 50-64 year age group (figure 4). This may reflect increased free time, fewer dependants, increased health concerns, interest in cultural activities and financial ability to partake in outdoor pursuits.

### *Age Recommendations*

- Messaging should broadly target all age groups, with specific reference to men in early and late middle age.
- Nearly 30% of age related data was missing or incomplete. A forced single response 'age per fatality' should be required to ensure accurate data.

## In-Scope Fatalities by Year

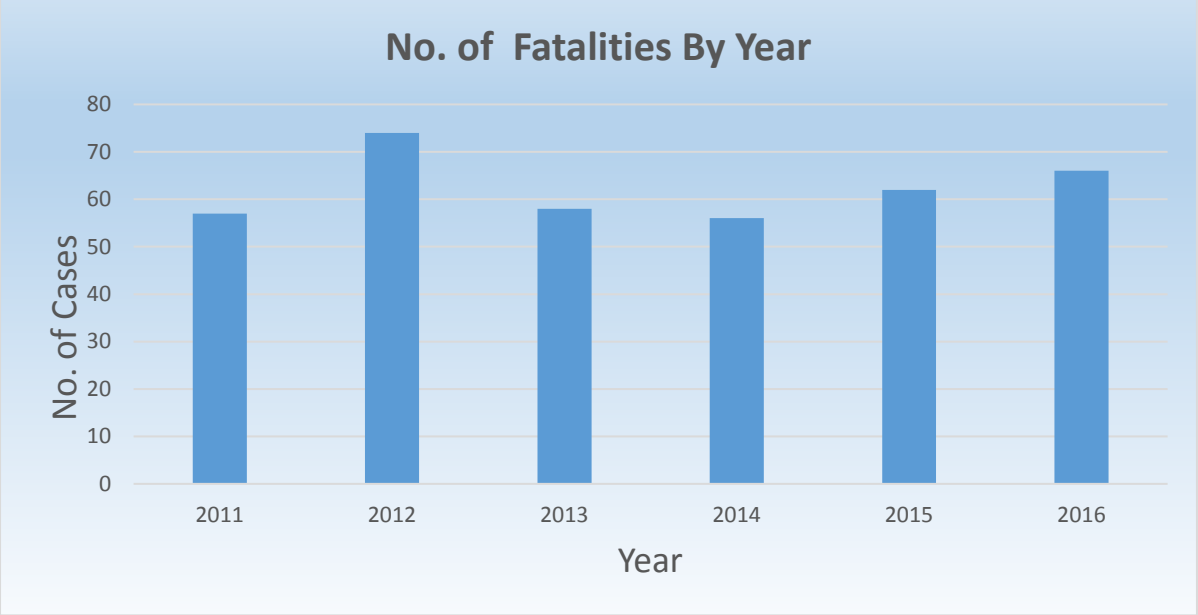


*Figure 5: No. of In-scope Fatalities by Year*

The number of fatalities by year is relatively consistent and there is no significant trend towards an annual increase or decrease in deaths (figure 5). It should be noted that data presented for both 2010 and 2017 contains only part-year data, with data projections broadly in keeping with the other years.

## In-Scope Fatalities by Month

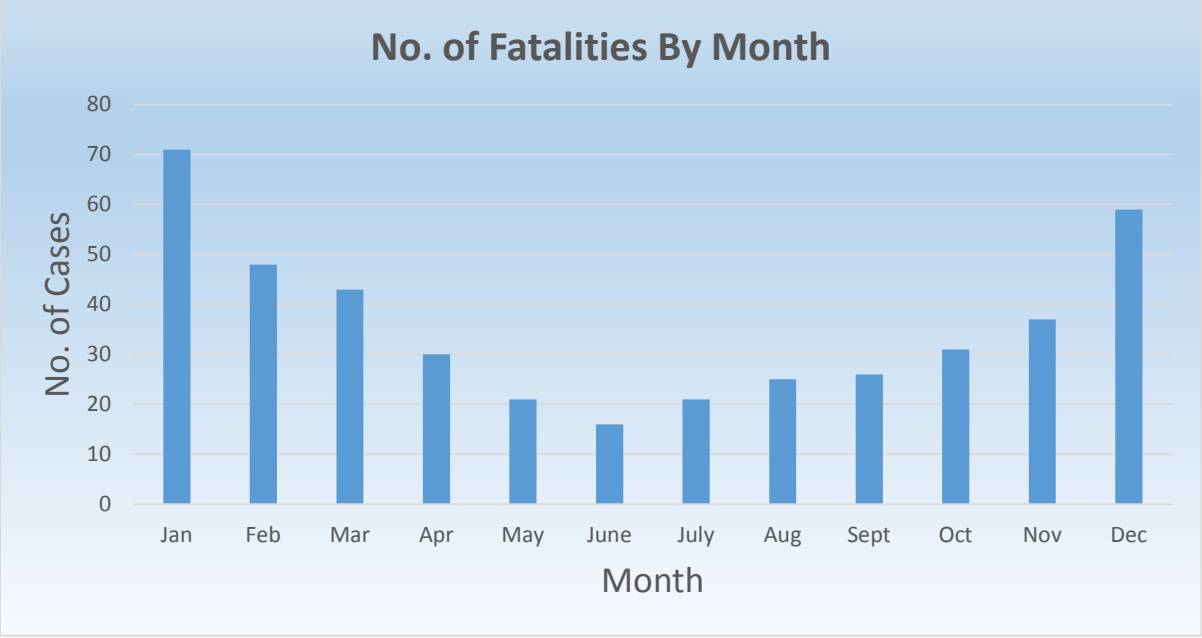


*Figure 6: No. of In-Scope Fatalities by Month from mid-2010 to mid-2017*

There is a clear increase in fatalities in the warmer months of the year, presumably due to an increase in participation during this time (figure 6). All land, water and wanderer deaths were included.

# Land-based activities

This section relates to deaths that occurred while the victims were *intentionally* engaged in land-based activity. For example, a person who intended to walk along a riverbank, slipped into the water and drowned would be included in this category, because their primary intention was walking (despite the fact that the cause of death was drowning). Similarly, a person who was walking, but then entered the water while attempting to rescue someone else and drowned would also be included in this category, as the primary intention of the victim had been recreational walking.

The majority of the deceased were engaged in walking activities such as: a multi-day tramping; day walks; dog walking; exploring coastal rocks (or similar) or fishing from land. In the case of those walking across rocks, the main cause of death was drowning after the victims were swept off the rocks by a large wave or slipped and fell into the water.

## Land Fatalities by Location

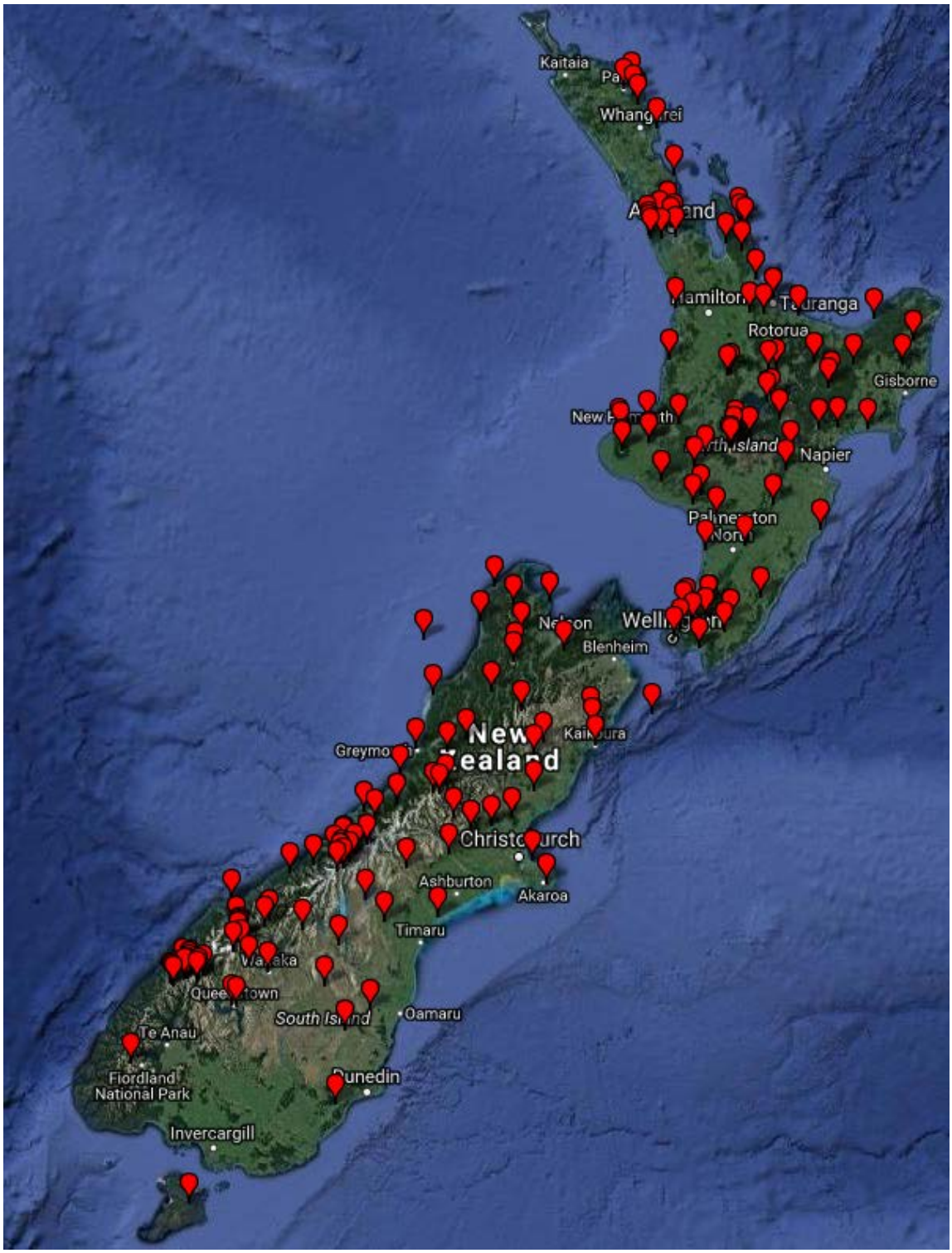


*Figure 7: Land Fatalities by Location*

One hundred and seventy eight cases were mapped from a possible 185 cases (figure 7). No data was provided for seven cases. Some GPS coordinates were clearly located in the sea and assumed to be incorrect. It was beyond the scope of this report to verify each case accurately, therefore all data has been presented as given.

# Demographics

## Gender

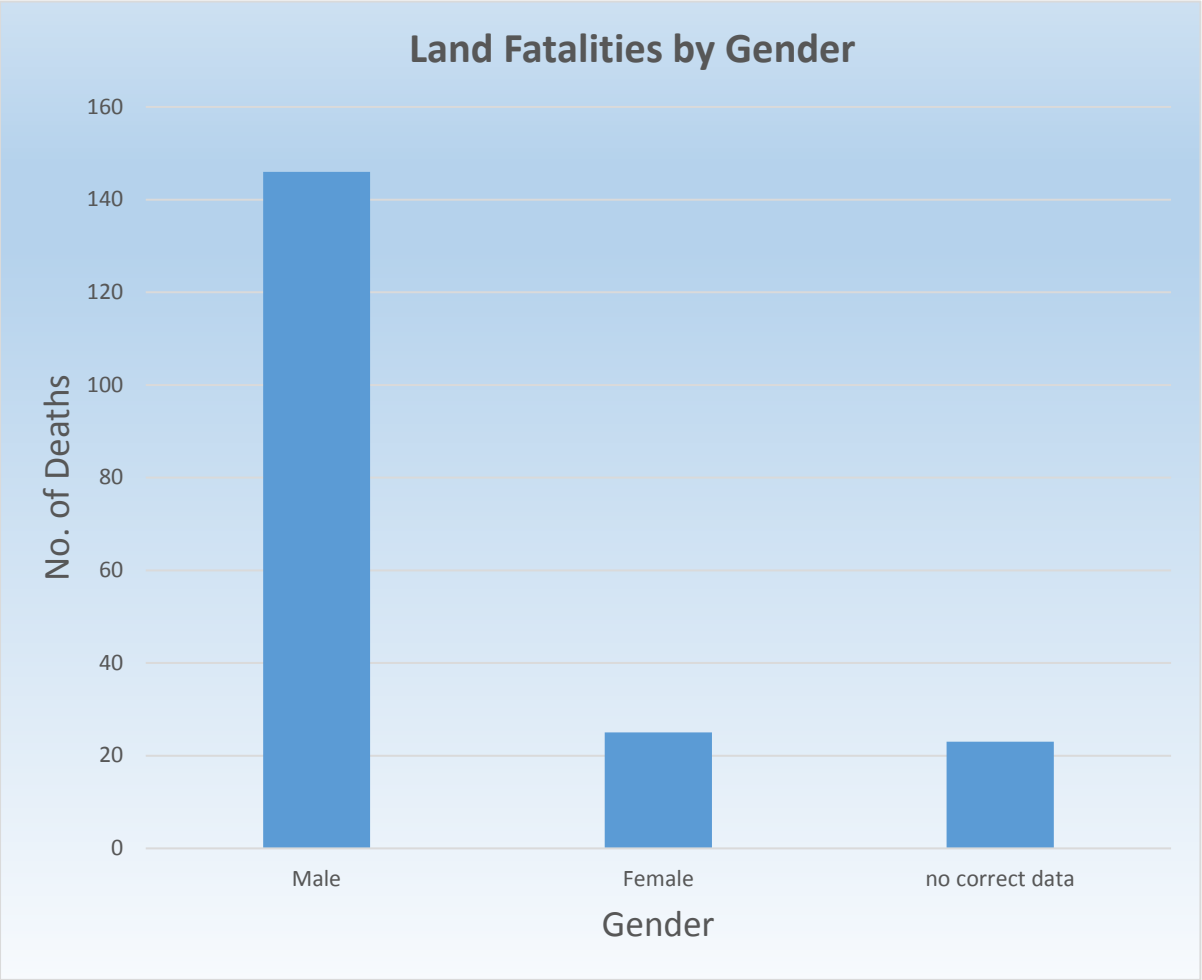


*Figure 8 Land Fatalities by Gender*

Males represent at least 75% of all land-based deaths although the real figure is likely to be higher as 12% of the genders were unknown (figure 8). This is in contrast to males comprising nearly 49% of the population (StatsNZ, 2013). This is consistent with a Mountain Safety report in 2016 which reports 84% of fatalities as male (Mountain Safety Council, 2016). Exploring the antecedent factors associated with the over-representation of male fatalities is beyond the scope of this report. However, it is well accepted in the literature that men exhibit more risky behaviour than women (Harris  M. Glaser, D., 2006). This is consistent with the data presented.

