New Zealand Search and Rescue Council

Minutes of Meeting
New Zealand Search and Rescue Council
1-3pm, Wednesday 21 September 2016
CAA, Level 15 Asteron House
55 Featherston Street, Wellington

Present:

Peter Mersi – MoT (Chair)
John Boswell – NZDF
Mike Rusbatch – NZ Police
Graeme Harris – CAA
Keith Manch – MNZ
Dave Comber – Independent Member

In Attendance:

Mike Hill – RCCNZ
Rachel Roberts – NZSAR
Duncan Ferner – NZSAR
Rhett Emery – NZSAR
Jo Holden – NZ Police
Carl van der Meulen – NZSAR
Lauren James – Minute taker

Attendees:

Gareth Chaplin – MoT (agenda item 8)
Aidan Smith – MoT (agenda item 8)

1 Welcome

Peter Mersi opened the meeting by welcoming attendees.

2. Apologies

Harry Maher – DOC

3. Minutes of Meeting held 9 June 2016

The minutes from the last meeting were accepted as a true and accurate record.

4. Actions Arising from Previous Meeting

NZSAR Council Action and Responsibility Table - Meeting of 9 June 2016

Item	Actions & Decisions	Responsibility
7. NZSAR Risk Matrix: SAROP Management	The Council **directed** the Secretariat to reframe the NZSAR Risk Matrix. a. Subject to resources being made available, the Council **directed** the Secretariat to develop and implement a method of providing the Council with assurance around effective and safe SAROP management throughout the NZ SAR sector.	Secretariat Refer item 7
8. Coronial Inquiry - Search for Fiona Wills	The Council **approved** the proposed process to address the SAR issues of concern raised at the Fiona Wills Coronial inquest.	Secretariat Refer item 9.a
9. SAROPs of Questionable nature / Fee for SAR	The Council: a. **reaffirmed** its policy of not charging for SAR operations. b. **directed** the continued monitoring of questionable need / False / Hoax SAR operations.	Secretariat
11. Mass Rescue	The NZSAR Council: a. **approved** the intent of the MRO Operational Policy . b. **directed** the two SAR Coordinating Authorities to develop a common MRO Response Plan. c. **approved** exercise series Rauora II and committed the two SAR Coordinating Authorities to engage in the exercise series d. **noted** that a run level mass rescue exercise is scheduled for April 2019 and included in the NEP.	Secretariat RCCNZ NZ Police
12. Letters of Expectation	With minor amendments, the Council **approved** the proposed letters of expectation	Secretariat

Item	Actions & Decisions	Responsibility
13. NSSP 2016/17	The Council **approved** the 2016/2017 National SAR Support Programme and associated budget	Secretariat

5 SLA Monitoring Report for the April – June 2016 Quarter

No nominations have been received for 2016 NZSAR Awards to date. SLNZ has several projects underway including research on the different types of rips in New Zealand and the changes occurring between low and high tides. LandSAR is working on the competency project and business plan. Information received that morning of a new appointment to the board and two specialists co-opted to provide support to the board. The Mountain Safety reported that there had been three avalanche incidents in July, all in out of bounds areas of ski fields. No serious injuries or deaths from the avalanches.

Outcome: The Council **noted** the SLA Monitoring Report.

6. Sector Update

SAR incident numbers have been reasonably static over the last 6 years. During the last year 195 lives were saved. This included 36 lives saved in the rescue of the crew from the F/V Pacific Glory. The number of people rescued is 730. The Social costs averted by saving 195 lives was $712million. The breakdown of volunteer hours recorded shows significant hours in training and administration for Coastguard, LandSAR and SLNZ.

The noticeable trends include a decrease in the number of marine incidents and an increase in the number of land incidents over the past 6 years. The increase in land incidents has occurred in both category 1 and category 2. The increase in the registration of Personal Locator Beacons (PLB) with RCCNZ has resulted in an increase in PLB stress alerts being received. The steady increase in category 1 land incidents for people in the “wander” category is expected to continue.

The social cost avoided by saving lives is a significant amount. That raised the question of whether there is an opportunity for the sector collectively to give greater visibility to the social cost saving as opposed to the monetary cost of SAR intervention. How do we take a balanced approach to the extra visibility?

The sector update report was noted and taken as read.

7. NZSAR Risk Matrix

At its previous meeting, the Council had requested significant reworking of the Risk Matrix - particularly the SAROP management risk. The updated Risk Matrix was discussed in detail.

The Council expressed comfort with the incorporation of elements of the previously suggested SAROP management risk into the cohesive and effective

SAR training risk (2016/03). Duncan noted that similar treatments (i.e. SAREXs) were appropriate treatments for several risks.

Risk 2016/7 COSPAS SARSAT failure is no longer an issue and is to be removed from the matrix.

The Council asked for Risk 2016/08, Health and Safety to be rewritten to focus on prevention of injury or harm.

Risk 2016/10 SAR technology is to be amended to include a treatment leading to the identification of incident management team support software.

The Council's meeting in February 2017 may discuss risk 2016/02 – SAR funding.

Action: The Secretariat is to further **update** the Council's risk Matrix by removing the COSPAS SARSAT failure Risk, and updating the Health and Safety and SAR technology risks.

8. 2017-2020 PLA Funding review

Gareth Chaplin, General Manager Performance at MoT, and Aidan Smith of MoT provided a brief to the Council regarding the SAR Funding Review.

Gareth thanked the Council for their invitation to the meeting. One meeting has been held with the Minister and the draft business case has been sent to the Ministry. This review is part of their normal funding programme, reviewing system performance and is carried out triennially.

Sarah Mehrtens (independent contractor to MoT) had provided an updated draft business case which sets out the recommended investment and the recommended amounts per organisation. The review had undertaken a thorough assessment of the SAR system and the seven organisations that provide search and rescue services to New Zealand. The MoT perceives four main issues facing the sector:

- funding uncertainty for the main charitable organisations involved in SAR
- an aging volunteer base
- inconsistent incident management standards and higher regulatory requirements
- new 'business lines' through increasing numbers of:
  - international tourists (currently 10% of SAR responses)
  - people with dementia / Alzheimer's due to an aging population (currently 22% of category 1 SAR land based responses) who when lost or missing require costly searches because they are not trying to be found and do not show logical behaviour due to cognitive impairment.

Advice will be provided to the Minister outlining how the expenditure fits with the Government's required outcomes. They are formulating their advice at present and have confidence in the numbers. Sarah's review understands the sector is performing well and providing good service. SAR service is often delivered via

Non-Governmental Organisations who provide expertise and resources. Also noted was the overall SAROP trends, the changing ratio of category 1 and category 2 incidents, and the wanderer issue increasing over the last four years. These factors drive output requirements. Additionally, very strong tourism growth provides some challenges to the SAR sector.

Funding uncertainty exists with established funding lines. Lottery profits are flat and grants have reduced. Gareth has talked to Lotteries and they have good confidence in providing funding to SAR agencies due to the sound organisation of the sector.

There has been a growth in New Zealand's overall volunteer sector but that has been offset by a significant decline in volunteer hours. Growth in the number of volunteer organisations was also noted.

MoT perceives there is a case for strategic investment to support the continued delivery of quality Search and Rescue services. The sector is in good heart but they can see some demographic shift with an aging population and employers less keen to release staff thus creating some pressure on the sector. Older volunteers, less active volunteers, less competent urbanites could be issues as the sector is very reliant on volunteers. Employers are not so keen to release staff creating some pressure on the sector. International tourists see this country as an adventure playground. There is also the increasing dementia issue because of an aging population. This is not viewed as Health DHB funding issue but largely as a health and safety risk.

Funding for the National Exercise Programme (NEP) approved full-scale run-level mass rescue/major transport incident exercise in 2019 is not included in the bid. Separate decisions need to be made about where the funding should be sourced for this exercise.

Compared to the figures seen previously by Council members, the recommended additional overall PLA investment under preferred option 3 has reduced as follows:

- $2.400M 2017/18
- $2.240M 2018/19
- $2.130M 2019/20
- $1.569M Outyears

Peter reported that Harry (DOC) had seen and noted proposal but provided no further comment.

The Council noted the three yearly cycle of funding PLA reviews and undertook to monitor the overall 'health' of the sector closely in between reviews. The Council discussed a cover letter for the eventual MOT briefing note to joint Ministers.

Decision: The Council **noted** the MoT PLA funding brief and **agreed** to an NZSAR Council cover letter for the final briefing note to joint Ministers.

9. Reviews and Studies

9.a Coronial Inquiry – Search for Fiona Wills

The Council was briefed on the multi-stage process which developed the paper before them. The Council noted:

- NZ does not have a unified doctrinal basis for search and rescue in New Zealand.
- Some risks exist with developing excessively prescriptive recommendations based upon a single search and rescue incident.
- Concerns around establishing requirements that would be impossible to achieve.
- A preference for guidelines or frameworks rather than prescriptive rules as every SAR situation is different. Those involved in SAR need considerable flexibility in how they respond to incidents as each has a unique set of circumstances.

Peter summarised by noting that Council is comfortable with the provision of guidelines, frameworks, or principles to increase consistency of decision making, but the Council also recognises the importance of supporting and enabling sound judgement to be exercised in the operational context.

Decision: The Council **approved** the recommendations as follows:

- **Recommendation 1.1** Develop an agreed, unified and documented doctrinal basis for the conduct of Search and Rescue in New Zealand.

- **Recommendation 1.2** Develop an agreed, unified and documented doctrinal basis for the conduct of Search and Rescue in New Zealand.

- **Recommendation 1.3** Within an agreed, unified doctrinal document, provide guidance on SAR resource prioritisation and allocation, and the requesting of extra resources from neighboring Districts.

- **Recommendation 1.4** Within an agreed, unified doctrinal document, provide guidance on operational procedures relating to Lost Person Behaviour, survivability, and search suspension.

- **Recommendation 1.5** Establish regular, nationally moderated incident management team continuation training and exercises to enhance and sustain incident management team competence.

- **Recommendation 2.1** Within an agreed, unified doctrinal document, provide guidance on operational procedures relating to the management of fatigue.

- **Recommendation 2.2** Ensure the existing guidelines for the coordination and management of IMT changeover is reflected within an agreed, unified doctrinal document. Refer also recommendation 1.3.

- **Recommendation 3.1** Ensure the existing guidelines for the planning and management of SAR operations is reflected within an agreed, unified doctrinal document.

- **Recommendation 5.1** Within an agreed, unified doctrinal document, provide guidance on operational procedures relating to the management of fatigue.

- **Recommendation 6.1** Ensure the existing LandSAR Response Guidelines are incorporated into an agreed, unified doctrinal document. Refer also recommendation 1.3

- **Recommendation 7.1a** Ensure the existing LandSAR Response Guidelines are incorporated into an agreed, unified doctrinal document.

- **Recommendation 7.1b** Establish an agreed expectation and method for team tracking information. Include this in an agreed, unified doctrinal document.

- **Recommendation 8** Ensure the existing processes and procedures for requesting out of District resources is incorporated into an agreed, unified doctrinal document.

- **Recommendation 9** Ensure reference to the NZSAR Resource Database is included in the agreed, unified doctrinal document.

- **Recommendation 10.1** Direct the SAR Training Programme Advisory Committee (PAC) to incorporate training in file management into the SAR management courses – MTMR, MTIR, ESP, and SAR Managers.

- **Recommendation 10.2** Incorporate guidelines for the electronic and hard copy management of SAR operational documents into an agreed, unified doctrinal document.

- **Recommendation 10.3** Undertake a project to identify suitable SAR IMT management information technology.

- **Recommendation 11.1** Develop a SAR sector role description for family liaison. Direct the SAR Programme Advisory Committee (PAC) to incorporate training in family liaison role into the SAR MTMR, MTIR and ESP courses.

- **Recommendation 11.2** Incorporate guidelines regarding family liaison into an agreed, unified doctrinal document.

- **Recommendation 12** NZSAR, Police and RCCNZ develop a unified search suspension criteria and process. Include this into an agreed, unified doctrinal document.

9.b Land Communications Framework

The Council considered a review by Caravel Group of current and future radio communications capabilities and practices for SAR in the land environment.

The report proposed an integrated radio communications framework for New Zealand land-based search and rescue operations and included 14 recommendations. The Council discussed each recommendation and noted that Police, LandSAR and AREC were primarily affected. The Council also noted that additional resources were required to effect some, but not all of the recommendations.

1. *Establish a technical working group with participants from key SAR agencies including NZ SAR, Police, LandSAR, DOC, AREC, RCCNZ, NZ Defence, Surf Lifesaving New Zealand, Coastguard, Civil Defence and Mountain Radio.* [Council Agreed]

2. *Ask Police to continue support (either in house or outsourced) for their analogue VHF radio equipment (handheld radios and repeaters) used for SAR.* [The Council concurred given the remote areas where SAR agencies are required to operate and communicate. Effective radio communications are essential for safe and effective SAR operations]

3. *Ensure the Police HF radio network capability is retained and users are trained and practiced in its deployment and use.*

4. *Confirm accessibility of the Police's VHF digital trunk radio network for non-Police SAR agencies.* [This network currently exists in Auckland, Canterbury and Wellington.]

5. *Confirm accessibility to other VHF networks including DOC, Maritime, Civil Defence, AREC DMR and Surf Lifesaving NZ DMR.* [This would be a long-term project and buying in bulk is sensible.]

6. *Develop a radio asset management database to support digital trunking and GPS tracking.*

7. *Agree a common handheld radio purchase strategy that enables dual mode (analogue and digital) capability as well as built-in GPS for tracking.*

8. *Implement a common VHF channel plan for all radios to be programmed with nationally consistent channel names.*

9. *Develop and implement continuous voice recording and instant playback on appropriate VHF channels.*

10. *Update and extend Memorandums of Understanding to use DOC, Civil Defence and Maritime New Zealand's VHF networks as required for SAR activities.*

11. *Develop and implement a maintenance program for all radios, especially the non-Police owned fixed VHF radio stations.*

12. *Engage with the Whole of Government Radio Network (WGRN) programme to ensure the continued availability of HF and VHF radio networks for ongoing SAR training and operations* [The Council speculated if the WGRN had placed a veto on the purchase of certain radio equipment by government agencies? Duncan will explore whether this is true.]

13. *Evaluate the cost/ benefit of acquisition, implementation and deployment of CODAN LRDR.* [This system could be expensive and would likely require specialist expertise to operate]

14. *Engage with NZDF to plan the future development of their HF radio infrastructure to support SAR operations and training requirements.*

Harry Maher has indicated DOC is comfortable with the recommendations.

Decision: The Council **accepted** the report and directed the Secretariat to work with the relevant agencies to address the recommendations.

9.c NZ Inc Recreational Safety Framework

The Council considered the report '*Reducing SAR responses: a framework to achieve safer recreation in New Zealand'.* The framework project had been commissioned to explore a key recommendation from the 2015 governance review: "That the SAR Council coordinate the development of a joint preventative strategy that will place greater emphasis on preparedness and reduce the demand for SAR services in the future."

Project recommendations

'To achieve the desired objectives outlined in the proposed recreational safety framework, a three-pronged plan is required, supported by appropriate resourcing'.

A. In order to fill the governance, thought leadership and coordination gap that exists, the NZSAR secretariat should assume a "cross environment" coordination, alignment and advocacy role for the recreational safety (prevention) sector.

1. That NZSAR council redefine its strategic goals with regard to recreational safety from "reduce the need for SAR services" to "to reduce the risk of SAR incidents, or in the event of a SAR incident, to reduce the negative consequences of such incidents" (or similar). This statement has a stronger alignment to accepted risk management standards internationally such as ISO31000:2009 Risk Management Principles & Guidelines.

2. That NZSAR Council adopt the proposed Recreational Safety Framework (RSF) as the underpinning thought model that will drive its approach to systematically strengthening the recreational safety (prevention) sector.
3. That NZSAR secretariat provide thought leadership on behalf of the sector, to government and non-government organisations that provide resources, in order to generate additional sector resources to fill identified gaps.

B. To focus effort, prioritise resources and respond to an evolving recreational risk profile, build the evidence base and translate it into sector workflows, NZSAR secretariat should:

4. Take a thought leadership role on behalf of the sector regarding more effective and coordinated collection, supply and synthesis of data (both participation (exposure) and incident data) on an ongoing basis.
5. Establish agreements with organisations that currently collect relevant data to inform a national risk profile of recreational safety exposure and incidents.
6. Provide an ongoing information, intelligence and risk assessment service to the sector to ensure the recreational safety framework is underpinned by a strong evidence base.
7. Subject to the proposed risk assessment process, seek resources and take steps to fill identified recreational safety gaps. As an example, the initial sector mapping against the proposed framework indicates a gap may exist in servicing the international tourist participant segment.
8. Consider publishing an annual 'recreational safety report' to capture and report on sector performance, highlight key risk areas which require focus, showcase best practices and generate public and media awareness of recreational safety issues.
9. Where there is an opportunity to source and distribute funds to NZSAR partners (for prevention initiatives), ensure the criteria used to determine resource allocation is aligned to the proposed recreational safety framework including the evidence base generated by the risk assessment process.

C. To build sector capability and connectivity to realise outcomes, NZSAR secretariat should:

10. Coordinate and convene recreational safety forums to focus sector thinking and foster stronger collaboration on recreational safety across environments. It is recommended forums should have structure and function relative to the proposed framework and work collaboratively to maintain and evolve the framework and its enabling components.
11. Support and enable activities that strengthen people capability across NZSAR's partners in critical areas (such as risk management, public messaging and behavioral change) in order to grow the capability and capacity of the recreational safety sector in the areas that will enable it to be more effective and cohesive. This may include a mix of professional

training and sharing of industry best practice (domestically and internationally).

12. Invest in a re-development of 'Adventure Smart' to ensure it is optimised to meet the needs of, and reflects the behaviors of, modern recreational participants across all participation segments. Initial concepts raised for consideration include development of a smartphone application with linkage to local hazard and safety messaging via geo-tracking functionality. Consider opportunities for joint venture with mainstream tourism industry organisations (i.e. Trip Advisor App and/or similar).

The Council discussed the report and noted that:

- The Council's SAR prevention goal should be rewritten to better articulate its intent to both reduce SAR incidents and improve the outcomes of SAR incidents when they do occur.
- Considerable scope existed to better coordinate New Zealand's SAR prevention effort and activity.
- The Council may be most appropriately placed to provide SAR prevention coordination, measurement and support as a host of other agencies were involved with delivery.
- Additional resources would be required to undertake the majority of the recommendations. The scale of any additional resources would in large part influence the natures of the Council's future adoption of the recommendations.

Decision: The Council **accepted** the report and **invited** the Secretariat to develop a set of actions in line with available resources which would best contribute to the outcomes the Council is seeking.

9.d SAR & Aviation Engagement Framework

Council considered the report '*Operations Aviation Engagement Framework Interim Findings'.* The document recognises the three core issues affecting engagement with the aviation sector:

- Inconsistent approaches to SAROPS.
- Gaps in assurance,
- Relationship problems

The interim report expanded on these issues and posited some underlying issues as follows:

Inconsistent approaches to SAROPS for:

- Tasking, management, information exchange, communications
- Differences in standards, and their use
- Variability in provider training

- Different approaches to charging
- Risks for duplication of effort, misunderstandings, inefficient delivery

Underlying issue

- No common or consistent statements of expectations between parties.
- Little overarching guidelines to inform planning and behaviors.
- SAROPs are a small part of the aviation provider's work, and lack attention.

Gaps in assurance

- An array of different and changeable capabilities and arrangements, and challenges for maintaining currency
- SAR Coordinating Authorities have an uneven understanding of operator skill for different tasks
- Risk of a 'drift into failure' as there are no moderating checks and balances to flag issues early, and mitigate risks

Underlying issue

- No robust mechanisms in place to provide assurance
- Training is variable and left to the operators
- Current 'high trust' model, informal relationships across a fragmented landscape of providers

Ineffective relationships

- Challenges for collective engagement and collaborative procurement amongst parties
- Room for closer relationships between NZSAR and coordinating authorities with funders/ employing agencies of aviation providers, and other agencies (CAA, Aviation NZ)

Underlying issue

- No centrally monitored multilateral agreements to validate and support collaborative working
- Informal relations play a significant role, which can lead to tensions and issues impacting on effective SAROPs

The interim report them proposed some required key elements:

- Consistent guidelines for Coordinating Authorities on their roles, responsibilities and approaches e.g.
    - Collaboration, decision-making, procurement, relationship and contract management
    - Responsibilities under legislation e.g. HSWA2015

- Consistent guidelines for aviation providers for 'what good looks like' for efficient, effective and safe operation
- Coordination and support from NZSAR for developing and implementing guidelines
- Competency framework for SAR aviation providers that outlines expected competencies, skills, qualifications for effective and safe SAR responses
- Training framework around this for ensuring competencies are developed and maintained
- Current database of SAR capability throughout NZ (NZSAR has a good database in place; currency needs to be maintained)
- Consistently applied agreements between all commissioning and provider organisations
- Enhanced procurement framework (e.g. pre-selected provider panels for coordinating authorities)
- Enhanced reporting from coordinating authorities to NZSAR on state of preparedness and activity
- Mechanisms for monitoring and evaluating the performance of coordinating authorities and aviation providers
- Collaborative working arrangements between all parties
- Coordination of focus and activity amongst NZSAR, WorkSafe NZ and CAA – all have an interest in health and safety

The interim report also outlined some proposed roles within the Framework:

<u>NZSAR</u>

- Stewardship of the framework
- Provide leadership to the coordinating authorities and other stakeholders
- Provide high level guidance to coordinating authorities and providers
- Maintain a current understanding of the nature of the capability in the sector (across coordinating authorities and providers)
- Provide coordination support for coordinating authorities and aviation providers
- Monitor and evaluate the effectiveness of guidance and support provided to assess usefulness

<u>Coordinating Authorities</u>

- Coordinate (lead and manage) SAROPS in the NZ SAR Region
- Allocate/ procure the most appropriate aviation provider to a SAR response:

  - effective and safe SAROPs provision
  - using a database; provider panel approach
  - apply a consistent approach to decision-making
- Communicate the specific task details to the aviation provider
- Manage agreements for service with providers: set performance expectations
- Monitor and evaluate the performance of aviation providers against their agreement for service
- Proactive assessment/ debriefing of each operation; follow up actions
- Fulfil health and safety risk management obligations under HSWA2015
- Actively collaborate with NZSAR and other key stakeholders

Aviation Providers

- Provide a timely, effective and safe SAROPs response
- Maintain appropriate levels of response capability, equipment and knowledge
- Provide any changes to operations and capability to maintain currency of database
- Adhere to the agreement made with the coordinating authority for SAR responses
- Fulfil their health and safety obligations under the HSWA2015
- Fulfil obligations under Civil Aviation Rules:
  - For aircraft technical and operations; equipment
  - For pending Safety Management System requirements

Possible Implications for NZSAR include:

- A more proactive role for leadership –moving beyond the setting of strategy to leading implementation of the strategy
- Additional resources for oversight, coordination and guiding
- Additional resources for developing guidance materials for supporting strategy implementation and the framework
- The necessity for a phased and collaborative approach to the implementation of a framework
- The need to prioritise for quick wins and longer term gains

The interim report also suggested that the Council explore the centralisation of tasking (and payment for) SAR aviation into one agency.

Outcome: The Council **noted** the SAR & Aviation Engagement Framework

9.e SAR (ACE)

Utilisation. The delivery of SAR (ACE) training is less at this point than at the same point in 2015 as demand for training is lower. Additional courses are planned to be included in the programme prior to the end of 2016.

Student Survey A SAR (ACE) student satisfaction survey was conducted in July of students who had taken part in SAR training during 2015. The high level response was pleasing. The net promoter score of 61 exceeds recent scores returned by other organisations.

10. NSSP 2016/17

The Council was briefed on the current status of the NSSP. Most projects were on track but a number had not yet commenced.

11. General Business

11.a Coastguard repeater channel change

The Council noted that this project was proceeding well, was on track for delivery on 1 October 2016 and that it was under budget. Some funding will be retained post October as a precaution as some further tweaks would likely be required to deliver optimal coverage.

11.b Air Ambulance Service Procurement

The Council noted that the Ministry of Health and ACC were commencing the process to renegotiate their Air Ambulance contracts. SAR has been invited to be a part of their joint design process.

11.c NH90 over-water SAR capability

Mike Hill expressed concern that the date of commission of the NH90 with over-water SAR capability has shifted to late 2018. Brigadier Boswell informed the Council that bringing the full capability of the NH90 into service had been delayed for a variety of reasons. The NH90's over water SAR capability is now not expected to be 'in service' until late 2018. Should the requirement arise, RCCNZ are encouraged to explore other possibilities first but may make requests from NZDF for this capability in extreme circumstances.

11.d Rauora II MRO Exercises

Duncan updated the Council on the planned Rauora II Mass Rescue Operation exercise series. Northland will occur on 5 October, Bay of Plenty on 28 October. Exercise dates for Tasman and Southland had not yet been confirmed. The Rauora II exercises will present a dynamic simulation of an MRO event to practice the various agencies involved. Communications between RCCNZ, the Police District and other agencies will be tested and it will be interesting to see how they will gain situational awareness.

11.e Health and Safety Seminar

Duncan reported that the Health and Safety seminar had been held the previous weekend. Good progress was made and there is a clear understanding of the issues. Embedding H&S as a culture will take some time.

11.f Attendance record at Council and Consultative Committee Meetings

The Council considered whether the attendance registers for the NZSAR Council and Consultative Committee for 2015/16 year should be included in the NZSAR Annual Report. The Council perceived that the information was of only limited use in assessing the effectiveness of the Council or Committee.

Outcome: The Council **agreed** that attendance tables for the Council and Consultative Committee will not be included in the 2015/2016 NZSAR Annual Report.

Proposed next meeting:

- 22 November (combined workshop), MoT, Harbour Quay, Wellington.

Meeting closed at 3.08 pm

Peter Mersi
Chair
NZSAR Council

Action and Responsibility Table - Meeting 21 September 2016

Item	Actions & Decisions	Responsibility
7. NZSAR Risk Matrix	The Secretariat is to further **update** the Council's risk Matrix by removing the COSPAS SARSAT failure Risk, and updating the Health and Safety and SAR technology risks.	Secretariat
8. 2017-2020 PLA Funding review	The Council **noted** the MoT PLA funding brief and **agreed** to an NZSAR Council cover letter for the final briefing note to joint Ministers.	Secretariat & Council
9.a Coronial Inquiry – Search for Fiona Wills	The Council **approved** recommendations 1.1 to 12.	Secretariat
9.b Land Communications Framework	The Council **accepted** the report and directed the Secretariat to work with the relevant agencies to address the recommendations.	Secretariat
9.c NZ Inc Recreational Safety Framework	The Council **accepted** the report and **invited** the Secretariat to develop a set of actions in line with available resources which would best contribute to the outcomes the Council is seeking.	Secretariat
11.f Attendance record at Council and Consultative Committee Meetings	The Council **agreed** that attendance tables for the Council and Consultative Committee will not be included in the 2015/2016 NZSAR Annual Report.	Secretariat

New Zealand Search and Rescue Council

Notice of Meeting
1 - 3 pm Wednesday 21 September 2016
CAA, Level 15 Asteron House
55 Featherston St, Wellington

Agenda

1.	Welcome (Coffee & Tea available)	Chair
2.	Apologies	Chair
3.	Minutes of meeting held 9 June 2016 – *for approval*	All
4.	Matters arising from the Minutes	All
5.	SLA monitoring report: April – June 2016 – *paper*	Snr Adv
6.	SAR Sector Update - *paper*	Snr Adv
7.	NZSAR Risk Matrix *discussion*	All
8.	2017 – 2020 PLA Funding review *briefing*	MoT
9.	Reviews and Studies:	
a.	Coronial Inquiry - Search for Fiona Wills *for decision*	All
b.	Land Communications Framework *for decision*	All
c.	NZ Inc Recreational Safety Framework *for decision*	All
d.	SAR & Aviation Engagement Framework *briefing*	All
e.	SAR (ACE) Student Survey *briefing*	NSSP Coord
10.	NSSP 2016/17 – *update*	NSSP Coord
11.	General Business	Sec Mgr
a.	Coastguard repeater channel change: *update*	Sec Mgr
b.	Air Ambulance Service Procurement - brief	Sec Mgr
c.	NH90 over water SAR capability – *inquiry*	RCCNZ
d.	Rauora II MRO Exercises - *update*	NSSP Coord
e.	Health and Safety Seminar - *brief*	Sec Mgr

2016 Meetings: 22 November (combined workshop – 1 The Boulevard, Harbour Quays)

New Zealand Search and Rescue Council

Minutes of Meeting
New Zealand Search and Rescue Council
1 – 3PM Thursday 9 June 2016
Boardroom, Ministry of Transport
Level 6 SAS Tower, 89The Terrace, Wellington

Present:

Martin Matthews – MoT (Chair)
Keith Manch – MNZ
Brigadier John Boswell – NZDF
Superintendent Chris Scahill - NZ Police
Harry Maher – DOC
Dave Comber – Independent Member
Graeme Harris – CAA

In Attendance:

Mike Hill – RCCNZ
Sarah Mehrtens – Consultant
Duncan Ferner - NZSAR
Sgt Jo Holden – NZ Police
Carl van der Meulen – NZSAR
Rachel Roberts - NZSAR
Jane Norman – Minute taker

Attendee:

Sarah Mehrtens - MoT

1 & 2. Welcome and Apologies

Martin Matthews opened the meeting by welcoming attendees and noted it was good to have Harry back, now representing DOC. Sarah Mehrtens (MoT) would be presenting on the funding review work.

3. Minutes of Meeting held 23 February 2016

The minutes from the last meeting were accepted as a true and accurate record.

4. Actions Arising from Previous Meeting

NZSAR Council Action and Responsibility Table - Meeting of 23 February 2016

Item	Actions & Decisions	Responsibility / Result
7. Health and Safety	▪ Invite senior level representatives from WorkSafe, NZFS and MCDEM to the first or second NZSAR Council meeting in 2017. ▪ Invite representatives from WorkSafe, NZFS and MCDEM to the SAR Sectors next Strategic H&S meeting planned for late 2016.	Secretariat Planned for 2017 Have been invited
8. 2015 NZSAR Awards	The Council agreed with the 2015 award recipient recommendations.	Secretariat Awards went well
12b. SAR Communications Land	The Council approved the SAR Communications – Land environment terms of reference.	Secretariat Approved and underway
12c. SAR Aviation Engagement	The Council approved the SAR Aviation Engagement terms of reference.	Secretariat Approved and underway
13b. SAR Data Standard	The NZSAR Council: a) **Notes** that the need for investment to implement the NZSAR data standard. b) **Directs** the NZSAR Secretariat to include provision in its 2016/17 budget and work plan to implement the NZSAR data standard. c) **Requests** that the NZ Police to include provision in its 2016/17 budget and work plan to implement the NZSAR data standard. d) **Requests** that MNZ includes provision in its 2016/17 budget and work plan to implement the NZSAR data standard.	Secretariat Secretariat Underway NZ Police MNZ

5. SLA Monitoring Report for the Jan – March 2016 Quarter

Police statistics are only 80% complete at the time of this meeting so it's not possible to compare them with previous same period quarters. The numbers of Category II land incidents are growing but they are still much smaller than Police coordinated land incidents over the same period. The Mountain Safety Council are starting work on comparing number of incidents to total participation to better understand the relationship between incidents and participation.

Outcome: The Council **noted** the SLA Monitoring Report.

6. Sector Update

Sector update report was noted and taken as read.

7. NZSAR Risk Matrix

The proposed 'SAROP Management' risk was discussed at length.

The Council noted the relationship between items 7a (SAROP Management Risk) 7b (Cohesive SAR Training) and 8 (Coronial Inquiry – Search for Fiona Wills). The Council is seeking assurance around the provision of adequate capabilities and noted that training doesn't necessarily equal competency. An additional assessment component linked to feedback is needed to give the Council systemic assurance. The Council also noted the associated need to keep volunteer groups motivated and competent – especially as fewer prolonged searches are being conducted.

Martin noted the need for clarity around the post-incident review role of the Council and the existing NZSAR Council policy on incident reviews. He also emphasised his expectations that the various SAR Providing Agencies Governance boards had a role to play in ensuring their organisations were able to perform satisfactorily and give the Council appropriate assurance.

The Service Level Agreements and the letters of expectation may be appropriate tools to establish clarity around SAR agency performance expectations and the provision of assurance. The Council also noted that it was the only Governance body with all-of-SAR / multi-agency systemic responsibilities so it needs appropriate mechanisms to provide assurance at the system level.

Duncan noted the lack of trained/skilled evaluators within the sector. Within Government, only NZDF appears to invest in developing this competency. John offered to source some NZDF material and contacts. Duncan also noted that other Government agencies such as MPI were also interested in developing competent evaluators.

The Council noted that the establishment of a sector wide, systemic performance / assurance framework is on the work plan. John pointed out that the NZDF had extensive experience with this sort of framework but that its effective implementation is resource intensive. In the context of this discussion the Council

queried what are the inputs, practices and processes that provide assurance of effective SAROP management.

The Council noted that the Fiona Wills Inquest illustrated that in comparison to several overseas jurisdiction, New Zealand doesn't have a peak doctrinal document such as the Australian SAR manual.

Martin summarised by noting that it will be important to get the assurance framework right and that it would need to be adequately resourced in order to be effective. The rewrite of the Service Level Agreements provide an opportunity to improve assurance. The NZSAR Risk Matrix needs to be reframed following this discussion.

There is an opportunity to reframe the risk register to gain assurance that partner agencies manage SAROP effectively and that best practice is in place.

Decisions:

A. The Council **directed** the Secretariat to reframe the NZSAR Risk Matrix.

B. Subject to resources being made available, the Council **directed** the Secretariat to develop and implement a method of providing the Council with assurance around effective and safe SAROP management throughout the NZ SAR sector.

8. **Coronial Inquiry - Search for Fiona Wills**

The Council was briefed that the findings of Coroner CJ Devonport's inquest into the death of Fiona Wills were released on 8 April 2016. Coroner Devonport found that Mrs Wills likely died on or about 12 December 2014 from unascertained causes. He also included comment in paragraph 82. of his findings as follows:

> *[82] I direct that a copy of my findings be forwarded to both the NZSAR Council and the NZSAR Consultative Committee for them to review the issues of concern identified by Mr Gordon and consider whether changes to policies and procedures are necessary.*

The Council discussed the matter at length noting that difficulties with one incident doesn't necessarily provide evidence of systemic problems. The Council also reflected on its discussions during item 7, and notes its need for assurance around satisfactory SAR documentation, teaching, exercising and operational practice.

The Council discussed the three stage proposed process to address the identified concerns:

a. Collation of all issues and related information from the coronial inquiry documents.

b. Identification of existing SAR doctrine, policy, SOP, training, forms or guidelines relevant to the identified concerns.

c. Provision of recommendations to the NZSAR Council from the NZSAR Consultative Committee with regard to any response or actions.

The Council reinforced that the process was only to look at the identified concerns from a SAR system point of view. The process is not to look at the conduct or performance of organisations, groups, teams or individuals before, during or after the individual Wills operation. The Council asked that the Wills family be kept informed. The Police noted their comfort with the proposed actions and their desire not to replicate work.

Decision: The Council **approved** the proposed process to address the SAR issues of concern raised at the Fiona Wills Coronial inquest.

9. SAROPs of Questionable nature / Fee for SAR

The Council discussed the issue of questionable need / false / hoax SAROPs. An RCCNZ paper showed that the numbers of questionable need / false /hoax SAROPs was very low (approximately 0.4% of all PLB activations) and seen to be within reasonable bounds. The Council asked for a continuation of monitoring of this issue.

The Council also discussed its existing 2010 policy of not charging a fee for SAR operations. The Chair noted that this is a perennial issue and there are a number of significant and problematic issues to charging for SAR operations.

Decisions.

The Council:

A. **reaffirmed** its policy of not charging for SAR operations.

B. **directed** the continued monitoring of questionable need / False / Hoax SAR operations.

10. NZSAR 2015/16 Performance

The Council noted attendance registers for the NZSAR Council and Consultative Committee. The Chair pointed out that consistency of representation is important for the effective operation of the NZSAR Council and asked agencies to be consistent in their representation to the Council.

The Council was asked to assess the performance of the Secretariat for MoT reporting purposes. The Council noted progress on the National SAR Support Programme, AdventureSmart performance and planned future SAR prevention activity.

11. Mass Rescue

a. Mass Rescue Operational Policy

The Council was briefed that its Mass Rescue policy has been revised twice since June 2013 using feedback from key stakeholders. Common themes have arisen from exercise. The national response plan needs to cover all areas and be updated. There was further discussion around mass rescue capability in the Pacific.

The elements of the Policy brought to the Councils attention included:

- **Development of a single/common MRO Response Plan.**
  - ✓ The two SAR coordinating authorities shall prepare a common MRO Response Plan for use at the national and regional level.
  - ✓ The common MRO Response Plan shall address all identified MRO hazards and geographic locations throughout the NZSRR.
  - ✓ The MRO Response Plan shall be updated to use the CIMS 2nd edition framework for the coordination, command, and control of New Zealand agencies. RCCNZ shall use the IAMSAR framework as required under international arrangements.

- **Confirmed arrangements for the MRO Response Plan.**
  - ✓ Police will be the initial Operational Lead agency for any MRO incident where the people in distress are being taken to a place of safety in New Zealand, while the focus of the response is on life saving activities.
  - ✓ Management of the SAR component of the MRO response must remain with either of the two SAR Coordinating Authorities.
  - ✓ Police District SAR staff must remain available for SAR related response activities.
  - ✓ Police must provide a liaison officer to RCCNZ.
  - ✓ RCCNZ must provide a liaison officer to the Police EOC when possible.

- **Expectations:** The policy outlines 16 expectations for Police/RCCNZ/NZSAR, including exercising.

The Council noted that Search and Rescue command structure needs to be clear as, after the initial response, there may be a 'baton change' incident lead agency. This should be discussed ahead of time though sometimes statutory responsibility makes it clear who has responsibility.

Decision. The NZSAR Council:

- **approved** the intent of the MRO Operational Policy .
- **directed** the two SAR Coordinating Authorities to develop a common MRO Response Plan.

b. Exercising Plan

The Council was briefed on mass rescue exercise series *Rauora I*:

- Educative based discussion exercise ('crawl' level).
- Completed in March 2016 - 10 exercises over 18 months.
- Districts generally went from little/no readiness planning to having a readiness plan.
    - 3 common themes:
        - Plans were inconsistent on a national level
        - Plans did not address all MRO hazards
        - Plans did not align with CIMS 2nd edition

An outline of mass rescue exercise series Rauora II was also provided:

- Align District plans to the common MRO Response Plan.
- Table-top exercise using a scenario on an exercise game-board ('walk' level).
- Focus on reconciliation of a passenger & crew manifest (testing information flows between Police IMT and welfare centres etc).
- 1x mock exercise at RCCNZ (proof of concept), 3 (or 4) x Police Districts (working with PNHQ on sequencing and dates).
- Aligns with NEP national objectives 1, 5, 6, & 9.
- Will not include AoG/NSS components (can be role-played).

Decision. The Council:

- **approved** exercise series Rauora II and committed the two SAR Coordinating Authorities to engage in the exercise series
- **noted** that a run level mass rescue exercise is scheduled for April 2019 and included in the NEP.

12. SLA Letters of expectation

Duncan outlined what was included for these annual agreements. The letters are for the July 2016 – June 2017 period.