## Age

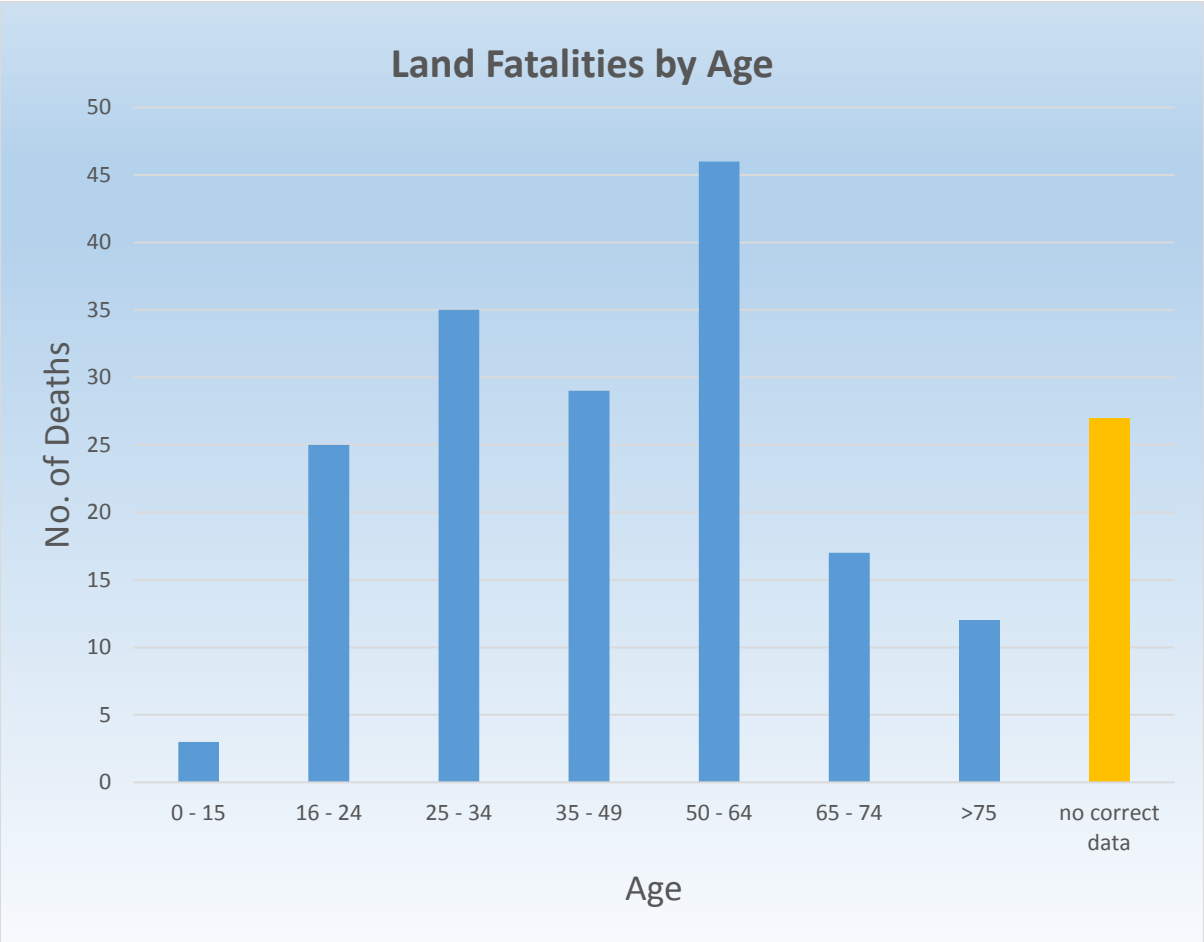


*Figure 9: Land Fatalities by Age*

The data presented (figure 9) includes all land-based activities and broadly reflects the trends identified in the database as a whole. Medical emergencies accounted for a high proportion of land-based deaths (table 4), which may reflect the over representation of the 50-64 year age group.

## Ethnicity

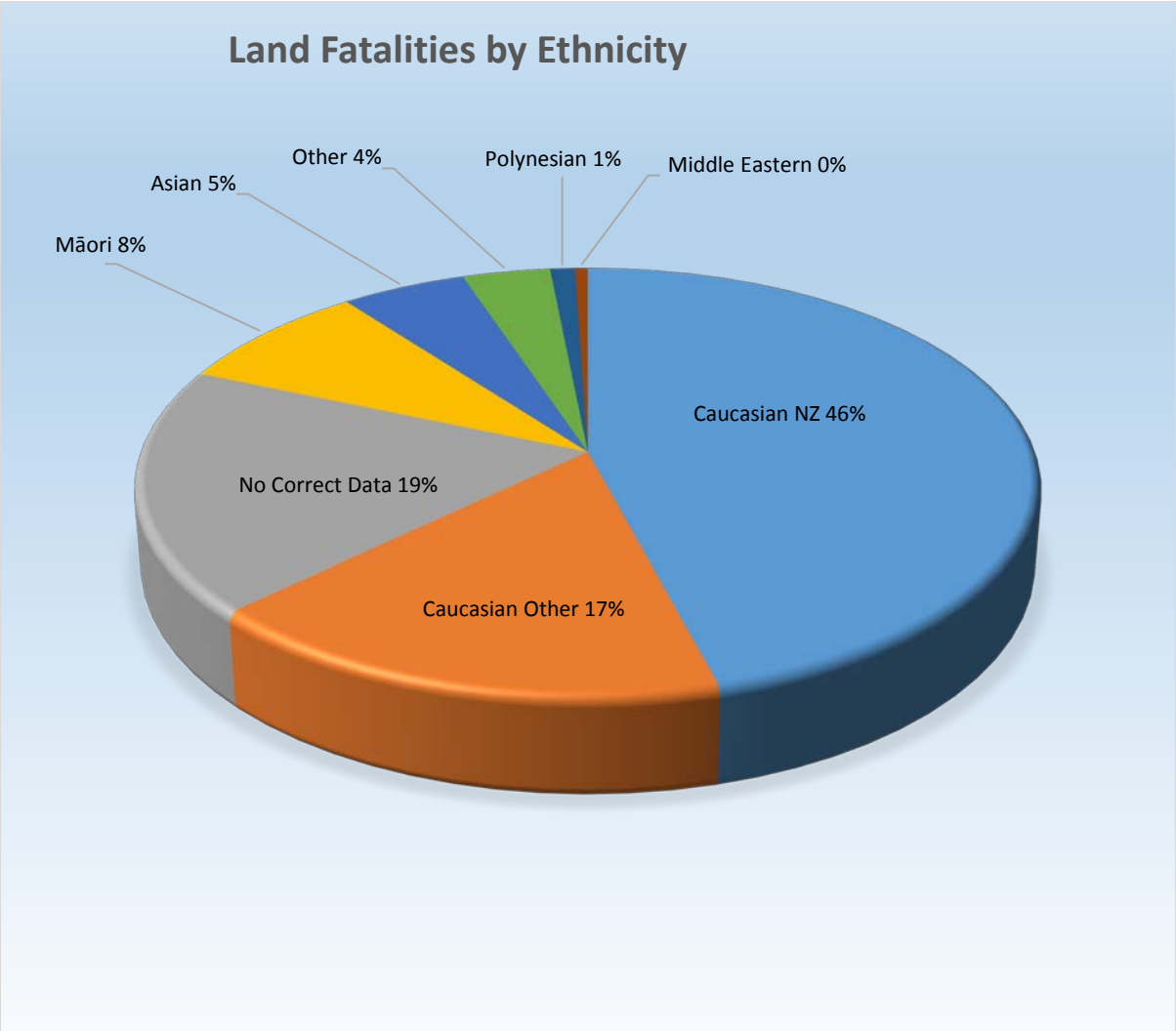


*Figure 10: Land Fatalities by Ethnicity*

Caucasian ethnicity is associated with 63% of land-based deaths (figure 10). The missing data limits the ability to draw conclusions relating to the possible over representation of Caucasian and under representation of Māori and Polynesian peoples.

# Types of activity

Activities were initially sorted into twelve overall categories (table 1), using the definitions as listed below.

| Land Death by Activity | No. of Deaths | Percentage of Deaths |
|---|---|---|
| **tramping** | 56 | 29% |
| **hunting** | 29 | 15% |
| **walking** | 23 | 12% |
| **mountaineering** | 21 | 11% |
| **commercial** | 15 | 8% |
| **other** | 14 | 7% |
| **fishing** | 10 | 5% |
| **riding** | 7 | 4% |
| **intoxicated** | 7 | 4% |
| **skiing** | 5 | 2% |
| **vehicle** | 5 | 2% |
| **running** | 2 | 1% |
| TOTAL | 194 | |

*Table 1: Type of Land Activity Engaged in*

## Definition of activity

### *Tramping*

In many instances, the distinction between tramping and walking is problematic. Tramping was defined as a walking excursion that involved any of the following: remote or sub-alpine terrain; a multi-day outing; or terrain that was otherwise challenging enough to resemble the rugged terrain typically associated with the backcountry. The 56 tramping deaths in this study is comparable with the 45 fatalities over 7.5 years recorded in the MSC report (Mountain Safety Council, 2016, p. 28).

### *Hunting*

Where the primary activity was hunting. This was typically pig, deer or goat hunting, sometimes in remote, off-track locations.

### *Mountaineering*

This has been closely aligned with the definition used in the Mountain Safety Council report, 'There and back: An exploration of outdoor recreation incidents in New Zealand', (Mountain Safety Council, 2016). It includes technical climbing in alpine areas that typically require technical equipment (crampons, ice-axes, etc.). This generally requires specialised instruction, either from an educational course, or by accompanying an experienced mountaineer.

### *Walking*

Walking was defined as an outing lasting up to three or four hours and involving terrain consistent with urban bush walkways, farm tracks, or similar. Those cases lying on the cusp between 'walking' and 'tramping' were classified by group review.

### *Commercial*

Fatalities that occurred while engaged in commercial activities are out-of-scope, but have been included for interest at the end of this section.

### *Fishing*

This category included people who drowned while fishing, either by being swept off the rocks or beach, or falling off slippery rocks. This is an obvious cohort to target for messaging regarding buoyancy devices.

### *Riding*

This category included horse riding, mountain biking, and motor bike riding.

### *Intoxicated*

Intoxicated was used where the chemically impaired state of the victim appeared to be the most significant factor in their demise. This is not an activity as such, but was used for those engaged in otherwise benign activities that were unlikely to result in death but for the significant cognitive impairment induced by alcohol or drug use. An example is the 83 year old male who stumbled into a large river in the dark on his way to the outdoor toilet and drowned.

### *Skiing*

Five people died while skiing, four as a result of falls and one who was buried in an avalanche.

### *Vehicle*

Five people died while primarily engaged in an off-road driving activity. One suffered a fatal cardiac arrest while four-wheel driving. Three died while river crossing, two in the same incident. The last died when he lost control of his vehicle and crashed.

### *Running*

Running accounted for only two of the victims and involved those out for a run.

### *Other*

The 'other' category includes an assortment of sometimes random circumstances that were otherwise difficult to order, or for those where the cause of death was not clear. For example, one victim became surrounded by flood water while sleeping in his car. He tried to wade to safety, but was swept away and drowned. Another was washed into the sea while sight-seeing at a blow hole. A number were found dead (in the sea or on land) having last been seen on land in the midst of normal daily activities. It is assumed that they went walking and experienced a sudden medical event, or were swept or fell into the water and subsequently drowned.

## Commercial (out-of-scope)

Fifteen deaths occurred while the victims were engaged in some form of commercial activity. Table two provides a breakdown of the types of commercial activity engaged in when the victims died. Table three provides a breakdown by cause.

| Commercial Deaths by Activity | No. of Deaths | Percentage of Deaths |
|---|---|---|
| **farming** | 8 | 53% |
| **adventure** | 3 | 20% |
| **forestry** | 2 | 13% |
| **military** | 1 | 7% |
| **water sampling** | 1 | 7% |
| **TOTAL** | **15** | |

*Table 2: Breakdown of Commercial Fatalities by Type of Activity*

| Commercial Deaths by Cause | No. of Deaths | Percentage of Deaths |
|---|---|---|
| **road traffic crash** | 5 | 33% |
| **drowned** | 4 | 26% |
| **trauma** | 2 | 13% |
| **fall** | 1 | 7% |
| **fire** | 1 | 7% |
| **medical** | 1 | 7% |
| **unknown** | 1 | 7% |
| **TOTAL** | **15** | |

*Table 3: Breakdown of Commercial Fatalities by Cause*

Farming accounted for the majority of the commercial deaths. Five of these were as a result of vehicle accidents (two 4WD, two quad bike and one tractor); two of the remaining three were as a result of fire and medical. The last was categorised as unknown. Three people were swept off Paritutu rock in New Plymouth and drowned in a high publicity case while under the direction of a commercial guide in 2012; they were categorised as 'adventure'. Two of the deaths were secondary to traumatic injuries received in forestry accidents. The remaining fatality occurred during an Australian military mountaineering training exercise; the cause of death was a fall.

## Mechanism of injury (cause)

This level of categorisation relates to the mechanism that ultimately resulted in death. The ten mechanisms in this category in descending order of frequency can be found in Table 4. This list includes those killed in commercial incidents.

| Mechanism of Injury by Cause | No. of Deaths | Percentage of Deaths |
|---|---|---|
| **fall** | 60 | 30% |
| **drowning** | 51 | 26% |
| **medical** | 46 | 24% |
| **unknown** | 18 | 9% |
| **Road traffic crash** | 8 | 4% |
| **shot** | 4 | 2% |
| **hypothermia** | 3 | 2% |
| **trauma** | 2 | 1% |
| **fire** | 1 | 1% |
| **avalanche** | 1 | 1% |
| **TOTAL** | 194 | |

*Table 4: Mechanism of Injury Resulting in Death: Includes Commercial Deaths*

### Falls

Sixty of 194 fatalities in the Land category were due to falls, making it the biggest cause of death (table 4). This included many backcountry falls, where trampers, hunters and mountaineers fell to their deaths, and also falls from cliffs in urban areas.

### Drowning

Fifty one deaths occurred due to drowning. Many of the drowning victims probably wouldn't have considered themselves to be engaged in a high-risk activity (walking along the beach, fishing from the rocks, clambering around the rocks). Consequently, few would have considered wearing a buoyancy device. The drowning deaths were further broken down into sub-categories (Table 5).

| Specifics of Drowning Deaths | No. of Deaths | Percentage of all Land-based Deaths |
|---|---|---|
| **crossing river** | 15 | 37% |
| **swept off rocks** | 11 | 27% |
| **fell into water** | 8 | 19% |
| **swept out to sea** | 7 | 17% |
| **TOTAL** | **41** | |

*Table 5: Breakdown of Drowning Fatalities*

## Medical

Medical events were the third highest cause and accounted for 46 deaths. It is impossible to determine with certainty the exact medical cause from the database description, but the experienced paramedics in the study team were able to make inferences from the information provided. The majority were typically sudden cardiac arrests: either primary arrests, where a sudden arrhythmia causes the heart to abruptly stop pumping, or a myocardial infarction resulting from a blocked coronary artery. Other catastrophic medical events that could cause death in this setting include: a massive stroke (secondary to a blocked or ruptured cerebral artery), or a ruptured aortic aneurysm (either thoracic or abdominal). From the descriptions it is clear that few of these events were survivable unless they had occurred within minutes of a Tertiary Hospital.

Messaging for this category is difficult. Many of these events might have occurred whether the person went into the wilderness or not. Any vigorous exertion after a period of inactivity could result in a sudden cardiac arrest.

## Unknown

This category captured those whose death was from an uncertain cause, either because the body was not found until in a state of decay (or similar) or due to database limitations. Determining actual cause from coronial reports was beyond the scope of this study.

## Road traffic crash (RTC)

This is a term used by the New Zealand emergency services to describe a vehicle crash. It includes all types of motorised vehicles. The term does not technically describe some of the events from the database because they did not occur on a road. However, as it represents the national convention, it has been used in this report. A total of eight people died while driving some form of motorised vehicle.

### Shot

Four victims were shot while engaged in hunting. One died as a result of an accidental discharge, while the remaining three were mistaken for game. The latter is a common cause of death while hunting (Wilson & Bridges, 2015).

### Hypothermia

This category is for the few fatalities (three) who died of hypothermia.

### Trauma

Trauma includes those that died from traumatic injuries, but who didn't fit into any other category. Only two deaths fitted this description, both resulting from forestry accidents.

### Fire and avalanche

One death was caused by a scrub-clearing fire during a commercial farming operation. One death occurred when the deceased was buried in an avalanche during a heli-skiing trip.

## Discussion

### Falls

"Lost footing. Couldn't self-arrest. Fell to death." In North America this sequence results in death so frequently that it has become an official phrase (Gonzales, 2003, p. 143).

If this mechanism occurs while *descending* is more likely to result in fatal consequences than when ascending. This fact is not universally known by those who venture into steep or unstable terrain and is therefore an obvious message to target, especially given that falls were the leading cause of death by a significant margin.

When planting a foot during a descent, there is less opportunity to test the traction of the placement before the full weight of the body is committed to the step. When ascending, the weight remains on the downhill leg until the foot placement has been made, and even if a loss of traction occurs it is more recoverable because the foot that slips has little weight behind it. Also, if the downhill foot slips during a descent, the direction of travel is downhill, meaning that there is more momentum to overcome in terms of recovery. These factors combine to produce a more rapid initial mechanism of fall, as opposed to the slower (and therefore more recoverable) mechanism which occurs when ascending (Gonzales, 2003). Despite the frequency such accidents, experienced climbers and trampers are often unaware such hazards.

The highest proportion (60 of 194, or 31%) of the Land-based deaths were secondary to falls, and it is reasonable to assume that many of the accidents occurred due of the mechanism described above. New Zealand's sub-alpine zone, typically occurring between 1200 and 1500 metres, consists of challenging terrain that can be as dangerous as the high mountains, while not appearing to be so (Mulheron, 2015). Sub-alpine terrain lends itself to slips and falls, which can occur anywhere, but which may be more likely to have fatal consequences in the sub-alpine zone. This is partly because it is accessible to those who are less experienced, and partly because of the rugged and uneven

terrain. Simply making trampers aware that falling is the leading cause of death in the backcountry may help to reduce accidents.

### Drowning

An obvious messaging point here would be to urge people to use a floatation device such as a life jacket if they are engaging in a shore-based activity which places them adjacent the water. Examples of such activities include clambering around rocks, fishing from the rocks, or surf-casting in the wash zone on a shelving beach.