- Updated H&S schedule for all
- LandSAR – priority on implementing Wander framework
- Coastguard – participation in Joint Synergies Project
- AREC – no significant changes
- SLSNZ – no significant changes
- MSC – no letter due to nature of the SLA

Martin noted that it is Council's expectation that appropriate practices are in place to ensure SAROPs are well managed. Keith noted that the organisational arrangements of AREC could be better developed.

Decision. With minor amendments, the Council **approved** the proposed letters of expectation

13. National SAR Support Programme 2016/2017

The proposed 2016/2017 National SAR Support Programme and associate budget was presented for approval. Duncan outlined the programme and noted the alignment of tasks the Council's goals and risks. The Council acknowledged the small size of the overall budget and expressed confidence that the Secretariat would manage and rebalance it during the course of the financial year.

Decision. The Council **approved** the 2016/2017 National SAR Support Programme and associate budget

14. SAR Reviews & Studies

a. SAR Expectations. The Council was briefed on the result of the SAR expectations research and noted that:

- The research used qualitative semi- structured interviews with 79 participants across 9 sites.
- Some things the research found:
  - There is a disconnect between safety knowledge and action.
  - A number of multi-day trampers are not carrying communication equipment beyond cellular phones and they have high expectations of DOC staff in emergency situations.
  - People are generally very interested to see more advertising of adventure safety and are concerned by the lack of awareness or disregard of adventure safety international tourists have while in New Zealand.
  - Some boaties suggested NZ ought to consider mandatory marine based training for boat operators and owners and possibly a Marine WOF.
  - A number expressed concerns that New Zealand offers SAR free of charge to international tourists

b. **NZ Inc Recreational Safety Framework.** The Council was briefed on progress with the proposed Recreational Safety Framework (still in draft form). The proposed framework is widely supported by stakeholders, there is a genuine [strategy/leadership] gap: Specifically:

- Leadership and advocacy for the collection, supply and synthesis of data (incl participation, exposure and incident) on behalf of [prevention] sector.
- Leadership and guidance to funding agencies.
- Support to [prevention] sector capability, coordination, research and analysis.
- Forums to focus agency thinking on recreational safety across environments.
- AdventureSmart needs modernisation (smart phone app, geo advice, attraction linked).
- The NZSAR Council is well positioned to address / fill identified prevention gaps.

The Council noted the proposed framework and reinforced the premise that the framework must not supplant, replace or compete with existing agencies, strategies.

The Council also noted the requirement for additional resources in order to achieve the objectives the framework outlines.

15. 2017 – 2020 PLA Funding review

a. **Process, SLA Partners and RCCNZ**.

Sarah Mehrtens (independent contractor to the MOT) provided a brief to the Council regarding the SAR Funding Review.

Sarah thanked the Council for the invitation to the meeting and advised she has been meeting with all Council members. She confirmed that underlying fuel excise duty is not being reviewed.

- Part of Transport Sector Funding Reviews Programme
- Funding arrangements involving Government typically reviewed on three-year cycle
- Approaching third year of current approved funding for SAR agencies; time to review whether any changes needed
- Review of funding from section 9(1) Land Transport Management Act 2003 from fuel excise duty paid by users of pleasure craft.
- Review not covering Crown appropriation, Lotteries or other grants or funding raising by SAR agencies

The funding purpose of Section 9 (1) of the Land Transport Management Act was outlined.

- Section 9(1) funding can be allocated for:
    a) search and rescue activities, whether in relation to pleasure craft or otherwise; and
    b) recreational boating safety and safety awareness; and
    c) maritime safety services that benefit the users of pleasure craft; and
    d) administration by the Secretary of Transport in relation to the activities and services described in paragraphs (a) to (c)

Allocation made by joint approval of the Minister of Transport and the Minister of Finance on the advice of Ministry of Transport (delegated to GM, Sector Performance due to NZSAR Council membership of MoT CE)

- **Other funding sources** (Coastguard NZ, LandSAR, SLSNZ, AREC and MSC)
    - Heavy reliance on short-term funding (only confirmed for 12 months – makes planning difficult)
    - NZ Lotteries and pokies grants on downward trend (due to lower take) – how to replace this
    - No CPI related funding increase in nearly a decade
- **Volunteers**
    - Profile changing – older and less skilled (social change – more urbanised and less spare time due to work commitments)
    - Harder to keep engaged and maintain preparedness levels as sector becomes ‘less search, more rescue’ focused (due to use of distress beacons)
- **Tourists**
    - More tourists with less outdoor safety awareness (not used to NZ’s changeable weather and fierce sea)
    - Not directly covered by existing prevention focused agencies
- **Helicopters**
    - No coordination body for dispersed helicopter trusts and private sector companies tasked with SAROPs
- **Assets and volunteers**
    - Distribution uneven across NZ – over or under specified kit and low volunteer numbers in some areas and too many in others
- **Prevention**
    - Should/could section 9(1) funding be used for prevention work not just search and rescue activities?

Keith noted that costs for Government agencies as well as volunteer agencies should be included in the process.

The final report will come to Council for review in August/September. The goal is get this review complete in September and for the MOT to prepare a briefing note to Joint Ministers for their consideration in October.

b. **NZSAR Council guidance on options and possibilities**

Duncan briefed the Council on potential options to develop for the funding review and asked for Council guidance for each work stream.

- **Avalanche Advisory SLA**
  - Not direct NZSAR Council funding
  - Request an additional $45k per annum (Current total is $150k per year. $105 NZSAR, $45 DOC)
  - Money is to replace DOC SLA funding from 1 July 2017
  - Agreed by Council when a funded avalanche advisory SLA was established following Hugh Logan's review.
  - Note, the current MOT review may suggest a number other than $150k which would alter $45k.

  Guidance: The Council **supported** the further development of this business case.

- **Replace Police MOU Funding**
  - Total of $205k per annum paid by Police to SAR NGOs.
  - NZSAR has 5 x joint SLAs with LandSAR, CG, AREC, SLSNZ and MSC
  - Police has legacy MOU's with:
    - LandSAR $150K p/a
    - Coastguard $50K p/a
    - AREC $1K each to five AREC Groups p/a
  - Desirable to redevelop the SLA's to incorporate any remaining MOU aspects.
  - Clarify documentation, expectations and reporting
  - Remove tensions between providing and coordinating agencies.
  - Simplify monitoring and accountability
  - Police also have a funded MOU with MSC – this is not included.

  Guidance: The Council **supported** the incorporation of the Police - SAR/NGO MOU's into the SLAs and encouraged further discussions around funding aspects.

- **Search and Rescue Exercising**
  - Recommendation for more/better exercising is in the SAR Governance review and included in the NEP.
  - Mass Rescue, standard SAR and IMT exercises
  - District, regional and local level
  - Estimated $300k per annum
  - Full Scale MRO exercise in 2019

- Included on the National Exercise Programme
- Addresses HRB major transport incident risk
- 1 person, two years
- $650k over two years (based on Ex Whakautu II)

Guidance: The Council **supported** the further development of this business case.

- **Assurance, H&S, verification and performance**
  - Led from Governance review recommendation + H&S legislation
  - Provide the Council with systems level assurance on:
  - Health and Safety
  - Evaluation, performance and capability
  - Assist plan, deliver and evaluate SAREXs.
  - 2 persons.
  - Estimated $400k per annum

Guidance: The Council **supported** the further development of this business case.

- **Contestable SAR initiative Fund**
  - Led from Governance Review recommendation…. '*investigates opportunities to research developments to ensure the SAR sector keeps ahead of changes in demography, expectations, technologies and volunteering associated with SAR that could impact SAR capabilities and responsiveness in the future.'*
  - Estimated $400k per annum for fund
  - Estimated $75 per annum for fund admin
  - Could be partially contestable, partially directed if preferred

Guidance: The Council **did not support** the further development of this business case.

- **Capable SAR People**
  - <u>Training - Individual & SAR (ACE)</u>
    - Develop and maintain SAR training material.
    - Monitor & manage SAR(ACE)
    - Imposed on Secretariat from January 2014
    - Has required an average of 1/3 FTE + $80 – 100k per annum
  - <u>Doctrine and Documentation</u>
    - Develop and maintain SAR operational and strategic doctrinal material (see earlier risk item and inquiry)
    - Estimated $100k to establish, $50k per annum to maintain

Guidance: The Council **supported** the further development of this business case.

- **Centralised Multi Agency SAR Datastore**
  In support of SAR and prevention information and intelligence
  - Establish a centralised All of Government SAR Datastore.
  - Migrate existing data.
  - Establish data entry and reporting arrangements.
  - Incl public web base interface.
  - Incl capacity to bring in CG, SLSNZ, LandSAR
  - 1 person (+ contract) to maintain, support and analyse the centralised multi SAR agency SAR Datastore
  - Approx $1m over two years to create & implement
  - Estimated $200k per annum to sustain and analyse

  Guidance: The Council **supported** the further development of this business case.

- **SAR Prevention**
  See earlier item on NZInc Recreational Safety Framework
  - Prevention leadership, coordination & liaison
  - Prevention activity, measurement and reporting
  - SAR prevention initiatives to cover gaps incl social media.
  - General SAR media and communications
  - 1 to 2 persons.
  - $1.3m per annum

  Guidance: The Council **supported** the further development of this business case and noted that any work in this area must not supplant, replace or compete with existing agencies, strategies.

- **Mobile Phone locating**
  - Purchase two air portable mobile phone locating devices
  - Maintain and practice use of devices
  - $800k purchase two devices
  - $70 to maintain and practice
  - Would need to negotiate frequency access with telecommunications providers

  Guidance: The Council **supported** the further development of this business case.

- **Overhead**
  - Estimated additional $260k per annum overhead for additional people/space. The current overhead charge for the 3 person Secretariat is $260k per annum.

  Guidance: The Council **supported** the further development of this business case.

The Chair said it is worth being ambitious and had encouraged Duncan to be forward looking as he has a sense of the fragility of the SAR system.

The Council noted the lack of detail. Duncan agreed noting that he was asking for guidance before further business case development.

Keith noted that if the proposed sorts of funds were made available, it would result in a very different Secretariat. Care needed to be taken around role boundaries and organisational purpose and function.

The Chair noted that the funding sought as part of this process was for the Council, not the Secretariat.

16. NZSAR Strategy 2017 – 2020

The Council was briefed that the current strategy expires at the end of year and the plan was to match new strategy to approved resources. The Council agreed that the joint workshop in November would discuss the new strategy

Initial ideas to improve the strategy include:

- Rework the 'prevention' goal to include the notion of harm reduction
- Provide an activity/implementation roadmap

17. General Business

a. Coastguard repeater channel change.

The Council was informed that the project is on track and likely to be under budget. The follow on 'Joint Synergies' project is continuing

b. H&S Seminar 17 – 18 September

A SAR sector H&S seminar is planned for 17 – 18 September, Brentwood Wellington. The goal is to ensure a "one SAR" understanding of the H&S Act as it relates to our sector and to workshop some challenging H&S issues. The intent is for approx 75 – 80 SAR people & guests from around NZ to attend
SAR Council members are invited to attend any part of the seminar.

Last Meeting for Martin Matthews

As this was Martin's last meeting, he was presented a framed NZSAR embroidery and members expressed their appreciation of his work and acknowledged the challenge of being the Council Chair.

In response, Martin said that he appreciated the comments and that organisations do extraordinary work. Not many countries have such a system. The heroes are those out there doing the work but that the Council has a critical role of governance and co-ordination.

Proposed next meetings:

- 13 or 15 September at new location
- 24 November (combined)

Meeting closed at 3.01 pm

Martin Matthews
Chair
NZSAR Council

NZSAR Council Action and Responsibility Table - Meeting of 9 June 2016

Item	Actions & Decisions	Responsibility
7. NZSAR Risk Matrix: SAROP Management	The Council **directed** the Secretariat to reframe the NZSAR Risk Matrix. a. Subject to resources being made available, the Council **directed** the Secretariat to develop and implement a method of providing the Council with assurance around effective and safe SAROP management throughout the NZ SAR sector.	Secretariat
8. **Coronial Inquiry - Search for Fiona Wills**	The Council **approved** the proposed process to address the SAR issues of concern raised at the Fiona Wills Coronial inquest.	Secretariat
9. SAROPs of Questionable nature / Fee for SAR	The Council: a. **reaffirmed** its policy of not charging for SAR operations. b. **directed** the continued monitoring of questionable need / False / Hoax SAR operations.	Secretariat

Item	Actions & Decisions	Responsibility
11. Mass Rescue	The NZSAR Council: a. **approved** the intent of the MRO Operational Policy . b. **directed** the two SAR Coordinating Authorities to develop a common MRO Response Plan. c. **approved** exercise series Rauora II and committed the two SAR Coordinating Authorities to engage in the exercise series d. **noted** that a run level mass rescue exercise is scheduled for April 2019 and included in the NEP.	Secretariat RCCNZ NZ Police
12. Letters of Expectation	With minor amendments, the Council **approved** the proposed letters of expectation	Secretariat
13. NSSP 2016/17	The Council **approved** the 2016/2017 National SAR Support Programme and associated budget	Secretariat

New Zealand Search and Rescue

NZSAR 2-1

23 August 2016

NZSAR Council
NZSAR Consultative Committee

Joint Service Level Agreement monitoring report:
1 April - 30 June 2016 Quarter

1. **Provision of Services.** Services have been provided by the SLA partners as described in the table of outputs.

Outputs	Coastguard	LandSAR	AREC	SLSNZ
Provision of expert services				
Provision of expert advice				
Provision of IMT Members			Not Required	
Summary of non-SAR activity		Not Required	Not Required	Not Required
Up to date details available				
Participation in joint SAREX				
Attendance at Forums				
Nominations NZSAR Awards				

2. A summary of activity as reported by the SLA partners for the quarter.

Outputs	Coastguard	LandSAR	AREC	SLSNZ	Totals
SAROPs Attended	67	108	14	6	--
Volunteers Involved	356	956	30	21	**1,363**
Volunteer Hours	726	6,991	144	189	**8,050**

3. **Activity for the Quarter.** A summary of overall activity for the quarter, as extracted from the NZSAR Data Store.

Measures	Police	RCCNZ	Totals
SAROPs	332	248	580
Lives Saved	22	9	**31**
People Rescued	120	51	171
People Assisted	151	45	196
LandSAR Taskings	97	8	112
Coastguard Taskings	47	1	48
SLSNZ Taskings	11	0	11
AREC Taskings	7	1	8
Performance of SLA Partners	Satisfactory	Satisfactory	Satisfactory

Summary of Issues and Updates

4. Coastguard

- Planning for the VHF change project is progressing well, with the project being ahead of schedule and significantly under budget.
- Coastguard has made a submission for the SLA funding review.
- The Coastguard Annual Conference is scheduled for 15-16 October at Wairakei.
- The new Coastguard Rescue Vessel for Whangaroa is nearing completion and due to start seas trials.

5. LandSAR NZ

- During the quarter LandSAR has focussed on:
  - Completion and audit of annual accounts; production of 2015/16 Annual Report.
  - Producing the 2016/17 Business Plan and Budget; reviewing the LandSAR Strategic Roadmap.
  - Continued the development and refinement of the LandSAR Safety Management System, and workshops to accredit more LandSAR Competency Assessors.
  - The LandSAR Conference and AGM was held at the end of July.

6. Surf Life Saving New Zealand

- Work is progressing on the various communications projects – details can be found in the sector update.
- The Clubs' emergency after hours call out squads (ECOS) have stepped up their training over the winter months, along with training for new IRB crews. SLS have

been involved in inter-agency exercises in Napier, Western Bay of Plenty, and Waikato.

- SLSNZ is undertaking quantitative research on a number of prominent rips around the country.
- SLSNZ is rolling out small scale trials for Water Rescue Craft (WRC), most likely in Wellington, Christchurch, and Tauranga.

7. AREC

- Have no issues or updates to report to the Council.

Avalanche Advisory Service SLA (June-July 2016)

8. Mountain Safety Council has supplied the monthly reports for June and July 2016.

- 79 avalanche advisories posted in June
- 303 avalanche advisories posted in July
- MSC Avalanche Forecasters workshop was held 22-23 June in Methven
- There were three reported avalanche incidents in July, all in out of bounds areas of ski fields.

9. Mountain Safety Council has not yet provided details for the public information signage that the avalanche advisory is supported by NZSAR and DOC.

New Zealand Search and Rescue Secretariat

File: NZSAR 9-3

Date: 15 September 2016

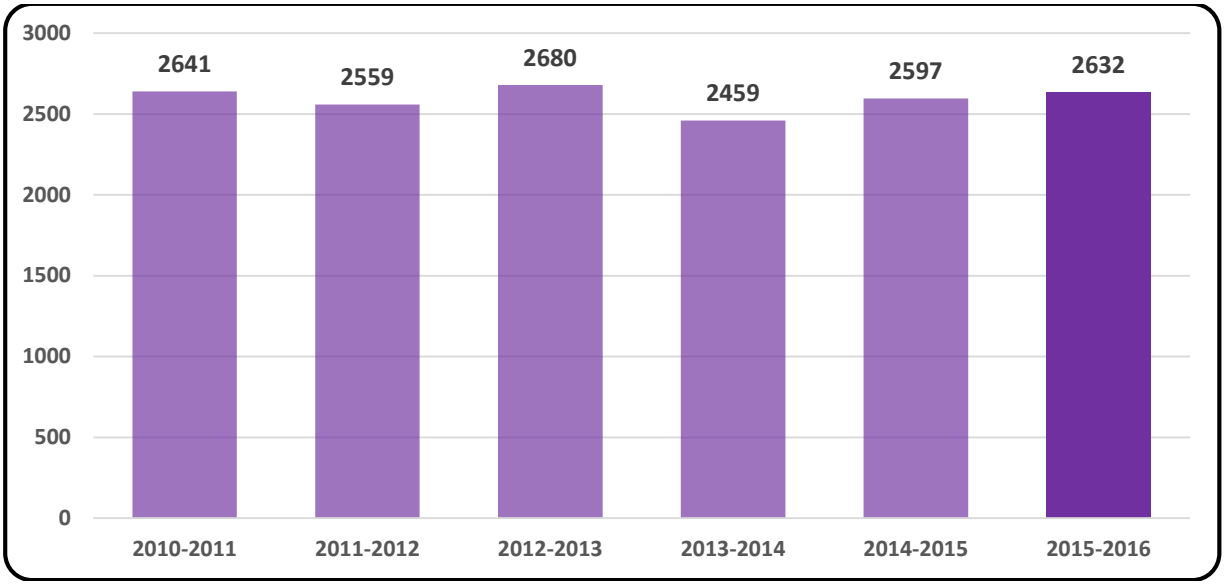
TO: NZSAR Council

SAR REPORT 2015/16

The information in this SAR Report for 2015/16 is taken from the NZSAR Data Store for the six year period 2010/11-2015/16.

SAR Incidents

There were 2,632 SAR Incidents during the 2015/16 year, which averages at 7.2 incidents per day. The total number of SAR incidents over the last six years has remained steady, with slight fluctuations year by year (graph 1).



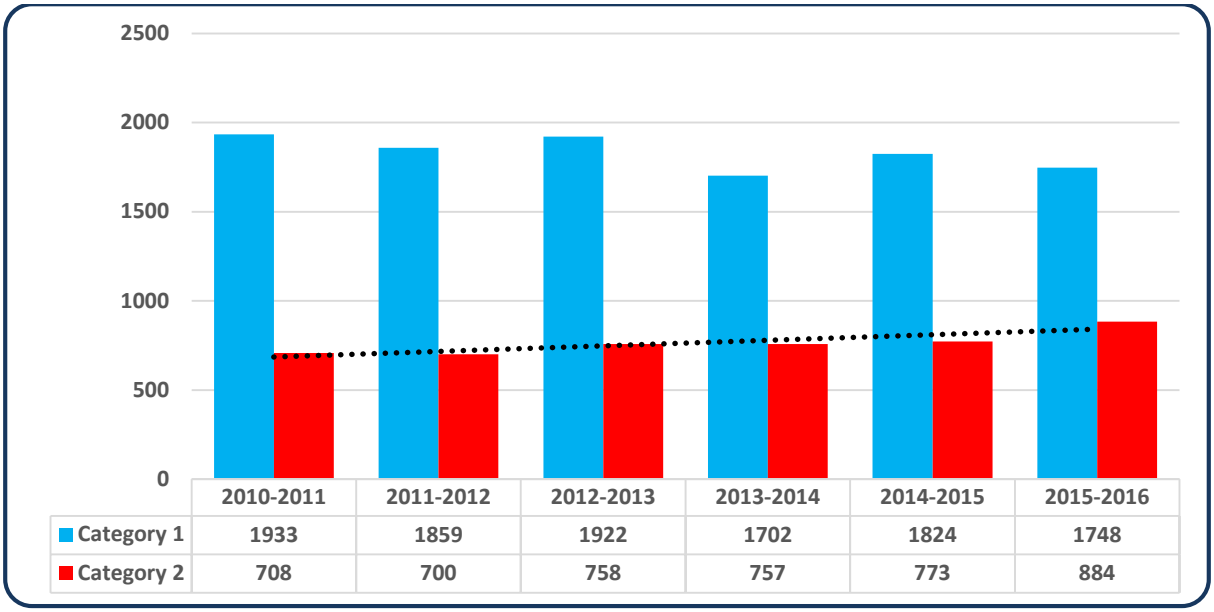
Graph 1: Total number of SAR Incidents

There was at least 1 SAR incident each day during the 2015/16 year. The busiest day of the year was Easter Sunday (27 March 2016) with 23 SAR incidents. Labour Day and Waitangi Day each had 20 SAR incidents. Only 4 days in total had just 1 SAR incident.

The New Zealand Police and the Rescue Coordination Centre New Zealand (RCCNZ) are the two agencies responsible as the Coordinating Authorities for the overall conduct of Search and Rescue Operations (SAROP) within the New Zealand Search and Rescue Region (NZSRR).

- NZ Police coordinate Category 1 SAROPs
- RCCNZ coordinate Category 2 SAROPs

During 2015/16 Police coordinated two-thirds (66.4%) of all the SAR incidents, and RCCNZ the remaining third (33.6%). However there is an upward trend in the number of RCCNZ coordinated Category 2 SAR incidents over the last six years of 1.1% per year (graph 2).



	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Category 1	1933	1859	1922	1702	1824	1748
Category 2	708	700	758	757	773	884

Graph 2: SAR Incidents by Category – the trend line shows the increase in Category 2 SAR over time

Result of SAR Activity

The results of the SAR sector in responding to the 2,632 incidents during 2015/16 was that:

- 195 Lives were Saved
- 730 People were Rescued
- 1,014 People were Assisted

Definitions

- Life Saved: Where, if SAR agencies had not intervened, life would definitely have been lost.
- Person Rescued: Where SAR agencies locate and rescue a person or people at risk and return them to a safe location.
- Person Assisted: Where SAR agencies aid a person or people at low risk, but who, if left, would be at risk.

There were 89 fatalities[1] (or suspected fatalities) in 2015/16 from people partaking in recreational activities. While the final rulings on the cause of death are the decision of the Coroner, initial analysis indicates that the leading causes/contributing factors are:

- Drowning (or suspected drowning) – 51 cases
- Medical events – 11 cases
- Falls – 11 cases
- Aviation crashes – 9 cases

Of the 89 suspected fatalities, 12 bodies were not recovered. 10 of these are suspected drowning's, with 6 being in the remote Pacific and 4 in New Zealand waters. There are 2 suspected fatalities on land, with 1 likely to be unrecoverable from a crevasse field, and 1 unresolved land search for a likely dementia related person who was last seen 5 days before searching began.

[1] We have removed fatalities that Police SAR Squads have responded to for body recovery, and suicides.

Social Costs Avoided

The social costs avoided by saving 195 lives is **$712million** (using the 2015 update on the 'Social Cost of Road Crashes and Injuries' from the Ministry of Transport's website).

Assistance from Voluntary Organisations

The four SLA partners provided a total of 34,241 volunteer hours in direct operational assistance to the SAR Coordinating Authorities during SAR Operations in 2015/16.

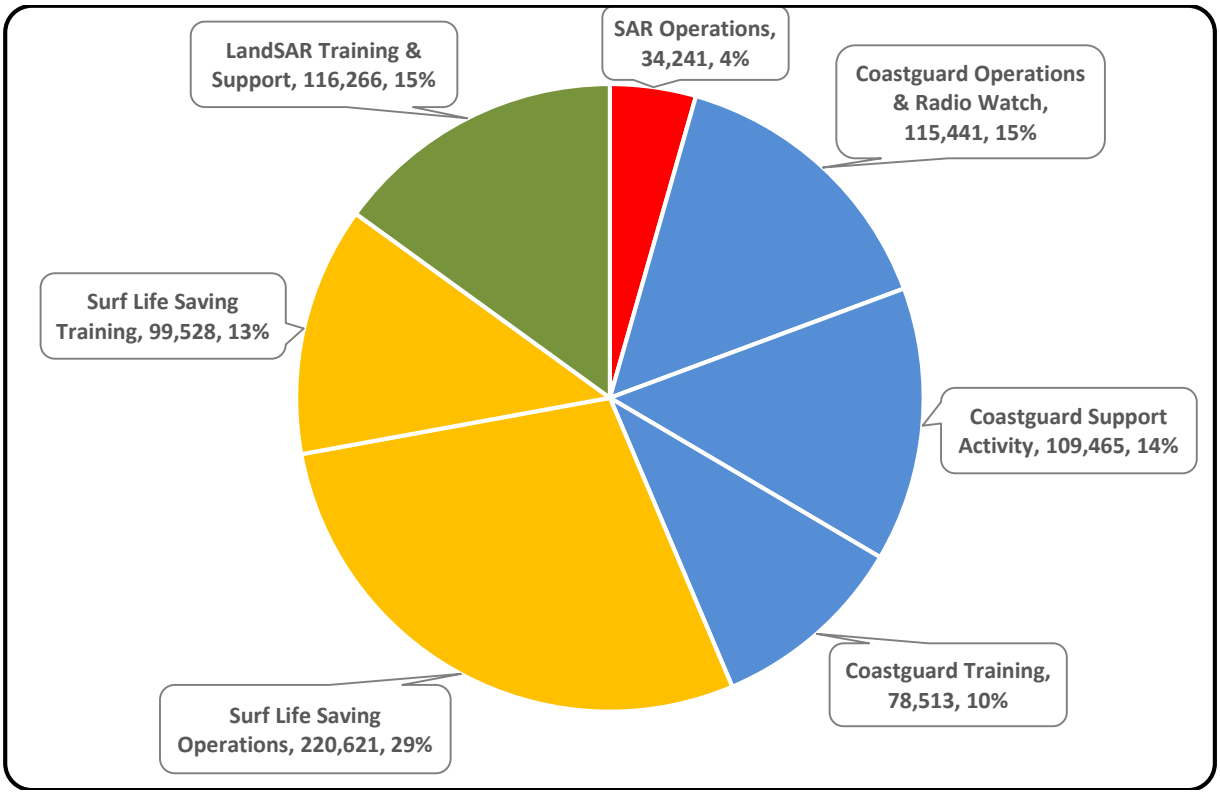
AREC provided 732 volunteer hours in support of 39 SAROPs (34 land, 5 marine), resulting in 2 lives saved, 15 people rescued, and 12 people assisted.

Coastguard provided 5,314 volunteer hours in support of 314 SAROPs (10 land, 304 marine), resulting in 38 lives saved, 143 people rescued, and 281 people assisted.

LandSAR provided 27,296 volunteer hours in support of 466 SAROPs (437 land, 29 marine), resulting in 63 lives saved, 222 people rescued, and 210 people assisted.

SLSNZ provided 899 volunteer hours in support of 83 SAROPs (8 land, 75 marine), resulting in 9 lives saved, 35 people rescued, and 21 people assisted.

In addition to the direct SAR operational support, volunteers provided an additional 739,834 hours of their time in: non-SAR operations; training; administration; fund-raising; and other support activities (graph 3).

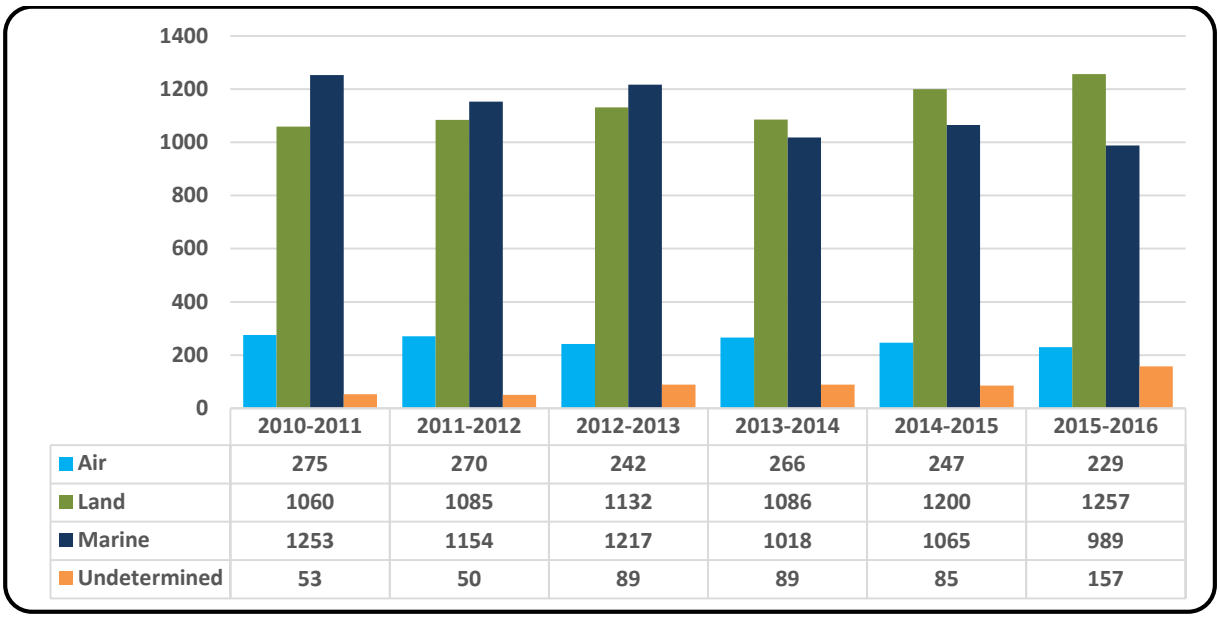


Graph 3: Breakdown of Volunteer Hours

Direct assistance to SAR operations only accounted for 4.4% of the volunteer hours during the past year.

SAR by Environment

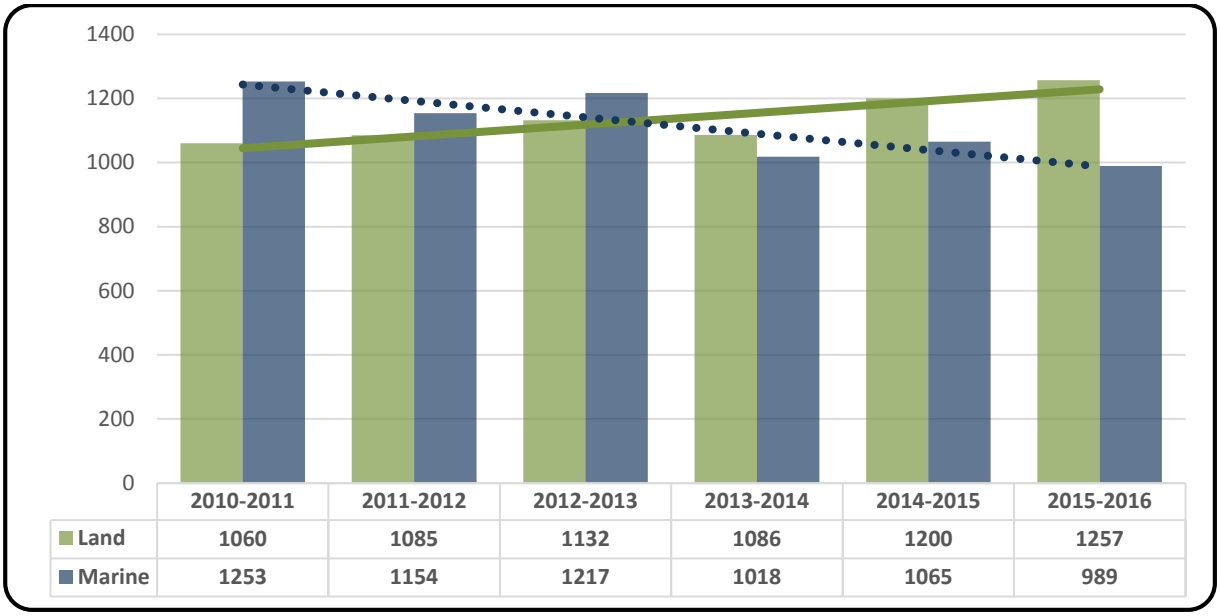
SAR incidents can be broken down by the environment based on the type of activity when the SAR system is alerted (graph 4). The category 'undetermined' relates to distress beacon that have triggered a distress alert, and then cease transmitting. These are usually inadvertent alerts, but the SAR system treats these as genuine alerts until it is apparent there is no one in a distress situation. There was an 85% increase in the number of undetermined distress beacon alerts, with 157 compared to 85 last year. This can likely be attributed to the initial testing of the MEOSAR system that commenced during the year.



	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Air	275	270	242	266	247	229
Land	1060	1085	1132	1086	1200	1257
Marine	1253	1154	1217	1018	1065	989
Undetermined	53	50	89	89	85	157

Graph 4: SAR Incidents shown by Environment

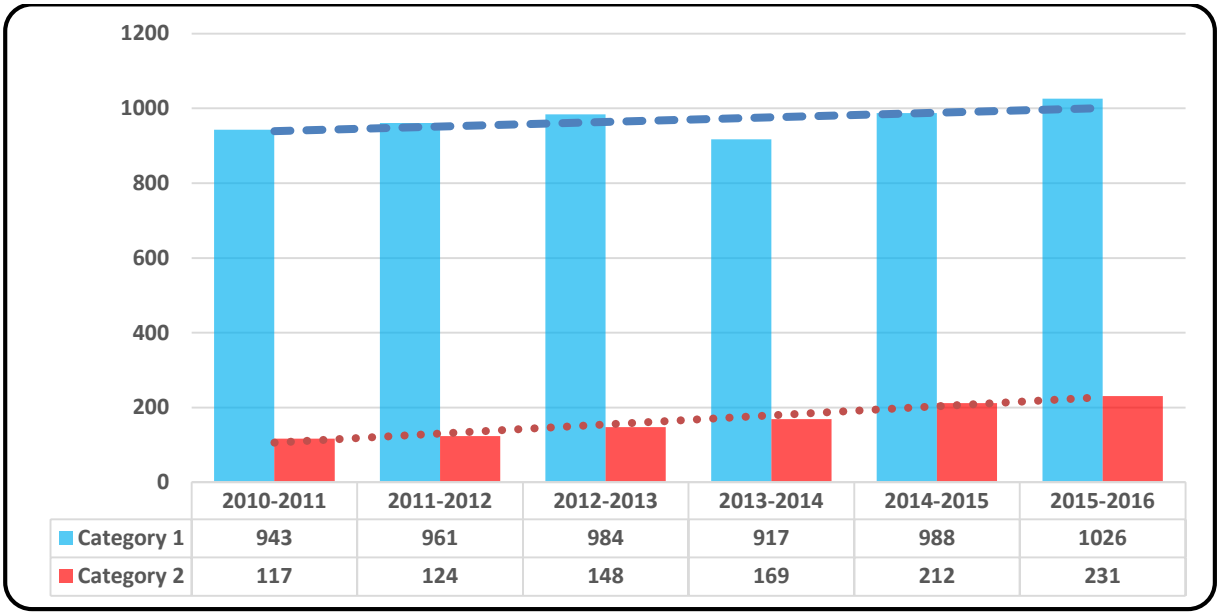
There is a noticeable trend in the land and marine SAR incidents over the last six years. While the total number of SAR incidents has remained steady, there has been a decrease in the number of marine incidents and an increase in the number of land incidents during this time (graph 5).



	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Land	1060	1085	1132	1086	1200	1257
Marine	1253	1154	1217	1018	1065	989

Graph 5: Trends of Land and Marine SAR Incidents over time

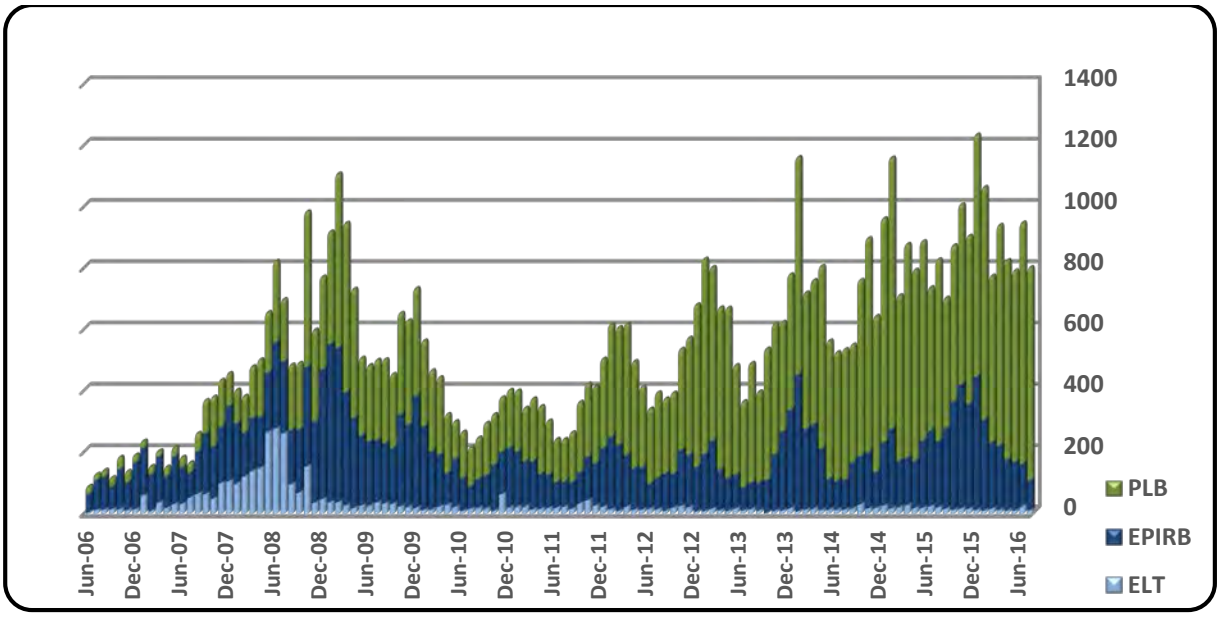
The increase in land incidents has occurred in both category 1 and category 2, though not to the same extent across both categories (graph 6).



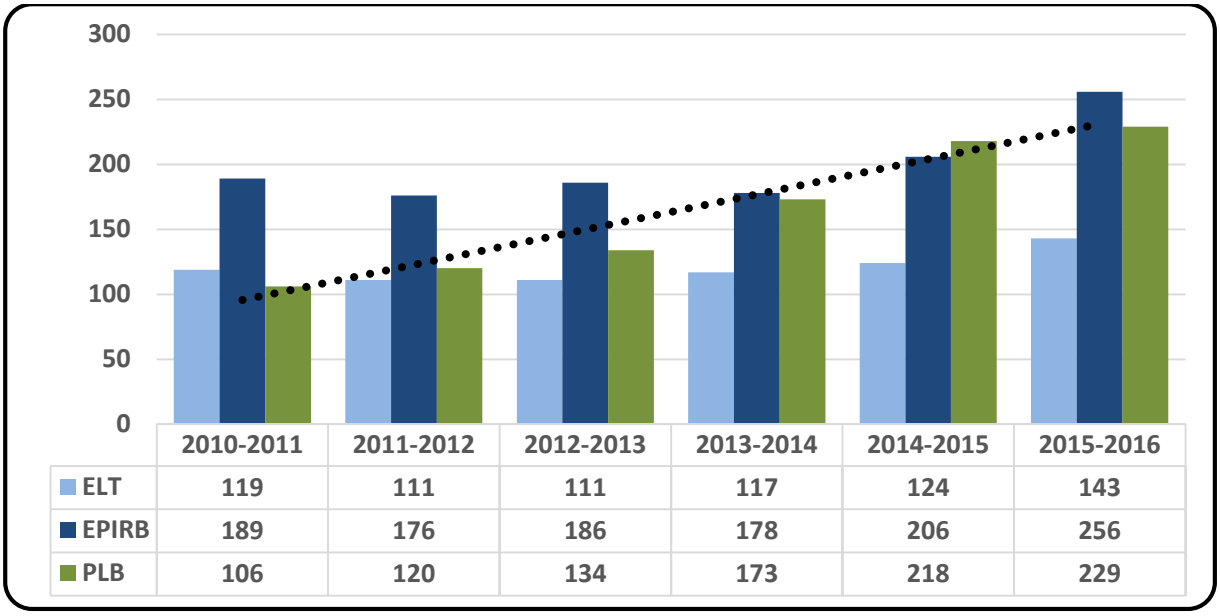
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Category 1	943	961	984	917	988	1026
Category 2	117	124	148	169	212	231

Graph 6: Trends for land incidents by SAR Category

The main increase in category 2 land incidents has been driven by the increase in Personal Locator Beacons (PLB) that have been registered with RCCNZ (graph 7). Currently there are 39,640 registered PLBs. This large increase in PLB ownership has corresponded with an increase in PLB distress alerts being received by RCCNZ (graph 8); however it should be noted that the increase in PLB alerts is very modest when compared to the increase in PLB registrations.



Graph 7: Distress Beacon Registrations – shown monthly



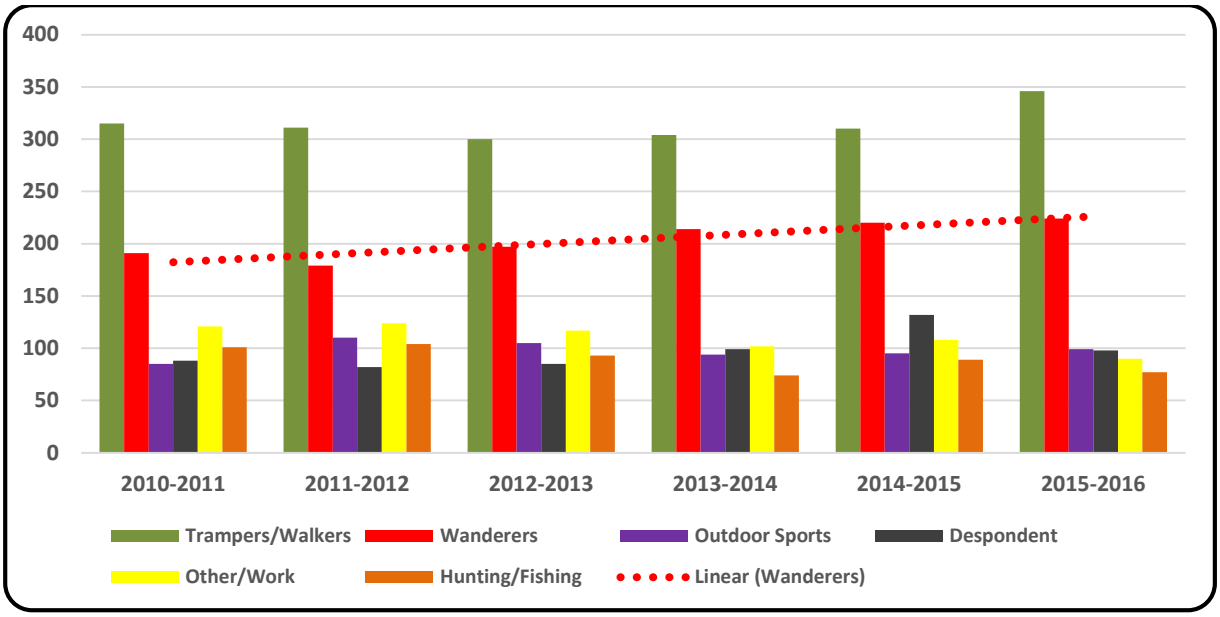
	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
ELT	119	111	111	117	124	143
EPIRB	189	176	186	178	206	256
PLB	106	120	134	173	218	229

Graph 8: Distress Beacon Alerts – trend line showing increase in PLB alerts

An initial analysis of category 2 land incidents (limited to those within New Zealand) shows that 69% of the alerts are for people participating in tramping, hunting, or outdoor sports related activities.

Prior to the prevalence of PLB ownership, these types of incidents would typically have been category 1 SAR incidents. Therefore as category 2 land incidents increased, we would expect to see a corresponding decrease in category 1 land incidents – however there has been a gradual increase in category 1 land incidents (as seen in graph 6).

Police capture information about the behaviour of people involved in category 1 land incidents. These subject behaviours have been collated into six main categories of subject behaviour (graph 9), which can be analysed to show the increase in category 1 land incidents.



Graph 9: Subject Behaviours – trend line added for 'Wanderer' category

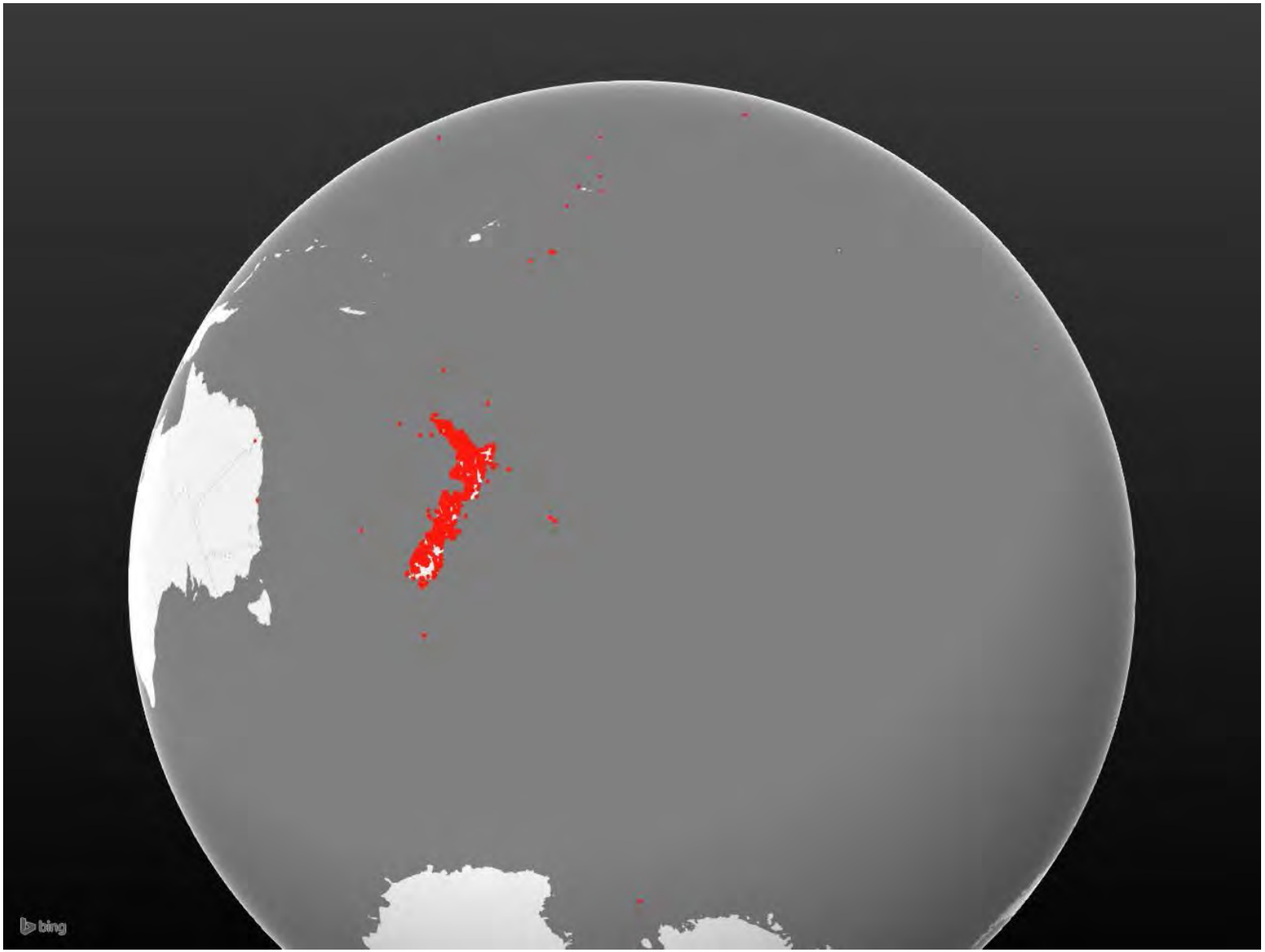
Over the last six years there has been a slow but steady increase in the number of category 1 land incidents for people in the 'Wanderer' category (also see Map 9). These are dementia related illnesses, autism spectrum disorders, intellectual impairment, and missing children.

We expect this trend to continue as the New Zealand population continues to age, and therefore it is expected the number of people with dementia related illnesses will increase. LandSAR NZ is leading the implementation of the Wander Framework to respond to the expected increase in this type of land incident.

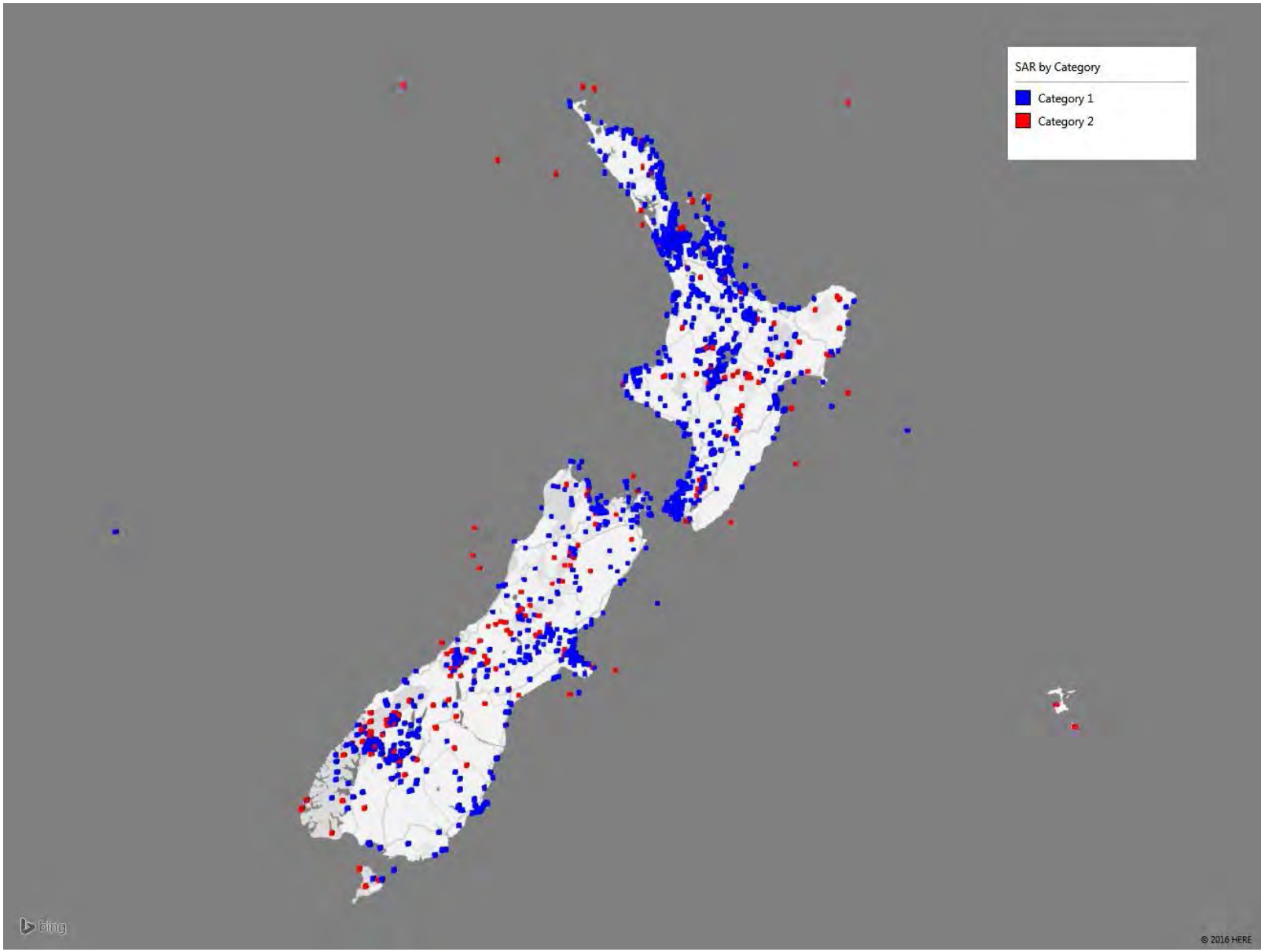
Maps

The following pages contain a series of maps illustrating SAR activity for the 2015/16 year (excluding category 2 incidents that were resolved by communications only).

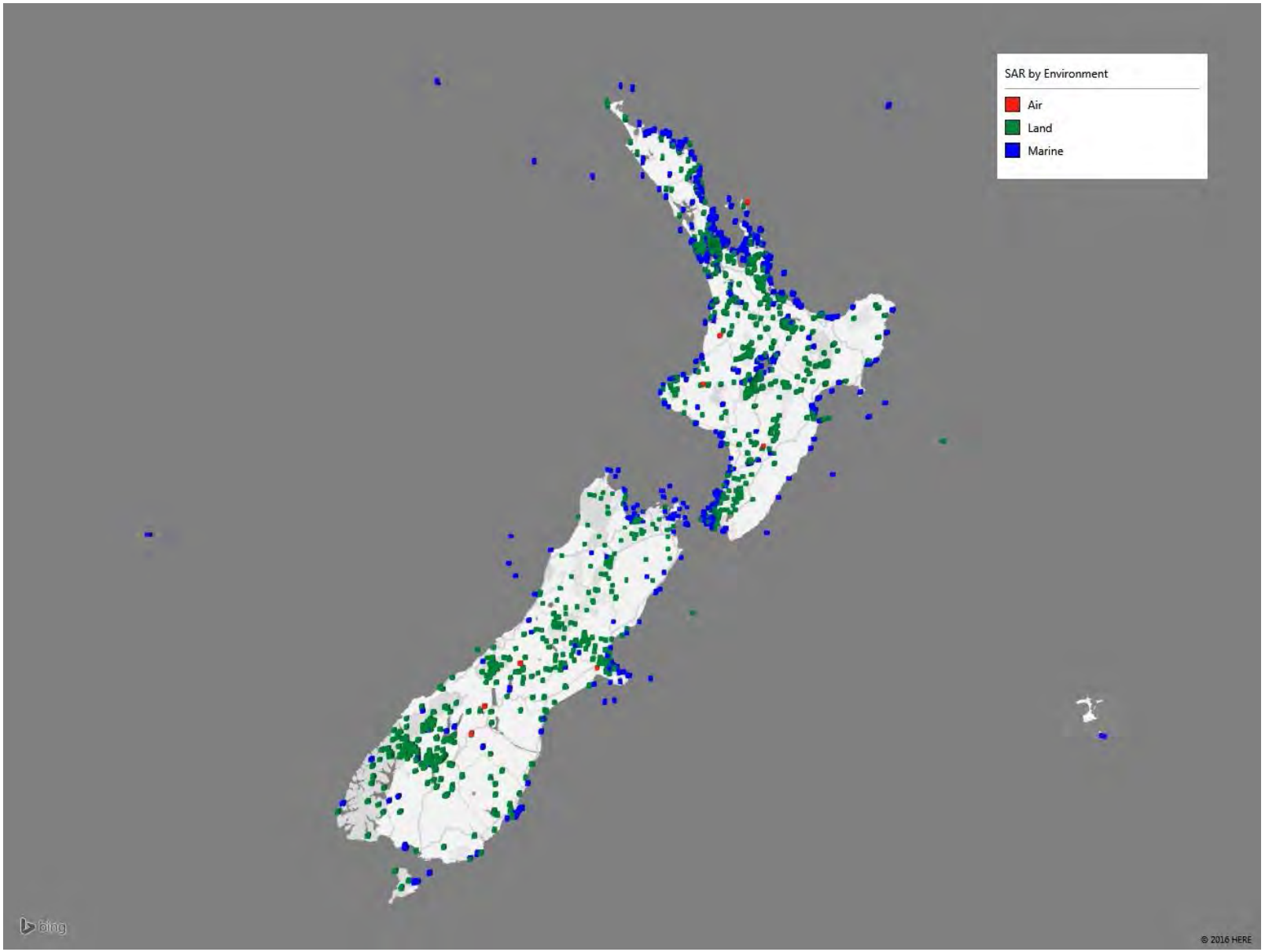
Carl van der Meulen
Senior Advisor
New Zealand Search and Rescue



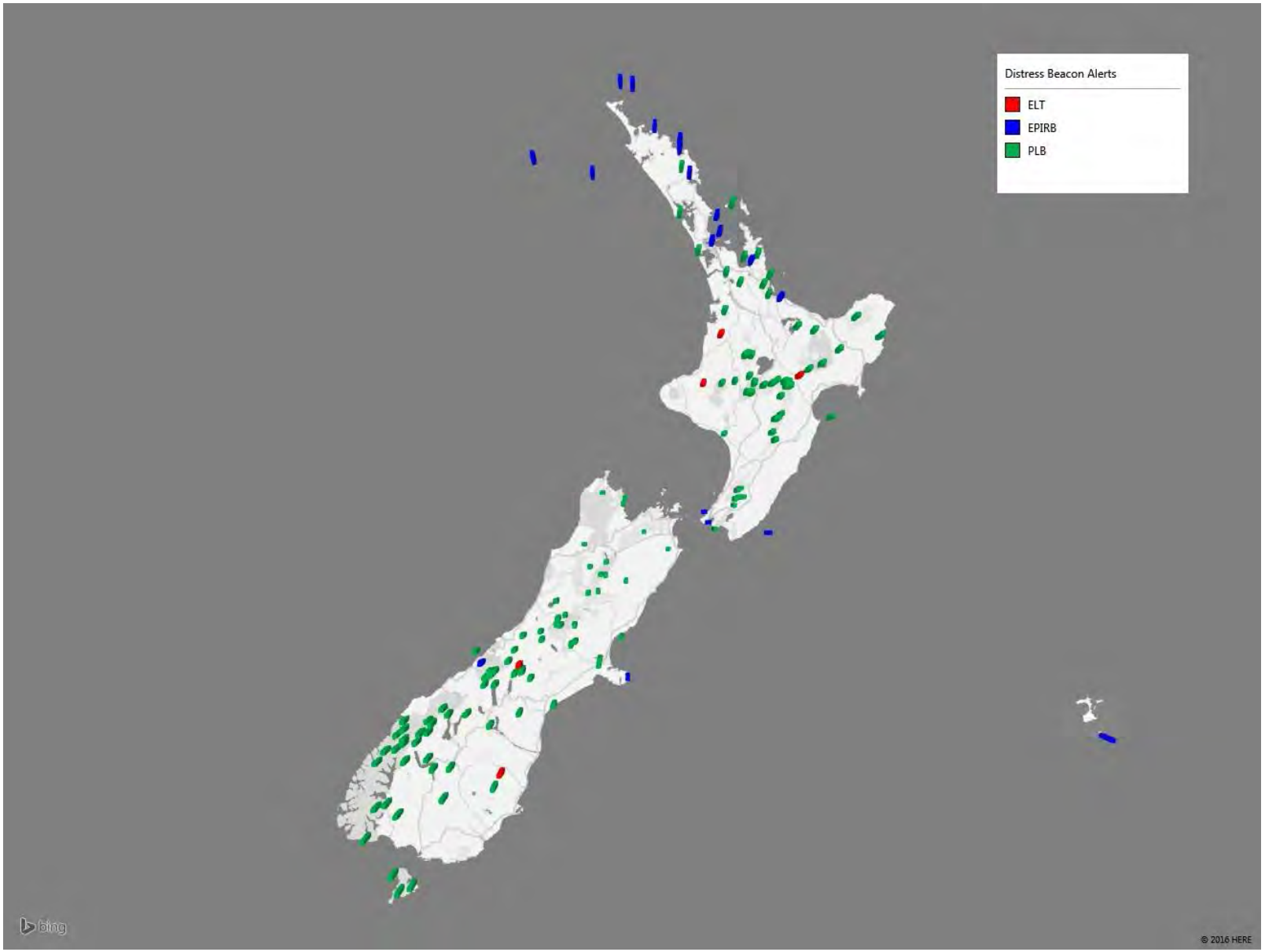
Map 1: SAR Incidents requiring taskings – note the incident in the Ross Sea



Map 2: SAR Incidents by Category (Police = Category 1; RCCNZ = Category 2)

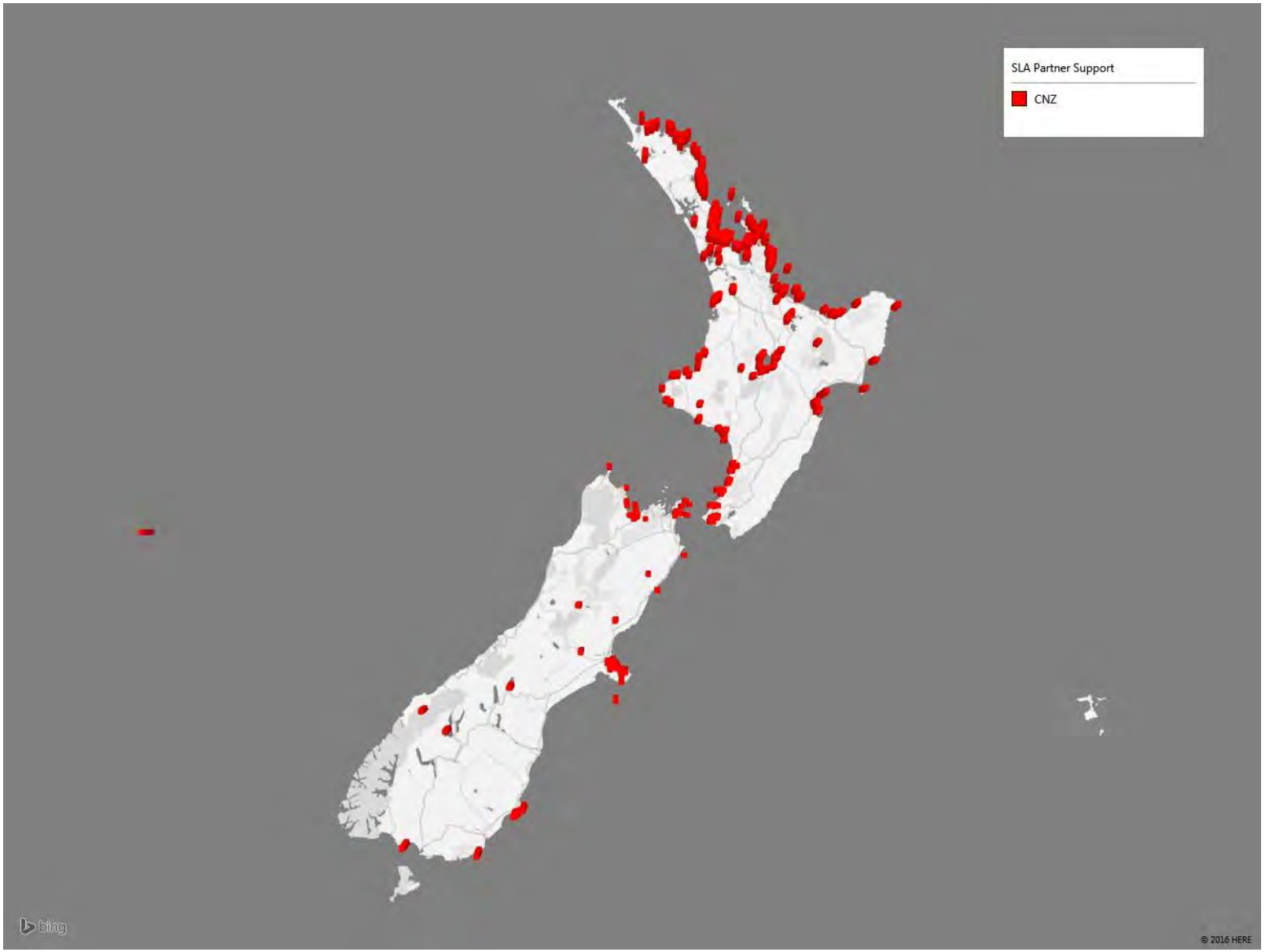


Map 3: SAR Incidents by Type of Environment

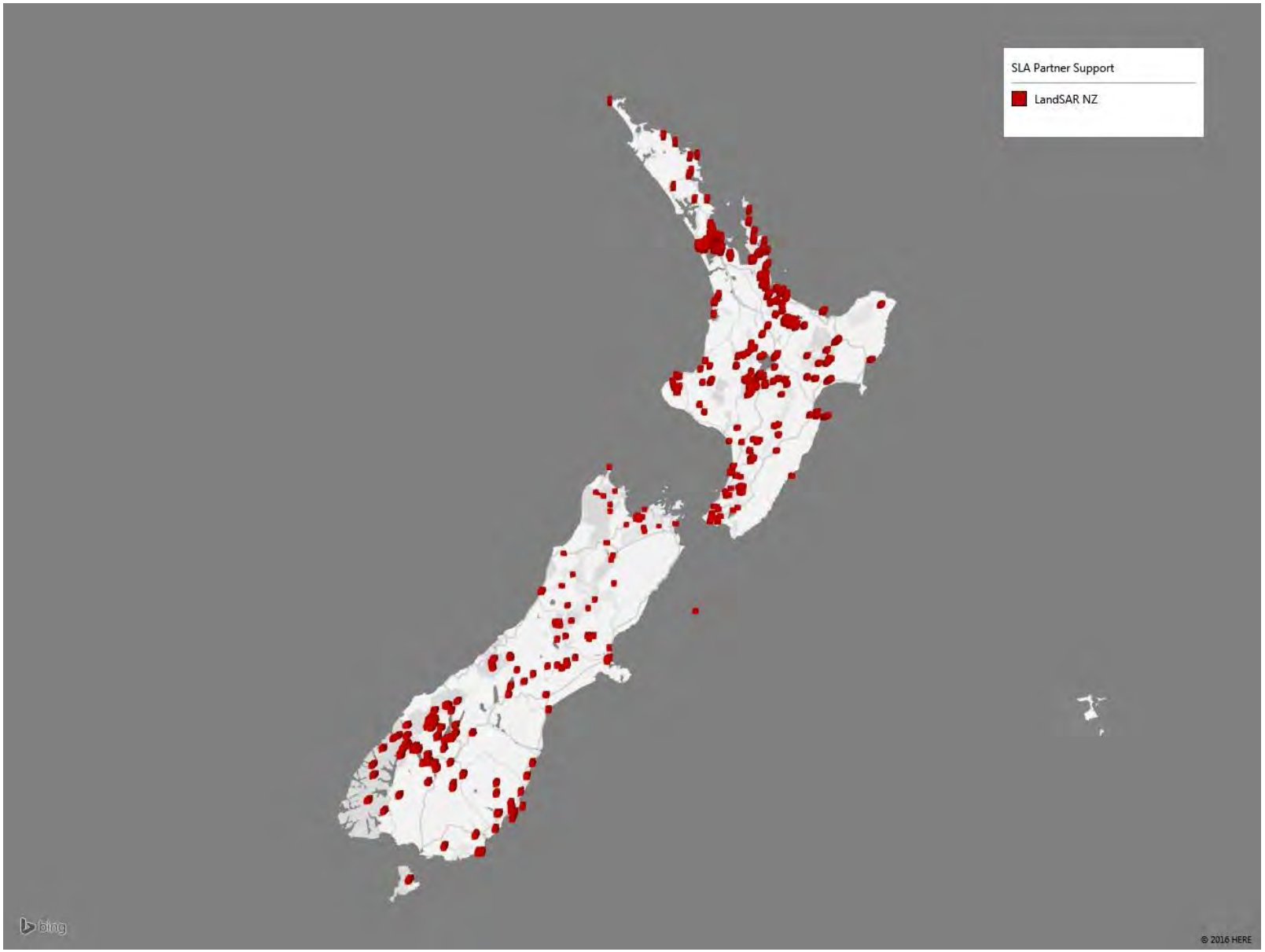


Map 4: Distress Beacon Alerts

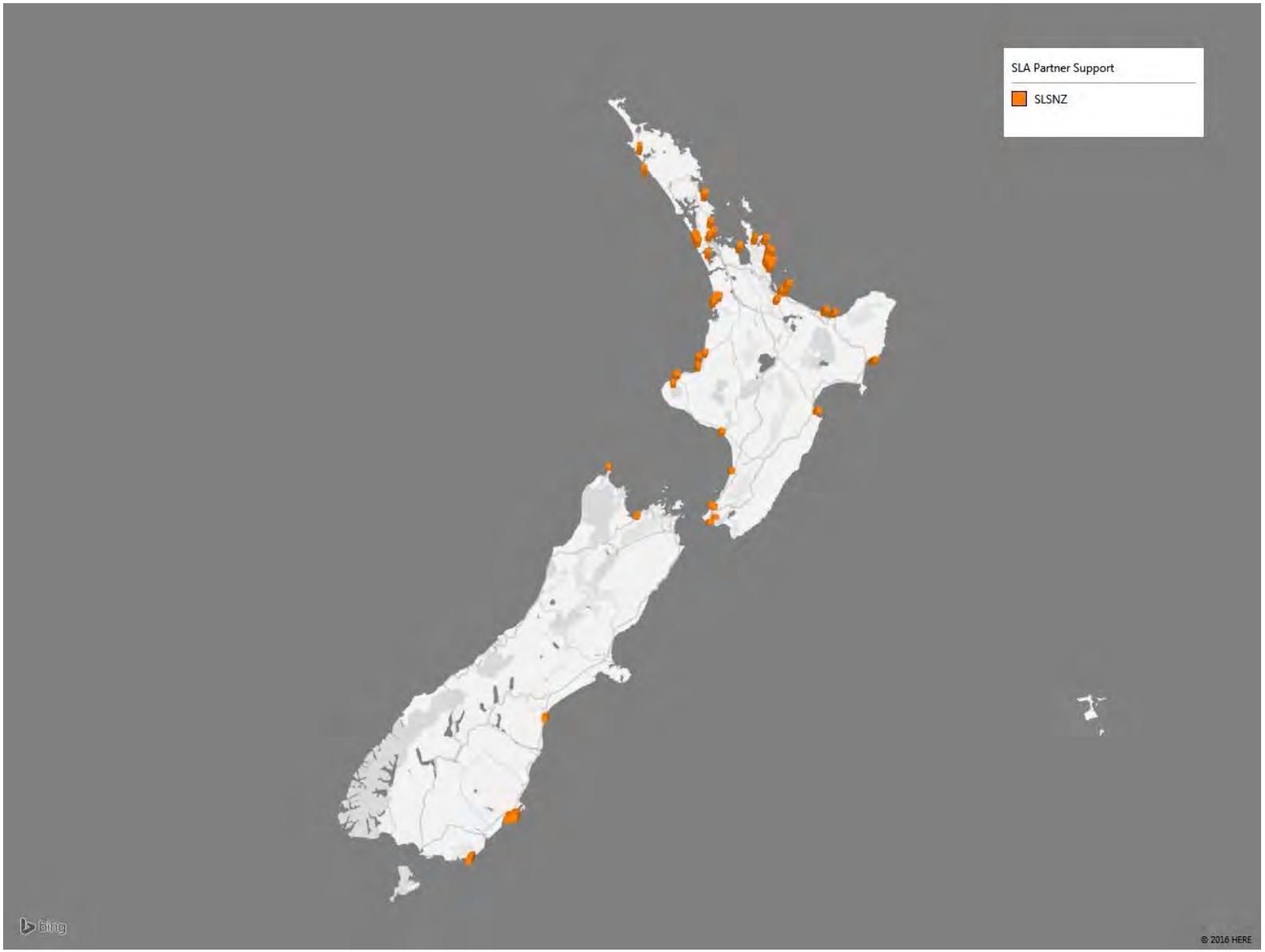
Map 5: SAR Incidents supported by AREC



Map 6: SAR Incidents supported by Coastguard

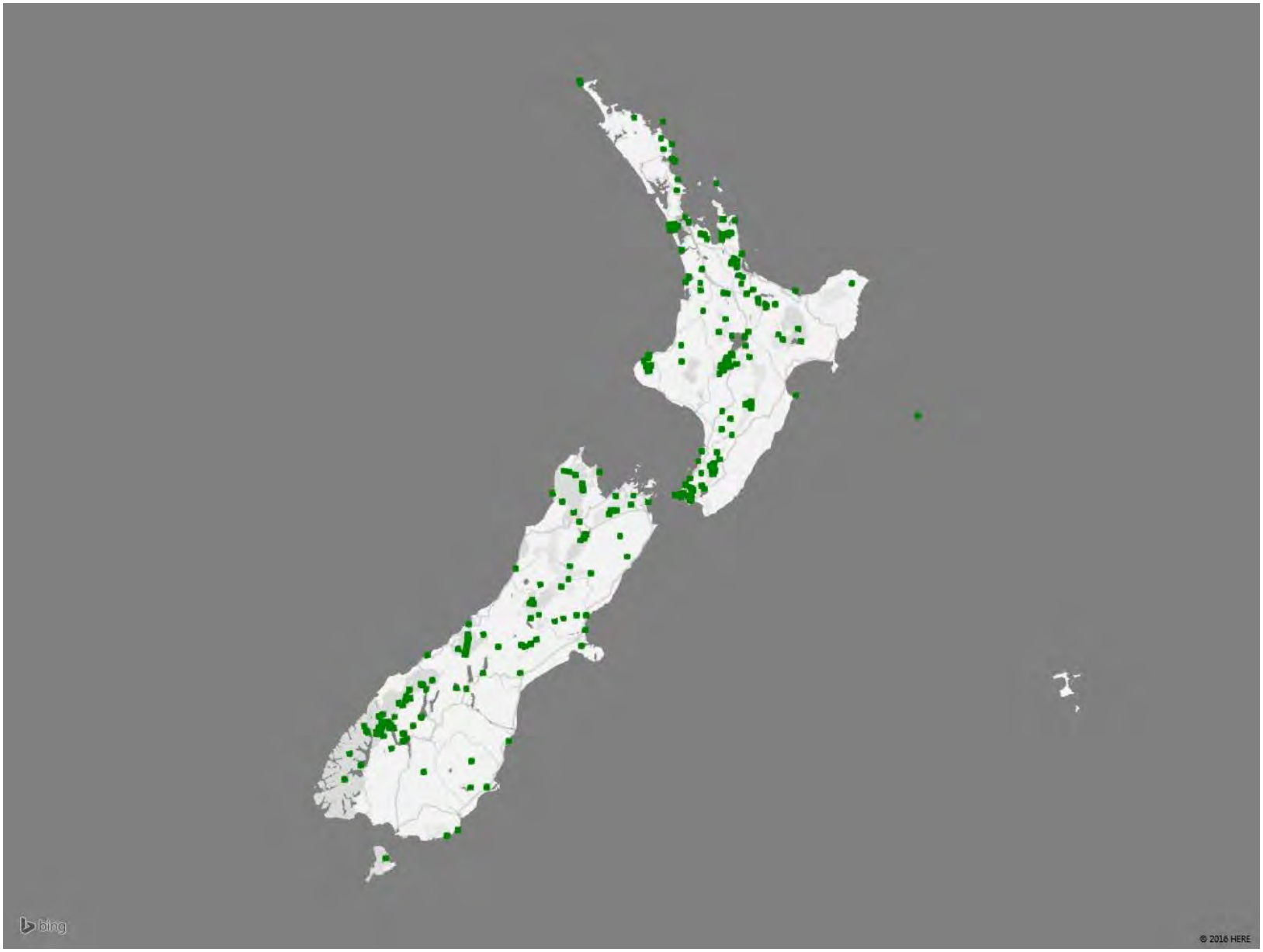


Map 7: SAR Incidents supported by LandSAR



Map 8: SAR Incidents supported by SLSNZ

Map 9: Land Incidents for Wanderers



Map 10: Land Incidents for Trampers & Walkers

NZSAR 2-2

23 August 2016

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 August and September 2016 is contained below.

Ambulance NZ

Nil report

Antarctica NZ

Nil report

AREC

AREC has updated their internal Health & Safety policies.
AREC is testing the Long Range Digital Radio (LRDR) for suitability and practicality of deployment on SAR operations.

Coastguard NZ

Planning for the VHF changes is progressing well with the project being ahead of schedule and significantly under budget.

SLA funding review submitted – now awaiting outcome.

Coastguard Annual Conference is scheduled for the weekend of 15/16 October at Wairakei Resort, Taupo.

Completion of our latest Coastguard Rescue Vessel for Whangaroa is nearing completion and sea trials start this week.

Department of Conservation

During 2016-2017 financial year the Department plans to continue our visitor safety improvement project across public conservation land. The prioritised work for this next stage will comprise of:

Implement policy and standard operating procedures through development of hazard analysis process within the Departments existing asset management system.

Improvement of quality, consistency and reach of safety information. This will cover identifying avenues to communicate consistent safety messages to visitors and plan to align Department systems to leverage these avenues.

Initiate review of merits of quantitative analysis at high profile sites which also have high natural hazards. A pilot has been undertaken at Tongariro Alpine Crossing to assess level of risk and management of that risk.

Working with others in the sector for greater success. Examples include: **Avalanche** Support and advice for Mountain Safety Council on pre-season, during, post season assessment. **Mountain Weather Forecast** The tender process is underway with request for tender closing middle of September. **Insights** Provision of data and advice on analysis and presentation to Mountain Safety Council's there and back insights project.

Organisation and Staff changes

The national team that advises and improves DOC's systems and process in relation to visitors has taken on additional roles and responsibilities. The unit is now called Recreation, Tourism and Heritage. Gavin Walker has been permanently appointed in the position of Director, Recreation, Tourism and Heritage.

Tinaka Mearns continues on secondment as Tourism Manager covering Richard Davies' visitor safety responsibilities until October 2016.

Don Bogie has transitioned roles to become a Senior Advisor in the Business Assurance team providing assistance and advice with risk management.

LandSAR NZ

Operations:

During the period 1 April to 30 June 2016 the number of SAROPS that LandSAR was involved in (108) remained similar to the number from the previous year for the same period (113). However the total volunteer hours expended, increased significantly from 34,238 in 2014/5 to 45,029 this year, a 31% increase.