Beyond that, it is very difficult to promote messaging as most of those who drowned did not set out to enter the water on purpose. Additionally, steeply shelving beaches on rough days are extremely dangerous, yet this is not intuitively obvious. *Any* beach, which might be very safe on any given day, may be unsafe on another day. Again, this adds to the difficulty in educating people and providing simple safety messaging. Any message that is too restricting, for example, "Stay away from the water at all times" is likely to result in the advice being ignored. But the process of learning how to be safe in a potentially dangerous environments is not straight forward, especially if this process is through trial-and-error, as opposed to learning alongside an expert.

McCammon (2001, p. 4) describes two types of backcountry learning environments: those where feedback from decisions is *progressive*, allowing novices to discover their own set of rules of thumb (heuristics). And those where the feedback is *catastrophic*. In the latter setting the decision to cross a marginal river, for example, is an 'all-or-nothing' venture; either the party are capable of the crossing or they are not. He emphasises that "…catastrophic environments are poor places to learn through trial-and-error" (p. 8).

### River crossings

A rise in river level that appears insignificant to an inexperienced eye can result in two changes that drastically decrease the chances of a successful crossing. They are: an increase in water force directly pushing on the person crossing; and decreased foot traction on the river bottom due to a greater proportion of body weight being submerged and therefore more buoyant. The increased buoyancy leads to less downward force on the river bottom, resulting in even a small increase in water force to become significant (Federated Mountain Clubs, 2012, p. 16).

Other factors that come into play are: the runout (recovery area should one get swept off one's feet); the width; the depth; the water temperature; the amount of clothing (and therefore weight and drag); and the weight of any pack being carried. At times, a heavy pack may provide extra foot traction on the river bottom, but will simultaneously making the person less agile. Additionally, all but one member of a party might be capable of crossing, which may lead to difficult decisions when some or all members have crossed safely. This situation may add to the pressure experienced by the weaker party members to give the crossing a try.

It is unrealistic to expect that parties will never attempt a crossing if the slightest doubt exists. During the study period it is likely that many thousands of crossings were undertaken successfully and safely. Beyond a certain point, messaging does not help with activities such as river crossings because it is necessary to develop intuitive expertise; this cannot be gained without exposure and therefore risk (McCammon, 2001).

## Hypothermia

An interview with tramping historian Shaun Barnett supported some of the trends found within the NZSAR data (Shaun Barnett, personal communication). He confirmed that hypothermia had been a leading cause of death in the backcountry prior to the 1960s, but has become proportionally less common. A graph modified from data published in the monthly newsletter of the Tararua Tramping Club demonstrates this trend (Tararua Tramping Club, 1991, p. 8). The number of hypothermia deaths peaks in the 1950s and then steadily decreases (blue bars), while the number of deaths from other causes (predominantly drowning) steadily increases (green bars) (see Figure 11, modified graph).

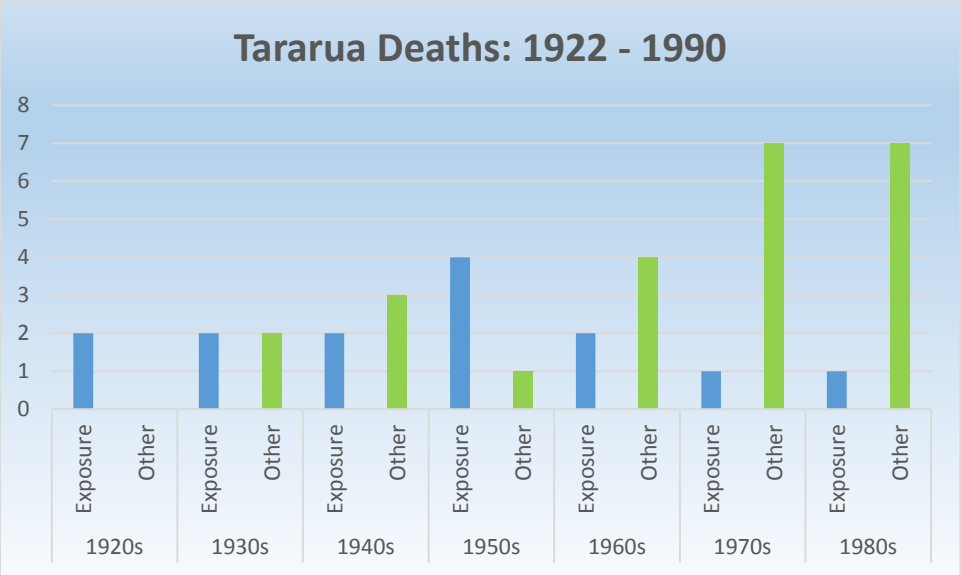


*Figure 11: Deaths in the Tararua Ranges, 1922 – 1990.*

Reference

Tararua Tramping Club. (1991, October). Taraua Deaths - 1922 - 1990. *The Tararua Tramper*, 8,9.

Walrond documents the historical high incidence of hypothermia in his book 'Survive! Remarkable tales from the New Zealand outdoors' (Walrond, 2008). One incident that clearly portrays this historical trend is that of three teenagers who became lost while walking the Wangapeka Track in Kahurangi National Park in 1968. Over the course of two or three days, during which they were exposed to severe weather including snow, two of the boys died of hypothermia. The third managed to find a hut and was eventually rescued safely. The alarm wasn't raised until the party failed to appear on the day they were due out; by this time the two victims were already dead.

According to Barnett, the reasons for the decrease are multifactorial, but include: improvements in outdoor clothing; decreased rescue times; increased performance abilities of rescue helicopters; improvements in weather forecasting; and the advent of specialised rescue teams which are able to operate on narrower safety margins. A brief exploration of each of these elements is enlightening.

## Improvements in outdoor clothing

Oilskin rainwear became available in the 1930s and was a significant step forward in clothing technology. Prior to that, those venturing into the outdoor would be clad in heavy woollen suits similar to the work or streetwear of the time. Once wet, these did little to prevent heat loss,

particularly if wind-chill was a factor. In contrast, modern breathable waterproof parkas covering lightweight thermal undergarments retain less moisture and prevent the wind from cutting through the clothing. The result is dramatically decreased heat loss from wet clothing and wind-chill.

### Decreased rescue times

Barnett breaks this dimension down into three key elements: decreased activation time, improved ability to locate victims, and faster extrication to medical care.

### Decreased activation times

High-tech communication devices allow activation of rescue much earlier than in the pre-cellular era. While blanket cellular coverage does not yet exist across the New Zealand wilderness, cell phones nonetheless provide vastly improved communication with rescuers than previously. Additionally, the development of lightweight, affordable personal locator beacons (PLBs) means that the alarm can be raised in areas that lack cellular coverage.

### Improved ability to locate victims

Hand held global positioning system (GPS) devices carried by backcountry travellers enable exact co-ordinates to be sent to rescuers, even when those in trouble are not sure of their own whereabouts. The result is a dramatically decreased time to rescue as the helicopter can fly straight to the location, rather than having to search a large, bush-covered area. For the same reason PLBs have also made a vast difference in this regard.

### Faster extrication to medical care

Barnett describes how in the pre-helicopter rescue era, multi-day stretcher carries of victims to the nearest road was the norm. During freezing weather, a relatively minor injury by today's standards may have resulted in life-threatening hypothermia.

The 'Trauma Triad of Death' is a term coined to describe the lethal combination of hypothermia, acidosis and coagulopathy which can lead to a vicious downward spiral for trauma patients with significant bleeding (Mitra, Tullio, Cameron, & Fitzgerald, 2012). In the last 20 years substantially more of these patients have been surviving, largely due to early access to advanced medical care at tertiary trauma hospitals (Mitra et al., 2012). An example would be the case of a woman who was helicoptered from the Orongorongo Track with a broken leg in 2003 (Kerr, 2003). It is possible to lose between 1 and 2 litres of blood from a femur fracture, meaning that this patient was at risk of significant haemorrhage. The accident occurred in mid-winter (20 July). The flight time to Wellington Public Hospital is approximately 15 minutes. A similar rescue in the 1950s would have exposed a patient to the elements for many hours before receiving advanced medical care. This would greatly increase the risk of hypothermia, contribute to the trauma triad, and increase the risk of death.

### Technological improvements for helicopters

Barnett cites improvements in helicopter technology as a factor in the speed of rescue. Five-bladed machines are much more stable than the older two-bladed versions, allowing them to carry heavier loads and cope with stronger winds. They can hover close to terrain in poor weather, making it possible to rapidly evacuate a patient. Advances in winch and strop technology mean that patients

are able to be extricated on a stretcher through dense bush canopies, and plucked from cliff faces or the sea. Improvements in night flying ability enables rescues in the dark which would have been impossible in the past. More accurate weather forecasting means a rescue can be initiated during a narrow weather window of as little as 30 to 90 minutes. Thermal imaging goggles used by helicopter crews allow victims to be spotted through the bush canopy.

Finally, the evolution of specialist rescue services has meant that teams are able to safely operate on narrower margins.

Barnett believes that the combination of these factors are gradually changing 'Search and Rescue' to 'Alert and Rescue'; the requirement for the extensive searches of the past is diminishing. The database reports numerous large searches, but few where the subjects were found alive.

Consider the 1968 Wangapeka tragedy mentioned earlier. The same scenario playing out today for a party carrying a PLB would likely mean a rescue being initiated immediately, a precise location for rescuers to target, and rapid extrication by helicopter.

### Personal locator beacons (PLBs)

Of the 183 SAR activations in the Land category, 21 (11%) were triggered by PLBs. This is a significant proportion given that many of the rescues may have occurred within cell phone coverage areas, meaning that PLBs could have been used far more frequently. A useful analysis would be to calculate the proportion of activations that were triggered by PLBs in areas where there was no cell phone coverage.

Considering the deaths in the Land category it is clear that few of them would have been prevented if the victims had carried a PLB. The three main causes of death were: falls, drowning and medical. These accounted for approximately 80% of all the deaths in this category. From the descriptions in the database, many of the falls resulted in catastrophic injuries which would have prevented the victim from activating a PLB. One case report of a solo tramper (not from the database) clearly illustrates this type of situation:

> "A post-mortem revealed major injuries to the tramper's head, chest and limbs, suggesting that he would have been incapacitated immediately and died soon afterwards."
>
> (Plimmer, 2014).

Similarly those in the Land category who drowned would have been in no position to activate a PLB and would not have been saved even if they had done so. The same is true of the medical events, which from the descriptions in the database were generally massive and catastrophic.

The most significant situation where PLB use saves lives appears to be for those who are incapacitated to the point where they are unable to rescue themselves, but who do not have critical injuries which will inevitably result in death. The case of the three teenagers lost in the Wangapeka in 1968 cited earlier is an example. The other situation is where the victims are not injured, but are unable to rescue themselves due to circumstances.

# Recommendations

- Consider buoyancy devices if you are planning to engage in an activity near the sea or on a riverbank.
- Education around fall prevention. Further research into causes of falls and the specific terrain in which most of them occur.
- Database: Improve data fields to include ‘forced response’ formats to ensure accurate data collection.

# Water-based activities

This section relates to deaths that occurred while intentionally engaged in water-based activities. The vast majority of fatalities in this category occurred in the water and by far the most common cause of death was drowning.

## Water Fatalities by New Zealand Location

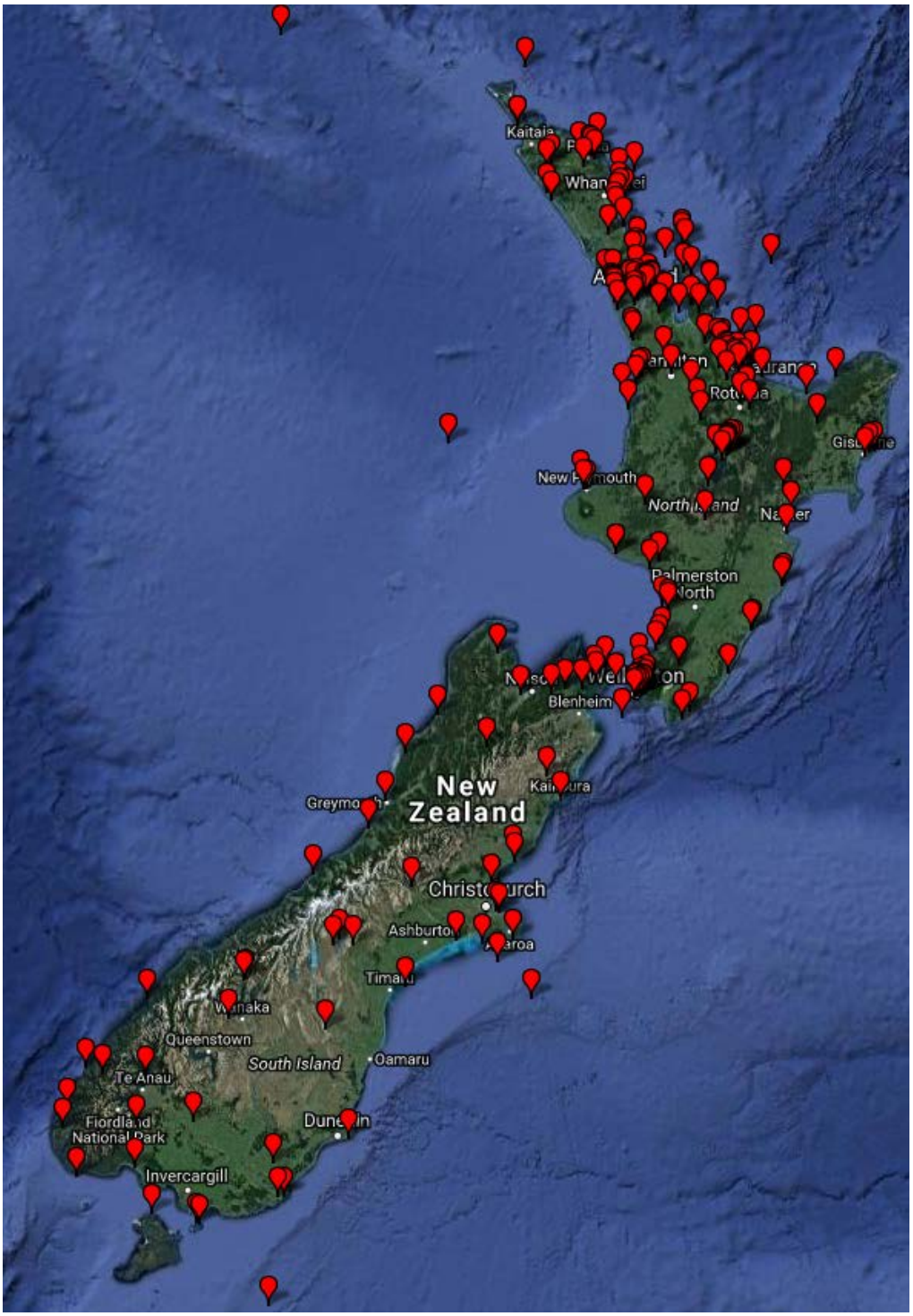


*Figure 12: Water Fatalities by Location*

The GPS coordinates used are from data supplied and unable to be verified further. Two hundred and twenty eight cases were mapped from a possible 232 cases. No data was provided for four cases.

Water fatalities were concentrated around coastal and lake regions as well as high frequency areas for water recreation, including Auckland, Wellington, Taupō and Bay of Plenty (figure 12). Unlike the Land category, where the causes of death were both clearly distinct and useful for messaging, the causes of death in the water category were far less clear. For example, there were numerous instances where someone fell overboard, resulting in either drowning or hypothermia. In the latter stages of hypothermia victims begin to lose consciousness and are unable to keep themselves afloat; drowning follows rapidly. However, identifying the exact mechanism of death among fatalities in this category would not change the messaging relating to water safety.