Quarter 4	2015/16	2014/15	2013/14	2012/13	2011/12
Number of SAROPS	**108**	**113**	**64**	**53**	**130**
Category 1	**96**				
Category 2	**12**				
Volunteer hours during SAROP	6,991	4,668	2,936	6,221	10,469
Volunteers used during SAROP	956	868	485	567	782
Number at risk:	**216**	**164**	**87**	**68**	**225**
Lives saved	23	12	11	14	11
Rescued	90	60	45	48	83
Persons assisted	68	79	32	14	115
Perished	23	7	5	4	15
Not located (Missing)	12	6	5	2	2

Support Activities:

The total amount of support effort (non-operational) in Quarter 4 in 2015/16 was 8,475 hours up 10% from the previous year and the highest over the 5 years reported.

Quarter 4	2015/16	2014/15	2013/14	2012/13	2011/12
Time attending meetings	4,278	3,758	2466	2128	2499
Secretarial Admin duties	1,310	1,397	1053	953	737
Commercial and media (finance admin)	697	566	1322	1041	847
Other Administration	2,190	198	2051	2937	3839
Total Admin support effort	**8,475**	**7,710**	**6892**	**7058**	**7921**

Training consumed by LandSAR volunteers (hours):

Total Volunteer hours involved in training activities during the 4rd quarter of 2015/16 increased by 35% from the 4th quarter high of 2014/15. The uptake of SARACE funded training in this period continues to be significantly higher than in previous years.

Quarter 4	2015/16	2014/15	2013/14	2012/13
Training Preparation & Planning (Internal, External & SAREX)	1,470	1,417	4515	6743
Training Internal (Local/Regional Courses)	9,168	6,122	7140	15,173

Training External (including both SARACE and refresher/continuation training)	13,732	8,941	905	1407
SAREX	5,193	5,380	6215	5486
Total Training	**29,563**	**21,860**		

Organisational Initiatives:

The focus of effort in the 4th quarter of 2015/16 has been on:

- The review of the LandSAR Strategic Roadmap, including a meeting with stakeholders in June 2016
- Planning for the AGM and Conference on 28 July 2016
- Continuing development and refinement of the LandSAR Safety Management System
- Induction workshops to accredit more LandSAR Competency Assessors

Maritime Operations Centre

SOLAS activity

The normal winter quiet period has seen only 203 Maritime Incidents since April.

MOC Anywhere

Kordia has been trialling a portable solution for the MOC. The technology used by the MOC was designed for future use in event of natural disaster - in that the MOC itself should not be a single point of failure.

To date the MOC anywhere concept has been trialled on a Laptop and has proven to be an effective moveable disaster recovery option. In addition to being able to move the MOC at short notice in future, the platform can also include other networks if required.

Taupo Maritime Radio/ZLM - August snow storm damage.

Significant antennae damage was sustained in the August snow storms on the North Island central plateau and ZLM did not escape this damage. The site affected was ZLM's transmitter site "Matea"

The two spiracone antennas' sacrificial clips gave way under the weight of ice build-up and required significant rigging by Kordia tech to restore. The clips are designed to give way at a certain loading thus saving the antennae and masts from permanent damage.

This is the first time in 23 years (since the start off the MOC) that ice build-up has been significant enough to be damaging. The site is now fully restored although still running on Generator whilst we await mains power restoration.

Ice damage

Repaired spiracone

Mountain Safety Council

Nil report

NZDF

NH-90

23 May 2016 – 1 x NH90, 38 4WD pers stuck on mountain range IOV Roxburgh near Alexandria. NH90 forward deployed to Roxburgh, however the weather did not allow a helicopter rescue of pers and they were retrieved by 2 x SNOWCAT tracked vehicles. 12 total hours

5 June 2016 – 1 x NH90, Hunter separated from party Tararua Ranges IVO Levin. NH-90 tasked to transit from Ohakea - Levin to collect and infil search teams, began searching and located hunter in clearing. Hunter was winched and returned to SAR base. A number of search members retrieved before NH90 returning to Ohakea. 2.8 total hours

P-3K2 Orion

24 May – SV DIGNITY was reported overdue arriving into Lautoka, Fiji. The Yacht had been seen by the P-3K2 moving slowly on patrol two days prior, which focussed the search area. The SV was located and two occupants reported in good health, a revised ETA for Lautoka was provided. No further action taken. 7.5 hours Flown.

13 June – Whilst on routine NZ EEZ Patrol, a P-3K2 was retasked to investigate a beacon set off by SV Platino. The Yacht had been battered by strong winds and rough seas, during which one crewmember was knocked overboard and another fatally wounded on the deck. The Yacht was located with the remaining 3 POB reported in good health and a search commenced for the man overboard. A second P-3K2 took over until dark. During Day Two, the Yacht was relocated and an RV undertaken with the Merchant Vessel Southern Lily whilst also searching for the Man OverBoard till dusk. 3 POB were successfully rescued by the Southern Lily. The SV Platino was subsequently towed back to NZ with deceased onboard, and no sign of the ManOver Board. 22.5 Hours Flown over two days.

28 June – A routine P-3K2 tasked flight in the Pacific was retasked to search for a 40 Ft Wooden Boat travelling between Nukualofa and Fonofifua Islands, Tonga. A 100% coverage of the search area was conducted, looking for the vessel with 11 POB. The aircraft focussed its search on the open water away from the many island groups while local helicopters and search vessels searched around the islands. While the P-3K2 was refuelling in Tonga the vessel was located in the northern island group and under tow back to Nukualofa. The aircraft returned back to NZ on its original task as planned. 10.9 Hours Flown over one day.

Total: 3 SAR Missions over 4 days, 40.9 hours flown

NZFS

Nil report

New Zealand Helicopter Association / Aviation NZ

Nil report

Police

SAR Statistics

In the reporting period from April to June 2016, 339 Category I incidents were reported - 232 Land and 107 Marine. This represents a decrease of 42.5% from the last quarter (590>339) and also a 15.8% decrease from the same period in 2015 (403>339).

SAR Coordinators workshop

Police SAR coordinators from around the country met in New Plymouth after the LandSAR Conference for the annual Coordinators workshop; the agenda included Sector updates from partner agencies and a Case Study Forum. A range of case studies were selected where the presenters shared ideas and lessons identified from their operational experiences; this proved to be a very valuable forum which will hopefully be repeated annually.

SAR Managers Course

12 Police and 8 volunteers attended the 2016 course at the Police College in June. The course received positive feedback from all attendees.

Sgt Mick Wear from Western Australia evaluated this year's course; Mick has previously been the director of the Australian National SAR Managers course, and his feedback will be used to further improve the course and keep it in line with Best Practise.

A workshop is scheduled for September to work on improvements for the 2017 course. An invitation has subsequently been extended for a NZ SAR Trainer to assist with the delivery of the Australian Course.

Mass Rescue exercises

Following on from the series of inter-agency exercises last year, Rauora II will consist of 4 tabletop exercises designed to test each District's Mass Rescue Plan. Dates have been set for October 2016 and February/March 2017.

SAREXes – NZSAR-funded

Most dates for the 2016-2017 District SAREX programme have been confirmed including a projection of NZSAR funding for these events. These can be found on the NZSAR website calendar.

Staffing update

Applicants are being interviews shortly for the vacancy left after the retirement of Inspector Joe Green in January 2016.

RCCNZ

Highlights from the last quarter:

The last quarter of 2015/16 has been busy for RCCNZ with the following key highlights: The formal opening of our new premises at Avalon Studios by the Minister of Transport in June

Completion of the MEOSAR system build, with MEOSAR data now supporting our coordination activities; and contract finalization for the build of two new GEOSAR antenna on the same site (replacing our existing GEOLUT which is beyond end of life). Graduation in May for our two new SAROs Nick and Andrew.

Our Core Business:

Incident breakdown by environment type, April – June 2016:

		Sea	Air	Land	Unknown	Quarter
CAT II	SAROP involving tasking	15	2	35	1	53
	Resolved by comms action	58	49	32	57	196
CAT I	Active involvement by RCCNZ	3	0	1	0	4
	SAD Produced by RCCNZ	2	0	0	0	2

	Active involvement & SAD	0	0	0	0	0
Other SAREX'S/ MAS/ Medevac	Operation involving tasking	1	0	0	n/a	1
	Resolved by comms action	1	0	0	n/a	1
Total (Quarter)		80	51	68	58	257

People Involved in incidents for the Quarter	
Number at Risk	872
Lives Saved	9
Lives Rescued	57
Lives Assisted	51
Perished	5
Not Located	0
Self Assisted	750

Beacons

Beacon alerts made up 80% (206) of all incident alerts.

- About a third of these were resolved to other Search and Rescue Regions (65)
- With the new MEOSAR data, a greater number of undetermined alerts are being received 17% (35).

Of those that were activated in the NZSRR:

- about 37% were real distress situations (52), and one was deliberate with questionable need for a SAROP
- the remainder were inadvertent or false activations.

Our Work Programme:

Throughout this year, RCCNZ has a busy work programme supporting the development of SAR capability with our pacific partners in collaboration with MFAT: trips have already been undertaken to scope out SAR related needs and deliver SAR training and other capability building activities in Kiribati, Niue, and the Cook Islands, RCCNZ is also visiting Samoa, American Samoa, Tonga and Tuvalu this year.

RCCNZ has visited Fiji and hosted their SAR leaders as we seek to support them and enhance collaboration

RCCNZ has taken the Chair role for the Secretariat of Pacific Community SAR Working Group, and is hosting the next SPC SAR conference, to be held in Auckland in early 2017

RCCNZ has also begun work on reviewing our distress beacons registration system, to ensure this is sustainable, effective and efficient into the future.

In anticipation of the International Civil Aviation Organisation (ICAO) audit of New Zealand's aviation SAR capability in December, RCCNZ is working with CAA to prepare responses to the Compliance Checklist. In the 2006 ICAO audit many of the criticisms of New Zealand's arrangements related to the lack of an independent SAR Inspectorate. This role is being discussed with ICAO and it is likely that it will be able to be considered a function of the CAA audit team.

SLSNZ

SAR Operations:

The period April to June 2016 (Fourth quarter) has seen Surf Life Saving involved in six (6) Category 1 Search and Rescue Operations (Table 2-1). The operations led to four (4) people being saved, four (4) people being rescued. Surf Life Saving provided over 21 hours service as part of official Search and Rescue operations totalling 189 personnel hours for the quarter.
Category 1 Search and Rescue Operations occurred in two Police Districts during the fourth quarter, namely: Canterbury and Waikato.

Search and Rescue Operations: Fourth Quarter	
Category 1 Search and Rescue Operations	6
Category 2 Search and Rescue Operations	0
Lives saved	4
People rescued	4
People assisted	0
Perished	0
Other incidents	1
Unknown	0
Search and Rescue Operations: hours	7
Search and Rescue Operations: personnel	21
Search and Rescue Operations: total hours	189

SLSNZ Operations:

This period April to June has been very quiet time of year for Surf Life Saving services; due to the tail end of the lifeguarding season and on into the winter months. The ideal conditions that lead to one the busiest summers for SLSNZ came to a very abrupt end with an extremely cold snap that coincided perfectly with the last week end of most of the volunteer surf patrols around the top of the country.

Even with the abrupt change into the cooler weather our members have still been kept busy with a number of searchers and rescue.

In addition to the Category 1 Search and Rescue Operations listed above (and detailed in the Appendices), surf lifeguards rescued (27) people, treated (17) members of the public for injuries, conducted a further 4 searchers and assisted 1786 people through preventative activities (i.e. educated on rip currents and advised to swim between the red and yellow flags). Surf Lifesaving services amassed over 993 hours patrolling the beaches, attending incidents and providing other services where required.

Surf Life Saving Operations: Fourth Quarter	#
People rescued	27
People treated (first aid)	17
Number of Searchers Carried out	4
Surf Life Saving Operations: hours	993

SLSNZ Organisational Update:

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

- The Bay of Plenty // Coromandel Communications Network is near completion, and is operational covering an area from Maketu to Onemana.
- The Capital Coast Communications Network is underway, and will be completed in time for the 2015/16 off season. The Central Wellington clubs and the Wellington south coast will be operational in September. The Kapiti Coast will be developed next subject to funding.
- The Southern Region Network is beginning to be developed; the Christchurch and Otargo clubs have been issued their terminals and both are working through 1 repeater. The next phase is to install at least 1 more repeater in each area to increase the coverage and ensure a level of redundancy within the systems.
- The remaining clubs still using only VHF sets are seeking funding to replace out their old technology with the new when funding becomes available. SLSNZ is developing a Strategy document to help guide the clubs when purchasing future communications equipment.
- Work is now being carried out looking to develop strong data links between the communications network and the Life Guard Data Management System.
- During the winter months the clubs emergency after hours call out squads ECOS step up their training along with the training of most of the new IRB crews .This creates less disruption to summer patrols with essential assets being used for training as well as during winter there is far less public in the water where the training will take place. Exercises involving NZP and NZSAR interagency training will include training operations in Napier, Western Bay of Plenty and Waikato.
- SLSNZ has entered into a partnership with a IT company to undertake quantitative research on a number of prominent rip currents around the country. Using an existing peer reviewed international recognised methodology the aim of the project is to gain information on inshore current directions both on top of the water column and the benthic currents (the sea floor) where bodies are thought to drift once the person is deceased. It is hoped the information generated will assist in the current calculations already in use when developing search determination estimates. The Waikato University is also assisting the project with some of their Hydrology staff and equipment. The initial results will be made available to the community as soon as they become available.
- SLSNZ through their regional offices are rolling out small scale trials for WRC Water Rescue Craft (Jet Skis), most likely into Christchurch, Wellington and Tauranga. Following the successful testing of the capability in the Northern Region and Australia through the development of SOP's and availability of more durable craft, SLSNZ believes it is time to trial the adoption of the technology. The two phased deployment will be initially focused on mainly training this coming season with some units becoming operational once a required standard has been reached. If successful the second phase will be "Full Operation" being aimed for the 2017-18 season along with further acquisition of the resources where required.

WSNZ

Jonty Mills has been appointed Water Safety New Zealand's new Chief Executive, and began work on 1 August 2016.

Drowning statistics as at 19 August 2016

- There have been a total of 51 drowning deaths within New Zealand in the year to date.
- Of these, 40 (78%) are considered preventable. At the same time last year, 54 (73%) were considered preventable.
- There have been a total of 539 drowning deaths within New Zealand for the five year period 1 January 2011 – 31 December 2015.We have some 174 drowning related hospitalisations per year.

Drowning continues to be the fourth highest cause of accidental death in New Zealand.

WSNZ estimates that over ten years the cost of drowning deaths and injuries to New Zealand is in the order of $4.79 billion.

WSNZ's annual Funding Programme has been concluded, with some $1,535,000 being distributed to 24 organisations, for drowning prevention interventions that deliver to the goals of the New Zealand Water Safety Sector Strategy 2020. The Programme was over-subscribed by some 84%. In 2015 – 16 $1,576,359 was distributed to 28 organisations through the Funding Programme.

New Zealand Search and Rescue

16 September 2016

NZSAR RISK MATRIX

Risk #	Risk Description	Reasons or Causes	Consequences	Likelihood	Impact	Risk Level (reviewed)	Risk Treatment(s)	Post Treatment	Comments/Examples
2016/01	**SAR Information** Search and rescue information is inadequate or unreliable 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. Insufficient focus is placed on the analysis of existing data. 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. 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.	Certain	Moderate	(May 14)	**Risk treatment 2016/01/A: SAR Data Standard** In consultation with operational SAR agencies, develop and document an agreed SAR data standard for collection, collation and analysis.		Changing patterns in, for example, society, demographics, tourism, recreational activities, participation rates and technology is likely to impact on SAR needs and resources.
						(May 14)	**Risk treatment 2016/01/B: Data exchange and storage** Establish and maintain a single repository for all SAR data.		
						(May 14)	**Risk treatment 2016/01/C: Data analysis** 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.		
						(May 14)	**Risk treatment 2016/01/D: SAR Operational Analysis** Conduct an operational analysis of SAR need mapped to SAR resources. Assist SAR providing agencies to reshape their organisations to match proven SAR need.		
2016/02	**SAR funding** 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 2016/02/A: SAR Funding** Maintain an overall SAR funding picture. Work with other key SAR funders to sustain adequate supply. Maintain adequate PLA funding to meet Council goals.		
		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 2016/02/B: Funded SAR SLAs** Continue to support key SAR providing agencies with appropriately funded three year Service Level Agreements.		

Risk #	Risk Description	Reasons or Causes	Consequences	Probability	Impact	Risk Level (reviewed)	Risk Treatment(s)	Post Treatment	Comments/Examples
2016/03	**Cohesive and effective SAR Training** The SAR sector's training is largely conducted within organisational silos and is not united by collectively agreed doctrine.	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. Continuation or refresher training is often absent allowing skills to degrade over time Search management arrangements and skills can be deficient resulting in inadequate search effectiveness and potentially external investigation and/or criticism.	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. These factors can contribute to deficient SAR services, inefficiencies and potentially avoidable loss of life. 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	(Sep 16)	**Risk treatment 2016/03/A: Suitable individual SAR skill acquisition training is available, funded and sound.** 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.		
						(Sep 16)	**Risk treatment 2016/03/B: Collaborative SAR training and exercising** Undertake cooperative and collaborative training, exercising and relationship building.		NZSAR supports the conduct of Police District SAREXs and the Raoura Mass Rescue Exercise series
						(Sep 16)	**Treatment Option 2016/03/C:** 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.		
						(Sep 16)	**Risk Treatment 2016/03/D: Continuation/Refresher Training** Encourage all SAR agencies to plan and undertake continuation or refresher training in order to retain skills and maintain engagement with SAR.		Continuation or refresher training is the responsibility of the SAR sector as an "industry".
						(Sep 16)	**Risk Treatment 2016/03/E: Revalidation** Work with Police to develop a SAR coordinator revalidation system.		
							Risk Treatment 2016/03/F: Incident Review Independent review of randomly or targeted SAROPs. Use the results to inform and update SAR doctrine and training material		
							Risk Treatment 2016/03/G: Doctrinal Basis Develop and maintain agreed, unified doctrinal documentation for the conduct of SAR in New Zealand		

Risk #	Risk Description	Reasons or Causes	Consequences	Probability	Impact	Risk Level (Reviewed)	Risk Treatment(s)	Post Treatment	Comments/Examples
2016/04	**Volunteerism** 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. • Insufficient numbers of volunteers in the right locations is likely to impact on the safe delivery of effective SAR services. • Volunteer turbulence increases the training burden and inhibits the formation of SAR leaders. • Excessive training demands, poor or infrequent exercises and/or onerous administrative requirements deter people from volunteering and discourage existing volunteers from remaining. • Infrequent utilisation for SAROPs can be dispiriting and discourage long term engagement.	Unlikely	Moderate	(Nov 15)	**Risk treatment 2016/04/A: Maintain good information on SAR volunteers** • Maintain good information about SAR volunteers and their expectations. • Assist SAR organisations with information around recruitment and retention of volunteers to help ensure a sufficient number in areas and types of need. • Ensure administrative requirements are not excessive.		
		Growing public and legal expectations of SAR performance and competence impacts upon the training and commitment levels of SAR volunteers.				(Nov 15)	**Risk treatment 2016/05/B: Support SAR training alignment to the NZ Qualifications Framework (NZQF)** When and where agreed by SAR agencies, NZSAR will actively Support and assist aligning SAR training to the NZQF.		
		Trained SAR Volunteers can be difficult to retain and motivate in areas where little SAR activity occurs.				(Nov 15)	**Risk treatment 2016/04/C: Quality SAR sill acquisition training and exercises** Refer Risk treatments 2016/03. 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
2016/05	**Recreational Knowledge** 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: • Decrease in public knowledge about recreational safety. • Increase in the range of recreational activities. • Little investment in proactive safety message promotion – particularly land, snow and avalanche safety information. • Lack of understanding by inbound tourists about New Zealand's conditions and weather. • Poor 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. • Unacceptable levels of harm to New Zealand residents and foreign tourists. • Harm to the reputation of New Zealand as a tourist destination. • Unrealistic public expectations of the SAR sector.	Likely	Moderate	(May 14)	**Risk treatment 2016/05/A: Ensure the public has access to good quality, consistent safety advice.** Maintain the NZSAR Adventure Smart website (http://adventuresmart.org.nz/) and support the promulgation of consistent sector messaging.		Example - Safety Code material.
						(May 14)	**Treatment option 2016/05/B: Recreational safety - provision of consistent information to the media.** Support the relevant agencies to provide timely information to the media on personal responsibilities and better preparation when undertaking outdoor recreational activities.		
						(May 14)	**Treatment option 2016/05/C: Support domestic safety organisations.** Support the SAR prevention efforts of domestic safety information providing agencies. Encourage and harmonise collaborative action.		Example: Safety Partnership.
						(Nov 15)	**Treatment option 2016/05/D: Develop and implement an NZ Inc Recreational Safety Strategy.**		

Risk #	Risk Description	Reasons or Causes	Consequences	Probability	Impact	Risk Level (Reviewed)	Risk Treatment(s)	Post Treatment	Comments/Examples
2016/06	**Mass Rescue Event** Catastrophic mass rescue event overwhelms SAR capabilities.	New Zealand's SAR sector has very limited capacity to respond to large scale SAR events. New Zealand has a very large SAR region with little or no SAR assets in much of the region. 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. • Severe reputational damage to SAR agencies. • Severe reputational harm to New Zealand as a tourist destination.	Rare	Severe	(May 15)	**Treatment option 2016/06/A: Develop mass rescue policy and plans.** In conjunction with partner agencies, develop appropriate mass rescue policies and plans.		This risk is seen as high consequence but low likelihood. It is mainly controlled by the professionalism of ships officers and pilots together with advanced technology to help navigate such ships.
						(May 15)	**Treatment option 2016/06/B: Conduct regular mass rescue exercises.** In conjunction with partner agencies, exercise the mass rescue plans in all Police districts to validate and refine them. (see also risk treatments for Risk 2016/03)		
2016/07	**COSPAS SARSAT failures** LEOSAR satellite degrade or LEOLUT failure before the MEOSAR system is ready.	• Failure of the NZ LEOLUT prior to the MEOSAR system being accepted into service	• NZ unable to receive distress beacon activations. • NZ unable to assist Australian SRR related beacon activations.	Rare	Major	(May 16)	**Treatment option 2016/07/A: Engage with LEO LUT providers to fix or replace the NZ LEO LUT.** Should this be necessary – it would only likely be necessary for a short period and could be costly.		Existing low-altitude and high-altitude satellites are being replaced by medium-altitude satellites. In 2016-2017 the existing ground station will no longer be reliable and the aviation and maritime SAR capabilities will reduce.
		• Failure of LEO SAR satellites before the MEOSAR system is accepted into service.	• Entire COSPAS SARSAT system rendered partially or totally ineffective.				**Treatment option 2016/07/B: Advance the in-service date for the MEOSAR system.** The MEOSAR system is providing 'data' to RCCNZ via the NZ MEOLUT and AUMCC. This data is being assessed against LEO/GEO and is proving to be very effective and has been used for SAROPs. The risk will further reduce once the AU MEOLUT is providing data to AUMCC.		
2016/08	**Health and Safety** Incident or audit exposes SAR sector health and safety deficiencies.	NZ's H&S regulatory environment is changing. 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 and in the event of an audit or plans to mitigate severely negative H&S incident are: • Exposed to risk of prosecution. • Suffer reputational damage. • Experience an outflow of personnel due to perceived risk. • Experience an outflow of personnel due to excessive H&S process requirements. • Likely to expect significant external pressure / investigation / regulation / over watch following the trigger event.	Unlikely	Major	(Feb 16)	**Treatment Option 2016/08/A: Implement sound H&S processes and procedures** 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 from Jul 2014. 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. A sector based H&S symposium is planned for August 2016.		
		SAR Training, SAROPs and SAREXs often expose SAR people to an array of hazardous environments and situations. The sector is likely to experience a significant H&S related incident at some point.		Rare	Severe	(Feb 16)	**Treatment Option 2016/08/B: H&S incident contingency planning** 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.		

Risk #	Risk Description	Reasons or Causes	Consequences	Probability	Impact	Risk Level (Reviewed)	Risk Treatment(s)	Post Treatment	Comments/Examples
2016/09	**SAR Expectations** 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. 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. Inappropriate SAR sector investment due to a misunderstanding of SAR expectations Members of the public may suffer undue hardship or cause unnecessary cost on the SAR system due to misunderstanding its capabilities and limitations.	Rare Rare Likely	Major Major Moderate	(Jul 15) (Jul 15) (Nov 15)	**Treatment Option 2016/09/A: Advise senior stakeholders of SAR Sector capabilities and limitations** Prepare a briefing note for ODESC and Ministers regarding SAR capabilities and limitations. **Treatment Option 2016/09/B: Advise media stakeholders of SAR Sector capabilities and limitations** 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. **Treatment Option 2016/09/C: Undertake a benchmarking survey of SAR expectations** Engage with the public on occasions to ascertain what their expectations of SAR are and measure trends in expectations.		
2016/10	**SAR Technology** 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. 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. Non compatible technologies may hinder our capacity to collaborate and cooperate.	Likely	Moderate	(Nov 15)	**Treatment Option 2016/10/A:** Organise occasional SAR technology workshops to identify technological trends and opportunities relevant to SAR. **Treatment Option 2016/10/B:** Seek funding to permit the establishment of a contestable SAR initiatives fund.		

To:	SAR Council	MEMORANDUM
From:	Sarah Mehrtens (contractor)	
Date:	16 September 2016	

New draft business case

The SAR Funding Review Business case has been amended from the version the Council members recently endorsed. The changes have been made in response to the Minister's push back on the overall level of increase.

Following discussions on priorities with LandSAR, RCCNZ and the NZSAR Secretariat the amount of the overall increase to them has reduced. The main parts of the business case are largely unchanged – however there is a new overview and summary section that I am currently discussing with the Ministry. A copy of these new sections is attached.

Next steps

Once finalised, the business case will be sent to Treasury for review. Any feedback will be dealt with and I will advise you of any changes made.

The Ministry will have its own view of the recommendations and will provide a briefing to the Minister in due course.

Changes to recommended increase in funding

The current changes are:

1. Overall recommended investment

The earlier draft business case set out recommended investment under preferred option 3 as:

	2017/18	2018/19	2019/20	Outyears
Additional FED funding $m	2.790	3.440 (incl. 2019 Mass Rescue Exercise)	2.584	1.95

The latest draft business case sets out recommended investment under preferred option 3 as:

Additional FED funding $m	2017/18	2018/19	2019/20	Outyears
	2.400	2.240	2.130	1.569

2. Recommended increase per organisation

The changes are to LandSAR, RCCNZ and the NZSAR Secretariat funding. This table shows the new amounts.

Additional FED funding by SAR organisation ($ m) (SLSNZ, AREC and MSC did not seek additional funding)						
Organisation	**Current**	**2017/18**	**2018/19**	**2019/20**	**Outyears**	**Funding objective**
Coastguard	1.874	2.440	2.440	2.440	1.874	1. Short-term support for charitable organisations to diversify funding sources
LandSAR	0.650	1.135	1.085	1.075	0.905	1. Short-term support for charitable organisations to diversify funding sources 2. Improve volunteer recruitment and retention, skills, health & safety and standard practice
RCCNZ[1]	2.024	2.204	2.269	2.279	2.254	2. Improve volunteer recruitment and retention, skills, health & safety and standard practice
NZSAR Council	1.201	2.325	2.150	2.040	2.040	2. Improve volunteer recruitment and retention, skills, health & safety and standard practice 3. Improve SAR system data quality and access 4. Facilitate more prevention activities and coordination 5. Technology to improve SAROPs and reduce costs
MSC Avalanche Advisory	0.105	0.150	0.150	0.150	0.150	Replaces Crown funding via DOC[2]
SLSNZ	0.200	0.200	0.200	0.200	0.200	No change
AREC	0.065	0.065	0.065	0.065	0.065	No change
TOTAL	**6.119**	**8.519**	**8.359**	**8.259**	**7.698**	

3. LandSAR changes

The overall increase for LandSAR has reduced as follows.

LandSAR ($ million) – operating and capital					
FED funding	**Current funding**	**2017/18**	**2018/19**	**2019/20**	**Outyears**
Current level	0.650	0.650	0.650	0.650	0.650
Increase	-	0.485	0.435	0.425	0.255
Total new level	-	1.135	1.085	1.075	0.905
Percentage increase	-	75%	67%	65%	39%

[1] Plus Crown funding of $3.316m under Vote Transport.

[2] $0.045m Crown funding through DOC since 2013/14 and agreed with the NZSAR Council to request shift to FED funding in 2017/18.

This has been achieved in discussion with LandSAR as follows:

- The $125,000 pa operating funding for 1.0 FTE Relationship and Fundraising Management to improve philanthropic funding levels (2017/18 to 2019/20) now ceases for outyears. LandSAR will work to replace this funding through philanthropic funding by then.

- LandSAR operating funding for 2.0 FTE for has been halved (with LandSAR to seek other funding, if possible, for the balance) so that the new amounts are:

    - $62,500 pa (including direct costs and overheads) from 2017/18 for 0.5 FTE to develop, implement, manage and administer a Safety Management System and group support function to enhance capacity for Health & Safety compliance.

    - $62,500 pa (including direct costs and overheads) from 2017/18 for 0.5 FTE to develop, implement, manage and administer a competency framework and comprehensive curriculum and learning strategy to deliver required volunteer competencies.

- LandSAR funding to manage and administer the National WanderSearch Programme has been reduced by $0.075 m annually, so that the new amount is $100,000 pa operating funding from 2017/18 for 1 FTE (salary $70,000 and $30,000 other overhead costs and incidental costs e.g. fuel, travel) to administer the WanderSearch programme, including the device holder register.

4. RCCNZ changes

The overall increase for RCCNZ has reduced as follows.

RCCNZ ($ million) – operating and capital					
FED funding	**Current funding**	**2017/18**	**2018/19**	**2019/20**	**Outyears**
Current level	2.024	2.024	2.024	2.024	2.024
Increase	-	0.180	0.245	0.255	0.230
Total new level	-	2.204	2.269	2.279	2.254
Percentage increase	-	9%	12%	13%	11%

This has been achieved in discussion with RCCNZ by halving the amounts to the following:

- Operating funding $15,000 (2017/18), $20,000 (2018/19) and $20,000 (2019/20 and ouyears) for Pacific prevention activities. First year less as will not have full capacity until further staff are available.

- Capital funding $5,000 (2018/19) and $5,000 (2019/20) for prevention equipment.

- Operating funding $10,000 (2017/18), $30,000 (2018/19), $30,000 (2019/20 and outyears).

- Capital funding $25,000 (2017/18), $35,000 (2018/19), $35,000 (2019/20 and outyears)

5. NZSAR Council changes

The overall increase for the NZSAR Council has reduced as follows.

NZSAR Council ($ million) – operating					
FED funding	**Current funding**	**2017/18**	**2018/19**	**2019/20**	**Outyears**
Current level	1.201	1.201	1.201	1.201	1.201
Increase	-	1.124	0.949	0.839	0.839
Total new level	-	2.325	2.150	2.040	2.040
Percentage increase	-	94%	79%	70%	70%

This has been achieved in discussion with the NZSAR Secretariat by removing the 1.0 FTE and reducing funding for prevention activities by $100,000. The new amount is $340,000 pa operating funding from 2017/18 to coordinate projects undertaken collectively by the sector or with a SAR organisation or organisations (including to meet some of the SAR organisations' costs), that do not interfere or conflict with the role of regulators in the sector who are already mandated to undertake prevention activities.

6. Mass rescue exercise 2019

The funding bid made by the NZSAR Council on behalf of Government for one-off funding of $0.650 million in 2018/19 for a mass rescue exercise is not included in the recommended increase in FED funding.

As you know, the 2019 mass rescue exercise bid was to fund the SAR elements of the exercise. While their is public benefit for the SAR aspects this exercise, the problem is less pressing and could arguably be funded from general taxation at the same time other funding is provided for the non-SAR related aspects of the exercise.

It is possible, however, that the Minister of Transport and Minister of Finance may agree to fund the exercise from FED. If that occurs, the increase in 2018/19 would be $2.680 million – with the $0.650 million allocated to the NZSAR Secretariat to administer for the exercise.

OVERVIEW

The Ministry leads the Transport Sector Funding Review Programme. Typically the Ministry periodically reviews system performance as well as assessing funding needs. The aim is to undertake funding reviews on a triennial basis of transport sector organisations receiving Government funding. This funding review relates to seven organisations that provide search and rescue (SAR) services to New Zealand. These organisations receive Government funding from fuel excise duty (FED).

The SAR sector provides a significant contribution to New Zealand. In 2015/16 the sector:

- undertook 2,600 SAR responses for land, air and marine – which is an average of 7 per day (although most occur during the summer season)
- undertook 407,000 'render assistance' safety interventions – which is an average of 1,114 per day (although most are occur during the summer season)
- through charitable organisations, supported 15,000 volunteers (who contributed an estimated $22 million through unpaid work) and provide an estimated $80 million in equipment (boats, aircraft, helicopters, safety gear, club houses and incidence response centres)
- delivered an estimated $712 million in social costs averted.[1]

In 2015/16, the direct cost of SAR intervention was $37 million ($23 million from Government and $14 million from five charitable organisations). The average direct cost of a SAR response was $14,000 against the estimated actual cost of $29,000.[2]

This review undertook a thorough assessment of the SAR system and the seven organisations. Overall the system is high-performing and the organisations are providing strong value for money. However, there are four main issues facing the sector:

- funding uncertainty for the two main charitable organisations involved in SAR
- aging volunteer base
- inconsistent incident management standards and higher regulatory requirements
- new 'business lines' through increasing numbers of:
    - international tourists (currently 10% of SAR responses)
    - people with dementia and Alzheimer's due to an aging population (currently 22% of SAR responses) who when lost or missing require costly searches because they are not trying to be found and do not show logical behaviour due to cognitive impairment.[3]

The case for change in FED funding to address these issues is modest. *An increase of* $2.400 million in 2017/18, $2.240 million in 2018/19, $2.130 million in 2019/20, reducing to $1.569 million in outyears. This is the amount *recommended to maintain service level standards, deal with the new business lines and build system capability and resilience*.

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[1] Uses 2015 MoT approved methodology: $4.057 million social cost per life (from loss of life per injury table) - 90% of this figure to reflect social cost to the people whose lives have been saved. Based on 195 lives saved in 2015/16 (36 lives were in one incident).

[2] Estimate based on the true system cost of $75 million annually including the cost of 774,000 volunteer hours at $29 per hour worked (including for 'render assistance' activity, and governance and administration of the charitable organisations) and equipment replacement direct cost averaged over 5 years provided by charitable organisations.

[3] A SAR operation in 2015 for a person with cognitive impairment cost in the vicinity of $500,000 and the person was not found.

SUMMARY

Background

The outcome sought by SAR intervention is that *New Zealand has effective SAR services for people in distress throughout the NZSRR in order to save lives*.

Government's vision is for *a cohesive community of capable people in sustainable organisations, finding and rescuing people in distress, and operating collaboratively within a robust SAR system*.

New Zealand SAR has two features, which combined, make it unique –

- The New Zealand search and rescue region (NZSRR), allocated to New Zealand under international conventions, **is the third largest in the world** covering 30 million km^2 extending from just south of the equator to the Antarctic. The region is dominated by ocean expanses with small, isolated landmasses and few population centres, includes Pacific nations that have limited resources, and comprises a variety of geographies with large areas of difficult terrain and highly variable weather and sea conditions. It is easy to get lost or injured and difficult to find people when they are in distress.
- New Zealand has **the highest rate of volunteer worker involvement in the OECD**.[4] For New Zealand SAR, it is also the highest with around 15,000 volunteer workers involved in SAR incidents and governance and administration of charitable organisations.[5]

Government has taken a stewardship role in the sector while allowing the individual organisations involved to continue meeting specific responsibilities. This stewardship has focused on the durability of a high performing system with investment undertaken in anticipation of a future return, material or otherwise. In particular, Government provides the stability and certainty the system participants need to invest in maintaining the infrastructure necessary to support volunteers and provide equipment. This approach has led to an effective example of government-lead community-supported delivery of high quality and value for money services by a cohesive group of well run organisations.

A Cabinet decision in 2003 established the NZSAR Council in response to findings by the Maritime Patrol Review 2001 that system governance and coordination issues were negatively affecting SAR responses. The NZSAR Council in turn established operational arrangements for the coordination of SAR activities in the NZSRR for land, aviation and marine.

Government also established two coordinating authorities to manage two categories of SAR operations (SAROPs) –

- The NZ Police coordinate SAROPs at a local level, which are responded to by teams made up of NZ Police, Department of Conservation (DOC) and Maritime NZ (MNZ) staff, volunteers from the charitable organisations, and charitable and private sector helicopter providers.
- RCCNZ coordinates SAROPs at a national level that relate to aircraft in distress, missing aircraft and offshore marine incidents, which are responded to by the NZ Defence Force, and the activation of distress beacons, which are responded to by the NZ Defence Force and teams made up NZ Police, DOC and MNZ staff,

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[4] People in NZ spend an average of 13 minutes per day in volunteering activities. OECD average is 4 minutes per day. Also, 69% reported having helped a stranger in the last month. The OECD average is 49%. OECD – *Better Life Index* 2014.

[5] Of 13 countries surveyed for benchmarking purposes, New Zealand had the highest level of volunteer involvement in SAR. *Volunteer Study* July 2010, NZSAR Council.

volunteers from the charitable organisations, charitable and private sector helicopter providers, and international participants.

What is the SAR funding review about?

The SAR funding review relates to fuel excise duty (FED) that under section 9(1) Land Transport Management Act 2003 can be contributed towards funding search and rescue (SAR) services for the New Zealand search and rescue region (NZSRR). A SAR funding review is generally undertaken every three years for the next three-year period.

FED is raised as a levy on road users as a club good for road system and infrastructure costs. However, FED is also paid by people putting fuel in their recreational boats. Since it is considered procedurally difficult and costly to exclude recreational boaters or to refund the FED, part of the FED paid by recreational boaters is contributed towards SAR activities but only where the contribution delivers public benefit.

FED currently contributed to SAR is as follows:

- $6.199 million to seven of the organisations involved in SAR (to which this review relates)
- $2.560 million to Maritime NZ for recreational boating safety and safety awareness and maritime safety services that benefit the users of recreational craft
- $0.700-$0.900 million to the MEOSAR system that employs repeaters deployed on medium Earth orbiting (MEO) satellites to relay distress signals to ground stations.

This review covers the FED funding, currently $6.199 million, contributed to the following seven organisations:

- Five charitable organisations, which support volunteers and provide equipment for SAR incidents - Coastguard NZ, Land Search and Rescue (LandSAR), Surf Life Saving NZ (SLSNZ), Amateur Radio Emergency Communications (AREC) and the Mountain Safety Council (MSC) Avalanche Advisory.

- Two government organisations. The NZSAR Council, which undertakes SAR strategic leadership and coordination at a sector level and the Rescue Coordination Centre NZ (RCCNZ), which coordinates SAR incidents at a national level.

Government makes this contribution because the benefits are widely felt and the cost of the work undertaken by the volunteers and the equipment provided by the charitable organisations would otherwise need to be met by Government as occurs in other jurisdictions where there is more reliance on the military, police and fire service to deliver SAR services.

The bulk of the FED funding for the seven organisations goes to strategic leadership and coordination provided by the NZSAR Council ($1.201 million) and by RCCNZ ($2.204 million). Funding is also provided to the charitable organisations that support SAR volunteers and provide equipment like boats, aircraft, life jackets and safety gear.

Most of the FED funding provided to the charitable organisations goes to Coastguard ($1.874 million), with a third of that amount to LandSAR ($0.650 million) and limited amounts to SLSNZ ($0.200 million), the MSC Avalanche Advisory ($0.105 million) and AREC ($0.065 million).

The estimated social costs averted by SAR incident intervention in 2015/16 was $712 million with around 2,600 SAR responses to people missing or lost.[6] This is against annual SAR expenditure of $37.883 million made up of:

- $23.290 million from Government[7] (including FED funding)
- $14.593 million from the charitable organisations (excluding FED funding).

The total FED generated by recreational boating is estimated as at least $35.5 million annually (up from $30 million in 2013/14).[8] The FED funding contributed to SAR is fiscally neutral to the Crown, but reduces funding to the National Land Transport Fund.

Current problems

The main problems currently affecting the sector's durability as a high performing system relate to an aging volunteer base, inconsistent incident management standards, higher regulatory requirements and new 'business lines' through increasing numbers of international tourists and people with cognitive impairment like dementia and Alzheimer's due to an aging population.

Criticism has been raised during a recent Coronial investigation that there is a lack of consistent sector-wide standards, which should be provided to undertake efficient and effective SAR operations.[9]

Other problems relate to the charitable organisations needing to diversify funding sources away from NZ Lotteries Grants Board funding, on which they heavily rely, as that funding has reduced in the past two years and this is predicted to continue for the near future. There is also a lack of technology and system interoperability for sector-wide information collection, collation and analysis to inform joint planning and decision-making and to coordinate SAROPs cohesively across the numerous organisations involved. Lastly, there is limited mass rescue capability for a major transport incident, which is less pressing, but still a risk.

Is additional funding necessary?

While the current problems are immediately impacting system performance to some degree, the scale of the problem has not led to significant deterioration causing system failure. Having said that, only modest investment is required to address the problems.

It is difficult to estimate how long this high quality system can be left without further investment before it deteriorates to a point where it is financially prohibitive to fix. The hardest problem to fix would be if there were insufficient numbers of trained volunteers to attend SAROPs. The financial vulnerability of the main charitable organisations on which New Zealand relies to provide SAR services, Coastguard and LandSAR, affects this. These charitable organisations have not had a Government funding increase since 2008

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[6] Uses the 2015 MoT approved methodology: $4.057 million social cost per life (from loss of life per injury table) - 90% of this figure to reflect social cost to the people whose lives have been saved. Based on 195 lives saved in 2015/16 (36 lives were in one incident).

[7] 2015/16 figure provided by NZSAR Council. Figure includes Government funding to all organisations involved in SAR not just the seven SAR organisations in this review.

[8] In 2009, NZIER estimated the FED paid by recreational boaters to be at least $25 million per annum. Subsequent FED increases have raised this estimate for 2016/17 to at least $35.5 million. This is consistent with estimates of petrol used by recreational boaters as reported in a 2010 Colmar Brunton for Maritime NZ , which at today's FED rates suggest $34.7 million.

[9] *Findings of Coroner CJ Devonport – Inquest into the death of Fiona Julia Wills*, March 2016. Fiona Wills suffered from dementia and wandered way from her rural property. Despite a lengthy SAR search by the NZ Police and LandSAR, followed by a private search by the her family, Fiona has never been found. The SAR operation cost in the vicinity of $500,000. The Coroner criticised the lack of sector-wide standardised practice material for SAR incident planning and management.

and have actively focused on improving governance and operational efficiency to operate within a shrinking baseline.

The sector's dependence on volunteers puts service delivery at risk if the volunteers consider their involvement is unrewarding or too difficult, especially where opportunities to gain and maintain the levels of skills and experience required to participate are not sufficient for current conditions. In addition, the changing profile of SAR incidents is putting cost pressure on the NZ Police and the NZ Defence Force and increasing the reputation risk for New Zealand as a recreation destination for tourism.

Investment areas identified

The investment recommended by this review relates to the areas identified that have the strongest public benefit. In order of priority, these areas are:

- Providing more training and exercises to maintain volunteer commitment and preparedness
- Improving health and safety compliance for the charitable organisations to deal with increased requirements and higher liability risk
- Providing short term assistance to enable the two main charitable organisations to strengthen their under-developed philanthropic models to replace reducing funding from NZ Lotteries – a hand up, not a hand out
- Developing standard practice material for consistent incident management and planning across the sector to improve SAROPs
- Extending the use available technology to reduce the scale and number of costly SAR responses involving the increasing numbers of people with cognitive impairment (e.g. dementia and Alzheimer's) to reduce the costs of SAROPs for the NZ Police and to improve the likelihood of missing or lost wanderers being found
- Investigating technology options to address information collection, collation and analysis to inform joint planning and decision-making and to cohesively coordinate SAROPs across the numerous organisations involved
- Undertaking more prevention activities and coordination to reduce the scale and number of SAROPs in the NZSRR, reduce costs to the NZ Police and NZ Defence Force and reduce reputation risk for New Zealand, including as a recreation destination for tourism
- Investigating options for portable mobile phone locator technology to reduce search times and reduce the cost of SAROPs for the NZ Police and the NZ Defence Force

Undertaking a mass rescue exercise to improve sector capability for a major transport incident has been identified but is not recommended for investment under this review.

Recommended investment

Government contributes only part of the FED funding in line with the public benefit test. Therefore, funding bids made by the seven SAR organisations have been reduced to those that provide public benefit.

The recommended investment under preferred option 3 is:

Additional FED funding $m	2017/18	2018/19	2019/20	Outyears
	2.400	2.240	2.130	1.569

Investment percentage split

The percentage split per organisation of the total recommended investment, for example, in 2017/18 is as follows:

Organisation	% of 2017/18 total	Problem to address
NZSAR Council	47%	For SAR system issues relating to volunteer training and exercises and health & safety compliance, the development of sector-agreed standard practice material, more prevention activities and coordination, and investigation of options for a sector-wide information system and for portable mobile phone locator technology
Coastguard	23%	To support funding source diversification
LandSAR	20%	To support volunteer retention and recruitment, skills development and health & safety compliance and to support funding source diversification
RCCNZ	8%	For organisation stability, technology needs and prevention activities in the Pacific
MSC	2%	To replace short-term Crown funding provided via DOC for the avalanche advisory since 2013/14 that was agreed by the NZSAR Council to be requested from FED funding from 2017/18

Around 47% of the recommended investment is for the NZSAR Council as the Government's strategic goals for SAR can be best delivered for the sector by the Council.

Around 20% of the recommended investment is short-term to support the two main SAR charitable organisations in diversifying funding sources ('a hand up, not a hand out'). The funding would be for three-years and then cease. A short-term contribution to Coastguard and LandSAR to improve their under-developed philanthropic funding models is needed to reduce reliance on falling levels of NZ Lotteries Grants Board funding, which are a substantial part of the overall funding used by these organisations to recruit, train and manage around 6,000 volunteers directly involved in SAR responses.[10]

The bids from Coastguard and LandSAR set out in detail the replacement rate for the three-year investment (so it can cease) and the rate at which they can meet the reducing NZ Lotteries funding. There is also additional funding expected to be gained.

LandSAR's philanthropic funding model is under-developed perhaps reflecting the heavy reliance on the NZ Lotteries Grant Board (60% of funding) and that there is no dedicated resource for this activity with the small number of staff (5.8 FTEs) being required to support the 3,500 volunteers.

Coastguard's philanthropic funding model is much more developed. Over the past two years Coastguard has invested $1 million in building and operating a philanthropic funding 'machine', using existing capital and diverting resources from other activities such as training and exercises. The 'machine' is now at breakeven point. However, further funding is required that cannot be met through capital, and resources need to be returned to the other activities that can only prudently be halted in the short-term.

Coastguard's only bid relates to this area because its long-term philanthropic funding needs are higher. This is largely due to the regular cost of maintaining and replacing its 80 vessels (average vessel cost $750,000) and to comply with the Maritime Operator Safety System for

[10] Note t*he chief executives of Coastguard and LandSAR both have significant and successful experience in this area.*

what is the second largest vessel fleet in the country regulated by Maritime NZ. Coastguard also has two aircraft valued at around $400,000 and $100,000.

LandSAR's bid in this area is lower because the additional long-term funding required from philanthropic funding is significantly lower due to fewer equipment costs. Also, LandSAR's bid relates to other areas because it needs greater assistance for 'behind the scenes' functions to support volunteer recruitment and retention, the cost of which does not easily attract sponsorship or donations.

Bid for cost of mass rescue exercise 2019

The funding bid made by the NZSAR Council on behalf of Government for one-off funding of $0.650 million in 2018/19 for a mass rescue exercise is not included in the recommended increase in FED funding.

The bid relates to an exercise scheduled under the Government's National Programme administered by the Department of the Prime Minister and Cabinet (DPMC). A significant exercise was undertaken in 2015 at a similar cost for a 'mock' oil pollution incident (coordinated by Maritime NZ).

The 2019 mass rescue exercise is intended to be for a major transport incident (e.g. involving a cruise ship) and the FED funding would contribute to the SAR elements of that exercise. While their is public benefit for the SAR aspects this exercise, the problem is less pressing and could arguably be funded from general taxation at the same time other funding is provided for the non-SAR related aspects of the exercise.

This review has not recommended FED funding for the mass rescue exercise 2019. If the funding bid were to be agreed as being met by FED funding the total increase in 2018/19 would be $2.680 million.

INTEGRATED RADIO COMMUNICATIONS FRAMEWORK FOR NEW ZEALAND LAND-BASED SEARCH AND RESCUE OPERATIONS

Prepared for the Secretariat, New Zealand Search and Rescue Council

By Jim McMahon / Rex Aubrey

Caravel Group (NZ) Ltd

September 2016

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1 Executive Summary

1.1 Introduction

New Zealand relies on a healthy relationship between professional and volunteer organisations to provide effective search and rescue services (SAR) across the country's landmass. A common requirement of all SAR activities is access to dependable, reliable means of radio communication.

This review of radio equipment used by organisations that carry out land-based search and rescue in New Zealand confirms that 2-way High Frequency (HF) and Very High Frequency (VHF) radio are essential for SAR operations in a world that is increasingly dominated by cellular communications.

1.1.1. Terms of Reference

Terms of reference for developing the framework are contained in the New Zealand Search and Rescue Council Secretariat's "Search and Rescue Communications – Land Environment" paper.

1.1.2. Project Initiation

The SAR Council requested the SAR Secretariat to undertake a review of current radio communications capabilities and practices available to SAR organisations, and what changes are likely to occur in technologies, networks, functionality and management practices in the future.

The SAR Secretariat contracted Caravel Group (NZ) Ltd to review current and research future radio communications practices and requirements, and to recommend any changes deemed necessary to ensure SAR communications are reliable, ubiquitous, and available to support the safety and effectiveness of search teams for the success of land-based SAR operations.

1.1.3. Methodology

A framework based on achieving a goal of "affordable and sustainable radio communications that efficiently and effectively support land-based search and rescue activities while assuring the safety of SAR personnel and the public" was initially developed and subsequently refined to reflect information and advice from a number of stakeholders. This included input from a survey sent to SAR agencies and stakeholders.

Principles that underpin the framework include:

- Reliable – Reliable, replicable communications when/wherever required

- Usable – SAR teams can set up and operate the radio equipment under any conditions
- Available – radio services can be established where required on New Zealand's landmass
- Effective – radio equipment and services (voice, low speed data etc.) that are appropriate to the situation
- Sustainable – cost effective, environmentally and technically sound, supporting SAR health and safety policies

Framework elements

Framework elements that are influenced by the above principles include:

- Equipment
- Workforce
- Incident management
- Coordination
- Stakeholder management
- Protocols
- Environment management

The framework has been created through a combination of SAR organisation information, research and Caravel's experience in developing and implementing similar reviews of current and future technology, and operating practices. It has been used to develop recommendations and an action plan to maintain and improve radio communications capability and usage by the SAR community.

1.2. Recommendations

This review offers recommendations for improving the availability and effectiveness of 2-way radio as a critical component of SAR activities.

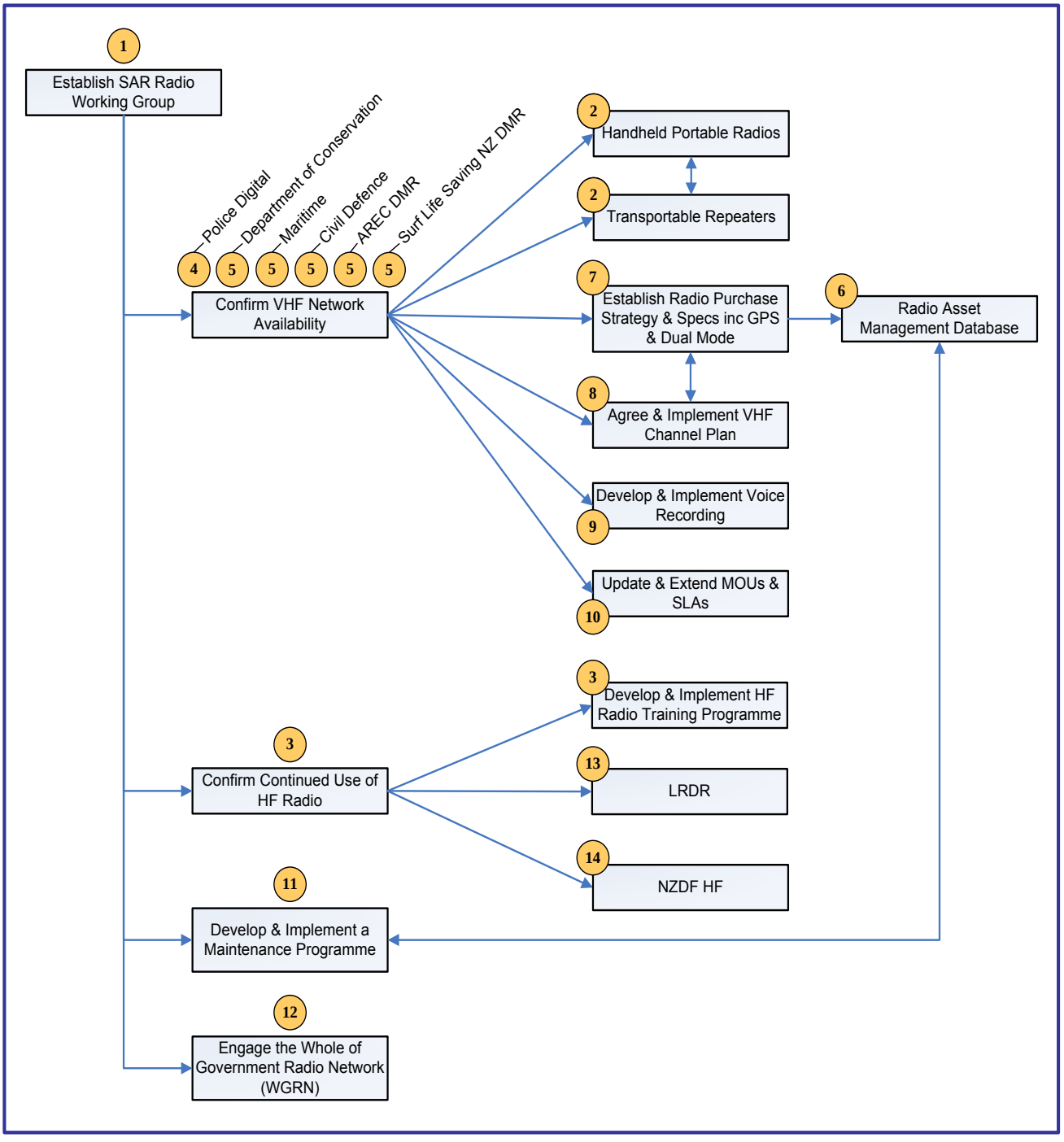
The recommendations include:

1. Establish a technical working group with participants from key SAR agencies including NZ SAR, Police, LandSAR, DOC, AREC, RCCNZ, NZ Defence, Surf Lifesaving New Zealand, Coastguard, Civil Defence and Mountain Radio.
2. Ask Police to continue support (either in house or outsourced) for their analogue VHF radio equipment (handheld radios and repeaters) used for SAR.
3. Ensure the Police HF radio network capability is retained and users are trained and practiced in its deployment and use.
4. Confirm accessibility of the Police's VHF digital trunk radio network for non-Police SAR activities.
5. Confirm accessibility to other VHF networks including DOC, Maritime, Civil Defence, AREC DMR and Surf Lifesaving NZ DMR.
6. Develop a radio asset management database to support digital trunking and GPS tracking.

7. Agree a common handheld radio purchase strategy that enables dual mode (analogue and digital) capability as well as built-in GPS for tracking.
8. Implement a common VHF channel plan for all radios to be programmed with nationally consistent channel names.
9. Develop and implement continuous voice recording and instant playback on appropriate VHF channels.
10. Update and extend Memorandums of Understanding to use DOC, Civic Defence and Maritime New Zealand's VHF networks as required for SAR activities.
11. Develop and implement a maintenance program for all radios, especially the non-Police owned fixed VHF radio stations.
12. Engage with the Whole of Government Radio Network (WGRN) programme to ensure the continued availability of HF and VHF radio networks for ongoing SAR training and operations.
13. Evaluate the cost/ benefit of acquisition, implementation and deployment of Codan LRDR.
14. Engage with NZDF to plan the future development of their HF radio infrastructure to support SAR operations and training requirements.

1.3. Dependency diagram

The dependencies between the recommendations are shown in the diagram below where the numbers correspond with each recommendation.



1.4. Conclusions

Cellular networks provide the bulk of New Zealand's land mass with mobile voice and data services. They operate at much higher frequencies than VHF radio and their coverage and performance is optimised to reflect high user density and usage in urban and main highway environments. A land-based search and rescue operation often takes place in a remote

location and often in moist bush and forest where cellular coverage is limited or non-existent and performance is significantly degraded.

The Whole of Government Radio Network (WGRN) strategy envisages a resilient network with expanded national coverage based on Long Term Evolution (LTE) of the existing cellular network. This strategy could limit the development and availability of existing HF and VHF networks for future SAR requirements.

Radio generally provides point to multipoint communication which is essential during a typical SAR operation (SAROPS). Communications services provided by cellular and satellite technologies provide point to point communications that could be unreliable and unpredictable.

VHF radio is the preferred radio used by search and rescue teams in the New Zealand land environment, as long as there is sufficient coverage. Fixed and transportable repeaters provide a significant footprint for VHF handheld portable radios. However, there are many locations where VHF will not provide the required communication path back to the SAR Base.

Exclusive reliance on VHF radio technology means that communications may also be disrupted if repeater batteries go flat and/or aerials are damaged by wind or lightning.

HF radio provides a far greater coverage footprint than VHF radio and can be relied on to “get through” when other communications systems fail. However, HF radio has a reputation for being difficult to understand, setup and use. Components such as aerials and batteries, if poorly maintained, frequently fail when deployed.

The ramification of not using HF radio is that search and rescue teams could become isolated due to a lack of communications. This could compromise search team safety and efficiency, and overall command and control of a search and rescue operation (SAROPS).

Responsibility for the management and coordination of all land-based SAR incidents resides with New Zealand Police, with trained SAR coordinators and squads located in each of 12 Districts. The Police also own a large inventory of HF and VHF radios, base stations and repeaters for use during SAR events.

There is no appetite to change the existing SAR management and coordination arrangements. Closer strategic and operating alignment between the SAR community and Police on the retention and maintenance of their radio assets is seen as a priority.

HF and VHF radio services for SAROPS training and operations are provided via Memorandums of Understanding (MOU) between Land Search and Rescue New Zealand (LandSAR NZ) and the Amateur Radio Emergency Communications (AREC). Generally this arrangement works well at local SAR group level, subject to availability of experienced AREC volunteers. HF and

VHF radio networks owned by other organisations such as the Department of Conservation can be utilised for SAROPS through national and local agreement.

The various MOUs and Service Level Agreements (SLA) need to be reviewed and updated to reflect changes in SAR communications requirements and the availability of additional radio services, features and applications.

Significant concerns

The following concerns have been identified during the development of the Integrated Communications Framework as areas to be noted and addressed on an ongoing basis;

1. SARTrack deployment – SARTrack is an incident management application that can be used to track search teams using GPS enabled radios. There is concern is that local groups are developing their own operating procedures around SARTrack without the guidance of a national deployment strategy. A radio asset management database will be required to uniquely identify each tracked radio.
2. Long Range Digital Radio (LRDR) using HF – An application has been developed to extend VHF radio back to a centralised incident management centre using HF radio. This application has been trialled in several locations with mixed results. The concern is that the evaluation process is fragmented, and that the costs and benefits of provision have not been adequately quantified.
3. Amateur Radio Emergency Communications (AREC) Digital Mobile Radio (DMR) – AREC is developing a DMR network independent of LandSAR. The concern is that the network is not compatible with current or future SAR VHF radio requirements and overlaps with the Police DMR network.
4. Police's HF network – If Police disestablish their HF radio network, this would create a major hole in SAR radio communication coverage and potentially compromise the health and safety of search and rescue volunteers.
5. There is a concern that the Whole of Government Radio Network (WGRN) initiative is introducing LTE technology to replace conventional radio networks used by government departments. Engagement and participation in WGRN planning and implementation is necessary to ensure continued availability of HF and VHF radio for search and rescue activities.

1.5. Commentary

This section contains additional information and detail to support the conclusions and recommendations contained in the report.

1 Technical working group

1.1 A technical working group should to be established with representation from NZ SAR, Police, LandSAR, DOC, AREC, RCCNZ, NZ Defence, SLNZ, Civil Defence and Mountain

Radio.

1.2 The working group's terms of reference should include frequency management, procurement policy, maintenance policy, channel names and plans, training and the evaluation of new applications and technologies.

1.3 NZ Search and Rescue (NZSAR) should take responsibility for the establishment and direction of the working group, to maintain national consistency and quality of communications policies and practices.

1.4 Training in radio communications needs to be standardised across the SAR community and learned skills need to be practiced and utilised whenever possible.

1.5 Radio equipment needs to be standardised in terms of functionality and frequency allocation, and all items need to be regularly tested and maintained.

2 New Zealand Search and Rescue (NZSAR)

2.1 NZSAR, with the technical assistance from AREC and NZ Police, should initiate and lead discussions on procurement and maintenance of land-based communication services for SAR operations. The key areas for discussion include:

- The national procurement and maintenance of "next generation" handheld radios for SAR group use.
- Implications for existing HF and VHF networks that are used for SAR activities with the implementation and expansion of an LTE-based Whole of Government Radio Network (WGRN).
- The identification, testing and possible integration of new technologies into existing SAR operating procedures and procedures.
- The establishment and direction of the Technical Working Group.
- Permission from Coastguard to programme their new frequencies into SAR radios.

2.2 NZSAR should encourage search teams to use the POLSAR HF radios, and SAR Incident Base to actively use the Police and DOC HF radios with telephone interconnect.

2.3 NZSAR should encourage the provision of continuous voice recording and instant recall of VHF radio traffic terminating at each SAR Base.

2.4 NZSAR should work with AREC to explore the expansion of AREC's Digital Mobile Radio (DMR) network to provide digital VHF radio coverage outside the Police digital trunk radio (DMR) network.

2.5 NZSAR to work with DOC, Civil Defence and Maritime New Zealand to ratify the use of their networks for use on an as-required basis for SAR activities.

2.6 NZSAR should work with each CD Group to explore opportunities to utilise and share radio communications resources for civil defence and SAR operations.

3 New Zealand Police

3.1 Police should be asked to continue to support (either in house or outsourced) their VHF radio equipment used for SAR.

3.2 Police should be asked to retain and maintain their existing HF radio network (either in house or outsourced).

3.3 Police should be asked to continue providing the resources required to establish and maintain a viable level of technical competence and capability necessary to maintain and operate their HF radio network.

3.4 Radios with digital trunk features can be used on the Police radio networks in Auckland, Wellington and Canterbury. Police should be approached to activate a non-encrypted SAR specific talk group to allow "non-Police" owned radios to use their VHF digital trunk networks.

3.5 Police should be asked to confirm whether their digital network can support GPS data burst traffic required for location monitoring services.

4 New Zealand Land Search and Rescue (LandSAR NZ)

4.1 LandSAR should ensure that a healthy relationship is actively maintained and fostered, particularly with AREC members at both executive and local branch levels.

5 Amateur Radio Emergency Communications (AREC)

5.1 AREC should continue to provide an essential component of SAR radio training and operational activities. The relationship between local Police and SAR with AREC groups should be monitored and actively managed to ensure their expertise and value is understood and appreciated.

5.2 There are Service Level Agreements (SLA) and Memorandums of Understanding (MOU) between AREC, LandSAR, Police and NZSAR. These documents need to be ratified to confirm that they are current, appropriate and enforceable.

5.3 A focus on deployment and maintenance of radio equipment is required as part of any SLA and training review.

5.4 A proactive membership retention and recruitment programme is required to maintain current levels of AREC personnel involvement with SAR training and operations.

5.5 Many AREC people contribute their own, privately owned VHF and HF radio equipment to SAROPS. This should be supported and encouraged but not taken for granted.

6 Department of Conservation (DOC) HF and VHF radio networks

6.1 DOC should be approached to confirm that their VHF and HF sites with telephone interconnect and several hundred VHF repeaters will continue to be available for SAR use.

7 New Zealand Defence Force

7.1 New Zealand Defence Force (NZDF) are about to implement a refresh program of their

HF radio network but they have yet to decide how many sites their new network will have. These sites could be used by LandSAR in the future.

7.2 A dialogue should be established with NZDF to provide input to their HF radio network refresh programme and ensure that its future capabilities are consistent with SAR requirements.

8 Surf Lifesaving NZ

8.1 There are possible interconnection scenarios to explore between SLSNZ and SAR radio channels. This should be examined by the proposed technical working group.

9 HF radio

9.1 Fixed HF radio stations which are owned and maintained by NZ Police and the Department of Conservation (DOC) should be retained and maintained, including the stations with telephone interconnect,

9.2 All HF radio equipment to be maintained regularly to an agreed standard by Police or their agent(s).

9.3 AREC should be contracted to provide nationally consistent training to search teams on the deployment and operation of POLSAR HF radios and to lead by example with radio procedure.

9.4 Search teams should take and use HF radios, particularly where there is potentially unreliable VHF coverage.

9.5 Opportunities for the use of the new NZ Defence HF radio system should be explored, once it becomes operational and available.

9.6 Applications such the Codan Long Range Digital Radio link (LRDR) using digital HF radio, multiple frequencies and Automatic Link Establishment technology should be critically evaluated, with LandSAR (assisted by AREC) providing national guidance and direction on their development, procurement and operation.

9.7 SAR agencies should manage appropriate national HF frequencies and pay the licence fees.

10 VHF radio

10.1 All VHF radios should be programmed with the same channel plan and channel names. The proposed technical working group should be tasked to design and implement this change as a high priority.

10.2 All VHF radio equipment should be tested and maintained regularly to an agreed standard.

10.3 The installation of additional fixed VHF repeater sites should be reviewed and managed on a case by case basis by the technical working group.

10.4 Some VHF repeater sites could be linked together to provide wider area coverage.

10.5 The acquisition of additional transportable repeaters should be considered.

10.6 Liaison between SAR organisations and Regional Civil Defence groups is recommended to encourage better understanding of each other's VHF capabilities and requirements.

10.7 Radios should be purchased with built in GPS receivers so that tracking software can be used.

10.8 SAR agencies should manage appropriate national VHF frequencies and pay the licence fees.

11 Procurement with maintenance contracts of all radio equipment

11.1 A standard for the procurement and maintenance of all radio equipment should be developed and published. This work should be delegated as a high priority to the technical working group.

12 AREC Digital Mobile Radio (DMR)

12.1 There is a New Zealand wide network of linked Amateur Radio digital UHF (70cm) DMR repeaters based on the ETSI Digital mobile radio (DMR) standard. This network is growing in size. The AREC community uses this network to communicate with each other.

12.2 If this DMR network introduces VHF repeaters then it could be used in areas where the Police digital trunked network does not provide coverage. Currently there are six VHF DMR repeaters provided by AREC (three in Wellington, two in Dunedin, two in Southland).

12.3 LandSAR and AREC should work together to determine the benefits of further development of AREC's DMR network to incorporate SAR communications requirements.

13 Whole of Government Radio Network (WGRN)

13.1 It is anticipated that the proposed WGRN will reduce investment and maintenance of existing radio infrastructure such as the DOC HF network.

13.2 Discussions should be initiated with the WGRN governance group to emphasise the importance of existing HF/VHF radio networks for SAR operations and training, with the ongoing need for such networks in a future dominated by cellular radio services.

2 SAR Organisations' Radio Communications Capabilities

Responsibility for New Zealand SAR policy lies with the Government. Services are managed and coordinated by several core departments and state agencies, namely New Zealand Police, Maritime NZ, the Civil Aviation Authority, the New Zealand Defence Force and the Ministry of Transport. Other agencies, such as the Ministry of Civil Defence and Emergency Management, are responsible for wider and complementary policies regarding rescue activities.

The responsibility for the operational co-ordination of SAR operations rests with the Police and the Rescue Coordination Centre New Zealand (RCCNZ). Each body works to coordinate the activities of the many organisations in the SAR sector that provide people, communications and resources required to complete a SAR operation.

In practice, Police coordinates Category I SAR Operations (SAROPS) (local level land operations, subterranean operations, river, lake and inland waterway operations and close-to-shore marine operations) and RCCNZ coordinates Category II SAROPS (national level operations associated with missing aircraft or aircraft in distress and off-shore marine operations within the New Zealand Search and Rescue Region).

SAR agencies such as LandSAR and SLSNZ provide trained volunteers who carry out land- and water- based search and rescue operations. DOC is not a designated SAR agency, but for some areas such as Mt Cook they are the designated lead for SAR activities. DOC staff are often involved as members of search teams and DOC VHF radio repeaters are used in areas where they provide coverage.

2.1 New Zealand Police

The NZ Police are responsible for the management and coordination of all Category I SAR incidents within New Zealand. Police officers in each of the 12 Police districts are trained as SAR coordinators, and they are assisted by 24 Police SAR Squads located throughout New Zealand. In addition, the Police utilise their launches (based in Auckland and Wellington), Police SAR Squads, the Police dive squad and the Auckland-based helicopter for SAR operations. The Police resolve a high percentage of 'would be' SAR operations before any resources are committed to the operational field.

VHF radios used by Police for SAR

Police have a 75MHz Land Mobile Radio (LMR) network to connect their vehicles to their Communications Centres. The 75MHz network is NOT used for Search and rescue.

Instead Police use Tait TP9400 VHF handheld radios operating on the (ESB band) 138-144 MHz FM analogue radios with built-in GPS receivers. These handheld radios are supported

by transportable repeaters which are deployed to provide a coverage footprint for the search area of operation.

These ESB radios are the primary form of communication supporting SAR operations and Police should be asked to continue to support (either in house or outsourced) their VHF radio equipment used for SAR.

Police SAR radio inventory

The SAR radio inventory owned and maintained by Police is understood to include:

- 228 VHF hand-held radios (in kits of six portables). These radios have built-in GPS receivers
- 29 VHF mobile transportable base stations
- 33 VHF portable repeaters
- 236 HF POLSAR portable radios

The NZ Police own and maintain a number of HF radio stations that can be used for communicating with SAR field teams using the five watt POLSAR HF handheld portable radios. These include:

- 100 Watt HF radios attached to broadband aerial arrays at a number of Police stations throughout the country.
- Three HF radio sites owned by Police that can be accessed by telephone. These sites can all operate on SAR HF frequencies.

Refer Appendix 1 for a map showing where these HF radios are located.

The capability exists to access a digital radio channel over the Police's internal IP network. This means that a digital SAR radio channel can be accessed from any Police station in New Zealand.

<u>Police issues</u>

The Police's continuing role in coordinating and managing land-based (Category I) SAR incidents needs to be explicitly stated at both national and district levels.

2.2 Land Search and Rescue New Zealand (LandSAR NZ)

LandSAR NZ is a national organisation consisting mainly of volunteers that provides land search and rescue services when required by the SAR Coordinating Authorities. Services include suburban/urban and wilderness/rural SAR operations, underground SAR operations in caves or other natural underground areas, shoreline SAR operations linked to marine incidents, and other agreed SAR operations.

In the event of a land based search and rescue operation, volunteers are called out by the Police through the local SAR organisation at the group and regional levels. An Incident

Management Team (IMT) is then formed, compromised of both Police and LandSAR volunteers.

LandSAR has over 2,500 trained SAR volunteers, who are members of 63 Land Search & Rescue groups, organised into seven regions, covering New Zealand. It includes two national specialist groups – LandSAR Search Dogs and LandSAR Caving. Other specialist groups such as Alpine Cliff Rescue and Swift Water Rescue operate on a local level where there is a requirement for these specialist skills.

LandSAR aims to ensure a minimum of two and an optimum of three handheld VHF radios is carried per search and rescue field team. They recommend the use of HF radio by search teams for secondary communications (or primary where VHF radio is ineffective). They are implementing a national radio battery maintenance programme and a single contact point for radio repair and maintenance.

LandSAR has 12 transportable repeaters and four, new design repeaters which can operate in either end or linking modes.

LandSAR issues

A nationally consistent approach to LandSAR radio equipment procurement and registration (i.e., asset management database) is required.

2.3 Amateur Radio Emergency Communications (AREC)

Amateur Radio Emergency Communications (AREC) is an associate member of NZART and a member of the New Zealand Search and Rescue (NZSAR) Consultative Committee. AREC members from 47 Sections form a network of amateur radio operators throughout New Zealand who provide communication services to support SAR, Civil Defence, sporting and other radio services.

AREC objectives include:

- Maintain a close liaison with the NZ Police and LANDSAR for Search and Rescue.
- Maintain a close liaison with Civil Defence in New Zealand.
- Maintain liaison with other community organisations.
- Provide and maintain suitable radio equipment appropriate to the emergency situation.

AREC members are volunteers. There are many, very experienced members who have worked with radio for many years. They have strong relationships with many search and rescue organisations (Police and LandSAR) throughout the country, and generally provide a good quality of service. However, there are parts of the country where the AREC does not have a presence and therefore cannot provide training or radio support to Police or LandSAR.

AREC is contracted via a Service Level Agreement (SLA) administered by NZSAR to provide a range of services to search and rescue organisations. AREC provides a wide range of advice

to organisations and groups including Police, LandSAR and helicopter operators on radio communications, and provides radio channel licences where required.

AREC Issues

Minimum standards need to be developed and maintained to ensure consistent training in the establishment and use of radio by SAR agencies.

A concerted effort to recruit and provide succession planning needs to be introduced to maintain a sufficient number of AREC volunteers for SAREX and SAROPS events.

2.4 Rescue Coordination Centre New Zealand (RCCNZ)

The RCCNZ is responsible for coordinating all major maritime and aviation search and rescue missions within New Zealand's search and rescue region, and land-based missions arising from someone activating a distress beacon. The Maritime Operations Centre (MOC), which is co-located with the RCCNZ, provides VHF and HF radio services for New Zealand's coastal waters and the South Pacific, including around-the-clock monitoring of radio frequencies for distress messages originating in NAVAREA XIV.

Generally, RCCNZ only communicates with Police or the MOC Control Centres. The rise in the number of Personal Locator Beacons (PLB) that are activated on New Zealand's landmass may necessitate direct communications between RCCNZ and SAR agencies during SAR events.

RCCNZ Issues

The RCCNZ sees a need to develop procedures for inter-agency communications and for passing information. This applies not only between communications centres, but also during SAR events. Maintaining compliance with these procedures will take ongoing training and mentoring.

There is currently no technical coordination or discussion between different SAR groups. RCCNZ would be keen to be involved in a technical liaison group for awareness and networking.

2.5 Maritime New Zealand (MNZ)

Maritime New Zealand owns and operates a Maritime Operations Centre (MOC) and a VHF marine radio network. Coastguard and Surf Lifesaving New Zealand use this network for their search and rescue activities. It also monitors CH 16 international distress and safety, and area working channels. All radio channels have voice recording.

MNZ also operates the Taupo Maritime HF Radio for oceanic distress on the HF international distress frequencies. It is the master control room for the VHF Maritime Radio Network of 30 coastal stations.

The MOC has IP based radio technologies allowing internet and smartphone access to VHF marine channels.

2.6 Department of Conservation

The Department is responsible for the oversight and upkeep of over 30% of New Zealand's landmass. It has developed an HF and VHF radio network to support its day to day operational requirements in areas without adequate telephone or cell phone coverage.

Many SAR incidents occur on DOC's estate, and DOC personnel often provide the initial response resource. At Aoraki/Mt Cook, DOC provides the high alpine SAR response on behalf of the NZ Police and this is covered by a Memorandum of Understanding between the DOC Area Office and the NZ Police. In addition, many DOC staff also volunteer their own time as LandSAR personnel on SAR events.

DOC's HF/VHF network includes 110 – 120 VHF repeater sites and 150 hut/base radios along with over 1250 VHF handheld and 700 vehicle mounted radios. It also owns over 150 portable HF radios and 10 HF base and hut radios. Six of the HF base stations have telephone interconnect. However, many of their HF radios are being phased out as satellite usage increases. DOC has over 80 satellite phones using the Iridium network that increasingly support DOC's day to day operations.

DOC makes their extensive HF / VHF repeater network available to support communications during SAR operations. Permission to access these repeaters and to program SAR radios from locations across New Zealand is generally arranged on a case by case basis between LandSAR and each local DOC Manager. A national agreement exists for channel usage.

DOC has programmed three of their HF stations (with telephone access) with SAR channels so they can be used to contact field SAR teams using their POLSAR radios.

A diagram of DOC's national VHF network and channel plan is shown in Appendix 1.

DOC Issues

Implementation of the Whole of Government Radio Network (WGRN) could affect DOC's future development and maintenance of its VHF and HF repeater network that is used to relay radio traffic during SAROPS in remote locations and mountainous terrain. This is a key issue to be discussed with the WGRN Governance Group.

2.7 New Zealand Defence Force

NZDF personnel and assets participate in SAR activities on an "as required" basis. The NZDF maintains a roster of personnel on call for any SAR events. NZDF resources available for commitment to SAR operation in the NZSRR consists of:

- P3K Orion aircraft (on two hours' readiness);

- NH90 helicopters (on two hours' readiness) (A109A helicopters are only used for aircrew training)
- One Navy vessel at eight hours' readiness for oceanic SAR;
- One Navy vessel at four hours' readiness for coastal SAR;
- NZDF ground rescue parties on request; and
- Military manpower and other resources (aircraft, vehicles, equipment) on request.

It is expected that any defence team supporting a SAROPS will operate with their own radio communications package. Engagement of the NZDF to assist a particular SAR operation is generally arranged by New Zealand Police.

2.8 Rescue Helicopters used for SAR

All certified rescue helicopters are fitted with radios that operate on Police, Fire and Ambulance channels. Radios with all VHF SAR and marine channels are also installed. There are no HF radios installed in these helicopters.

Northland Emergency Services Trust
The Trust offers rescue helicopter services with the capacity to contact ground crews during a SAROPS. They have VHF radios hard mounted in their helicopters that are tuned for the Northland region LandSAR frequencies, but are not sure if these frequencies apply in other regions.