Similarly, from the narratives it seemed likely that a number of people drowned due to a medical event while they were swimming. The same medical event occurring on land, a mild heart attack for example, may have been survivable. But in a water environment, many events survivable on land result in an autopsy finding of drowning, even though the mild heart attack was the precipitating factor. Given these limitations, table 6 outlines the causes of death.

| Deaths by cause | Number of deaths | Percentage of Deaths |
|---|---|---|
| **drowned** | 264 | 82% |
| **unknown** | 37 | 12% |
| **medical** | 12 | 4% |
| **hypothermia** | 4 | 1% |
| **trauma** | 3 | 1% |
| **TOTAL** | **320** | |

*Table 6: Fatality Breakdown by Cause*

# Demographics

## Gender

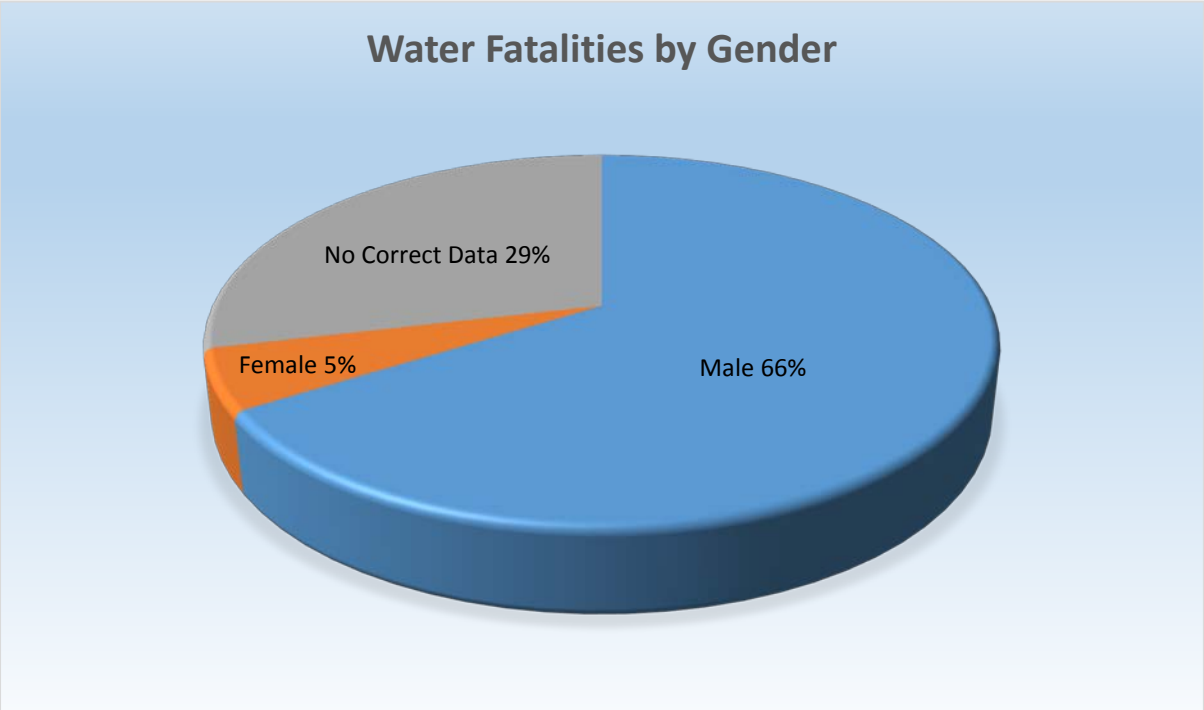


*Figure 13: Water Fatalities by Gender*

Sixty-six percent of water-based fatalities were male (figure 13). This is consistent with male attitudes as noted by Kalafatelis (2014) who suggests that females are more likely to place importance on checking marine weather forecasts, avoiding alcohol and have a higher regard for lifejacket use. Alcohol and lifejacket use have been noted as key contributing factors in this report.

## Ethnicity

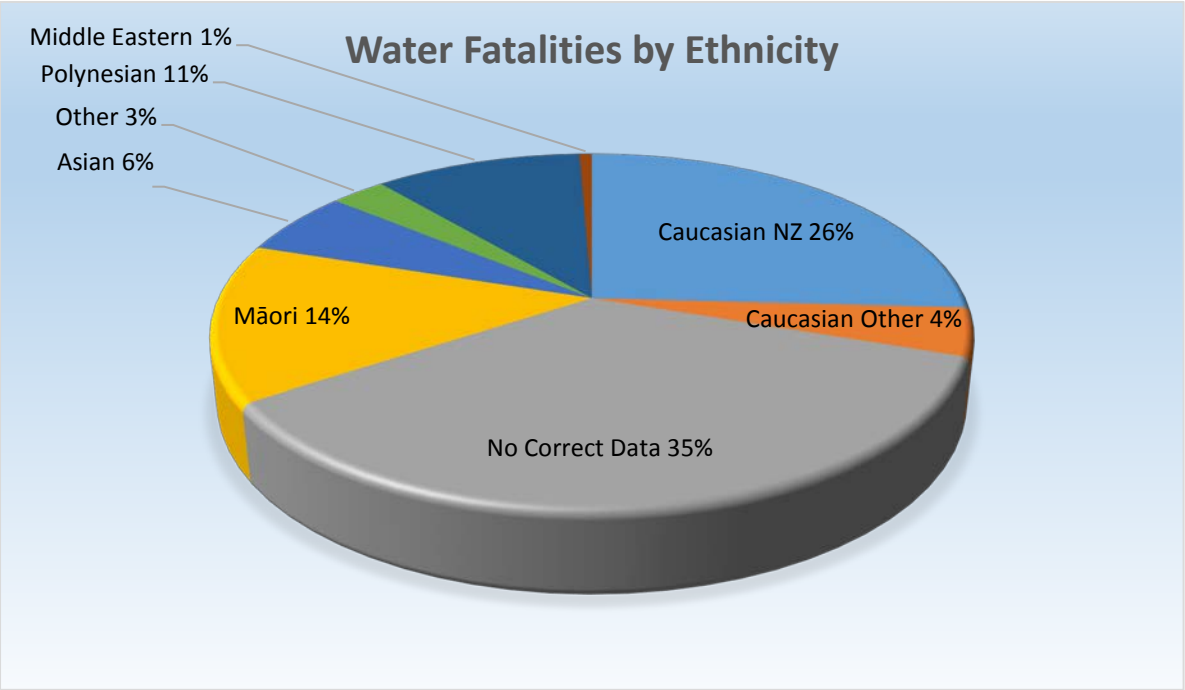


*Figure 14: Water Fatalities by Ethnicity*

It is difficult to draw meaningful conclusion regarding ethnicity, as 36% of the data was either missing or inaccurate (figure 14). Polynesian and Māori are over-represented as they currently account for 24% of the deaths compared with 22% of the population (StatsNZ, 2017). This over-representation is also likely to be an under-estimate. Working on the assumption that the missing ethnicity data are distributed similarly, Polynesian and Māori deaths would represent more than 30% of all water-based fatalities.

## Age

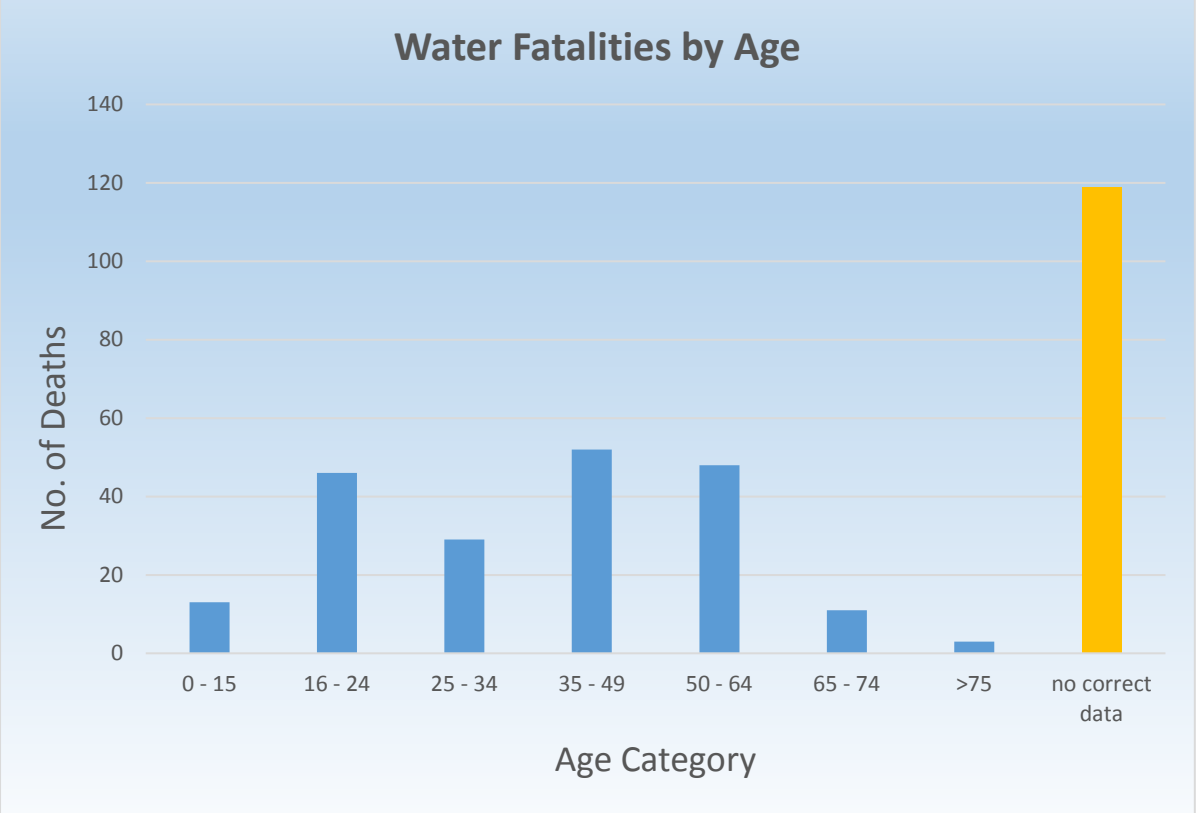


*Figure 15: Water Fatalities by Age*

It is difficult to draw accurate conclusions as 37% of the deaths had missing data and the water activities represents a wide variety of activities (figure 15). This ranged from deep sea commercial fishing (although these are out-of-scope) to small dingy fishing, swimming and net setting.

## Types of activity

Figure 16 shows the fatality breakdown by the activity engaged in by those involved.

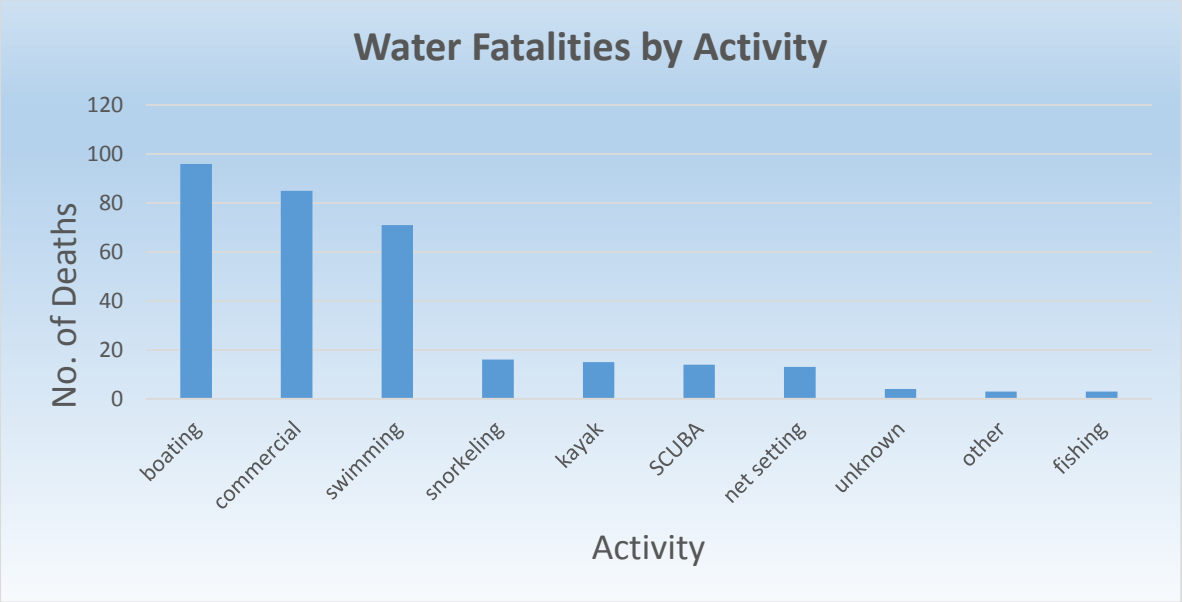


*Figure 16: Water Fatalities by Activity*

### Boating

This category includes vessels of all sizes that were engaged in a recreational activity, from large fishing vessels to the smallest dingy. Jet skis were also in this category. Kayak deaths were numerous enough to warrant a separate category. Boating excludes those ventures where a professional skipper was paid to lead the expedition.

Ninety five of those who perished from the total of 320 were boating at the time. This accounted for 30% of the total number of deaths.

### Swimming

The third most frequent activity was swimming, with 71 people drowned (22%). The majority of these set out with the intention of swimming for recreation, mostly from beaches.

### Snorkelling

Snorkelling includes free-diving (non-SCUBA), spear-fishing and casual snorkelling. The well-known term snorkelling was used in preference to the newer terms. Any activity that involved breath-holding, and use of a mask and flippers (with or without a snorkel) would be included in this category. Sixteen people died (5%) while engaged in a snorkelling activity.

### Kayak

Kayak-style boats, which are distinctive and numerous, were included in this category.

Kayaking accounted for fifteen fatalities (5%), making it the fourth most common activity leading to death (once commercial is excluded).

### SCUBA

An acronym for ‘self-contained underwater breathing apparatus’, SCUBA was the term chosen for those engaged in underwater diving activities that involved compressed air tanks (or other gas mixtures).

A total of fourteen people (4%) perished while engaged in SCUBA activities. Of note was the difficulty determining the exact cause of death. Typically if occurred via one of three mechanisms, or a combination thereof: a diving emergency; drowning; or a medical event. The physiological strain caused by pressure changes while engaged in SCUBA diving makes participants particularly susceptible to medical events. Using the example of a mild heart attack again, if this happens while the participant is 30 metres underwater it is likely to result in a dire outcome, despite being very survivable on land. When a diver surfaces in difficulty or unconscious, it is difficult to distinguish between a drowning precipitated by a medical event, a drowning precipitated by a diving emergency, and a diving emergency on its own.

### Net setting

This was a category that emerged from the data; thirteen people (4%) died while setting, checking or retrieving nets in tidal waters or river mouths. It represents an obvious target for messaging as participants know in advance they will be entering bodies of water that often contain strong currents.

### Unknown

This was reserved for those fatalities where the cause was not clear, or where it was obviously one of two causes (drowning or medical, for example).

Four deaths (1%) fell into this category. Two bodies were recovered from the water after members of the public spotted them floating. Two more people were heard calling for help, one in the sea and one in a river. Both subsequently perished due to a probable medical event, drug or alcohol-related impairment, drowning, or a combination thereof.

### Fishing

This category was for those who were fishing, but were not involved in one of the other categories. There were three deaths (1%), all as a result of fly-fishing or surf-casting; two of the three were near a river mouth.

### Other

This category was for those whose deaths occurred due to some event which was too obscure to produce its own category, or a combination of categories. Three fatalities (1%) were coded into this group. They were: a knee-boarder who failed to surface after a crash while being towed behind a boat; a man who set out on a jet-ski to go fishing; and a man who failed to return from a solo canyoning trip.

## Commercial (out-of-scope)

Eighty five of the deaths (27%) occurred on a commercial enterprise. Examples include a crew member who fell overboard from a cargo ship and was lost at sea. It also includes those who had engaged a professional skipper (or professional guide) to lead the activity. For example, the 'Easy Rider' tragedy, where a large fishing vessel with a crew of three was transporting six passengers to a small island in Foveaux Strait for mutton-birding.

Four multiple-death incidents accounted for 48 of the 85 fatalities (56%). They were: a Korean fishing trawler that sank in Antarctic waters, killing 22 crew members; the aforementioned 'Easy Rider' capsize, in which eight people died; the Kaipara bar capsize, which claimed eight lives; and a storm in the Pacific in which ten Samoan fishermen were lost.

## Activity breakdown by sub-category

Water-based activities with the most fatalities were broken down further by sub-category. For example, boating (96 deaths) was a broad category and was therefore split by cause of accident (Table 7).

| Boating fatalities by cause of accident | Number of Deaths | Percentage of Boating Deaths |
|---|---|---|
| capsized | 29 | 30% |
| man overboard | 19 | 20% |
| unknown | 19 | 20% |
| boat sunk | 16 | 17% |
| forced swim | 5 | 5% |
| medical | 5 | 5% |
| collision | 2 | 2% |
| trauma | 1 | 1% |
| TOTAL | **96** | |

*Table 7: Boating Fatalities Sub-categorised by Cause of Accident*

### Capsized

A capsize is distinct from a boat that sinks: in one instance the boat remains upright, but sinks, leaving those on board in the water; while in the other the boat flips upside down, allowing crew members to remain afloat for a considerable period of time by clinging to the hull.

### Man overboard

This mechanism accounted for nineteen deaths in the boating category. In a number of instances it was known that a crew member had been lost overboard and the vessel turned to commence a search, but the deceased was not found.

### Boat sunk

This type of accident accounted for 16 fatalities. The cause of the boat sinking was often unclear in the narrative, therefore no significant trends were noted and no recommendations offered.

### Forced swim

This category emerged from the data. It describes a situation where someone has been forced into swimming due to circumstances, as distinct from a planned recreational swim. An example from 2012 is the 62 year-old male who rowed to a moored vessel with a friend with the intention of working on it. The dingy came adrift, stranding the two men on the larger boat. The deceased entered the water in an attempt to retrieve the dingy, but was overcome by the current. Five people perished in this manner, including two where alcohol appeared to be a significant factor.

### Medical

Five people died due to an unrelated medical event which happened to occur while they were on a boat.

### Collision

Two people died as a result of collisions. One collided with a rock in a river, flipping the boat. The database provided no narrative for the other, but had ‘collision with structure’ selected in the ‘other’ column.

### Trauma

There was a single incident of trauma, that of a person struck by the boom of a yacht who died shortly afterward. A second person was knocked overboard in the same incident.

### Unknown

This sub-category describes those accidents where a boat was not found, or was found but with no sign of the crew, or wreckage is discovered, but the cause of the accident was not apparent from the database. In some instances the bodies were located sometime later. Nineteen of those who perished were in this category. One incident accounted for one third of the total dead. In 2013 the schooner ‘Nina’ was reported overdue from a trans-Tasman voyage with seven crew aboard. The vessel was never found.

# Boating by environment

Boating was also sub-categorised into the type of water environment (Table 8). The four categories were:

- Coastal – a range of less than five km from the coast of mainland New Zealand was selected
- Blue water – any boating activity occurring more than five kilometres from the coast of mainland New Zealand
- River – any fatality that occurred in a river
- Lake – any fatality that occurred in a lake

| Boating by Environment | Number of Deaths | Percentage of Deaths |
|---|---|---|
| **coastal** | 59 | 62% |
| **blue water** | 27 | 28% |
| **river** | 6 | 6% |
| **lake** | 4 | 4% |
| **TOTAL** | **96** | |

*Table 8: Boating Fatalities by Environment*

## Coastal

The majority of boating fatalities (62%) occurred in coastal waters. This is not surprising given that most recreational boating takes place in this zone.

## Blue water

Twenty nine deaths (28%) occurred in blue water incidents. These were mostly a combination of ocean-going yachts typically hundreds of kilometres offshore, and a mixture of other vessels (usually engaged in fishing) much closer to shore, but more than five kilometres off the coast of mainland NZ.

## River

Six people (6%) died in rivers while boating.

## Lake

Lake accidents accounted for four deaths (4%).

# Other Sub-categories

## Blue water sub-categorisation

The twenty seven blue water deaths were further broken down into regions (Table 9). The Pacific Ocean was the location for thirteen deaths; the Southern Ocean saw three; while none occurred in the Tasma Sea. Coastal NZ waters (beyond 5 km offshore) claimed the final eleven lives.

| Blue Water by Region | Number of Deaths | Percentage of Deaths |
|---|---|---|
| **Pacific Ocean** | 13 | 48% |
| **NZ** | 11 | 41% |
| **Southern Ocean** | 3 | 11% |
| **Tasman Sea** | 0 | |
| **TOTAL** | **27** | |

*Table 9: Blue Water Deaths by Region*

## Vessel size

The database contains a dropdown field to indicate the various vessel sizes involved in accidents; these are broken down in Table 10. Database completion limitations have resulted in the majority of results being 'NULL' (64%); in other words, this field was filled out only 36% of the time.

| Vessel size (metres) | Number of Vessels | Percentage of Vessels |
|---|---|---|
| **0 - 3** | 23 | 10% |
| **3 - 5** | 29 | 13% |
| **5 - 8** | 15 | 6% |
| **8 - 10** | 2 | 1% |
| **10+** | 15 | 6% |
| **NULL** | 149 | 64% |
| **TOTAL** | **233** | |

*Table 10: Boating Incident Vessel Size*

## Swimming deaths by environment

Swimming deaths were also sub-categorised by the same four water environments (Table 11).

| Swimming by Environment | Number of Deaths | Percentage of Deaths |
|---|---|---|
| coastal | 36 | 51% |
| river | 26 | 37% |
| lake | 9 | 12% |
| blue water | 0 | |
| TOTAL | **71** | |

*Table 11: Swimming Fatalities by Environment*

The majority of deaths (51%) while engaged in a recreational swimming activity occurred in coastal waters. This was typically from a beach, and a significant number of these people were swept away from shore by waves, a rip or a current.

Rivers accounted for twenty six deaths, while nine people perished in lakes. No blue water swimming deaths were recorded; few people would attempt a recreational swim further than 5 km from New Zealand's coast.

## Commercial fatalities breakdown

The commercial water-based deaths were considered out-of-scope for the study. However it is useful to provide a breakdown of these deaths by activity (Table 12) and environment (Table 13). The commercial deaths by environment are further broken down by region (Table 14).

| Commercial deaths by activity | Number of deaths | Percentage of Deaths |
|---|---|---|
| boating | 81 | 95% |
| SCUBA | 4 | 5% |
| TOTAL | **85** | |

*Table 12: Commercial Fatalities by Activity*

The vast majority of deaths (81 of 85, or 95%) in the commercial category occurred while boating. SCUBA activities accounted for the remaining four (Table 12).

| Commercial deaths by environment | Number of Deaths | Percentage of Deaths |
|---|---|---|
| blue water | 62 | 73% |
| coastal | 20 | 24% |
| lake | 3 | 3% |
| river | 0 | |
| TOTAL | **85** | |

*Table 13: Commercial Fatalities by Environment*

Blue water incidents resulted in 62 of the 85 commercial deaths (73%) (table 13). A further twenty occurred in coastal waters (24%) while the remaining three were in lakes (4%).

| Commercial Blue Water Deaths | Number of Deaths | Percentage of Deaths |
|---|---|---|
| Southern Ocean | 32 | 52% |
| NZ | 15 | 23% |
| Pacific Ocean | 14 | 23% |
| Tasman Sea | 1 | 2% |
| TOTAL | **62** | |

*Table 14: Commercial Blue Water Deaths by Region.*

The regions in which the blue water commercial deaths occurred (table 14) were: 32 in the Southern Ocean (including 22 in the Korean fishing trawler sinking); fifteen in NZ waters (further than 5 km from mainland NZ); fourteen in the Pacific Ocean; and one in the Tasman Sea

## Contributing factors

A breakdown of contributing factors to water-based fatalities was limited due to missing data. Despite this, the breakdown is informative and is detailed in table 15.

| Contributing factors | Number of Deaths | Percentage of Deaths |
|---|---|---|
| swept out to sea | 35 | 30% |
| no life jacket | 18 | 15% |
| alcohol or drugs | 13 | 11% |
| medical | 12 | 10% |
| jumping | 9 | 8% |
| inexperienced | 6 | 5% |
| rough | 5 | 4% |
| unknown | 4 | 3% |
| not a swimmer | 3 | 3% |
| entrapped | 3 | 3% |
| flooded river | 3 | 3% |
| extreme sport (canyoning) | 1 | 1% |
| collision | 1 | 1% |
| mechanical | 1 | 1% |
| weight belt too heavy | 1 | 1% |
| caught in propeller | 1 | 1% |
| TOTAL | **116** | |

*Table 15: Contributing Factors.*

## Discussion

Participation rates for recreational boating are higher for males (35%) than females (22%) (Kalafatelis  E. Buchanan, S., 2014). Expected NZSAR recorded deaths for males would be higher than females, however a death rate of 5% for females is significantly lower than anticipated. While the percentage of males is reported as 66%, it is likely the unknown data would increase this figure significantly. The Watersafe organisation presents similar numbers, consistently reporting that over the past seven years, approximately 80% of drownings are male (Drownbase, 2017).

Among those who do recreational boating, men have been identified as more likely to be experienced and to boat alone (Kalafatelis, 2014). Exploring the reason males are over represented

is beyond the scope of this report, however it is well accepted in the literature that males exhibit more risky behaviour than females (Harris  M. Glaser, D., 2006).

The majority of boating deaths were as a result of the vessel capsizing. In a number of cases those involved had floatation devices and/or emergency position indicating radio beacons (EPIRBs), but were unable to use them because of the speed of the event. Once the boat was upside down and the occupants were struggling to stay afloat in the water, particularly if it was rough, they were unable to access them from the upturned hull. A recommendation to the EPIRB industry might be to manufacture a dual device capable of being located both by satellite, and by the vessel from which the person was lost overboard. This device might work in a similar manner to avalanche transceivers, which are carried by everyone in the party. The buried transceiver emits a pulsed radio signal, which can be detected by the other transceivers. A search grid strategy then draws the rescuers to the exact location. This might allow a yacht or ship to locate a crew member lost overboard.

Carrying the avalanche transceiver in a pack, rather than on your person, can result in failure due to the device not being accessible, or not in proximity to the victim if their pack is torn off. This is a similar issue to the EPIRBs being available, but not accessible after a capsize event. Avalanche transceiver manufacturers therefore recommendation having them attached to your person, not stowed in your pack.

## Recommendations

- When boating, always wear a floatation device; put it on prior to getting onto the boat and only remove it once back on land.
- When net-setting or fishing, always wear a floatation device.
- Specifically target the Māori and Pacific communities in relation to water safety when engaging in traditional activities, such as gathering Kai Moana.
- An EPIRB or PLB be carried by each crew member, especially those engaged in blue water travel (more than 5 to 10 km off the coast).
- The skipper carry the EPIRB on their person, or a similar strategy to ensure it is available when needed. This would mean it was accessible post-capsize and still able to be activated.

# Wanderer events

A small proportion (11 out of 881 deceased cases) of the events lists on the NZSAR fatality database were associated with wanderer deaths. Wanderers were defined as people who were of impaired cognitive capacity, associated with age, special needs or dementia and who left their last location without permission of their carer. All wanderer events involved a multi-agency response with a 'large number of searchers' often reported. The time between the wanderer being identified as missing and the emergency services being informed varied widely, from almost immediately to five hours after the disappearance. This was not associated with the age of the wanderer or whether the wandering originated from a home location or elsewhere. Wanderers fell into two distinct age categories, children (45%) and the elderly (55%). Following thematic analysis, it was identified that both age categories were associated with distinct behaviour and terminology. Therefore each age group was analysed independently.

## Children

The children involved in fatal wanderer events were aged between three and 11 years of age, predominantly male, with 80% of Māori or Polynesian decent. Of the five child wanderers, three were known to be autistic. The language used to describe child wanderer incidents was distinctly different to that used to describe adults. Children were described as having 'run off' or 'run away', while adults 'walk' or 'wander'. Three were reported missing from their homes, while two absconded during recreational activities with their families. All were under the care of at least one family member at the time of their disappearance. All appear to be tragic accidents.

### Location of fatality

All child wanderers were located in close proximity to their last known location. Eighty percent drowned in water hazards known to the child. These included a neighbour's swimming pool where the child had been previously located, and a disused open water tank. Accessibility was an issue, as three children drowned in unsecured or open water hazards. However, one child drowned in a locked, fenced private pool. The data would therefore suggest that local water hazards should be an immediate priority when searching for child wanderers.

## Adults

The adults involved in fatal wanderer events were aged between 64 and 87 years of age, male and were either of Māori, Asian or Caucasian decent. Of the six adult wanderers, all were known to suffer from dementia. All were reported missing from their family home or an aged care facility.

### Location of fatality

Adult wanderers were located in a variety of locations, some within the immediate vicinity of their last known location, and others up to 22 kilometres away. One wanderer appears to have initially absconded by car, all others were on foot. One wanderer was reported missing with a friend (and fellow dementia sufferer), and although both were hit by a motor vehicle, only one was killed. All other adults left their last known location alone. One had a 'WandaTrak' pendant but was not

wearing it at the time of his disappearance. Fifty percent drowned after falling into water hazards. The remainder died as the result of accidental trauma or were not found.

## Discussion

Wanderer fatalities represented a small proportion of those contained within the NZSAR database, but resulted in a substantial investment of time and resources. All wanderer events, and especially those involving missing children, triggered a multi-agency response coupled with a substantial community involvement. Social media was often also used to alert the community and distribute information. All adult wanderers had impaired cognitive capacity, but there was no indication of negligence on behalf of those responsible for their immediate care.

While the narratives contained within the database are written with appropriate objectivity and detachment, there is a tangible sense of distress and disappointment at the death of a missing child. Although an occupational hazard, attending such events has significant mental health implications for attending personnel (Collopy, Kivlehan, & Snyder, 2012). Appropriate resources should be made available to NZSAR and emergency services personal in order to manage the personal impact of being involved in such traumatic events.

## Recommendations

All hazards within the immediate vicinity of the last known location of a wanderer should be identified as priority search locations.

- Water hazards such as swimming pools, rivers or coastlines should be an immediate priority when searching for child wanderers.
- Inaccessible locations (such as well secured private swimming pools) should not be discounted.

Undertake further research comparing rescued wanderers with those ending a fatality to identify the following:

- Are current search techniques for locating wanderers effective?
- Is time between the disappearance and alerting the emergency services a factor in successfully finding missing wanderers?
- Are ‘WandaTrak’ pendants (or similar) useful in locating missing wanderers?
- Is distance travelled by the wanderer related to outcome?

Provide accessible mental health support for NZSAR personnel.

# Out-of-scope activities

Deaths attended by NZSAR that fell outside the remit of the study were given the broad definition of 'Out-of-scope'. There were 452 out-of-scope events, some with multiple fatalities, which represented 29% of deaths within the database. These fatalities were therefore the subject of demographic analysis to provide frequency data and context.

## Types of activity

The fatality events fell into seven broad categories: Disaster Victim Identification (DVI); Suicide; Outside the SAR geographic region; Aviation; Criminal; Commercial; and Unknown (Table 16). Of the seven subcategories, fatalities occurring outside the SAR geographic locations and those where the factors contributing to the cause of death were unknown were not subjected to any further analysis. This was due to the paucity of data relating to fatalities outside the SAR region, and small number of unknowns (0.4% of events). Fatalities were assigned to each category primarily on the basis of the person's activity at the time of death, or where this was unknown, on the basis of NZSAR involvement. For example, almost all suicides result in a body recovery, but not all body recoveries were suicides.

| Activity | No. of Fatalities | Percentage of Out-of-Scope Fatalities |
|---|---|---|
| **Suicide** | 187 | 41% |
| **DVI** | 183 | 40% |
| **Aviation** | 44 | 10% |
| **Outside Region** | 25 | 5% |
| **Criminal** | 8 | 2% |
| **Commercial** | 3 | 1% |
| **Unknown** | 2 | 1% |

*Table 16: Out-of-Scope Fatalities by Activity*

*Seven categories relating to OS events. Note that the number of deaths is higher due to multiple fatalities occurring for some events.*

## Suicide

Events where the person voluntarily and intentionally took their own lives were the highest proportion of OS fatalities. In 88% of cases some form of categorical data was recorded, enabling frequency data on the cause of death to be identified (figure 17).