Southern Lakes Helicopters Ltd
SLH Ltd provides aerial support for SAR Operations. They provide advice at briefings for establishing correct communication lines between ground parties, SAR Base and search aircraft. Two helicopters which are fitted with HF systems that are available for use wherever their aircraft are deployed.

The company has a VHF transportable base that is able to be utilised for SAR operations if required. They operate two fixed repeater sites at high altitude locations that link back to an operating base at Te Anau and provide maritime and company frequencies that can be utilised for Civil Defence and Maritime operations.

Police have provided radio systems for SAR in all SLH aircraft. Radio communications systems to work with Civil Defence, Ambulance and Fire are also installed.

The company is willing to consider future upgrade requirements if necessary, in keeping with new SAR requirements and technologies.

2.9 Surf Lifesaving New Zealand

Surf Lifesaving New Zealand (SLSNZ) has over 19,000 members spread across 74 clubs nationwide. SLSNZ use VHF marine channel 69 and NZ Coastguard VHF radio channels for communications at club level.

SLSNZ are three years into a 10-year project to modernise their radio communications. They are building a unique digital encrypted radio network consisting of a number of micro-networks connected with national control centres in Auckland and Tauranga. By 2020 in excess of 80% of their network will be DMR with approximately 45 repeaters throughout the country connecting multiple micro networks. These networks provide private voice and low speed data for GPS tracking and status messaging. Hand held radios can be programmed with digital and marine analogue channels.

The new digital network will use encrypted voice, real time GPS tracking and reporting. Interoperability between Surf Lifesaving, Coastguard and Police is planned in the future.

Currently the new digital radios are being used in Auckland and the Bay of Plenty.

SLSNZ has a radio control room alongside the Coastguard control room in Tauranga where they monitor national, real time activity by surf lifesavers. They are planning to install a 40 to 50 site digital radio network using UHF DMR radios provided by Logic Energy and Tait.

2.10 Coastguard

Coastguard New Zealand has 1800 volunteers crewing 75 rescue vessels around the country. Coastguard use VHF marine radio channels including their own exclusive repeater channels where they can operate in relative privacy in their area of operation. They also use local channel 16 and public secondary channels.

Recently the Coastguard VHF radio channels have been re allocated by the Radio Spectrum Management Office to enable some of their channels to be used as data channels. Some Coastguard repeaters have had to be programmed with different frequencies and some vessel radios are required to use different channels.

With all radio equipment used by Maritime Operation Centre now upgraded to IP based equipment there is now an opportunity for SAR groups to access these channels over the internet using computers and Smart phones.

Coastguard vessels and control rooms only have VHF marine radio channels installed. In South Taranaki, Coastguard vessels have been fitted with Police 75 MHz radios to enhance coverage for search and rescue activities.

See Appendix 3: Map of NZ showing marine VHF coverage.

Coastguard Issues

LandSAR frequencies cannot be programmed into Coastguard radios. Permission needs to be sought from the licence owner of the new Coastguard frequencies to programme them into SAR radios.

2.11 Ambulance

The Ambulance services are not generally involved in SAR operations, but may be present at a SAR Base or SAR HQ with their own ambulance radio communications.

Example: Dunedin Order of St John

Any Ambulance involvement would generally have a crew at the local SAR HQ /base with no radio capability other than normal Ambulance radio communications. Ambulance crews are not generally directly involved in SAR. If an ambulance does attend, crew are based at a search HQ where a SAR radio is provided. If an ambulance team does go in on foot, they will not be using a radio supplied by St John.

Ambulance services still make extensive use of Telepagers for ambulance operations to contact specialised team members for SAR, helicopter, water rescue etc.

Currently, ambulance services experience areas of poor VHF radio coverage that are not designed for portable operation. They are expected to join the P25[1] trunked network in Auckland, Wellington and Canterbury in the future. A program to add coverage in isolated areas and increase network (analogue) resilience to cater for the next five years is currently under way.

The emergence of cellular based options will augment current communications capabilities to a degree. Overall, the service is in a holding pattern whilst awaiting a future strategy for an Emergency Services radio network.

All ambulance VHF radios are programmed with ESB liaison repeater and simplex channels. These liaison channels are also programmed into all SAR, Police and Fire radios.

2.12 NZ Fire Service

NZ Fire Service vehicles operate on the NZ Police 75 MHz VHF analogue radio network to connect with one of their three Communications Centres. On the ground each fire fighter uses a handheld portable radio operating on the IGC (incident ground communications) UHF radio channels. There is no direct radio link from the IGC radios back to the Fire Communications centres.

The Fire Service provides a fire services command vehicle when requested to support a SAROPS. Their command vehicles that are fitted with radios operating on Police, Ambulance, SAR, Civil Defence, DOC and marine VHF channels.

[1] Project 25 (P25 or APCO-25) is a digital public safety communications standard dedicated to ensuring interoperability by public safety organisations to enable them to communicate with other agencies and aid response teams in emergencies.

The Fire Service also has an Urban Search and Rescue group that work during Civil defence emergencies in damaged buildings. They use UHF portable radios.

Fire Service Issues

The introduction of new IGC radios operating on the UHF band will prevent the Fire Service from communicating on SAR VHF radio channels. If deployed for a search and rescue operation, each command vehicle is able to communicate by radio to SAR base and SAR teams but individual fire fighters will be unable to do so.

2.13 Civil Defence

There is no direct engagement between SAR agencies and national or regional Civil Defence organisations to consider sharing resources, training activities or joint strategic planning. Discussions with individual Civil Defence Emergency Management (CDEM) centres around the country indicate a range of capabilities and abilities to support and augment communications during SAR operations.

Auckland CDEM
Auckland CDEM currently does not have any responsibility for SAR radio communications but maintains and operates an independent VHF system. However, they have a close working relationship with the Northern District AREC. Two communication hubs have been established with AREC branches and the CDEM Emergency Coordination Centre (ECC). Auckland CDEM has CDEM radio liaison with the Police Northern Communications Centre and Fire communications Centre via VHF radios installed in their ECC.

Auckland CDEM also has two VHF transportable repeaters, ES 164 (Emergency services liaison), ES 132 (portable incident repeater), and 9 VHF Fixed repeaters across the Auckland Region. They also own several HF frequencies (former MCDEM) and an HF base radio, as well as several Iridium Satellite phones and BGAN units.

Auckland CDEM offer the capacity to support land based SAR communications if required.

Wellington Region Emergency Management Offices
Wellington Regional Civic Defence has Emergency Management operations centres (EOC) located in Wellington, Lower Hutt, Upper Hutt, Masterton, Kapiti and Porirua. Each EOC has the ability to support SAR operations from a communications perspective, such as allowing the use of their channels in local area searches if the need arises.

They maintain a network of 27 fixed repeaters across the Wellington region, with one Police radio installed at their Wellington EOC and radio access to fire, ambulance, coastguard and RCCNZ communications centres. Emergency communications also include Iridium, Inmarsat and IPStar satellite phones at all EOCs.

Civil Defence Issues

Each regional council has developed its own civil defence operational plans and procedures including communications networks and equipment usage and management practices.

Civil Defence groups are in the process of modernising their radio assets.

2.14 Other Radio Network providers

Private Forestry radio networks

Forestry operations in the "green triangle" (Auckland – Hamilton – Tauranga) generally rely on intensive VHF radio networks to maintain contact with their felling crews and transport assets. This area also coincides with demand for SAR services where access to these radio networks could be of value.

In general, the forest owners are not keen to make their channels available for SAR radios to be programmed into them. However, there is a possibility that some of the forest companies would consider, on a case by case basis, making available some forestry portable radios with certain forest channels installed should the need arise. SAR organisations would need to contact the forest company representative at the time of the operation to arrange this, and the application would be considered depending on health and safety requirements, and what else might be going on in the forest at the time.

In the interests of health and safety, the forest managers ask to be contacted prior to any forestry being entered to carry out a SAR operation.

3 SAR Radio Communications – Issues and Challenges

The nature of SAR activities and the availability of communications technologies that could be used during SAR operations are evolving at an ever-increasing rate. The ability exists to equip each search team member with both voice and data communications, and transmit their location. The need for such connectivity however, needs to be balanced against acquisition and operating costs, and the overheads inherent in running and maintaining more complex networks.

3.1 Changes in communications technology

This section reviews the VHF and HF radio technologies and features that are available now and in the future, and their relevance to the SAR environment.

3.1.1 Why HF and VHF radios are required for SAR

New technologies have emerged to support mobile services to the extent that cellular communications are used extensively in place of traditional radio networks and services. However, the issues of resilience and reliability make cellular and other "line of sight" radio services unsuitable for SAR communications outside the major cities, towns and highways. The ability of VHF and particularly HF radio to "get through" under the most adverse conditions makes it an essential component of SAR communications.

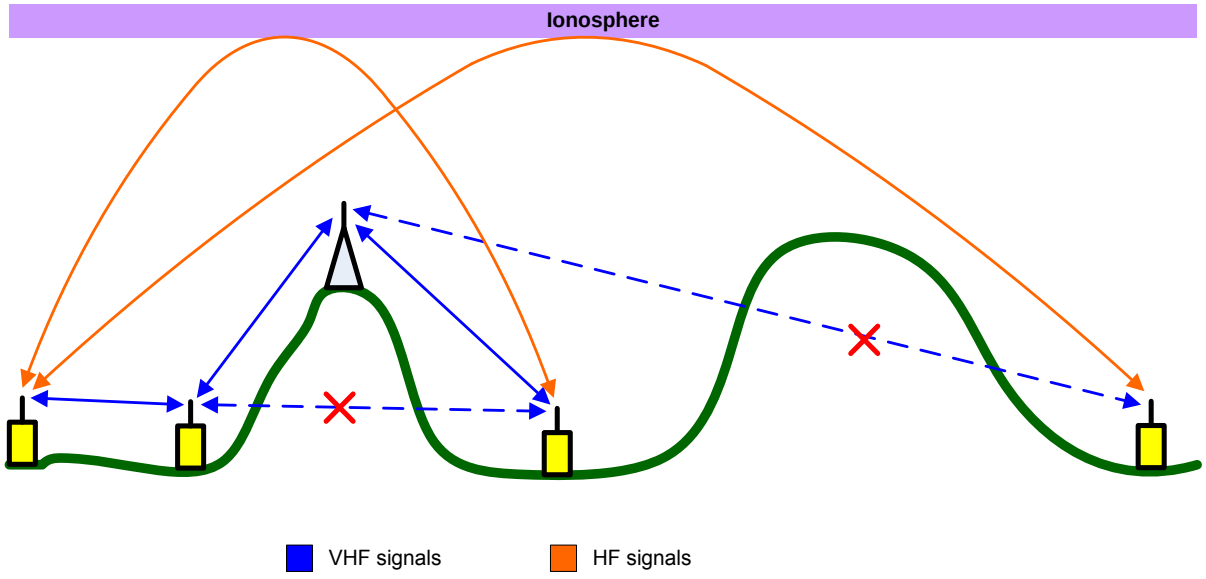


Figure 1: HF and VHF radio characteristics

While VHF radio signals cannot penetrate solid obstacles such as buildings and mountains, VHF range can be extended using either fixed or transportable repeaters. HF radio signals can be reflected off the ionosphere in the upper atmosphere, thus extending their range over

much longer distances than VHF signals. This is shown above in **Figure 1: HF and VHF radio characteristics.**

Fixed repeaters are dependent on batteries that are charged by mains or solar power that may be disrupted. They are often located in inhospitable sites where their aerial systems can be damaged by wind or lightning strikes which render them inoperative.

Transportable repeaters operate with lower gain aerials and lower transmit power than fixed repeaters. Poor weather and difficult terrain can prevent VHF transportable repeaters from being deployed during a SAR operation.

3.1.2 VHF Radio for search and rescue

Current situation

Very High Frequency (VHF) radio equipment, operating on the Emergency Services (ES) band is the primary means of communication for land search and rescue in New Zealand. VHF provides reliable, good quality analogue voice performance with 'line of sight' handset to handset and extended coverage when repeaters are used.

VHF handheld portable radios that are commonly used in SAROPS are made by different manufactures (Tait, ICOM) and owned by different organisations (Police, LandSAR, DOC and AREC).

To provide the required coverage between radios in the field, radio repeaters are used. These repeaters are either permanently installed at fixed locations or are transportable. Transportable repeaters are in storage ready to be deployed as and when required.

The fixed repeaters are owned and maintained by Police, DOC and AREC and the transportable repeaters are owned by Police and LandSAR NZ.

There is also a small quantity of transportable 'back to back' trigger link radios owned by Police and a small quantity of repeaters accessed by UHF link radios owned by AREC.

The quantity of hand held radios around the country is significant with a typical search team of three or four people carrying at least two radios. This equates to approximately 5,000 handheld units that need to be maintained for immediate use.

All radios use modern rechargeable batteries which can last an eight-hour search period. A spare battery is also provided with each radio during field deployment.

GPS tracking Features

Police-owned radios and many LandSAR and AREC radios have built in GPS receivers that can be 'followed' by the SARTrack system. Extension speaker microphones with built in GPS receivers provide this facility on current LandSAR radios.

Marine channels

Coastguard Radio monitors and broadcasts over VHF Channel 16.

Emergency Services (ES) band VHF band radios are also capable of operating on the marine VHF frequencies which enables search team to operate with Coastguard vessels and rescue helicopters.

Police digital trunk radio networks.

Police own and operate three VHF digital radio networks (referred to as the Replacement Radio Network) that provide very good coverage for general duties policing in Auckland, Wellington and Canterbury. This network is digitally encrypted and uses the trunking feature. The analogue radios currently owned by LandSAR, AREC and DOC cannot use these Police networks. However, Police owned VHF handheld portable radios can operate on a dedicated talk group which is not encrypted.

Future Whole of Government Radio Networks

The existing Replacement Radio Network (RRN) installed for Police will not be extended beyond its current coverage. While emergency users including Fire and Ambulance will be encouraged to utilise the RRN where it is available, the ongoing focus will be development of the Whole of Government Radio Network (WGRN) based on Long Term Evolution (LTE) of the cellular network (see Section 3.6).

VHF radio repeaters for SAR

VHF radio signals generally travel in straight lines and can be blocked by hills and mountains. To extend their range, VHF radio communications must be retransmitted via a repeater.

Police transportable repeaters

The primary form of radio repeater used for SAR is the VHF transportable repeater supplied by Police and LandSAR (see Figure 2). There are 4 VHF channels that these repeaters can be deployed on and there is a small quantity of transportable 'back-to-back' trigger repeaters that can be used to link the transportable repeaters together.

These repeaters are deployed by Police officers, LandSAR volunteers and AREC volunteers using helicopters, 4WD vehicles and/or walking to a suitable location at the beginning of each SAR operation. Often the weather is poor which affects the deployment time.

There is a perception that the transportable repeaters are unreliable once they are deployed. This is generally the result of poor maintenance of power supplies and aerials rather than the repeater units themselves.

LandSAR portable repeaters

LandSAR has 12 transportable repeaters and four, new design repeaters which can operate in either end or linking modes.

Civil Defence portable repeaters

Discussions with Auckland and Wellington Regional Civil Defence indicate that both organisations own VHF portable repeaters which are deployed for relay of emergency service liaison and incident management.

Figure 2: Police Portable Repeater equipment and aerial assembly

Fixed VHF radio repeaters

Where statistics have shown that many search and rescue operations have occurred in a particular area, funding has been raised to build permanent radio stations.

Additional funding for more fixed station repeaters may be justified to minimise the time that the transportable repeaters take to deploy. Transportable repeaters often have to be flown to an appropriate high point by helicopter – an exercise that is often affected by bad weather.

The four VHF repeater channels used by the transportable repeaters cannot be used for fixed radio stations due to channel management and frequency licencing issues.

There are fixed repeaters covering most of the Wellington and Wairarapa search areas along with repeaters on Mt Taranaki, the northern part of the South Island, Wairoa and the Bay of Plenty. The frequencies used by these repeaters are licenced either by NZ Police or the AREC. Maintenance of these repeaters is carried out by AREC or through other local arrangements.

These repeaters are generally 'stand-alone' with no linking to other repeaters. All VHF handheld portable radios are programmed with these fixed repeater channels on a per-region basis.

Mobile radios used as base radios in the SAR base are generally connected to high gain aerials on a mast, with one radio for each channel in use.

DOC Fixed VHF radio repeaters

The New Zealand Department of Conservation (DOC) have a number of 'standalone' fixed VHF repeaters located through the country. The VHF radios used by SAR have all of the DOC channels programmed into them and DOC has given permission to use their radio repeaters during SAR emergencies and exercises.

AREC fixed repeaters.

AREC supplies and installs fixed repeaters for land based SAR operations through the country as follows (this is not a complete list as some MS08/MS17 data is incomplete):

EE122 repeaters / location
COLONIAL KNOB PORIRUA BP31 513.58 426.16
HIGHCLIFF DUNEDIN CE17 132.79 162.56
HUIA STREET KAPITI BP32 762.22 750.40
KOHUKOHUNUI AUCKLAND BB33 977.08 993.83
MANUOHA WAIROA BG40 586.73 133.67

PARIWHARIKI TRIG WAIRARAPA BP35 289.84 460.75
PIHANGA TARANGI BH35 396.34 749.62
CAPE EGMONT -39.276266, 173.755020

EE196 repeaters / location
KAHAROA BAY OF PLENTY BF40 685.00 476.00
MT HOLDSWORTH TARARUAS BP33 035.84 724.83
WRIGHT HILL WELLINGTON BQ31 446.78 260.89
NEW PLYMOUTH POWER STATION CHIMNEY -39.057338 174.027478

MS17 repeaters / location
OTARAOA ROAD NORTH TARANAKI (Egmont coverage) -39.065227, 174.302735
CROWTHER WAINOUMATA BQ32 641.77 280.86
MT MISERY TAURANGA
ROYS PEAK WANAKA CB12 869434

MS08 repeaters / locations
MANAIA SOTUH TARANAKI (Egmont coverage) -39.551229, 174.124173

Fixed repeater management and maintenance

Key issues to be addressed to ensure repeater coverage is consistently provided and maintained across New Zealand include:

- Documentation showing where the fixed repeaters are, and what coverage they provide, needs to be brought up to date as the current information is incomplete.
- A program to keep fixed repeaters maintained needs to be developed and implemented.
- Frequency licencing should be financed and administered by a single organisation.
- Linking of repeaters to provide greater coverage should be investigated, designed and implemented where applicable.

Channel plans

Even though most VHF radios have the same channels in them, and therefore can communicate with each other, different SAR organisations have programmed their radios with different channel plans which use different names for the same frequencies. This has been identified as a major issue which causes confusion when the different organisations come together for the same search and rescue operation.

Non-commercial nation-wide VHF networks

DOC, Civil Defence and Maritime New Zealand provide nation-wide VHF networks (non-commercial) that exist independently to fulfil their specific requirements. There is an opportunity to utilise these networks on an as-required basis to support SAR activities.

3.1.3 HF radio for search and rescue

Current situation

All Police search and rescue groups have at least six POLSAR HF handheld portable radios. These radios are based on the SR3 radio used by the Mountain Radio organisation.

Each search and rescue team generally carries one POLSAR radio which is used when the VHF radio equipment cannot provide the required communications connectivity.

The POLSAR radio operates at five watts and is equipped with three frequencies which are called SAR day, SAR night and Police 6. The latter frequency provides an option to the SAR day frequency during the afternoon time period.

There are a number of high powered HF radio transceivers installed in Police stations around the country to communicate with the POLSAR radios in the field. There are also three high powered HF radio stations own by Police and three high powered radio stations owned by DOC that operate on SAR frequencies. These six radio stations can be remotely accessed with telephones.

AREC also provide high powered HF radio stations at fixed locations such as the Hood Aerodrome near Masterton and in the Canterbury AREC communications vehicles.

With training provided by the AREC, each search team can deploy and use HF radio when there is no other form of radio communications available.

The future for HF radio

With cellular telephone coverage growing and satellite telephones becoming more available there is a tendency for HF radio not to be used and to be considered “old fashioned radio” and thus no longer required.

There are many areas in the country where the cellular infrastructure does not exist and satellite phones do not function reliably. This situation will not change markedly with the introduction of LTE networks based on cellular technologies. HF radio will still work as a last resort in these areas and under adverse circumstances.

The “get through” capability of HF radio means that it should continue to be maintained and used wherever possible.

Long Range Digital radio (LRDR) using HF

Search and Rescue teams in the western and southern parts of the South Island often suffer with unreliable radio communication in their search areas. The mountainous terrain provides little access to cellular and satellite phone services. VHF radio does not provide the required coverage and the POLSAR handheld portable radios are ‘guaranteed not to work’ according to many users.

An enhanced HF 'end to end' radio link using digital technology and automatic frequency establishment has been developed and preliminary tests indicate its potential to provide radio communications in the high country of the South Island West Coast and Southland. The LRDR solution should be assessed in a series of structured scenarios to determine its feasibility and effectiveness in 'real life' situations.

NZ Defence opportunities

New Zealand Defence is about to 'refresh' its 20-year-old HF radio stations located throughout the country. They are still in the planning stages and are inviting organisations like the Police and LandSAR to provide users' requirements to assist with the design capabilities and capacities of the new HF radio stations.

It is likely that this new HF radio system will be part of the NZ Whole of Government Radio Network program with the possibility of some HF radio circuits being made available for search and rescue operations.

The NZ Defence HF radio station will be designed for long range ship to shore radio communication to the South Pacific and Asia with aerial farms associated with each station, allowing aerial configurations that can be remotely changed to provide shorter, in-country HF radio coverage using the Near vertical incidence skywave (NVIS) aerials.

The HF stations are connected together with the Defence IP networks, so that circuits on specific frequencies could be made available for search and rescue requirements.

Service Level Agreements should be developed so SAR services can ensure access and availability when required.

RNZAF helicopter access to SAR radio channels

The two new helicopter types owned by the RNZAF are the A109 and NH90. Both helicopter types have the same radio communications equipment on board using the Wulfsberg RT 500 communication equipment. Any HF and or VHF radio frequency can be dialled into the Wulfsberg by the aircrew to enable radio communications with SAR field teams and SAR Base/HQ.

The RNZAF also have vehicles fitted with HF and VHF radios that will operate on SAR radio channels. LandSAR managers need the ability to advise aircrew on which SAR channels are being used on the day of the SAR operation.

3.1.4 Radio and Telecommunication (ICT) equipment at SAR Base

A SAR Base is set up to run each search operation. There are a number of dedicated SAR Bases around the country. Some are established in Police stations and others are set up by AREC.

There is also a small quantity of buses set up as communications vehicles that have all the required radio equipment.

The SAR base will generally have the following equipment:

- At least two analogue telephone landlines providing voice, fax and internet.
- Cellular phones if coverage is available.
- Internet connections using landline ADSL, Cellular 4G and BGAN and/or IP STAR satellite phones.
- Printers and scanners (colour)
- HF 100 watt base radio with broadband dipole aerial attached to mast (supplied by AREC). (HF telephone interconnect can be used instead)
- VHF mobile radios with 12 volt power supply connected to high gain aerials on masts. One radio for each channel being used.
- Aviation VHF AM radio to communicate to helicopters
- Marine VHF FM to communicate with boats such as Coastguard.
- Battery charging for all type of handheld portable radios.
- Spare batteries for POLSAR HF portable radios.
- Uninterrupted Power Supply (UPS) / high capacity batteries to provide power to communications equipment if mains power is not available
- Petrol generators to provide mains power if nation grid unavailable.
- Computer Local Area Network (LAN) to connect computers to each other and to printers and the internet. (This is often a Wi-Fi network)

Future enhancements planned include:

- Voice recording of VHF radio channels.
- Computers with software connected to VHF base radios for tracking field teams using VHF portable radios with built in GPS.

3.2 Changes in SAR communications expectations

The requirement for effective and reliable SAR communications is expected to continue regardless of any change to the location or duration of search activities. Urban searches are likely to use cellular services where available, and utilise cellular functions such as text and data transfer. However, there is no guarantee that cellular coverage will be available

in all urban/metropolitan locations, and search teams should be equipped with VHF communications equipment as a minimum.

For searches outside reliable cellular coverage, there is no expectation that the use of VHF radio will decline. Greater awareness of incident management applications such as SARTrack is expected to increase demand for such services, and pressure for GPS-enabled equipment to be widely available will also increase.

A perception that HF radio is difficult to set up and use needs to be addressed. Currently, confidence levels in the set up and use of HF radio equipment varies between different SAR groups. This particularly relates to the provision of training and the availability of AREC volunteers when needed to manage HF communications during SAREX and SAROPS.

There are concerns that the Police may become less involved "on the ground" and opt to fulfil their SAR lead role from Command and Control centres. This will require radio equipment and networks to support long distance voice and data communications capability to SAR HQ and potentially, search teams.

3.3 Options available for the supply and maintenance of communications assets

Currently each organisation manages its own purchase and maintenance arrangements with manufacturers. This has resulted in a diverse range of equipment being available, with different standards and operating procedures being apparent. An "ad hoc" approach to supply reduces overall buying power and leverage with manufacturers, both in terms of obtaining an optimal price and also a wider range of features that are available through high volume purchasing.

Implementation of the Whole of Government Radio Network (WGRN) and the intention of organisations such as the Fire Service to move their radio capabilities to the UHF spectrum is creating uncertainty about what the next generation of SAR radio equipment should provide in terms of standards, features and accessories.

There is a lot of equipment held at depots across the country, without an overall plan for its maintenance and upgrade to latest versions of firmware. LandSAR has initiated a procedure for receiving faulty handsets from SAR groups and arranging their repair with manufacturers through a single contact point. The procedure also includes a battery replacement programme that is being implemented with each local SAR group. This proactive maintenance model appears to be working well and could provide a model for a consistent approach to maintenance that ensures equipment is up to date and fully charged when required.

3.4 The availability of required resources and expertise

AREC Volunteers

Because AREC members are expert in the field of radio communications they are expected to provide a full range of radio services to the search and rescue organisations. These include:

- General maintenance including preventative and troubleshooting of HF and VHF radio equipment
- Effective deployment of radio repeaters and base station radios including best practice for aerial installations and battery backup.
- Expert knowledge on the use of the HF telephone interconnect systems.
- Expert knowledge on the use of VHF handheld portable radios.
- Expert knowledge on the performance and coverage of local VHF radio repeaters.
- Providing an operational channel plan for each search and rescue operation.
- Assisting all search field teams to check their radio equipment before they go into the field.
- Effective training on the use of HF and VHF radio equipment to the search teams.
- Providing a professional operation of the radios to get information to and from the field teams leading by example.
- Effective message management and recording.
- Effective map reading skills.
- Keeping up to date with current search and rescue techniques by participating in appropriate Land SAR training courses.
- Becoming familiar with the new SARTrack application.
- Assisting evaluation of the proposed LRDR system.

Minimum standards need to be developed and maintained for these services.

A trend towards an older average age of AREC volunteers means that robust recruiting and succession planning need to be introduced to maintain an adequate number of AREC personnel.

3.5 Costs, funding and affordability

The cost of a SAROPS is met by the respective Coordinating Authority, i.e. Police or RCCNZ. There is no indication that this funding arrangement is likely to change. However, the costs of maintaining SAR readiness in the form of personnel training (classroom and field-based exercises), equipment provision and maintenance, and the availability of national networks (e.g. the Police HF network) and resources skilled in their maintenance and management by the Coordinating Authorities are continually under review.

The increasing availability of location devices such as Personal Locator Beacons (PLB) may result in more rescue- only rather than full-scale search and rescue activities. However, the

need for trained volunteers with modern, well-maintained equipment will not change so that the cost of sustaining New Zealand's SAR capability will not reduce.

3.6 The whole of government radio network project

The Police Replacement Radio Network (RRN) Programme was established in 2008 to focus on the development of a digital radio network for operational policing purposes and migration of Police onto that network, initially in the Wellington, Auckland and Canterbury districts, followed by the rest of New Zealand. A Whole of Government Radio Network (WGRN) was subsequently envisaged, utilising and expanding the RRN to enable the development and deployment of a radio communications for use by Public Protection and Disaster Relief (PPDR) agencies[2].

Long term future using LTE (Long Term Evolution) radio networks.

With the increased requirement for high speed broad band radio networks to transport high capacity data and video streaming, the New Zealand Government is looking at a Long Term Evolution (LTE) cellular solution.

LTE is a wireless broadband technology designed to support roaming Internet access via cell phones and handheld devices. LTE architecture is based on Internet Protocol (IP) to support browsing web sites, Voice over IP(VOIP) and other IP-based services and can theoretically support downloads at 300 Megabits per second (MBps).

LTE service is only available in limited geographic areas. Cellular providers such as Spark and Vodafone have joined with radio manufacturers including Motorola and Tait to develop 4G networks for emergency services to use. When these networks are brought into service there will be an opportunity for search and rescue organisations to take advantage of the coverage and features the LTE network will provide.

The subsequent development of the WGRN strategy envisages an RRN operating within its current boundaries in Auckland, Wellington and Canterbury. Existing conventional networks will be constrained to current areas of operation while a replacement strategy using LTE (long term evolution) technologies, principally cellular will be implemented.

Other aspects of the WGRN strategy that may affect SAR organisations' continued use and development of radio networks include:

- Overcoming issues of coverage and resilience in current cellular networks are a key component of the WGRN strategy.
- Agencies using conventional analogue networks will be required to develop migration strategies to an LTE environment with broadband data capability for their future mode of operation.

[2] Whole of Government Plan for Public Protection and Disaster Relief Radio Communications. April 2010

- Emergency services including fire and ambulance will be expected to utilise the RRN where it exists.
- Implementation of the WGRN strategy will affect LandSAR agreements to use radio equipment assets such as the Department of Conservation's fixed HF and VHF repeater network.
- Further purchases of radio equipment (including handsets) should incorporate the dual mode P25 standard i.e. both analogue and digital capabilities.

3.7 The capabilities and versatility of modern VHF and HF communications systems

HF radio use

The high frequency band (3 – 30 MHz) is effective for users who require direct, long-distance communications. The number of marine, aviation, military, and diplomatic/embassy users has declined in recent years in favour of less volatile communication technologies such as satellites although HF stations have been retained for back-up purposes.

However, countering this trend, the development of Automatic Link Establishment technology based on military standards for automated connectivity and frequency selection, along with the high costs of satellite usage has resulted in an increase in HF usage among traditional users. The development of higher speed modems which support data rates up to 9600 bit/s has also increased the usability of HF for data communications. Other standards development provides for error free data communications through the use of ARQ protocols.

VHF radio use

Propagation characteristics of the very high frequency band (30 – 300 MHz) are suitable for short-distance terrestrial communication just beyond the line of sight. VHF transmissions are restricted to the local area but are less affected by atmospheric noise and interference from electrical equipment than lower frequencies.

UHF radio use

UHF is the most commonly used frequency band (300MHz – 3 GHz) for transmission of television signals, mobile phones and the Global Positioning System (GPS). UHF is widely used for two-way radio communication, usually using narrowband frequency modulation (FM) and increasingly digital services. UHF is limited to line of sight transmission and reception but has the ability to penetrate buildings and is less susceptible to electrical interference.

Military radio developments

Military services demand networks for tactical voice, data and video communications that are versatile and reliable with easy radio integration and connectivity. Different systems need to talk to each other without disconnection. Older radio systems are not designed to connect to broadband IP-based networks nor are current radios capable of forming ad hoc networks with minimal configuration changes.

Both New Zealand and Australian military defence forces' vehicles and platoons rely on very-high frequency (VHF) Combat Net Radios (CNR). The battlefield role of the VHF CNR is complemented by handheld UHF radios and by a backbone of wideband high frequency (HF) backpacks.

The use of software-defined radios (SDR) is becoming widespread where SDR allows a single radio to operate in multiple waveforms for a wide range of capabilities. The ability to coordinate with foreign militaries, as well as within services of a single armed force, is also critical.

Satellite communications (Satcom) technology is widely utilised in tactical communications but HF communications continue to be used where satellite communications are finite and overburdened. HF radio's key advantage is its beyond-line-of-sight application for a fraction of the cost of a Satcom signal. HF radios have also increased their data transmission capacity, thereby allowing messaging and situational awareness to be integrated into command-and-control (C2) networks. Due to size and weight reductions, HF radios are now commonly used on foot patrols. Another advantage is the use of Automatic Link Establishment (ALE) which means HF radios can be operated without detailed technical expertise.

The above summary of military radio usage offers a number of parallels with radio use in the SAR environment – the need for reliable communications between team members and the wider command and control networks; that interwork with other SAR organisations; be easily configured and operated; and be cost-effective while offering both voice and data communications capabilities. There is also an expectation that military applications eventually become available for civilian use and hence part of future SAR communications service options.

3.8 Location based services including live tracking of SAR VHF radios

Tracking systems are designed to provide near real-time information on the location of search team members. Current practice is for search teams to transfer their location on a topographical map using NZMG coordinates back to the search base via radio. The co-ordinates are entered onto a similar map at the search base.

This approach is time-consuming, cumbersome and potentially inaccurate. A GPS-based tracking system for each SAR search team termed SARTrack has been devised using commonly available tracking hardware and software based on publicly available software.

The availability and use of location-tracking applications is recommended to support all types of SAR operations and ensure that health and safety aspects of search and rescue activities are satisfied.

SARTrack issues

The SARTrack database needs to be capable of dynamically editing radio identification numbers so that handheld radios' identification numbers do not need to be manually altered for GPS tracking.

It is unclear whether the Police network can support GPS data burst traffic and hence may not be available to fully support SARTrack and similar GPS-based location monitoring.

3.9 "Network as a Service" (NaaS) communications

Opportunities may exist to contract SAR radio requirements, including procurement, implementation, management and maintenance of radio services to an open standard, similar to the P25 standard.

Organisations including Spark, Vodafone, Teamtalk, Tait, Icom and Motorola are possible contenders to offer NAAS communications that are underpinned with comprehensive and enforceable Service Level Agreements

Currently Spark and Vodafone provide a mobile COW (cellular on wheels) unit for temporary coverage of events such as rock concerts and large sporting events. Police and Fire have contracts with both Spark and Vodafone to use these units if required. These could be utilised in a SAROPS event if necessary.

3.10 The need for and provision of internet capabilities for land based SAR operations

In search areas where reliable 4G cellular coverage is available, SAR teams using a SMART phone can access the internet. They can send and receive emails with good quality photographs attached and their location can be tracked using the phones built in GPS.

Wellington SAR teams are often sent tasking messages via email on the cellular network. The issue is the lack of reliable cellular coverage in the hills surrounding Wellington where the search teams are operating.

The need for and benefits of internet access for search teams in areas not covered by reliable 4G cellular services needs to be explored further.

3.11 Analogue versus digital network services and operations

Digital radio offers advantages over analogue radio in the areas of security, data transmission and reception, spectral efficiency and speech clarity. Note that digital low speed data only is available, limiting its use to messaging and the exchange of GPS information.

Digital radios make use of IP-based networks that enable wider interoperability and connectivity.

Spectral efficiency means digital radio makes better use of allocated channels than analogue systems. This may be significant in the future as demand for spectrum space increases.

One immediate advantage of digital radio is clear audio where noise and interference can be screened out more effectively to the limits of coverage. This means clearer audio over greater distances under operating conditions.

In New Zealand, digital radio services are provided on the Police network that covers their Auckland, Wellington and Canterbury districts and regions.

Note Section 3.6 (Whole of Government Radio Network) where funding for agencies' expansion of their existing analogue radio networks is to cease and new radio transceiver purchases should comply with the dual mode P25 standard.

3.12 Encryption of operational SAR communications

Voice channels on the Police's digital network are encrypted for operational security reasons. SAR groups have not shown any enthusiasm for encryption of SAR VHF channels and are happy with the current practice of using codes to relay sensitive information.

3.13 Satellite based operational communications

The use of satellite telephones (Iridium, Thuraya, BGAN etc.) is often promoted as an alternative to radio in areas remote from terrestrial fixed line and cellular service coverage. However, SAR operations are often carried out in areas that cannot guarantee "line of sight" to communications satellites. This particularly applies for terrain in the lower west coast and southwest corner of the South Island. In this case, VHF and particularly HF radio provides the most reliable option for communications between search teams and the SAR Base.

3.14 Compatibility with marine and aviation SAR communications

There appears to be no standard approach to communications between SAR teams and

aircraft or marine assets. Emergency helicopters generally have access to SAR teams via VHF and/or HF radio communications if the local frequencies have been agreed in advance. Often AREC groups will have the means to establish aircraft communications but this may not be always the case.

Marine radio communications are similarly based on local arrangements. These may be affected with the impending changes to some Coastguard frequencies later in 2016.

3.15 MNZ and RCCNZ communications arrangements

Maritime New Zealand (MNZ)

Maritime New Zealand's Maritime Radio Service (Maritime Radio) is responsible for maintaining VHF and HF radio services for New Zealand's coastal waters and much of the South Pacific Ocean and Tasman Sea. The services it provides include monitoring radio frequencies for distress messages 24/7.

The region covered by the New Zealand Distress and Safety Radio Service is known as NAVAREA XIV which extends from the middle of the Tasman Sea to the mid-Pacific Ocean, and from Antarctica to south of the equator. Maritime New Zealand (MNZ) is responsible for broadcasting Maritime Safety Information (MSI) within this NAVAREA.

MSI includes meteorological information, coastal and oceanic navigational warnings, ice accretion warnings and ionospheric prediction forecasts. The service provided by MNZ is complemented by a network of volunteer private radio operators located around New Zealand and its offshore islands. The network is monitored at all times by staff working at the Maritime Operations Centre (MOC), co-located with the Rescue Coordination Centre New Zealand (RCCNZ).

The Maritime Radio Service comprises 30 coastal VHF stations. Of these stations, 28 provide VHF radio coverage throughout the coastal waters of New Zealand. The other two stations provide VHF radio coverage in the coastal waters of the Chatham Islands. There is also an oceanic MF/HF radio station located east of Lake Taupo. All stations are linked to the MOC. It coordinates the transmission of all MSI on voice HF and VHF, as well as navigational warnings broadcast over the Inmarsat SafetyNET satellite system.

Rescue Coordination Centre New Zealand (RCCNZ)

RCCNZ uses multiple methods for communicating with SAR field units, including cell and SAT Phones, the marine distress radio network, relay messaging via the DOC, LandSAR or Police land based radio networks and replaying messaging via other coordination centres e.g. Ambulance and Police Communication Centres.

The primary method of communications is by telephone either directly to a SAR unit or via a third party with access to the most suitable radio network. This use of multiple means of

communication systems can cause confusion as several different systems may need to be used for the one incident; messaging can get corrupted through relaying and there are spots where communication is almost impossible.

RCCNZ does not normally directly task land SAR units as this is done via the NZ Police. Their main interest is in communicating with rescue helicopters. Although these are aviation based, they often use the land based repeater networks to communicate.

4 SAR radio communications framework

Factors considered in developing an integrated SAR radio communications framework include:

Purpose and goal

"Affordable and sustainable radio communications that efficiently and effectively support all search and rescue activities while assuring the safety of SAR personnel and the public."