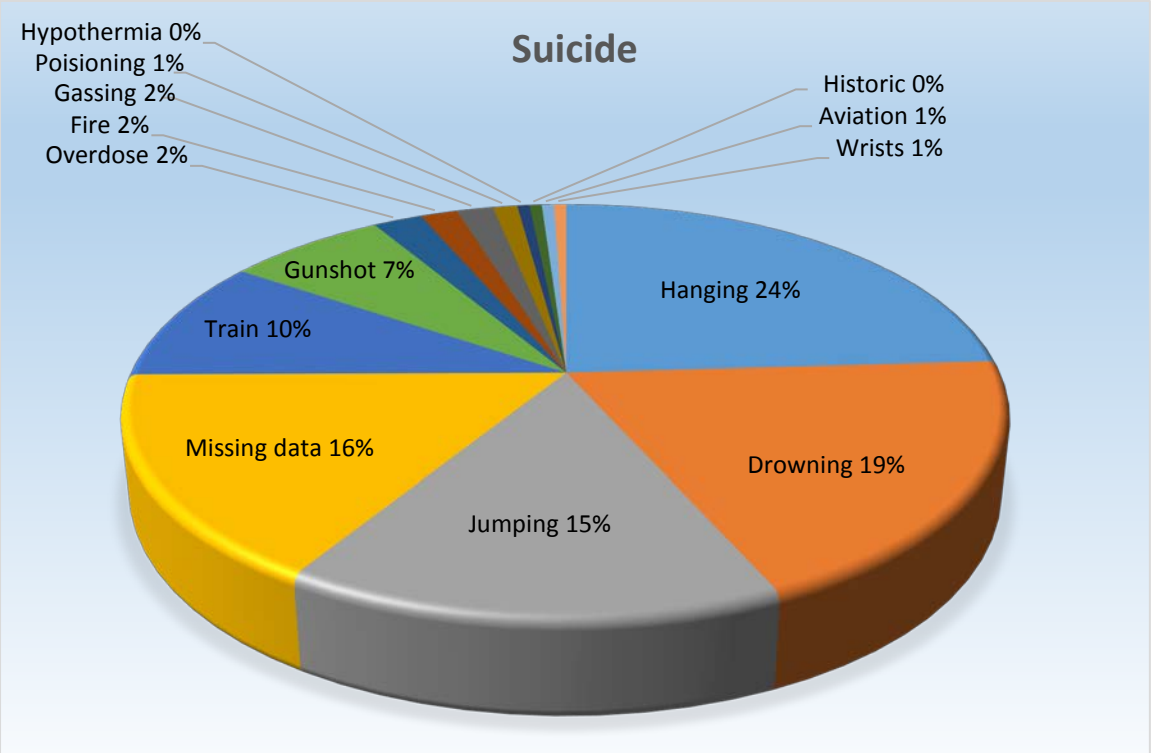


*Figure 17: Cause of Death Relating to Suicide Events*

Fifty five percent of people who died by suicide were aged between 35 and 64 years of age (Table 17). Seventy seven percent of suicides were male, 68% were of caucasian New Zealand ethnicity (Table 18).

| Age group | No. of Deaths | Percentage of Deaths |
|---|---|---|
| 0 - 14 | 0 | 0% |
| 15 - 24 | 36 | 19% |
| 25 - 34 | 21 | 12% |
| 35 - 49 | 52 | 28% |
| 50 - 64 | 51 | 27% |
| 65 - 74 | 11 | 6% |
| 75+ | 8 | 4% |
| Missing data | 8 | 4% |
| Total | 187 | |

*Table 17: Age-group Data Relating to Suicide Deaths*

| Cause | No. of Deaths | Percentage of Deaths |
|---|---|---|
| Caucasian NZ | 127 | 68% |
| Māori | 16 | 9% |
| Caucasian other | 10 | 5% |
| Asian | 8 | 4% |
| Polynesian | 3 | 2% |
| Middle Eastern | 1 | 0.5% |
| Other | 1 | 0.5% |
| Missing data | 21 | 11% |

*Table 18: Ethnicity Data Relating to Suicide*

## Disaster Victim Identification (DVI)

DVI represented the second highest category of out-of-scope deaths, accounting for 187 deaths from 183 attended events. Body recovery was named in 94% of DVI events, with body identification accounting for 2% cases requiring SAR involvement. The circumstances surrounding each DVI case are shown in figure 1.

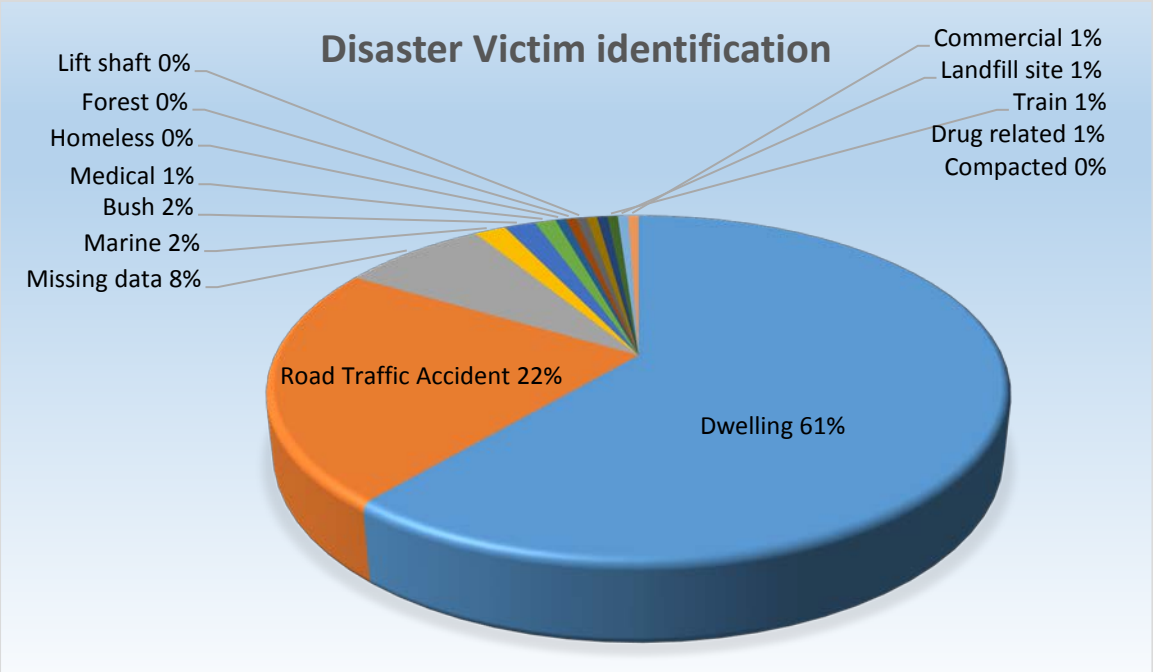


*Figure 18: Circumstances Associated with DVI*

Sixty three percent of people who required DVI attendance were aged over 50 years of age (Table 19). Sixty-nine percent of DVI fatalities were male, 47% were of Caucasian New Zealand ethnicity (Table 20).

| Age group | Deaths | % |
|---|---|---|
| **0 - 14** | 1 | <1% |
| **15 - 24** | 9 | 5% |
| **25 - 34** | 7 | 4% |
| **35 - 49** | 26 | 13% |
| **50 - 64** | 52 | 28% |
| **65 - 74** | 35 | 19% |
| **75+** | 30 | 16% |
| **Missing data** | 27 | 14% |
| **Total** | 187 | |

*Table 19: Age Group Data Related to DVI Deaths*

| Cause | No. dead | % |
|---|---|---|
| **Caucasian NZ** | 87 | 47% |
| **Māori** | 32 | 17% |
| **Caucasian other** | 12 | 6% |
| **Asian** | 9 | 5% |
| **Polynesian** | 7 | 4% |
| **Other** | 4 | 2% |
| **Missing data** | 36 | 19% |

*Table 20: Ethnicity Data Related to DVI Deaths*

## Aviation

Although all aviation incidents are investigated by the Civil Aviation Authority (CAA), NZSAR were involved in 44 aviation incidents resulting in 72 fatalities. Ground collisions accounted for 82% of events resulting in fatalities, with seven water and one mid-air collision also triggering NZSAR involvement. The type of aircraft involved in each incident is shown below (figure 19)

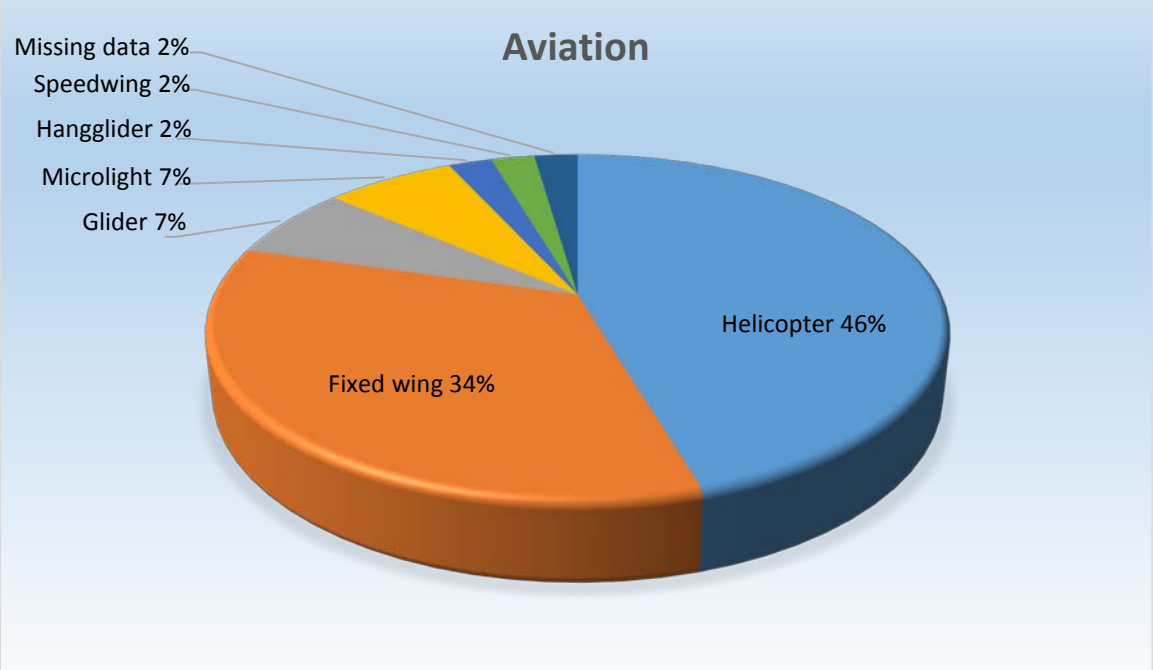


*Figure 19: Type of Aircraft Involved in Aviation Incidents*

Data collection relating to aviation incidents was not well completed, but this could be related to the understanding that all aviation incidents would be thoroughly documented and investigated by the CAA. From the data contained within the NZSAR database, Table 21 illustrates the age group data and Table 22 the ethnicity data for the 72 people killed in aviation incidents involving NZSAR.

| Age Group | No. of Deaths | Percentage of Deaths |
|---|---|---|
| 0 – 14 | 0 | |
| 15 - 24 | 0 | |
| 25 - 34 | 1 | 1% |
| 35 - 49 | 5 | 7% |
| 50 - 64 | 5 | 7% |
| 65 - 74 | 1 | 1% |
| 75+ | 0 | |
| Missing data | 60 | 84% |
| Total | 72 | |

*Table 21: Age Group Data Relating to Aviation Deaths*

| Cause | No. of Deaths | Percentage of Deaths |
|---|---|---|
| Caucasian NZ | 15 | 21% |
| Caucasian other | 1 | 1% |
| Missing data | 56 | 77% |

*Table 22: Ethnicity Data Relating to Aviation Deaths*

## Criminal

NZSAR were called to eight criminal incidents involving 11 fatalities. All fatalities were either homicides (88%) or resulting from illegal activities (12%), such as manufacturing methamphetamine. Demographic data pertaining to criminal deaths was limited, however, as with the aviation fatalities and the CAA, all criminal deaths are investigated by New Zealand Police. The knowledge of other agency involvement may explain why the data collected by NZSAR is limited. Little gender and ethnicity data was recorded (55% missing data), while documented age data is given below (Table 23).

| Age group | No. of Deaths | Percentage of Deaths |
|---|---|---|
| **0 - 14** | 1 | 9% |
| **15 - 24** | 2 | 18% |
| **25 - 34** | 1 | 9% |
| **35 - 49** | 1 | 9% |
| **50 - 64** | 0 | |
| **65 - 74** | 0 | |
| **75+** | 1 | 9% |
| **Missing data** | 5 | 46% |
| **Total** | 11 | |

*Table 23: Age Group Data Relating to Criminal Deaths*

## Commercial

Three deaths occurring while engaged in commercial activities involved NZSAR. One required body identification and the remaining two body recovery following commercial crush injuries in remote locations. All victims were male, aged between 50 and 64 years and of NZ Caucasian ethnicity.

## Discussion

The out-of-scope fatalities represented a large proportion of the total number of fatality events involving NZSAR. Of the seven broad categories that comprise the OS data, fatalities identified as suicides were the most prevalent, resource intensive and time consuming. Many involved extensive land searches involving NZSAR and community volunteers, body recovery from remote or inaccessible locations, or unpleasant and traumatising recovery of remains following impact suicides. NZSAR involvement was often triggered by reports of a missing person, eventuating in a suicide recovery.

However, not every potential suicide event involving NZSAR will end in a fatality. With only fatality data available, comparisons cannot be drawn between those events where a suicide attempt was successful, and where the person was found and rescued before death. Timely intervention following first suicide attempt has been shown to reduce the likelihood of second and subsequent suicide attempts (Brovelli et al., 2017) . Further research in required to explore any contributing factors that lead to a more positive outcome, such as time delay in reporting, resourcing, location, environmental conditions, along with the psychological and physical co-morbidities of the missing person.

Demographic analysis has identified an over representation of New Zealand Caucasian males in all out-of-scope subcategories where the data is available. Previous research has identified that men are at far higher risk of suicide than women (Freeman et al., 2017), which supports the NZSAR data, whereas little information exists on gender disparities among the undiscovered natural deaths requiring DVI.

## Recommendations

- Limit ‘Subject behaviour’ category to a select number of validated, useful terms.
- Undertake further research comparing the suicide fatality data with those found and rescued. Analysis of antecedent and contributing factors could create a framework for identifying more people with suicidal intention before a fatality occurs.

# Non-events

A significant number of events contained within the database triggered an NZSAR activation, but did not require NZSAR intervention. These were labelled 'non-events'. These included reported flare sightings, boats mistakenly identified as being in difficulty, and floating debris mistaken for any number of things. These incidents also include events where intervention was required, but was not undertaken by NZSAR (table 24). Of the total number of non-events, 86% were water-based, 13% were land-based and 1% were NZSAR or emergency services exercises.

## Outcome

| Outcome | No. of Events | Percentage of Events |
|---|---|---|
| **No outcome/event** | 337 | 75% |
| **Self-retrieval** | 40 | 9% |
| **Bystander retrieval** | 37 | 8% |
| **Coastguard retrieval** | 23 | 5% |
| **Paramedic retrieval** | 10 | 2% |
| **Police retrieval** | 3 | 1% |
| **Fire service retrieval** | 1 | <1% |
| **Total** | 451 | |

*Table 24: Seven Categories Relating to Non-events*

### Activity triggering 'non-events'

NZSAR activation which subsequently resolved into non-events were triggered by a number of activities or reported sightings. Boating and reported flare sightings accounted for 70% of all unnecessary NZSAR activation (figure 20), representing a colossal amount of resources deployed with no tangible outcome. Reported flare sighting were often subsequently attributed to Chinese lanterns, fireworks, airplanes or buoy markers. In fact, looking at the database as a whole, not one reported flare sighting was associated with an actual event. However, further analysis with the entire dataset, including successful NZSAR rescues, may demonstrate the usefulness of flares.

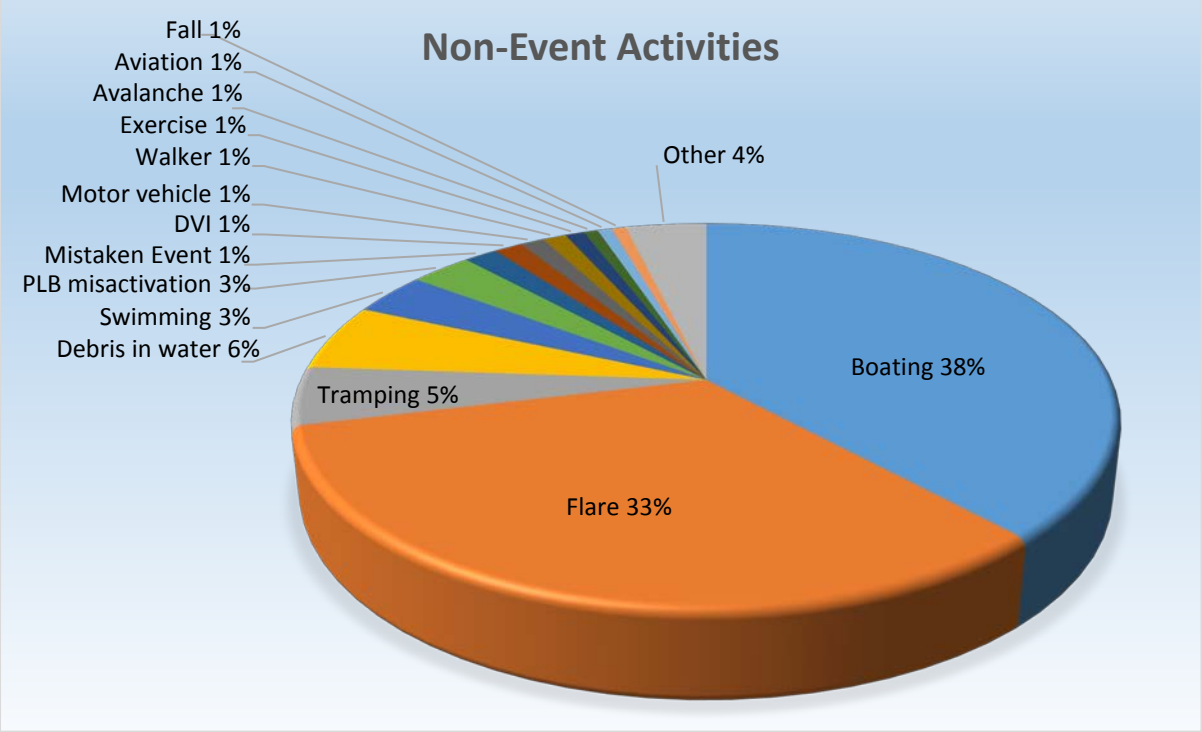


*Figure 20: Activities Triggering Non-events*

Thirty eight percent of non-events involved recreational boating, the highest number of non-events not involving flares. The factors leading to NZSAR activation when their services were not required are given below (Table 25).

| Age group | Deaths | Percentage of Deaths |
|---|---|---|
| **False alarm** | 66 | 39% |
| **Adrift** | 37 | 22% |
| **Mechanical failure** | 32 | 19% |
| **Capsized** | 10 | 6% |
| **Stranded** | 5 | 3% |
| **Other** | 21 | 11% |
| **Total** | **171** | |

*Table 25: Factors Leading to NZSAR Activation for Boating Non-events*

## Discussion

'Non-events' represented a large proportion of the total number of events triggering NZSAR engagement as contained within the database. Of the seven broad categories that comprise the 'non-event' data, flares and boating incidents accounted for the most activations, representing a significant allocation of NZSAR time and resources. Boating incidents were often resolved without NZSAR engagement, although without information on boating incident rescues, the importance of the NZSAR response cannot be underestimated.