Framework principles

Principles that underpin the framework include:

- Reliable – Dependable, replicable communications when/wherever required
- Usable – SAR teams can set up and operate the radio equipment under all conditions
- Available – radio services can be established where required on New Zealand's landmass
- Effective – radio equipment and services (voice, data etc.) that are appropriate to the situation
- Sustainable – cost effective, environmentally sound, support SAR health and safety policies

Framework elements

Relevant elements include:

- Equipment
- Workforce
- Incident management
- Coordination
- Stakeholder management
- Protocols
- Environment management

Challenges

Challenges that are highlighted by the framework include:

- Availability of technical expertise to train radio users and manage SAR communications
- Agreement for a common radio communications channel management strategy.
- The implementation of efficient and effective maintenance plans that ensure that all equipment is updated to the latest versions of firmware, charged and ready for action when required.
- Evaluation and assessment of emerging technologies and new features of radio communications, such as encryption and data transfer, to determine the benefits they offer against increased cost and complexity.
- Ensuring that the communications capability provided by HF and VHF radio is consistent with SAR organisations' health and safety policies.

The complete, populated framework is presented below:

Principles	Elements						
	Equipment and network	Workforce	Local coordination	Incident management	Stakeholder management	Protocols	Environmental management
Reliable - 100% reliable, replicable communications when/wherever required	▪ Equipment is regularly maintained and serviced ▪ All radios configured with a consistent national channel naming convention	▪ AREC integral part of response team ▪ Each search team is equipped with at least 2 VHF radios ▪ One HF radio per search team	▪ Dependable voice connections between SAR HQ and individual search teams	▪ Voice connection to local coordination /search teams, e.g. via telephone interconnect ▪ Continual voice recording	▪ Communication channels between SAR teams and other SAR support groups, e.g. Police, DOC, Fire, SLSNZ, Coastguard etc. are available when required	▪ Standard radio operating procedures agreed and applied throughout NZ	▪ National equipment maintenance practices and processes provide reliable, functioning equipment at an affordable cost
Usable – Radio equipment can be set up and operated under all search conditions	▪ Can be set up and operated by all SAR team personnel	▪ Volunteers and SAR staff trained, competent and confident in using HF/VHF radio equipment	▪ Base stations, repeaters etc. available and accessible when required	▪ Incident Management Centre can talk directly to search teams in situ	▪ Search teams can communicate with other SAR organisations (e.g. rescue helicopter) via radio	▪ Operating procedures are up to date and everyone is regularly trained in their use	▪ Radio equipment is portable, easy to carry and safe to use in all land-based search environments
Available – radio services can be established anywhere on	▪ HF and VHF radio infrastructure across NZ landmass e.g.	▪ Search teams can rely on radio services wherever	▪ AREC personnel available to provide radio	▪ Police and DOC HF networks providing radio	▪ SAR Agencies' technical working group to lead discussion on	▪ National channel allocation, naming and management	▪ Permanent repeaters set up in frequent search areas

Principles	Elements						
	Equipment and network	Workforce	Local coordination	Incident management	Stakeholder management	Protocols	Environmental management
New Zealand's landmass	repeaters in place to support SAR requirements	they operate	connections at all SAROPS events	services when required	current and future radio communication issues and requirements	strategy that applies to all SAR agencies	▪ Equipment is maintained to a consistent level, e.g. batteries are replaced after a specified period
Effective – radio equipment and services (voice, data etc.) are appropriate to the search environment	▪ Provides the full range of connectivity and services required to support SAR activities	▪ Assists SAR teams to function confidently, effectively and safely in all conditions	▪ Continual knowledge of each SAR team's position and condition	▪ Able to send and receive important search directions and information	▪ Interconnection with other SAR organisation(s) where required to utilise available resources	▪ Clear decision criteria in determining future equipment requirements	▪ Integrated purchasing practices to ensure best product / feature set for lowest cost
Sustainable – integrated, cost effective, environmentally sound radio services supporting SAR health and safety policies	▪ Equipment and frequencies confirm with NZ and international radio standards	▪ Each team member is trained and proficient in the use of HF/VHF radio equipment	▪ Enables rapid search team deployment, supports best practice search practices	▪ Supports use of incident management software, e.g. SARTrack	▪ Safe working environment encourages ongoing volunteer involvement in SAR groups	▪ Radio availability, management and usage supports relevant Health and Safety policies	▪ Existing HF/VHF capability supported and maintained into the future

Principles	Elements						
	Equipment and network	Workforce	Local coordination	Incident management	Stakeholder management	Protocols	Environmental management
						▪ Alignment with other national networks, e.g. WGRN	

5 Responses from key stakeholders

Part of the information gathering process for the report involved seeking input from a number of SAR agencies and stakeholders via an on-line survey. Eighteen responses were received to a list of questions concerning the types of equipment used by a particular organisation; whether a specific communications strategy had been developed; shortcomings of existing radio networks, equipment and practices; and current and future radio communications requirements.

The survey results indicated a wide range of HF and VHF capabilities for each of the SAR agencies and other agencies that could be engaged to share equipment and repeater frequencies and coverage. In particular the various Regional Council/Territorial Local Authority Civil Defence management groups who responded demonstrate extensive radio infrastructure within their particular areas. They have existing relationships with their local AREC organisations and have expressed a willingness to work more closely with SAR organisations.

The response from RCCNZ confirmed that they don't own or manage any land based radio networks but very often interact with organisations that do. Due to the number of different networks and differing coverage, communication with SAR assets can be very complicated and on occasion directly hampering the SAR response. This may be exacerbated in the future as more SAR operations involve a response to personal location devices (PLB) which are managed and coordinated by RCCNZ.

Surf Lifesaving New Zealand are undertaking an ambitious digitisation programme to replace its extensive VHF LMR (EE Band) repeater network with fixed links. This network is a mix of analogue and DMR tier 2 conventional. However, by 2020 in excess of 80% of their network will be Digital Mobile Radio (DMR). SLSNZ by 2020 will have approximately 45 repeaters throughout the country broken down in multiple micro networks. This may provide another avenue for SAR agencies to utilise an expanded digital radio coverage footprint.

The Department of Conservation’s fixed HF base radio network is declining in number as their use of satellite telephones has increased. There are 10 base stations remaining, along with over 100 HF handheld radio sets that are no longer being used.

The data collected by the survey is shown in Table 2, overleaf:

TABLE 2: Communications Equipment available to SAR agencies

	Forms of Radio Communications used								
Stakeholder	VHF/FM Handheld Portable radio	HF handheld portable radio	Back pack radio	Vehicle mounted radio	Xportable base radio	Fixed base radio	Xportable VHF repeaters	Fixed repeaters	DOC fixed repeaters
LandSAR	✓	×	✓	✓	✓	✓	✓	✓	✓
AREC[3]	✓	✓/×	×	✓	✓	✓	✓	✓	✓
NZ Police	✓	✓	✓	✓	✓	✓	✓	✓	
RCCNZ	×[4]	×	×	×	×	×	×	×	×
DOC	✓	✓	×	✓	✓	✓	✓	×	✓
SLSNZ	✓	×	×	✓	✓	✓	×	✓	×

	Forms of Radio Communications used								
Stakeholder	Fixed HF base radios	Police digital trunk radio networks	Common (liaison) VHF FM simplex	Cellular / Satellite phones	Telepagers	Personal Locator Beacons	Radio access to comms centres	Access to aeronautical VHF/AM freqs.	
LandSAR	✓	×	✓	✓	✓	✓	×	×	
AREC	✓	×/✓	✓	✓/×	×	✓/×	✓[5]	✓	
NZ Police	✓	✓	✓	✓	✓	✓	✓	✓	
RCCNZ	×	×	×	✓	×	✓	×[6]	×[7]	
DOC	✓	×	✓	✓	×	✓	×	✓	
SLSNZ	×	×	✓	✓	×	×	✓[8]	×	

[3] AREC National and AREC Wellington respectively - AREC Wellington uses the Police digital network to talk with Police in support of land based SAR operations using Police supplied radios.

[4] Through Marine Network

[5] Can communicate via VHF/HF to Maritime NZ

[6] RCCNZ communicates with Police/Fire/Coast Guard etc. by land telephone

[7] RCCNZ communicates with aircraft via Airways

[8] SLSNZ has current interoperability with Coast Guard; discussing interoperability with NZ Police

TABLE 2: Communications Equipment available to SAR agencies (continued)

	Forms of Radio Communications used								
Stakeholder	VHF/FM Handheld Portable radio	HF handheld portable radio	Back pack radio	Vehicle mounted radio	Xportable base radio	Fixed base radio	Xportable VHF repeaters	Fixed repeaters	DOC fixed repeaters
Emerg. Heli[9]	×[10]	×	×	✓	×/✓	×/✓	×/✓	×	×
Coastguard	✓	✓	×	×	×	✓	×	✓	×
NZDF	✓	✓	✓	✓	✓	✓	✓	✓	×
NZ Fire Serv	✓	✓	×	✓	✓	×	✓	✓	×
Ambulance	✓[11]	×	×	✓	✓	×	✓	×	×
MNZ/MOC	×	×	×	×	×	✓	×	✓	×
CD/TLAs	✓	✓/×/×/×	✓/×/×/×	✓	✓	✓	✓	✓	×
	Forms of Radio Communications used								
Stakeholder	Fixed HF base radios	Police digital trunk radio networks	Common (liaison) VHF FM simplex	Cellular / Satellite phones	Telepagers	Personal Locator Beacons	Radio access to comms centres	Access to aeronautical VHF/AM freq.	
Emerg. Heli	×/✓	×	✓	✓	✓/×	✓	✓	✓	
Coastguard	✓	×	✓	✓	×	✓	✓	×	
NZDF	✓	×	✓	✓	×	✓	×	✓	
NZ Fire Serv	✓	×	✓	×	×	×	✓	×	
Ambulance	×	×	✓	✓	✓	×	✓	×	
MNZ/MOC	✓	×	×	×	×	×	×	×	
TLAs[12]	✓/✓/✓/×	/×/×/×/✓	✓	✓	×	×	✓	×/✓/×/×	

[9] Northland Emergency Services Trust and Southern Lakes Helicopters Ltd respectively

[10] Hard mounted in helicopter only

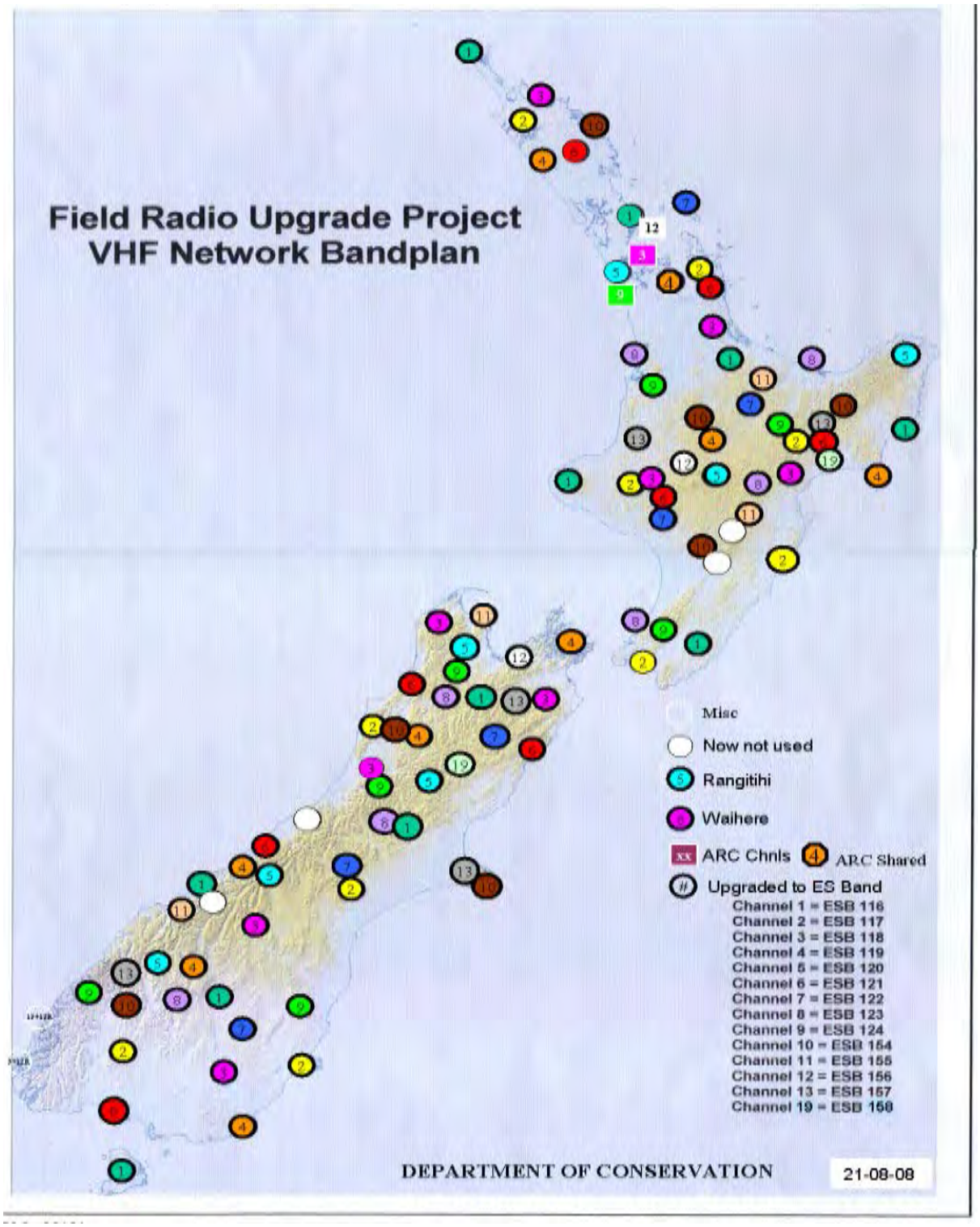
[11] ESB band channels licensed for ambulance operation only, plus ES liaison channels

[12] Response from Hawkes Bay CD, Auckland Council CDEM, Waikato Regional Council CDEM and Wellington EMO respectively

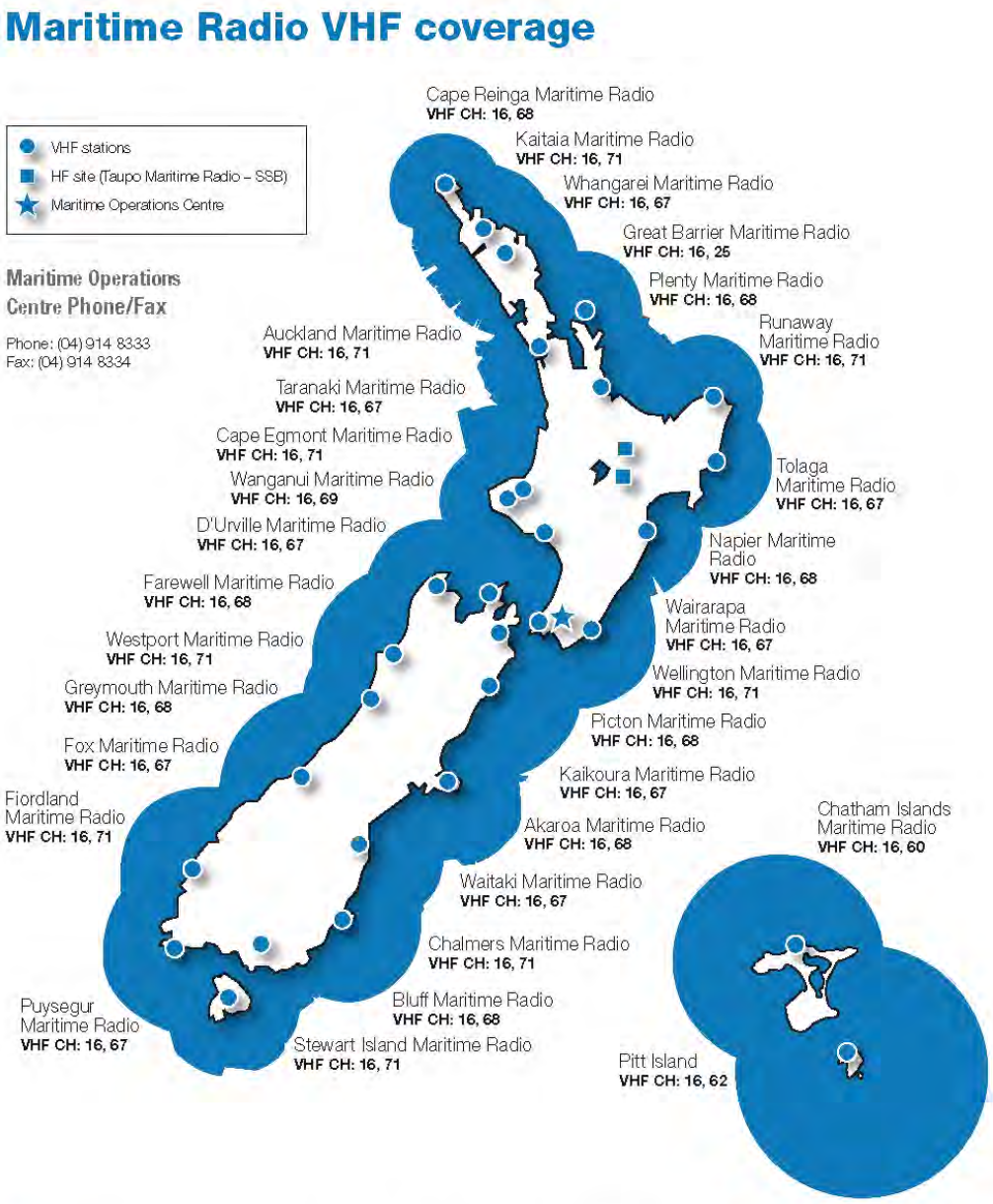
Appendix 1: HF radio stations in NZ accessible to the Police

Please note that the New Plymouth station no longer exists. There is a new HF radio station at the Gisborne Police station.

Appendix 2: NZ DOC VHF radio network



Appendix 3: Marine VHF Coverage



Note: gaps in coverage may exist within the areas shown, due to terrain 'shadows' (which can occur under cliffs close to the shore or in bays and fiords) and occasional system maintenance.

New Zealand Search and Rescue

16 September 2016

NZSAR12-1

NZSAR Council

RECOMMENDATIONS RESULTING FROM THE FIONA WILLS CORONIAL INQUEST

1. Background. The findings of Coroner CJ Devonport's inquest into the death of Fiona Wills were released on 8 April 2016. Coroner Devonport found that Mrs Wills likely died on or about 12 December 2014 from unascertained causes. He also included comment in paragraph 82. of his Findings as follows:

> *[82] I direct that a copy of my findings be forwarded to both the NZSAR Council and the NZSAR Consultative Committee for them to review the issues of concern identified by Mr Gordon and consider whether changes to policies and procedures are necessary.*

2. Mr Ross Gordon, a SARINZ (Search and Rescue Institute New Zealand) senior instructor, presented Coroner Devonport with a report and gave evidence at the inquiry which identified a range of search and rescue related concerns – mainly centred on training issues. SARINZ is not an approved SAR (ACE) skill acquisition training provider but seeks to become one. SARINZ is contracted by LandSAR to deliver continuation training.

3. Process. At previous meetings, the NZSAR Consultative Committee and Council established a multistage process to address the Coroners finding as follows:

a. *Collation of all issues and related information from the coronial inquiry documents.* This was undertaken by an independent contractor.

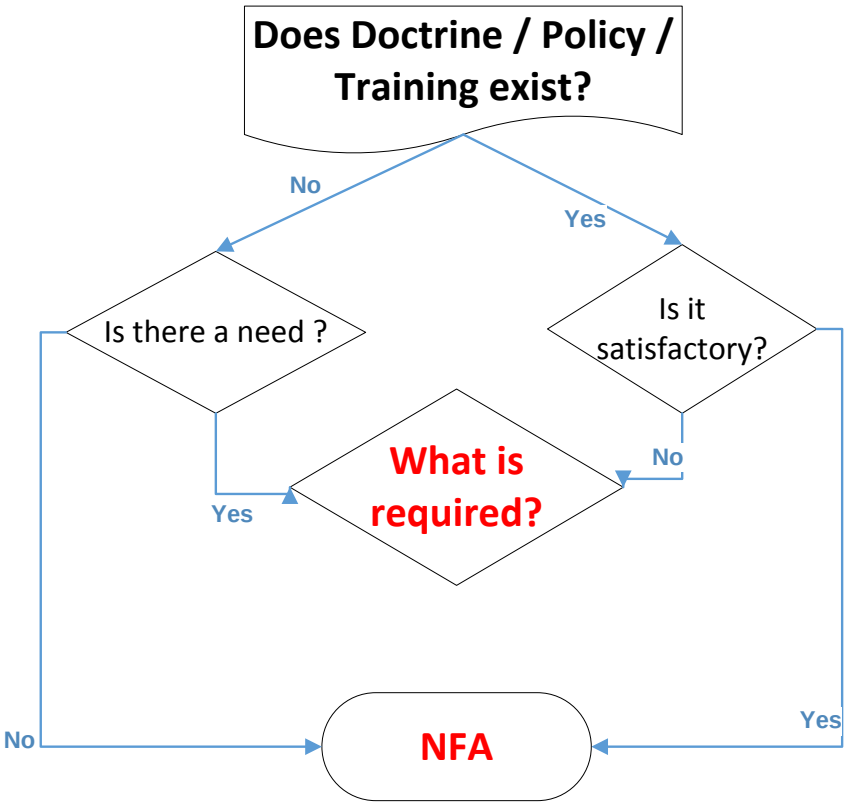
b. *Review of the findings of Stage 1, identification of existing SAR doctrine, policy, SOPs, training, forms or guidelines relevant to the issues identified.* This was undertaken by an experienced SAR Police Coordinator who had no prior knowledge of the Wills operation or inquest.

c. *Recommendations to the NZSAR Council with regard to any response or actions.* See this paper.

4. This process is intended to assist the SAR system learn from this operational experience and improve SAR system polices and procedures where it is deemed appropriate. The conduct or performance of organisations, groups, teams or individuals before, during or after the search for Fiona Wills are outside the scope of this process.

5. Issues of Concern. The table contained in paragraph 9 below summarises the identified issue, provides some commentary and lists a corresponding recommendation. The recommendations were prepared by the NZSAR Consultative Committee for consideration by the NZSAR Council. The Consultative Committee discussed each issue in detail applying the process described in the diagram below.

6.



7. Collectively, the issues raised at the Inquest further strengthen the desirability for the development and maintenance of an agreed, unified and documented doctrinal basis for the conduct of Search and Rescue in New Zealand.

8. Additional Issues of concern. The Police SAR Coordinator who undertook the process of identifying existing SAR doctrine, policy, SOP, training, forms or guidelines relevant to the issues identified, found two additional areas not raised within the Inquiry documentation but believed to be pertinent: File Management and Family Liaison. NZSAR identified a further issue relating to search suspension.

9. Issues, Commentary and Recommendations. The table below outlines the issue, provides summarised commentary and a related recommendation for consideration by the NZSAR Council.

Issue Raised by SARINZ	Commentary related to Issue	Recommendations
Issue 1.1 International best practice search methodologies and training not used. Individual Police/LandSAR not to blame. (Media Statement Fiona Wills Inquest 8-11 March 2016 –MS1).**[Wills Family]**	The Committee noted that a unified or collective view to what constitutes *international best practice* for SAR does not exist. A variety of SAR practices exist in different jurisdictions around the world. New Zealands SAR training content is able to provide satisfactory training and guidance suitable to the New Zealand environment. This includes foundation training, refresher training and SAR exercises. This training is readily available to New Zealand SAR practitioners.	**Recommendation 1.1** Develop an agreed, unified and documented doctrinal basis for the conduct of Search and Rescue in New Zealand.
Issue 1.2 The search for Fiona didn't happen according to best practice. (SR1, 4)	The Committee noted that SAR training in New Zealand has been extensively developed over the last decade, with a training regime where skills and development are taught to a level appropriate to that person's current ability and role within the SAR organisation. There are a number of SAR courses available which provide satisfactory training and guidance for NZSAR practitioners. Some procedural / process / practice variations exist between SAR organisations in NZ.	**Recommendation 1.2** Develop an agreed, unified and documented doctrinal basis for the conduct of Search and Rescue in New Zealand.

Issue Raised by SARINZ	Commentary related to Issue	Recommendations
Issue 1.3 ``Initial search phase abandoned too early. ” (SR1, 1).	The Committee noted that existing SAR terminology relating to search does not include the term ‘*abandoned’*. It does include the term ‘*suspended’.* Neither term applies to this issue. The Consultative Committee observed that it is difficult to apply a specific time span to an initial search phase due to a number of factors including mobility of the missing person, weather, size of the search area and time of day. The availability of resources available at the time will also impact on the decisions made. The Committee agreed more direction could be given regarding SAR resource prioritisation and allocation.	**Recommendation 1.3** Within an agreed, unified doctrinal document, provide guidance on SAR resource prioritisation and allocation, and the requesting of extra resources from neighbouring Districts.
Issue 1.4 Based on Lost Person Behaviour Survivability Tables for people with Alzheimer’s, Fiona Wills good physical health, the night temperature, lost in home environment. (SR1, 2-3)…*the search was abandoned too early*.	Lost Person Behaviour and Survivability are extensively covered in current training courses. Survivability should be determined by a suitably qualified medical practitioner, and is dependent on many contributing factors. The Committee agreed more direction could be given regarding survivability and search suspension.	**Recommendation 1.4** Within an agreed, unified doctrinal document, provide guidance on operational procedures relating to Lost Person Behaviour, survivability and search suspension.

Issue Raised by SARINZ	Commentary related to Issue	Recommendations
Issue 1.5 ``Many of the points raised in the SARINZ reports are the result of poor policy decisions and the frontline response personnel being let down through poor support and a lack of current best practice training. ” (SR2, 13)	The Consultative Committee is satisfied that the current SAR training programme provides adequate training and guidance suitable to the New Zealand environment and is available to NZSAR practitioners. Individuals have the opportunity to maintain currency of their training through exercises although more could be done to further enhance IMT preparedness. The implementation of the LandSAR competency programme is designed to ensure that individuals maintain their level of operational capability.	**Recommendation 1.5** Establish regular, nationally moderated incident management team continuation training and exercises to enhance and sustain incident management team competence.
Issue 2.1 ``A number of the searchers and the family described the Incident Control Point at one stage as being like a bombsite with tired and fatigued personnel. ” (Conversation with Wills Family referred to in SARINZ Report, 1 Feb 2015, p3). (SR). **[Wills Family]**	The Consultative Committee is satisfied that there are existing guidelines regarding the management of fatigue and for Health and Safety but that more guidance may be appropriate. Operations that start at the end of a day will typically have personnel coming on scene at the end of a normal working day. This should be taken into consideration when determining when changeover should occur.	**Recommendation 2.1** Within an agreed, unified doctrinal document, provide guidance on operational procedures relating to the management of fatigue.

Issue Raised by SARINZ	Commentary related to Issue	Recommendation
Issue 2.2 ``The Police SAR were called out at 9.00pm on Tuesday 9th December, 2014 and arrived about 12.00am to start the initial search phase. They then worked through the night and next day with limited breaks and few fresh staff being rostered on. The initial search terminated at approximately 18:00 hours on Wednesday 10th December, 2014. Thus it is likely that search staff started the search already sleep deprived and then deteriorated throughout the search and this appears to have affected all facets of the search. A number of the searchers and the family described the Incident Control Point at one stage as being like a bombsite with tired and fatigued personnel. ” (SARINZ Report, 1 Feb 2015, p3). (SR).	The Consultative Committee is satisfied with the existing guidelines which describe procedures for operational changeover, including the timing when this should occur.	**Recommendation 2.2** Ensure the existing guidelines for the coordination and management of IMT changeover is reflected within an agreed, unified doctrinal document. Refer also recommendation 1.3.
Issue 3.1 SARINZ comment to the effect that lack of comprehensive planning disadvantaged the search process and provide some diagrams to illustrate their point. (SR2,6)	The Consultative Committee is satisfied with the existing guidelines for the planning and management of SAR operations. SAR planning is based on the CIMS incident management process and the sector has a suite of up to date operational forms and guidelines and IMT operations.	**Recommendation 3.1** Ensure the existing guidelines for the planning and management of SAR operations is reflected within an agreed, unified doctrinal document.

Issue Raised by SARINZ	Commentary related to Issue	Recommendation
Issue 4.1 ``There appears to be limited search planning documentation beyond the early first operational period…" (SARINZ Report, 22 December 2015, 8). (SR2)	Police personnel responsible for the role of Incident Controller are qualified through a combination of training courses and operational experience. The Consultative Committee is satisfied with the existing documents and practice which are based on the use of CIMS for managing operations. The Committee noted deficiencies with current SAR IMT Management information technology.	**Recommendation 4.1a** Ensure the existing guidelines for the planning and management of SAR operations is reflected within an agreed, unified doctrinal document. **Recommendation 4.1b** Undertake a project to identify suitable SAR IMT management information technology.
Issue 5.1 Lack of written action plan. ``Initial (basic) search planning is NOT Formal Search Planning. Prior to the management handover and development of the consolidated Incident Action Plan (IAP) it would be expected that at least the scenario analysis and (shifting) POA allocation would have been revisited and investigated in greater depth. The outcomes of these processes would have driven the operational aspects of the Incident Action Plan for the coming operational period. There appears to be no evidence of a transition from initial response, initial search planning into full Formal Search Planning or any evidence of an IAP for the incoming IMT to ensure continuity of response efforts. " (SR2, 9)	The Consultative Committee is satisfied that specific training in formal search planning addresses extended search operations. The *Extended Search Planning* course, introduced in 2015, specifically covers this issue.	**Recommendation 5.1** Ensure the existing guidelines and processes for extended search planning are incorporated into an agreed, unified doctrinal document.

Issue Raised by SARINZ	Commentary related to Issue	Recommendation
Issue 6.1 ``It is difficult to identify what personnel worked Tuesday night only and or Wednesday. During the review process a number of people who were directly involved in, or observed the official response, identified the issue of fatigue. …It is not apparent from the documentation when the decisions were made to source, or not source, replacement personnel. ” (SR2, 10)	The Consultative Committee is satisfied that the current LandSAR Response Guidelines describe procedures for an operational changeover. This is also addressed within guidelines for health and safety.	**Recommendation 6.1** Ensure the existing LandSAR Response Guidelines are incorporated into an agreed, unified doctrinal document. Refer also recommendation 1.3
Issue 7.1 ``There was a general lack of handheld GPS`s which meant that electronic tracks, trails could not be recorded for subsequent analysis nor assist in determining how well areas or segments were searched. The Wills family have been generous in donating GPS units to the Hawkes Bay LandSAR unit to assist future SAR performance and this has been openly acknowledged by all parties. ” (SR2,10)	The Committee is satisfied that the current LandSAR Response Guidelines describe procedures for evaluating Search Effort. The Committee agreed that downloaded GPS tracks, along with other team tracking information, can be used in identifying areas not searched. The Committee also agrees that access to team tracking information is useful for Health and Safety purposes.	**Recommendation 7.1a** Ensure the existing LandSAR Response Guidelines are incorporated into an agreed, unified doctrinal document. **Recommendation 7.1b** Establish an agreed expectation and method for team tracking information. Include this in an agreed, unified doctrinal document.

Issue Raised by SARINZ	Commentary related to Issue	Recommendation
Issues 8.1 and 8.2 ``The Police peer review identified that other Police and LandSAR personnel could have been brought in from other areas outside Hawke`s Bay" (SR2, 11) (Reference to Coronial Enquiry document 20151015132602806 page 3-6, Police peer-review report).  ``… the use of fresh, trained personnel would likely result in higher performance with appropriate knowledge of search systems. " (SR2, 10)	The Committee observed most Districts maintain an adequate membership of LandSAR volunteers and Police SAR squad members. However, an operation is reliant on the resources available at the time. Generally, most SAR operational requirements can be met without the need for out of District personnel to attend within the first days of an operation. Out of District support can be requested and is generally available as required.	**Recommendation 8** Ensure the existing processes and procedures for requesting out of District resources is incorporated into an agreed, unified doctrinal document.

Issue Raised by SARINZ	Commentary related to Issue	Recommendation
Issues 9.1, 9.2 and 9.3 ``The guiding statement with searching for people with Alzheimer`s is that ``they go until they get stuck" (see SARINZ Report December 2015, Reference 19) Given the terrain, vegetation and obstacles such as fences and streams there is a very high likelihood that Fiona is in a place where visual detection will be very difficult. The Wills family regarded Fiona as very fit and strong for her age. This compounded the issue in that if she was stuck she may wriggle and crawl further into the vegetation and make her visual detection even more difficult. This means the use of search dogs was crucial to get a detection in many of the difficult areas and the open country where a slight hollow or minor vegetation can make a visual detection difficult. LandSAR has operationally qualified dogs trained specifically for SAR and the question has to be asked as to why these dogs were not called to supplement the Police dogs especially in the second operational period. The Trelinnoe area would have rapidly become scent polluted with the family, searchers, neighbours and Police personnel. This is a common situation in search where the above people plus the public can create issues for the search dogs. Internationally a number of SAR agencies and Police utilise scent specific dogs which are trained to follow one particular person`s scent based on a scent article such as a piece of clothing or pillow. This would have been an extremely useful option to have available and even if the dog was only able to have given a strong direction of travel indication this would have been of immense search planning value. LandSAR certified dogs are considered a national resource and are generally available 24 hours 7 days a week via Police or the 111 system. (SR2, 12) (and see SARINZ Report December 2015, Reference 23)	The Committee noted that the existing NZSAR Resources database provides detailed information regarding the existence, location, capabilities and callout process for SAR resources and assets throughout NZ. This includes search dogs.	**Recommendation 9** Ensure reference to the NZSAR Resource Database is included in the agreed, unified doctrinal document.

Issue Raised by the SAR Police Coordinator comment	Recommendation
10 File Management Management and compilation of the forms and documents from a search operation should be covered within SAR Exercises, SAR courses including MTIR, ESP and SAR Managers. Consideration should be given to file management templates, also the electronic backing up of documentation. Following the demobilisation or suspension of a search operation there should be a file that is compiled in chronological order and separated into the various components of the search. The Committee agreed IMT file management, teaching, process and technology were deficient.	**Recommendation 10.1** Direct the SAR Training Programme Advisory Committee (PAC) to incorporate training in file management into the SAR management courses – MTMR, MTIR, ESP and SAR Managers. **Recommendation 10.2** Incorporate guidelines for the electronic and hard copy management of SAR operational documents into an agreed, unified doctrinal document. **Recommendation 10.3** Undertake a project to identify suitable SAR IMT management information technology.
11 Family Liaison Role MTIR and ESP have very little focus on the Family Liaison Role While family liaison is covered with a 45 minute session during the SAR Managers, it should also be included in the MTIR and ESP courses to a higher degree, with considerations that should be part of the Initial Action process. The Committee noted that very good family liaison teaching and process exist with the NZ Police but agreed more effort was needed to teach SAR personnel on family liaison requirements and Police capability in this area.	**Recommendation 11.1** Develop a SAR sector role description for family liaison. Direct the SAR Programme Advisory Committee (PAC) to incorporate training in family liaison role into the SAR MTMR, MTIR and ESP courses. **Recommendation 11.2** Incorporate guidelines regarding family liaison into an agreed, unified doctrinal document.

Issue Noted by NZSAR	Recommendation
12 Search Suspension. The two coordinating authorities have different criteria for search suspension. The Committee is concerned by this variance and would prefer similar or the same criteria and processes for search suspension.	**Recommendation 12** NZSAR, Police and RCCNZ develop a unified search suspension criteria and process. Include this into an agreed, unified doctrinal document.

Duncan Ferner
Secretariat Manager
NZSAR Council

HIGHT: STRATEGY & RISK

NZSAR
New Zealand Search and Rescue

Reducing SAR responses:

A framework to achieve safer recreation in New Zealand

June 2016

Report commissioned by New Zealand Search and Rescue (NZSAR).

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Executive Summary

Outdoor recreation is part of our DNA. Both New Zealanders and overseas visitors enjoy great experiences having fun and adventures on and in our waters, land and air space. Outdoor recreation is part of New Zealand's global brand. In addition to our international attractiveness, kiwis hold dearly the 'right to recreate' in our varied natural environments.

Introduction and context

In most cases, recreational experiences result in pleasant memories, picturesque photographs, repeat visits and plans for even more trips, however, a large number of recreational experiences end in a search and rescue operation. Unintentionally, people find themselves in life or death situations requiring the expertise of New Zealand's search and rescue response capability.

New Zealand Search and Rescue's (NZSAR) database shows an average of 1119 Category I or Category II recreational search and rescue incidents occurred annually between 2010 – 2015. In reality, many thousands more recreational safety incidents happen each year. These incidents are recorded across NZSAR's partner agency and other databases, such as: Accident Compensation Corporation, Surf Life Saving New Zealand, District Health Boards, the New Zealand Mountain Safety Council and Coastguard New Zealand – to name a few.

In 2015 the NZSAR council commissioned a governance review. The review noted that, *"too much emphasis on response may overlook opportunities for complementary activities that promote awareness of the risks and the value of personal preparedness."*

This framework project has been commissioned to explore a key recommendation from the 2015 governance review:

" That the SAR Council coordinate the development of a joint preventative strategy that will place greater emphasis on preparedness and reduce the demand for SAR services in the future."

In response to this recommendation, Hight Strategy & Risk have engaged several key and committed SAR stakeholders on behalf of NZSAR to explore such questions as:

- *Is there an appetite among NZSAR stakeholders and partners for a joint preventative strategy?*
- *Who are the stakeholders who could play a positive role in a joint preventative strategy?*
- *What are the root causes of recreational SAR incidents?*
- *Who is the target market for any joint preventative strategy?*
- *What role could or should NZSAR secretariat play in recreational SAR incident prevention?*

In examining these questions with NZSAR stakeholders, there appears to be a strong level of consensus that a cause and effect based framework, underpinned by an ongoing and strengthened evidence base, led by the NZSAR secretariat, is a positive and constructive approach, capable of unlocking a more collaborative, efficient and effective recreational safety

sector. A simple, pragmatic, nationally led framework that all stakeholders motivated to support recreational safety can use to support decision making, prioritisation and inter-agency coordination has been developed which is complimentary to existing environment specific strategies, such as the "Water Safety Sector Strategy 2020 ". A robust evidence base is now needed to populate the framework and support the operationalisation of what the framework represents. The size of the prize is valuable for all stakeholders and more broadly 'NZ Inc': Safer Recreation, Reduced SAR.

The proposed Recreational Safety Framework (RSF)

The proposed recreational safety framework has been developed to provide a pathway and methodology to:

A. Define the context of recreational activities: Activities, undertaken on land, in water, on water and in the air, that are not provided by a commercial entity (such as an adventure tourism provider or recreational facility serving school groups) or those recreational activities governed by a sport and recreation organisation (such as organised sport or adventure races). Recreational activities such as walking in the bush, swimming on lakes and beaches, mountain biking on trails, trailer boat or trout fishing are the focus of this framework.

B. Break down recreational safety incidents into key cause factors which can then be used to underpin data collection, intelligence gathering and evidence based decision making: Using a framework adapted from the International Life Saving Federation *World Drowning Prevention Plan* five key causal factors were identified that could lead to a recreational SAR incident:

    1. Ignorance, disregard or misunderstanding of recreational activity hazards
    2. Lack of information and awareness about the activity, environment and safety implications.
    3. Inability to cope once in an uncertain situation or when exposed to recreational hazards.
    4. Lack of effective monitoring, supervision or surveillance.
    5. Inappropriate equipment or equipment failure.