Similarly, not every reported flare sighting triggering NZSAR involvement will end in a 'non-event'. With the available data, comparisons cannot be drawn between those events where flares triggered a successful rescue, and where a flare was reported with no outcome. Further research could identify the usefulness of flares and provide advice on educating the public on how to correctly identify a flare and how to react.

## Recommendations

- Undertake further research comparing non-event flare sightings rescued with events where flares were vital to a successful rescue.
- Create an educational awareness package to advise the public on how to correctly identify a flare and how to react.

# Summary of recommendations

## Public messaging

1. Specifically target the Māori and Pacific communities in relation to water safety when engaging in traditional activities, such as gathering Kai Moana.
2. When boating, always wear a floatation device; put it on prior to getting onto the boat and only remove it once back on land.
3. The skipper of any boat to carry an EPIRB on their person at all times. The EPIRB would then be accessible post-capsize and easily activated.
4. An EPIRB or PLB be carried by each boat crew member, especially those engaged in blue water travel (more than 5 to 10 km off the coast).
5. Use buoyancy devices when planning to engage in an activity on the rocks or on a riverbank, such as fishing, surfcasting or exploring cliffs.
6. Use buoyancy devices when net setting or fishing on estuaries or at river mouths regardless of the perceived water depth
7. Create an education programme around fall prevention for trampers, day walkers and mountaineers.
8. Create an educational awareness programme to advise the public on how to correctly identify a flare and how to react.

## NZSAR messaging

1. When searching for wanderers, immediate water hazards such as swimming pools, rivers or coastlines should be an urgent priority.
2. When searching for child wanderers, inaccessible locations (such as well secured private swimming pools) should not be discounted.
3. Ensure NZSAR staff have appropriate resources for managing the psychological impact of trauma.

## Database

In light of the volume of incomplete and missing data, recommendations specifically relating the data capture and any future iterations of the database are as follows:

1. Employ the main categories and subcategories as identified in this report as 'forced response' entries for every event.
2. Remove subjective classification choices relating to mental health or behaviour. Limit 'Subject behaviour' category to a select number of validated, useful terms.
3. Create individual matched fields for each victim within a single event, in order to capture accurate demographic data on all fatalities.
4. Fields relating to preparedness or equipment were very poorly completed, provided no meaningful data and should be removed.
5. Required specific information should be collected through 'forced response' fields (e.g. the use of lifejackets, PLBs, etc)
6. Fewer fields employing logic and forced responses could generate more useful, comprehensive, and meaningful data.

## Further research

By analysing NZSAR fatality data in isolation, comparisons could not be drawn between successful rescues and those resulting in a fatality. Factors unique to fatalities cannot be identified without

comparison to rescues in similar situations or circumstances. By comparing successful rescues with fatalities in each category and subcategory, specific and targeted messaging could be created to advice both NZSAR staff and members of the public. Further research using the complete NZSAR database should therefore:

1. Compare fatality data from all categories with data pertaining to successful rescues in order to fully understand the antecedent factors which contribute to a fatality. These factors include, but are not limited to: buoyancy devices; PLBs; preparedness, and intoxication.
2. Explore the causes of falls and the specific terrain in which most of them occur.
3. Investigate whether the current search techniques for locating wanderers are effective.
4. Determine whether the time between the disappearance and alerting the emergency services is a factor in successfully locating missing wanderers.
5. Explore the usefulness of 'WandaTrak' pendants (or similar) in locating missing wanderers.
6. Determine if distance travelled by the wanderer is related to outcome.
7. Compare the suicide fatality data with those found and rescued. Analysis of antecedent and contributing factors could create a framework for identifying more people with suicidal intention before a fatality occurs.
8. Compare non-event flare sightings with events where flares were vital to a successful rescue.

# Reference list


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NZSAR
New Zealand Search and Rescue

# NZSAR Consultative Committee Meeting

## 08 February 2018

# 1. Welcome

- Ian Coard – NZSAR Council independent Member

# 2. Apologies

- Patrick Holmes – Coastguard NZ
- Pat Waite – LandSAR NZ
- Mike Hill – RCCNZ
- Harry Maher – DOC
- Steve Kern – CAA

*Please fill out the attendance register*

# 3. Minutes

Minutes of the meeting 23 August 2017 to be approved

# 4. Matters Arising

**Item 8a and 8b**

**Risk Matrix.** The Committee **recommended** an update to risk treatment 2017/01/D: SAR Operational Analysis that decisions need to be based on adequate information.

The Committee **recommended** no changes to the risk treatments for the Recreational Knowledge risk.

***Secretariat*** *update during item 8*

# 5. SLA Monitoring Report

## Summary for the 1 October – 31 December 2017 Quarter

Reporting requirements for the Quarter have been met by all the SLA partners

| Outputs | Coastguard | LandSAR | AREC | SLSNZ | Totals |
|---|---|---|---|---|---|
| **SAROPs Attended** | 111 | 108 | 9 | 12 | -- |
| **Volunteers Involved** | 701 | 1,049 | 23 | 43 | **1,816** |
| **Volunteer Hours** | 2,061 | 11,232 | 145 | 54 | **13,492** |

2,061 Coastguard volunteers responded to **799** non-SAR related calls for assistance during the quarter (average of **8.8** per day).

# 6. Sector Update


Paper distributed

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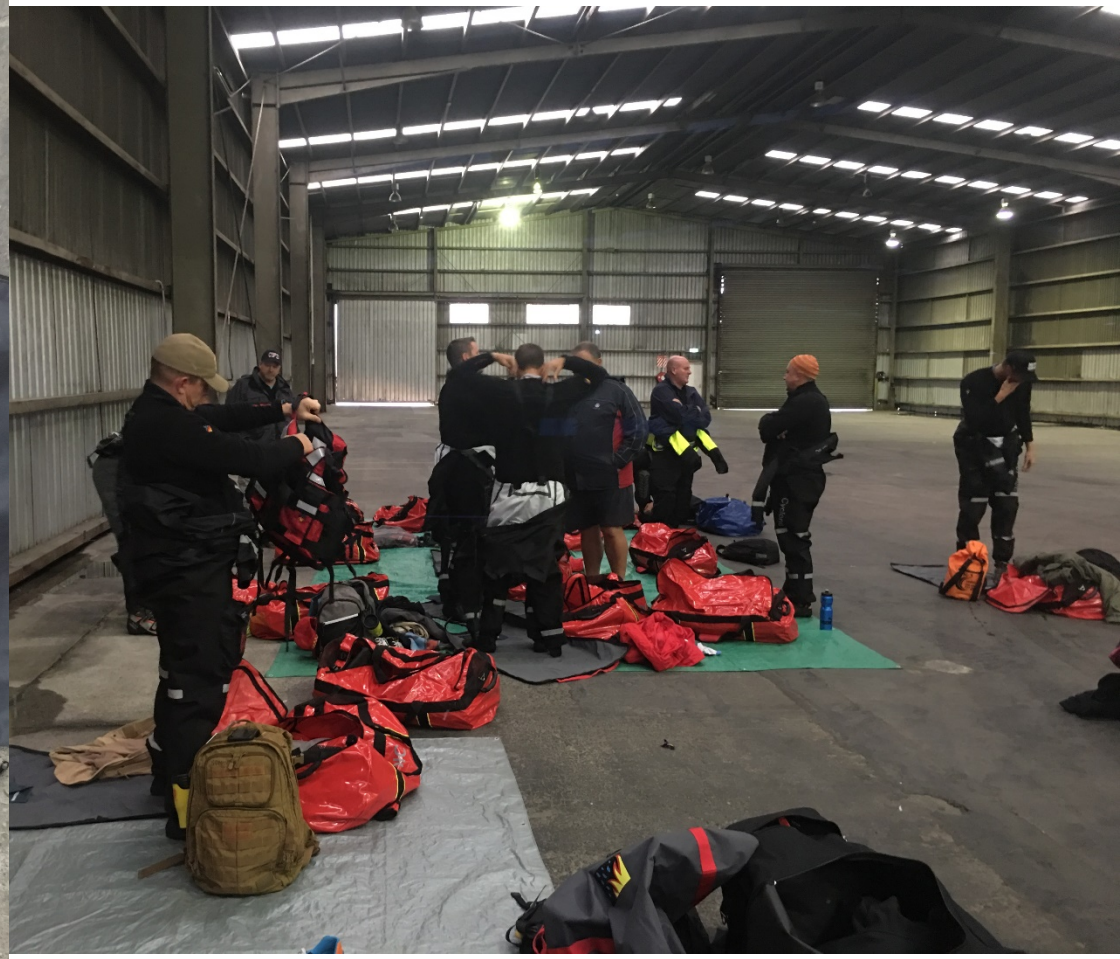
# 6. Sector Update



Paper distributed

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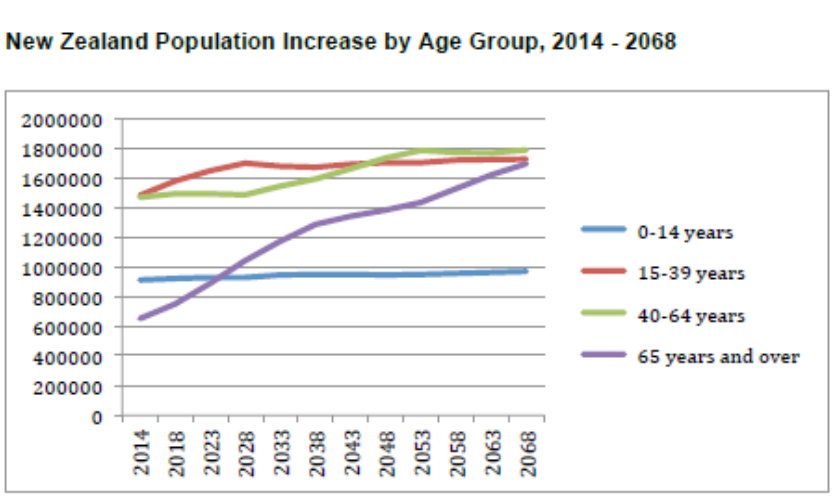
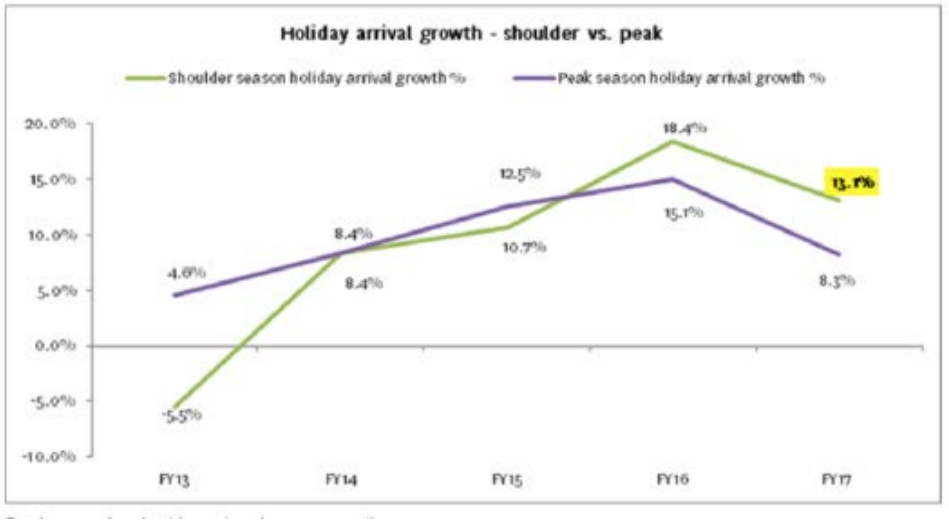
# 7. Environmental Scan

- Finalised following the Combined Workshop in November
- Distributed to SAR sector agencies as a resource or stimulus for strategic and long range planning and risk management
- Living document – feedback welcome

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# 8. NZSAR Risk Matrix

a) Volunteerism

# 8. NZSAR Risk Matrix

| Risk Description | Reasons or Causes | Consequences |
|---|---|---|
| **Volunteerism**<br><br>**Risks exist around volunteer recruitment, retention, and training.** | Changing demographics and attitudes, increasing work demands impact on volunteer recruitment, availability and longevity with the SAR sector. | The SAR sector is highly reliant on volunteers for the safe delivery of effective SAR services.<br>• Insufficient numbers of volunteers in the right locations is likely to impact on the safe delivery of effective SAR services.<br>• Volunteer turbulence increases the training burden and inhibits the formation of SAR leaders.<br>• Excessive training demands, poor or infrequent exercises and/or onerous administrative requirements deter people from volunteering and discourage existing volunteers from remaining.<br>• Infrequent utilisation for SAROPs can be dispiriting and discourage long term engagement. |
| | Growing public and legal expectations of SAR performance and competence impacts upon the training and commitment levels of SAR volunteers. | |
| | Trained SAR Volunteers can be difficult to retain and motivate in areas where little SAR activity occurs. | |

# 8. NZSAR Risk Matrix

| Risk Level (Reviewed) | Risk Treatment(s) VOLUNTEERISM | Post Treatment (Effective from…) |
|---|---|---|
| (Nov 15) | **Risk treatment 2018/04/A: Maintain good information on SAR volunteers**<br>Maintain good information about SAR volunteers and their expectations.<br>Assist SAR organisations with information around recruitment and retention of volunteers to help ensure a sufficient number in areas and types of need.<br>Ensure administrative requirements are not excessive. | Ongoing |
| (Nov 15) | **Risk treatment 2018/04/C: Quality SAR individual skill acquisition training and collective exercises**<br>Refer Risk treatments 2017/03. The conduct of good quality, appropriately focussed and well evaluated SAR exercises is important as they enhance readiness, reinforce training and build cohesiveness and morale within the SAR sector | NZSAR supports the conduct of Police District SAREXs Ongoing |

# 8. NZSAR Review Policy

- Need to update Review/Investigation/Enquiry Policy
- Council directed largely unchanged
- Added a second 'Secretariat' level of review
  - Focus on systems issues
  - Aim to learn/improve – not blame/hold to account
  - Process to enable agility / execution via pre-permission
  - Proposes standardised TOR
  - Also produces case studies

# 10. Review – Operation Mangatawai

*Recap:*

- 12 August 2017, two young men decamped from a stolen vehicle into the bush after a Police vehicle pursuit on SH1, Desert Road.
- Police and search volunteers searched until the 9 September 2017, when the bodies of the two men were located.
- 22 November 2017 NZSAR Council approved the TOR for a review to be undertaken by retired Police Detective Superintendent Win van der Velde.

# 10. Review – Operation Mangatawai

*Preliminary findings: potential learnings and opportunities*

- Update current SOPs in Police Comms, as it relates to the collection of information and advice to be given to persons lost in the bush.
- How an active incident may be advised to all Police Communication Centres.
- Increase awareness nationally around the availability of PCL data and how this information is collected.
- Identify clear ownership of tasks that can be confused between Police Command Centres and Communication Centres.

# 10. Review – Operation Mangatawai

*Review update:*

- The majority of interviews have been completed, however a few key interviews are yet to be made.
- Next stage is a final review of material collated, followed by an Independent peer review of draft review document.
- Completion and delivery date for the review is intended to be 20 February 2018.

# 11. Aviation Engagement Framework

*Aviation Engagement Project update*

*Scott McKenzie – Pappus Consulting.*

*Main focus areas from the Martin Jenkins Aviation Engagement Report:*

- Create consistent approaches to SAROPs
- Close gaps in assurance
- Develop an effective relationship framework

# 11. Aviation Engagement Framework

***Site visits and personal interviews so far:***

- Northland Rescue Helicopters – Whangarei
- Skyworks – Warkworth
- Auckland Rescue Helicopter Trust – Auckland
- Coastguard Air Patrol – Auckland
- Philips Rescue Trust – Taupo & Palmerston North
- Amalgamated Helicopters – Masterton
- Lifeflight Trust – Wellington
- Garden City Helicopters – Nelson & Christchurch
- Helicopters Otago – Dunedin

***Next week:***

- The Helicopter Line Mt Cook
- Lakes District Air Rescue Trust
- Southern Lakes Helicopters

# 11. Aviation Engagement Framework

***Online survey – 39 Respondents***

***Question: What are your top three aviation risks?***

***The top five risks identified by the respondents:***

1. Weather
2. NVG operations
3. Boat and night winching
4. Inexperienced SAR volunteers (with aviation)
5. Wires

# 12. Nationally Significant SAR Issues

a) The development of a single plan remains an urgent requirement.
   - Police plan developed, RCCNZ plan in progress, gap analysis of the plans to be conducted

b) Incompatible IT systems are a major impediment to situational awareness.
   - Make better use of Liaison Officers under CIMS

# 12. Nationally Significant SAR Issues

c) Inadequate understanding of CIMS.

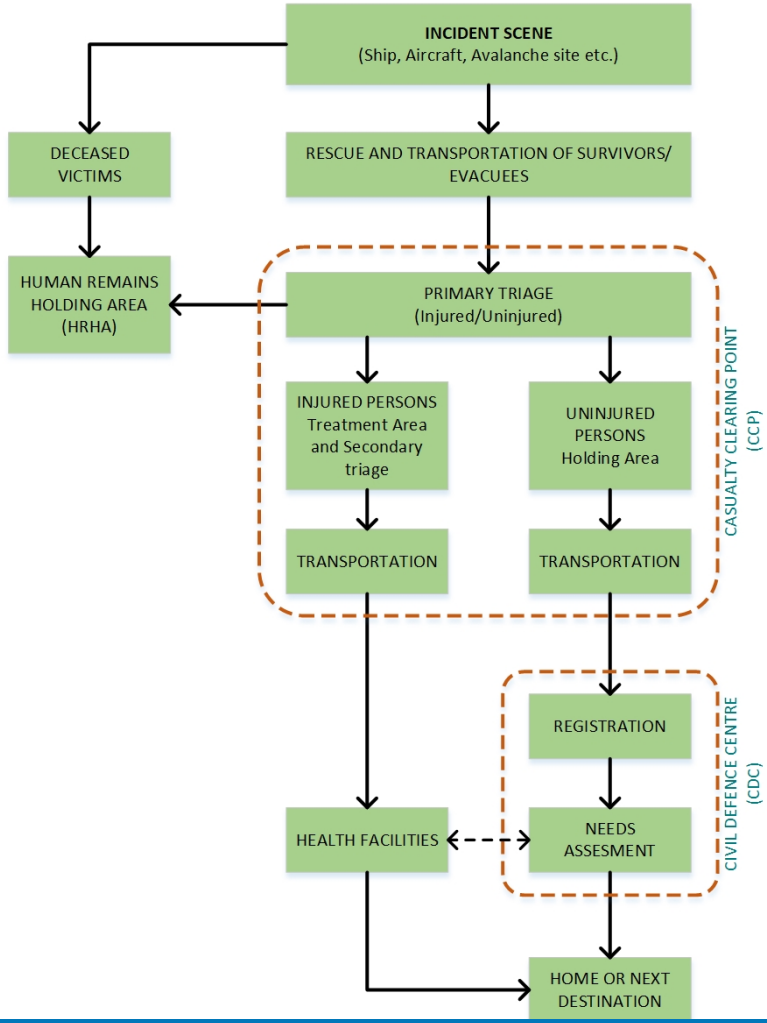
- Being addressed by an interagency training group (NSS TDG), CIMS 5 Unit Standards being developed

d) No common process for reconciliation.

- Workshop held, planning a proof of concept exercise

# 12. Nationally Significant SAR Issues

## FLOW OF PEOPLE THROUGH RECONCILIATION PROCESS




## STAGES OF RECONCILIATION PROCESS

**1. INQUIRY**

Knowing, *for sure*, how many people are at risk
Produce a manifest/list to be used for Registration stage
Agencies: NZ Police, RCCNZ, vessel/aircraft operator

**2. COUNTING & TRIAGE**

Occurs at the CCP and HRHA
MUST Cordon, Contain, Isolate
Carried out in accordance with AMPLANZ
ONLY counting to be conducted at this stage, to ensure focus remains on life-saving activities
Agencies: Ambulance, NZ Police, RCCNZ

**3. REGISTRATION & NEEDS ASSESMENT**

Occurs at the CDC and Health Facilities
Registration to be conducted against manifest/list produced during the Inquiry stage
Carried out in accordance CDEM Welfare Guidelines
Agencies: CDEM, NZ Police, vessel/aircraft operator

# 13. NZSAR Fatality Study

- Never had a basic understanding of the quantum/type of fatalities the SAR sector responds to
- This is a limitation of the current IT systems
- Study reviewed records in the current system (April 2010 to July 2017) where there was a *person perished* or *person not located*
- Reviewers asked to make recommendations based on what is in the SAR records
- This report supports and complements work by WSNZ & MSC

# 13. NZSAR Fatality Study

- 1,542 records provided. 661 records (43%) were incorrectly coded/entered into the current system
- 881 fatalities reviewed as part of the study
- 42% of the fatalities are suicide or body recovery operations (using Police DVI expertise)
- 232 marine (water) cases
- 185 land cases
- 14 wander cases
- *Known to be incidents missing from the data!*

# 13. NZSAR Fatality Study

## Summary of Recommendations

- 8 recommendations on public messaging
  - *Most of these are in place (WSNZ, MSC etc.)*
- 3 recommendations for the SAR sector
  - *To be considered in the SAR Guidelines*
- 6 recommendations for the database
  - *To be implemented by project SARdonyx*
- 8 suggestions for further research
  - *Some are in progress (MSC), others may be considered for future NSSP*

# 14. 2017/18 NSSP

| Workshops & Seminars | SAR Training |
|---|---|
| • Aviation Workshop | • SAR(ACE) Training Survey |
| • SAR Case Study Seminar / Police Planning | • Evaluation Training |
| • SAR Technology | • START material |
| • Safer Walking | **Prevention** |
| **SAR Information and IT** | • AdventureSmart Communications |
| • NZSAR Website update | • Recreational Safety Partnership |
| • Data Store | • Visitor Intentions |
| • SAR Information System (SARdonyx) | • Safety Codes, printing and advertising |
| • SAR (land) IMT IT | **SAR Research** |
| • Portable Mobile Phone Location | • Fatality Analysis |
| • Update NZSAR Resources database | • SAR Communications – Land (STWG(L)) |
| **SAR Documentation** | • Survey of SAR Customers |
| • SAR Forms and Guidelines | • SAR Demand and Supply Study – Marine |
| • Develop New Zealand's SAR Guidelines | • SAR Demand and Supply study – Land |
| **Exercises** | • Mass Rescue Study |
| • Support Police SAREXs | • SAR Aviation Engagement Framework |
| • MRO SAREXs | • SAR Assurance |
| • Practical MRO SAREX | |
| • Drifters / Trackers | |

# 14a. SARdonyx

ProjectSARdonyx
JOINT SEARCH AND RESCUE OPERATIONAL INFORMATION SYSTEM

*Replace our existing single agency datastore(s) with a multi-agency solution that will deliver a new data collection and business intelligence (BI) solution for NZ's SAR sector .*

- NZSAR/Police/RCCNZ/LSAR +[all SAR orgs]
- 5 year contract signed with Beca Consulting
- Aim to have in service by October
- Ample opportunity for input within project plan - Let me know if you seek involvement.
- Is a major for Secretariat.  #1 project priority.
- Let Carl know what you want out of it.

# 14b. NZ's SAR Guidelines

**Project Steering Group**:

- RCCNZ / NZ Police / LandSAR / Coastguard / SLSNZ / NZSAR
- Provides cross sector validation and assurance of the content and format of material
- SME groups, identified by the Steering Group, will be used for specific content areas

# 14b. NZ's SAR Guidelines

Guidelines will:

- be online for easy access and updating
- link to existing documentation
- set out broad criteria and principles – not a detailed 'how to' manual

Project Manager – Martin Paget

Document writers - Write Ltd

# 14b. NZ's SAR Guidelines

## Basic format – based on IAMSAR Manual:

- About these guidelines
- Glossary and abbreviations
- The search and rescue system in New Zealand
- Communications
- Stages of search and rescue
    1. Awareness
    2. Initial action
    3. Planning
    4. Operations
    5. Conclusion
- Multiple aircraft operations
- Other emergency assistance (not search and rescue)

# 14b. NZ's SAR Guidelines

## Timeline for creating the guidelines

| Task | 2017 | | 2018 | | | | | | | | | | | | 2019 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J |
| Start project + create plan | x | x | x | | | | | | | | | | | | | | | | | | |
| Decide structure + create exemplar | | | x | x | | | | | | | | | | | | | | | | | |
| Analyse content + draft new content | | | | | x | x | x | x | x | x | x | x | x | | | | | | | | |
| Finalise content | | | | | | | | | | x | x | x | x | x | x | x | x | x | | | |
| Publish guidelines | | | | | | | | | | | x | x | x | x | x | x | x | x | x | | |
| Sign off guidelines | | | | | | | | | | | | | | | | | | | x | | |
| Meet to discuss progress | | x | | x | | | x | | | x | | | | | | | | | | | |
| Maintain guidelines | | | | | | | | | | | | | | | | | | | | → | |

# 14c. SAREXs

- National pool of Evaluators trained Nov 2017

- Proposal for 2018/19 SAREX District funding:

  General SAREX support $7,500

  Each SAREX must be evaluated

  using an Evaluator from the national pool

  Must submit an Evaluation report

# 14c. SAREXs

## NZSAR support for 2017/18 is $7,500 per District

| District | Exercise Dates | $ Allocated | | 2016-17 $ |
|---|---|---|---|---|
| Northern | Apr | $7.5k | | $3.1k |
| Auckland | Apr | TBC | | nil |
| Waikato | Nov / Mar / Apr | $7.5k | | $4.4k |
| Bay of Plenty | May | $7.5k | | $5k |
| Eastern | Nov / Mar | $7.5k | | $4.4k |
| Central | Nov / Feb / Mar | $4k | | $3k |
| Wellington | Nov / Apr | $7.5 | | $2.6k |
| Tasman | Mar | $7.5k | | $3.2k |
| Canterbury | Aug / Oct / Mar | $7.5k | | $4.5k |
| Southern | Nov / May | $6.5k | | $6.5k |

# 14d. SAR (ACE) Training Update

| Full year | 2016 | 2017 |
|---|---|---|
| Number of courses delivered | 98 | 103 |
| Number of courses cancelled | 19 | 20 |
| Total number participants attending | 1342 | 1378 |
| Average number attending per course | 13.7 | 13.4 |
| Total EFTs used (max 155) | 130.8 | 98.4 |

**TEC has allocated EFTS for 2018 to**:

- **Tai Poutini Polytechnic**: 40 EFTS to June; further 40 EFTS available
- **SARINZ**: 9 EFTS for two courses

**2018** Training Calendar is based on 138 courses and 153 EFTS

# 14d. SAR (ACE) Training Update

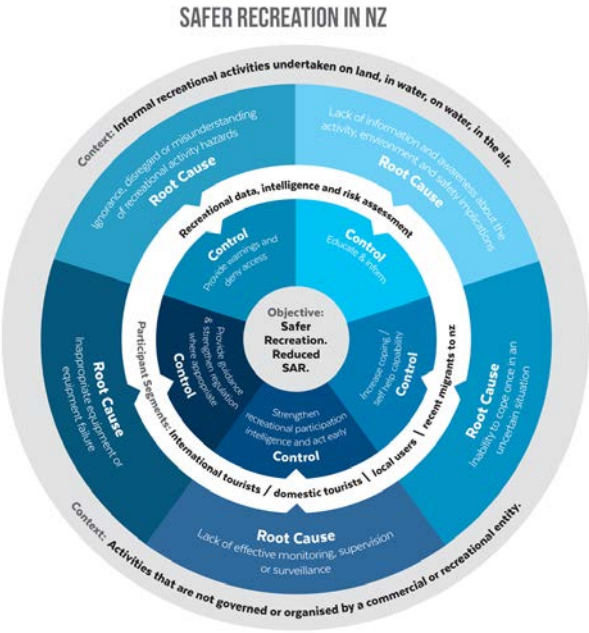
- Liaising with MCDEM on dual submissions to TEC for a change to training funding arrangements for 2019 and beyond
- Aim is to reduce bureaucracy and increase the flexibility and capability of meeting training demand

# 14e. SAR Assurance

- Aviation Engagement Project is on track (as discussed)
- Operation Mangatawai Review on track (as discussed)
- Strategic Occupational Health and Safety Committee Meeting is being held directly after this meeting.
- Assurance Framework

# 14f. SAR Prevention

- Prevention Report.  Underway with Henly Hutchings
- Research:
  - Observed Behaviour Survey – Land
  - Rescued persons survey
  - Fatalities Study
  - Data store
- Will use these elements + previous research/reports and external info to  develop NZSAR prevention action plan

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# 14g. Workshops/Seminars

- SAR Technology Seminar: 6-7 March 2018
  - *Topics & Presenters wanted*
- Aviation Workshop: deferred
- Case Study Workshop: 16-18 April 2018
- Safer Walking / Wander Workshop: 24 March 2018


"And should there be a sudden loss of consciousness during this meeting, oxygen masks will drop from the ceiling."

# 15. Wahine 50 & NZSAR Awards
# 10 April 2018

## NZSAR Awards

- 5.30pm, Shed 6
- Presented by Her Excellency, the Rt Hon. Dame Patsy Reddy GNZM QSO
- Nominations Received:
  - Support - 14
  - Operation - 6

## Wahine 50 Events

- Series of events around Wellington

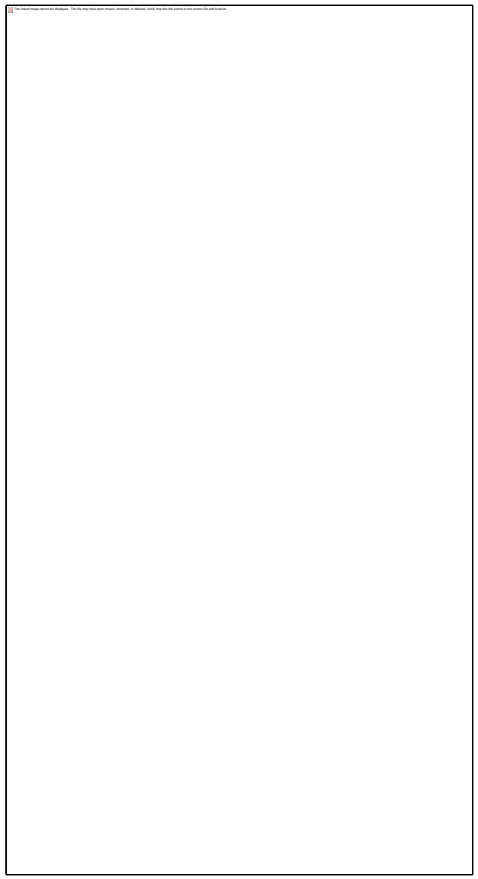
## SAR Agency Display

- Sector agency 'stands' promoting key SAR safety messages
- 11.30am – 4.30pm

# 16a. ANZSAR Conference

**23 May 2018, Gold Coast, Australia**

- Featured Speakers from NZ:
  - Mr Paul Carlyon, SLSNZ Board member
  - Mr Dave Greenberg, Emergency Preparedness
- Abstracts submitted from SAR sector agencies for session presentations



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## Next Meetings:

- Wednesday 9 May
- Wednesday 8 August
- Wednesday 21 November (Combined Workshop with NZSAR Council)

**Locations to be advised**