C. Map key control measure categories that, when underpinned by the evidence base and risk assessment, will assist NZSAR secretariat, SAR agencies and other parties to focus their efforts, resources, collaborative activity and priorities on the most important solutions that will unlock safer recreation.

    The key control categories we propose include:

    1. Provide warnings regarding hazards & deny access to hazards (subject to risk assessment)
    2. Educate & inform recreational participants, and the people that influence those participants, to recognize their own recreation capabilities, understand the threats to their safety posed by the activities undertaken and use this information to make effective personal safety decisions.

3. Increase coping / self-help capability so that participants can recognize uncertain situations and act early to mitigate the consequence of the situation they find themselves in.
4. Strengthen recreational participation intelligence of all stakeholders including land and water management authorities, SAR agencies and the participants to recognize emerging threats, such as changes in weather conditions or natural hazards relative to exposure rates (number of participants) and act early to mitigate the consequence of the threat posed.
5. Provide guidance and strengthen regulation where appropriate to ensure participants understand what equipment is or is not appropriate or compliant for the activities being undertaken.

D. Provide greater clarity on the national objective. Through the application of evidence, control measures will be executed where they are needed most, thereby managing the macro risk profile for recreational safety. In other words, an increase recreational safety will result in a reduced reliance on SAR response services.

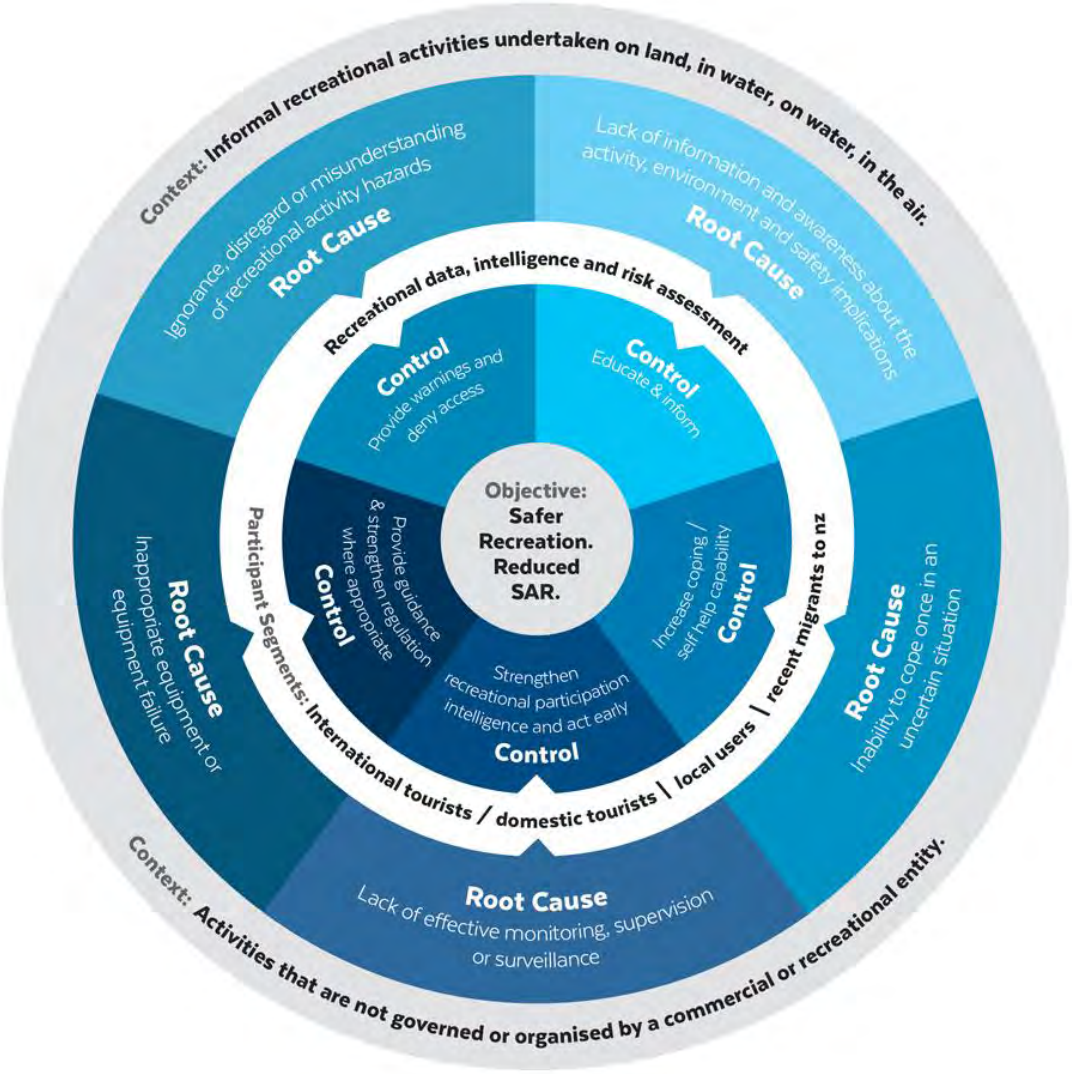


Figure 1: Proposed recreational safety framework

Summary of recommendations

To achieve the desired objectives outlined in the proposed recreational safety framework, a three-pronged game plan is required, supported by appropriate resourcing.

A. In order to fill the governance, thought leadership and coordination gap that exists, the NZSAR secretariat should assume a "cross environment" coordination, alignment and advocacy role for the recreational safety (prevention) sector.

1. That NZSAR council redefine its strategic goals with regard to recreational safety from "reduce the need for SAR services" to "to reduce the risk of SAR incidents, or in the event of a SAR incident, to reduce the negative consequences of such incidents" (or similar). This statement has a stronger alignment to accepted risk management standards internationally such as ISO31000:2009 Risk Management Principles & Guidelines.
2. That NZSAR council, secretariat and consultative committee adopt the proposed Recreational Safety Framework (RSF) as the underpinning thought model that will drive its approach to systematically strengthening the recreational safety (prevention) sector
3. That NZSAR secretariat provide thought leadership on behalf of the sector, to government and non-government organisations that provide resources, in order to generate additional sector resources to fill identified gaps.

B. To focus effort, prioritise resources and respond to an evolving recreational risk profile, build the evidence base and translate it into sector workflows, NZSAR secretariat should:

4. Take a thought leadership role on behalf of the sector regarding more effective and coordinated collection, supply and synthesis of data (both participation (exposure) and incident data) on an ongoing basis.
5. Establish agreements with organisations that currently collect relevant data to inform a national risk profile of recreational safety exposure and incidents.
6. Provide an ongoing information, intelligence and risk assessment service to the sector to ensure the recreational safety framework is underpinned by a strong evidence base.
7. Subject to the proposed risk assessment process, seek resources and take steps to fill identified recreational safety gaps. As an example, the initial sector mapping against the proposed framework indicates a gap may exist in servicing the international tourist participant segment.
8. Consider publishing an annual 'recreational safety report' to capture and report on sector performance, highlight key risk areas which require focus, showcase best practices and generate public and media awareness of recreational safety issues.
9. Where there is an opportunity to source and distribute funds to NZSAR partners (for prevention initiatives), ensure the criteria used to determine resource allocation is aligned to the proposed recreational safety framework including the evidence base generated by the risk assessment process.

C. To build sector capability and connectivity to realise outcomes, NZSAR secretariat should:

10. Coordinate and convene recreational safety forums to focus sector thinking and foster stronger collaboration on recreational safety across environments. It is recommended forums should have structure and function relative to the proposed framework and work collaboratively to maintain and evolve the framework and its enabling components.
11. Support and enable activities that strengthen people capability across NZSAR's partners in critical areas (such as risk management, public messaging and behavioural change) in order to grow the capability and capacity of the recreational safety sector in the areas that will enable it to be more effective and cohesive. This may include a mix of professional training and sharing of industry best practice (domestically and internationally).
12. Invest in a re-development of 'Adventure Smart' to ensure it is optimised to meet the needs of, and reflects the behaviours of, modern recreational participants across all participation segments. Initial concepts raised for consideration include development of a smartphone application with linkage to local hazard and safety messaging via geo-tracking functionality. Consider opportunities for joint venture with mainstream tourism industry organisations (i.e. Trip Advisor App and/or similar).

Introduction & Context

A traditional role in coordinating New Zealand's search and rescue capability

NZSAR formed in 2003 after a NZ Government Cabinet decision to establish the NZSAR Council, the NZSAR Secretariat (based in the Ministry of Transport), and the NZSAR Consultative Committee. These arrangements were introduced to provide stronger strategic coordination and governance of all SAR modes – those being land, sea and air.

Further, the NZSAR model of Council, Secretariat and Consultative Committee was intended to provide strategic policy advice to the Government and strong strategic coordination of all operational aspects of SAR. The NZSAR Council was to provide the vision, mission and goals for the entire organisation and these were outlined in a SAR national plan.

Outdoor recreation is part of our DNA

Both New Zealanders and overseas visitors enjoy great experiences having fun and adventures on and in our waters, land and air space. Outdoor recreation is part of New Zealand's global brand. In addition to the international attraction of Nez Zealand, Kiwis hold dearly the 'right to recreate' in our varied natural environments.

In most cases, recreational experiences result in pleasant memories, picturesque photographs, repeat visits and plans for even more trips, however, a large number of recreational experiences end in a search and rescue operation. Unintentionally, people find themselves in life or death situations requiring the expertise of New Zealand's search and rescue response capability.

Limited data suggests a significant number of recreational SAR incidents but there are limitations in existing data

New Zealand Search and Rescue's (NZSAR) database shows an average of 1119 Category I or Category II recreational search and rescue incidents occurred annually between 2010 – 2015. In reality, many thousands more recreational safety incidents happen each year. These additional incidents are recorded across NZSAR's partner agency and other databases, such as: Accident Compensation Corporation, Surf Life Saving New Zealand, District Health Boards, the New Zealand Mountain Safety Council and Coastguard New Zealand – to name a few. A key challenge for the sector is that is it currently unable to accurately define the magnitude of recreational activity participation or related incidents and translate data into intelligence, across all environments, to further enhance the control measures in place to increase safety.

There are examples of good practice in the sector, such as NZ Mountain Safety Councils "There and Back" (draft) publication which provides extensive exposure and incident intelligence from a range of databases including ACC to support an evidence based approach for that organisation and its stakeholders to focus efforts where they are needed most. Extending this approach across all recreational environments would be of significant value for the recreational safety sector in New Zealand.

Formal review suggests a development of NZSAR secretariat's scope should be considered

A 2015 governance review investigated how NZSAR Council was progressing with its strategic objectives. The review noted that, *"Too much emphasis on response may overlook opportunities for complementary activities that promote awareness of the risks and the value of personal preparedness."*

The NZSAR Council has a goal to reduce demand for SAR services across the whole country.

"We seek an informed and responsible public. We will collaborate, inform, contribute to, and when required, coordinate or lead public-focused preventative strategies and actions for individuals, groups and organisations. We want to ensure the New Zealand public and guests to our country are appropriately informed and assist them to take personal responsibility for their activities in order to reduce the need for search and rescue services" (NZ Search & Rescue 2015 Governance Review).

The 2015 NZSAR governance review therefore recommended:

"*That the SAR Council co-ordinate the development of a joint preventative strategy that will place greater emphasis on preparedness and reduce the demand for SAR services in the future".*

Prevention is not foreign to NZSAR

NZSAR has been involved in prevention-focused operations previously, such as the development of the website, Adventure Smart, which has outdoor safety codes and information targeted to domestic and international tourists. The recommendation outlined above through NZSAR's 2015 governance review presents an opportunity to evolve NZSAR's scope and, over time, empower the organisation towards playing a significantly wider and more over-arching leadership role in recreational activity incident prevention in New Zealand.

Defining the context of 'recreational activities' for this project

It is important to note that the focus of this project does not include forms of recreation that are already subject to existing regulations and governance such as adventure tourism, commercial operators or sporting organisations. There is no simplistic method to define activities that are in scope for this project however they generally meet the following criteria:

- Are not governed by rules by an association (or similar)
- Are not organised by an incorporated sporting or recreation organisation where there is a governing body
- Are not commercial in nature (such as bungy jumping or jet boating)

Examples of recreational activities for the purposes of reinforcing the context of this project include:

- Surfing, kit surfing, body boarding, stand up paddle boarding (or similar)
- Swimming at a beach, lake or river
- A group of friends organising a bush walk
- A group of friends that go on a kayak trip
- Individuals or groups of friends going hunting or diving
- An individual that goes running in a forestry area
- Camping trips into forestry areas (i.e. not camping grounds)
- Gliding or base jumping (where not commercially provided)
- Operating drones for recreational purposes

In terms of environments where recreation participation occurs, this project includes the types of activities outlined above which may occur on land, in the water, on the water or in the air.

Methodology

Overview

The project methodology was executed between February and June 2016.

This project was completed using a pragmatic hypothesis based approach underpinned by qualitative stakeholder engagement including:

1. Sector research conducted online
2. Review of previous relevant research and development work commissioned by NZSAR secretariat
3. Development of a problem statement to underpin the investigation
4. Development and use of issues trees to understand the component issues of the problem statement
5. Stakeholder identification for engagement phase
6. Stakeholder interview process to explore the issues
7. Development of the proposed recreational framework and related findings.
8. Feedback from NZSAR stakeholder group
9. Finalisation of proposed Recreational Safety Framework
10. Opportunity for feedback on the draft Recreational Safety Framework
11. Final report developed and presented to NZSAR secretariat.

Sector research conducted online

The project requirements were to address the recommendation *"That the SAR Council co-ordinate the development of a joint preventative strategy that will place greater emphasis on preparedness and reduce the demand for SAR services in the future".*

Given the broad range of recreational incident prevention initiatives in already in place, the first phase of the project was to review a range of (generally) national organisations to understand how they saw their role in SAR prevention at a strategic level and what sorts of initiatives they were delivering.

A list of organisational strategy documents that were reviewed are included as Appendix A.

A noticeable observation during the online review process was that while many organisations are striving to increase recreational safety and prevent incidents from occurring, there is no apparent consistency or alignment across organisations in terms of how they undertake risk assessment and as a result, prioritise initiatives. This is not to say those initiatives are not needed, or in any way ineffective. However, when considering the broader question of recreational safety in a NZ wide, all environments context, it is difficult to see how evidence based prioritisation could be achieved and thus presents a gap for the sector.

Review of previous research commissioned by NZSAR

NZSAR secretariat provided research which had been commissioned and completed in 2015 by Bevan Wait of Distill Research Agency (Auckland) to understand the level of public knowledge of

SAR prevention measures and attitudes for recreational boating, water safety and outdoor activities.

The Distill Research Agency report noted that based on the responses to their market survey (n=413) that "*all New Zealanders did some form of active recreational activity in the last 12 months. The most popular active recreational activities for New Zealanders are swimming at a beach (69 percent), walk hike or tramp longer than 3 hours (43 percent) and boating (32 percent). For international tourists the most popular active recreational activities are boating (76 percent), walk, hike or tramp longer than 3 hours (47 percent) and canoe, kayak, dinghy trip (41 percent)*"[1].

While not statistically significant evidence, this does provide a reasonable level of insight into the extent of recreational activity participation rates and the environments activities are conducted in, and therefore some degree of risk exposure to recreational activity hazards. It also provides value in understanding the variation between the recreational activities New Zealanders participate in vs those of international tourists. And further, while there are similarities in some activities undertaken, the attitudes and perception of safety was contrasting. As an example, the variations between the two groups for outdoor safety are highlighted below:

New Zealanders

- Only 45 percent of New Zealanders bring enough food for emergencies with them on an outdoor trip. And only 56 percent of New Zealanders bring a warm hat with them on outdoor trips.
- Only 15 percent of New Zealanders that had participated in outdoor adventure activities in the last 12 months had seen the outdoor safety
- code before.
- Over two thirds (68 percent) of New Zealanders believe the amount of publicity and advertising about outdoor safety should be increased.

International Tourists

- Less than half (45 percent) of international tourists strongly disagreed with the statement 'If the weather is fine before going on an outdoor trip, there is no need to check the local weather forecast'
- While a majority (74 percent) of New Zealanders strongly agree you should plan for and expect weather changes in New Zealand, slightly less than half (48 percent) of international tourists gave the same response.
- International tourists were less likely than New Zealander's to bring clothing for all possible weather, enough food for the trip and sunscreen on outdoor trips.
- A quarter of international tourists that did an outdoor trip while in New Zealand had seen the outdoor safety code while here.

These variations between recreational participant segments should rightly, as noted in the Distill Research Agency report, result in variations in how control measures are targeted to meet the needs and typical journey of these segments. While the general focus of this work was

[1] Source: Report - Public knowledge of SAR prevention measures and attitudes for recreational boating, water safety and outdoor activities. Distill Research Agency Report (2015).

related to public messaging and provision of key safety messages (one 'stream' of control measures), it seems reasonable to extrapolate this logic across other streams of control measures such as managing and denying access to hazards (at certain risk thresholds), developing self-coping skills among participants, how recreational equipment is obtained including the any training to use such equipment safely.

The other relevant piece of research which was considered was entitled "Outdoor Recreation Participation and Incidents in NZ" and produced by Annie Dignan & Gordon Cessford (2009). This extensive piece of work looked closely at what evidence was available in regards to participation and incident data and how that data may translate into intelligence that can be applied to increase the impact of SAR stakeholders. The report noted the following recommendations to improve the collection and use of outdoor recreation participation and incident data:

- *"Data Consistency – standardisation of any classifications or categories used for data recording, storage and reporting. This would include classifications of activity type, incident type and other descriptive variables*
- *Data standards – ensure data is collected from the field, that it is collected accurately and consistently, and that it is entered into suitable databases*
- *Cross-sector collaboration – identify partner groups and develop statements of shared goals, interests and needs*
- *Joint projects – combine resources and resource seeking capacity by running more joint initiatives and research projects*
- *National Incident Database – investigate how this could be used to start collecting incident and participation data across the whole sector. This also allows incident severity measures to be included, which can significantly increase database value for targeted study*
- *User counts in the field – assist land managers set up, operate and apply visitor counting systems with trials and case studies*
- *Support research – look for ways to create beneficial research opportunities and collaborations, especially based on shared cross-sector needs."*

This became an area raised by many stakeholders engaged throughout this current project as still a great opportunity for the SAR recreational safety sector to become more evidence based with stronger alignment in collection, analysis and use of data. This is further explored later in this report.

Developing the problem statement

When using a hypothesis based approach, it is important to consider the problem that is trying to be solved to ensure the resulting investigation and questions asked of stakeholders to be engaged through the project are relevant.

In consultation with NZSAR secretariat the parameters for this project were developed and confirmed as *"How can NZSAR develop a whole of sector evidence based and measured framework to strengthen sector cohesion, support decision making and improved prioritisation of resources that result in a reduced need for SAR services in New Zealand?"*.

The problem statement was provided with additional context to ensure the focus of the project and resulting findings would be as relevant as possible for NZSAR:

- "NZ Inc" collective approach – how the recreational safety sector work cohesively to reduce the need for SAR services
- Strong engagement across broad range of stakeholders
- High level framework – clear objectives, value proposition for each stakeholder, operating framework, mapping of key relationships, development plan
- Clarity of prevention role for agencies in recreational safety space going forward leading to opportunities for all agencies in recreational safety space to cooperate and collaborate (including gap and opportunity assessment)
- Provide practical input into future prevention focussed investment models across funding agencies (government, lotteries, charity gaming, philanthropic sources etc)
- Provide a platform for future sector wide *"recreational safety communication strategy"*

Development and application of an issues tree was used to generate the initial hypothesis solution which was later tested with stakeholders through interviews.

In order to break down the contingent issues involved with achieving the objective of "*a reduced need for SAR services in New Zealand*" an issues tree methodology was used (Figure 2). This is based on a logic model of cause and effect:

- The end result is a SAR incident – a loss event; so
- What are the possible root causes of that event?; because
- If we know the root cause, we can prescribe a relevant control measure(s); and
- Controls need to be provided relative to different recreational participation segments as reinforced by Distill Research (2015).

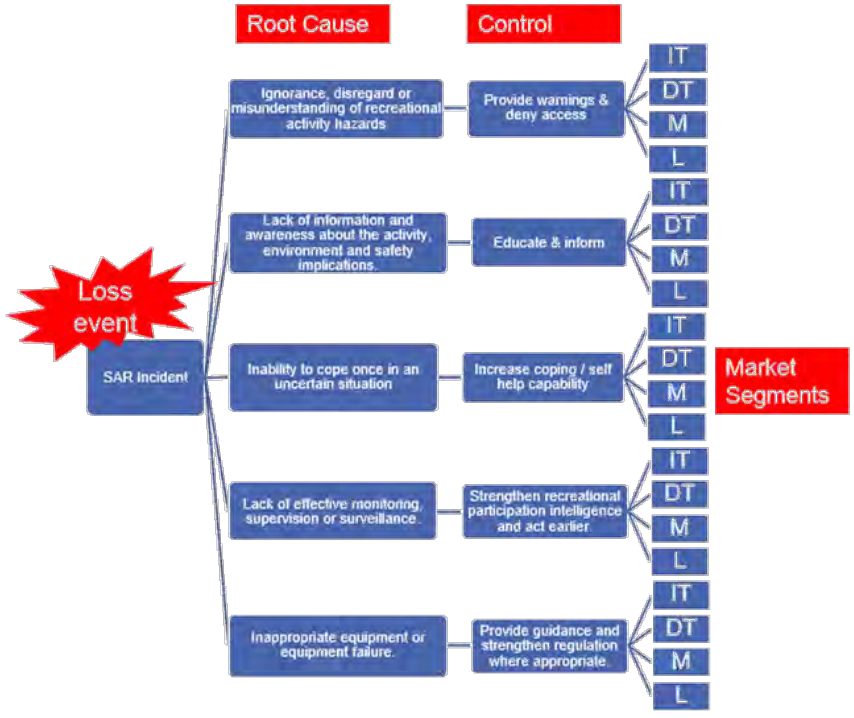


Figure 2. Initial issues tree unpacking cause and effect of recreational SAR incidents. (IT denotes 'International Tourist, DT denotes Domestic Tourist, M denotes Recent Migrant and L denotes Local user).

The individual cause factors were considered and subsequently adapted from the International Life Saving Federation's (ILSF) "A framework to reduce drowning deaths in the aquatic environment for nations/regions engaged in lifesaving (2015)". This is the international community's strategic framework to underpin the global effort to reduce drowning and is applied in many developed countries including New Zealand, Australia and the United Kingdom (Figure 3). This framework was seen as relevant because:

- It has enjoyed longevity being first adopted by ILSF in 2008 and is well accepted internationally
- Provides direction of ILSF member nations to align their efforts in solving the problem (in a similar method to what NZSAR secretariat is seeking to do for its stakeholders)
- Allows individual member nations to apply the framework in their own unique context (as NZSAR stakeholders expressed they required when engaged during this project)
- It is pragmatic and easy to understand, despite being a complex problem (i.e. addressing the global drowning toll)

When tested in the broader recreational safety context, adaptations were made to the ILSF model to reflect the range of recreational activities being undertaken in varying environments in this investigation.

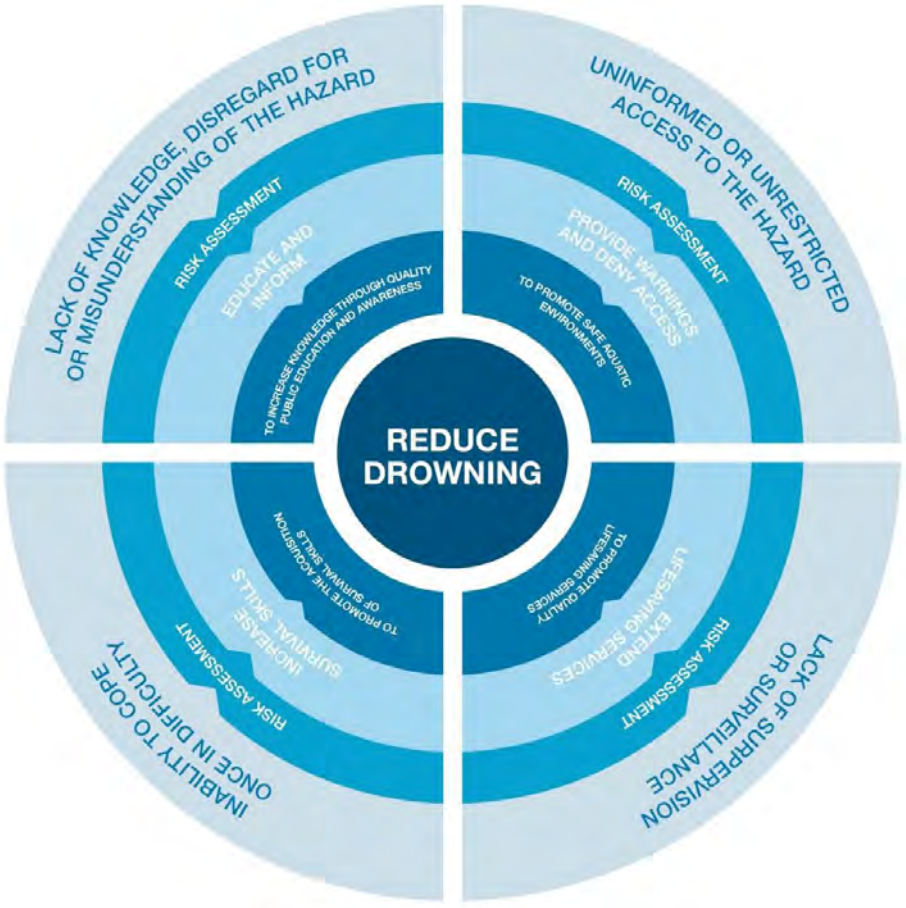


Figure 3: International Life Saving Federation Drowning Prevention Framework (2015) [2]

[2] Source: A framework to reduce drowning deaths in the aquatic environment for nations/regions engaged in lifesaving. International Life Saving Federation (ILSF) (2015). Available www.ilsf.org .

Stakeholder identification to discuss the hypothesis solution

In conjunction with NZSAR, relevant stakeholders were identified to consider the proposed problem statement and contingent issues.

Identified stakeholders included:

- Sport New Zealand
- Accident Compensation Corporation
- Department of Conservation
- Department of Internal Affairs (Outdoor Safety Committee)
- Civil Aviation Authority
- Local Government New Zealand
- Land Search and Rescue New Zealand
- Rescue Coordination Centre of New Zealand
- Maritime New Zealand
- NZ Search and Rescue Secretariat
- Coastguard New Zealand
- Surf Life Saving New Zealand
- Water Safety New Zealand
- Swimming New Zealand
- Foundation North (formerly ASB Trust)
- Auckland Regional Amenities Funding Board
- New Zealand Community Trust
- Waikato Regional Council
- Horizons Regional Council
- New Zealand Meteorological Service
- New Zealand Tourism Industry Association
- New Zealand Police

It is not proposed that this is an exhaustive list of all stakeholders who have an interest in recreational safety in New Zealand. The aim of this stakeholder list was to ensure all general 'groups' of stakeholders (such as government organisation, non-government SAR organisations, local government organisation, funding organisations including community, gaming and regulatory sources) were engaged in line with the scope of the project to ensure the findings were well considered in respect of the various stakeholder groups.

Stakeholder interview process to explore the issues

Identified stakeholders were invited to participate in a one of one interview. Interviews presented the proposed recreational safety framework and sought feedback on the following questions:

- Is there an appetite among NZSAR stakeholders and partners for a joint preventative strategy?
- Does the proposed cause and effect framework resonate? Could it be applied to your recreational safety operations?

- Do you agree with the root causes, control measure areas and recreational participant segments outlined?
- Can you provide any ideas that could further improve the proposed framework?
- What are the positive benefits you can see by NZSAR establishing the proposed recreational safety framework?
- What are the risks and concerns you have regarding NZSAR establishing the proposed recreational safety framework?
- What role, if any, do you think NZSAR could or should play with regard to its provision of the proposed recreational framework?

A total of 20 stakeholder interviews were conducted to explore these areas of interest for NZSAR. The outcome of the interviews is included in the findings/discussion section of this report.

Developing the draft framework and findings and re-engaging stakeholders

Having considered the extremely valuable feedback obtained through the stakeholder engagement process, an initial draft of the proposed recreational safety framework was developed along with key findings from the process.

This content was presented to a small stakeholder group assembled by NZSAR secretariat consisting of a mix of some stakeholders who had been interviewed during the process and some other stakeholders who received the content for the first time. The objective of the workshop, conducted in May 2016, was to test the proposed model and gain any further insights to enhance it.

With feedback captured, an executive summary of the proposed framework including the proposed framework and draft recommendations was developed and further distributed to all stakeholders for final feedback before publication of the project report.

The Recreational Safety Framework

The proposed recreational safety framework has been developed to provide a pathway and methodology to:

Define the context of recreational activities

Activities, undertaken on land, in water, on water and in the air, that are not provided by a commercial entity (such as an adventure tourism provider or recreational facility serving school groups) or those recreational activities governed by a sport and recreation organisation (such as organised sport or adventure races). Recreational activities such as walking in the bush, swimming on lakes and beaches, mountain biking on trails, trailer boat or trout fishing are the focus of this framework.

Break down recreational safety incidents into key causal factors

By understanding and breaking down what causal factors lead to recreational safety incidents it is possible to use these factors to underpin data collection, intelligence gathering and evidence based decision making. Five key causal factors were identified that could lead to a recreational SAR incident:

1. Ignorance, disregard or misunderstanding of recreational activity hazards
2. Lack of information and awareness about the activity, environment and safety implications.
3. Inability to cope once in an uncertain situation or when exposed to recreational hazards.
4. Lack of effective monitoring, supervision or surveillance while exposed to recreational activity hazards.
5. Inappropriate equipment selection or equipment failure.

It is proposed that the level of definition of the above factors is tight enough to be mapped against corresponding control measures while broad enough to encapsulate the breadth of environments and range of activities undertaken. It is possible that they could further broken down into sub-causes, which may occur over time, however initially this is not proposed due to a lack of data to support this approach and because the framework already presents a number of new concepts, and thus further 'resolution' at this stage may risk confusing the intent of the proposed recreational safety framework.

Unpack control measures and map against causal factors

Mapping key control measure categories that, when underpinned by the evidence base and risk assessment data, will assist NZSAR secretariat, SAR agencies and other aligned parties to focus their efforts, resources, collaborative activity and priorities on the most important solutions that will unlock safer recreation.

The key control categories, mapped against the corresponding cause factors proposed include:

1. Provide warnings regarding hazards & deny access to hazards (subject to risk assessment) *to control the risk of* ignorance, disregard or misunderstanding of recreational activity hazards

2. Educate & inform recreational participants, and the people that influence those participants, to recognize their own recreation capabilities, understand the threats to their safety posed by the activities undertaken and use this information to make effective personal safety decisions *in order to control the risk of* a lack of information and awareness about the activity, environment and safety implications.

3. Increase coping / self-help capability so that participants can recognize uncertain situations and act early to mitigate the consequence of the situation they find themselves in *to control the risk* of participant inability to cope once in an uncertain situation

4. Strengthen recreational participation intelligence of all stakeholders including land and water management authorities, SAR agencies and the participants to recognize emerging threats, such as changes in weather conditions or natural hazards relative to exposure rates (number of participants) and act early to mitigate the consequence of the threat posed *in order to control the risk of* a lack of effective monitoring, supervision or surveillance while exposed to recreational activity hazards.

5. Provide guidance and strengthen regulation where appropriate to ensure participants understand what equipment is or is not appropriate or compliant for the activities being undertaken *in order to control the risk of* inappropriate equipment selection or equipment failure.

Collect participation and incident data to conduct sector wide risk assessment

A significant focus to enhance the collective effort, is the sector working in a more aligned manner to collect data and synthesize data against the root cause factors and participant user groups of international tourists, domestic tourists, recent migrants to New Zealand and local users. On a macro level, if we know 'who' is participating in which environment and in what activity, and, we understand what incidents are occurring and what is causing those incidents, the sector will be able to collectively work towards providing initiatives that allow a much more targeted, evidence based approach to implementation of recreational safety measures. Incident data can provide an understanding of causes of incidents which can be applied to provide the right participants with the right solution(s) using participation data (or exposure data).

Provide greater clarity on the national objective.

Through the application of evidence, control measures will be executed where they are needed most, thereby managing the macro risk profile for recreational safety. In other words, an increase recreational safety will result in a reduced reliance on SAR response services.

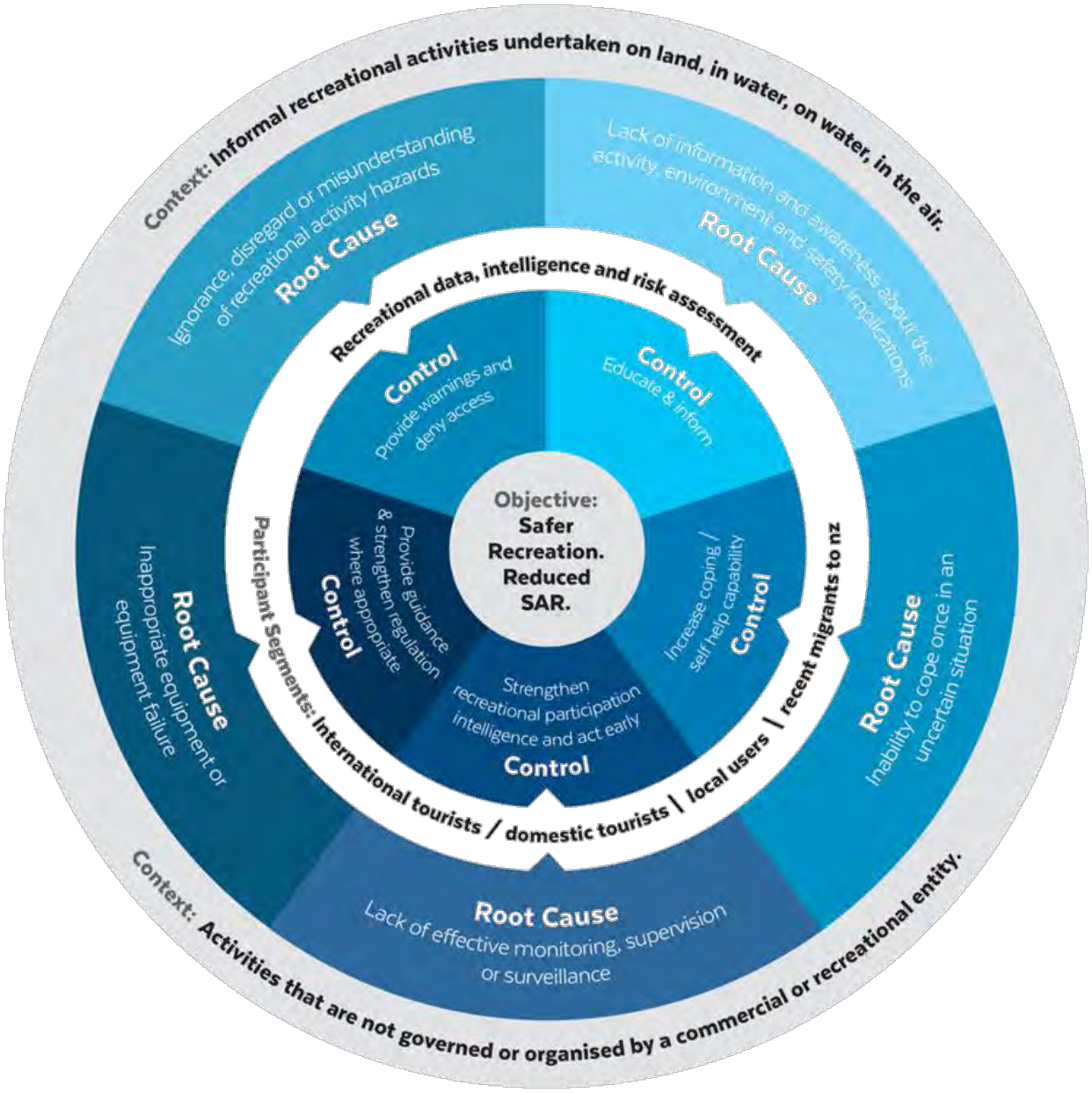


Figure 4: Proposed recreational safety framework

Operationalising the proposed recreational safety framework

In order to start applying the proposed recreational safety framework, it is possible to map various organisations in the recreational safety sector against the overarching framework. This process allows:

a. visibility of the sector to understand which organisations are focussing on which environments
b. visibility of the sector to understand which root causes organisations are primarily trying to offset (i.e. education, hazard management, survival programs, regulation of equipment etc.)

c. visibility of which recreational participant segments each organisation is actively striving to apply their solutions to (i.e. international tourists, domestic tourists, recent migrants to New Zealand

The proposed benefits of the mapping exercise outlined above include:

- Identification of gaps (i.e. does the evidence show a certain participant segment in a particular environment(s) is not being exposed to control measures to counter the corresponding root cause).
- Stimulating inter-agency collaboration where multiple agencies are involved in trying to target certain participant segments or control measure categories. Rather than try and provide their solution in isolation, agencies can work together to strengthen the outcome of their collective effort. For example, agencies trying to reach the international tourist may be able to collectively workshop the 'journey' of the international tourist and consider how they can best engage the end user with important interventions at various points throughout their journey.
- Identification of duplicated effort (i.e. where two or more agencies and trying to solve the same problem, with the same solution with the same targeted participant segment.
- Linking investors in recreational safety to the sector's needs to assist with growing the total investment in the recreational safety sector and ensuring the sector prioritises its existing resources as effectively as possible.

Strategic mapping of the recreational safety sector version 1.0

An initial version of sector mapping against the proposed recreational safety framework has been prepared on the next page (Figure 5). This should not be interpreted as a 'full and final' iteration of the recreational safety sector and has been produced following a review of each stakeholder's strategic plan and from the one on one interview process.

The objective of this mapping example is to demonstrate how the overarching framework can be operationalised by considering the range of national level stakeholders involved in recreational safety and which root causes those stakeholders are trying to offset through the programs, projects and initiatives they deliver and which recreational participation segments those initiatives are targeted towards.

Using the risk assessment (driven by participation and incident data) it would be possible to determine in which areas any gaps may exist (blind spots) and also where there is duplication or inefficiencies which can be identified and addressed through stakeholders engaging constructively to provide the best possible result for the participant or 'end user'.

Organisation / Recreational Environment (National Organisations)	Control Measure Focus					Recreational User Segments Targeted			
	Provide warnings regarding hazards & deny access to hazards	Educate & inform recreational participants to make safe participation decisions	Increase coping / self-help capability when exposed to hazardous situations	Supervision, surveillance and monitoring programs while participants are exposed to the hazard	Provision of equipment guidance and regulations.	International Tourist	Migrant	Domestic Tourist	Local
Air Recreation									
Civil Aviation Authority	✓	✓	✓	✓	✓	×	×	✓	✓
On Water Recreation									
Coastguard New Zealand	×	✓	✓	✓	✓	×	×	✓	✓
Rescue Coordination Centre of NZ	×	×	×	✓	×	✓	✓	✓	✓
Maritime NZ	×	✓	×	×	✓	×	×	✓	✓
In Water Recreation									
Surf Life Saving NZ	×	✓	✓	✓	✓	×	×	✓	✓
Water Safety NZ	×	✓	✓	×	✓	×	×	✓	✓
Swimming NZ	×	×	✓	×	×	×	×	×	✓
Land Recreation									
Land Search & Rescue	×	✓	×	×	×	×	×	×	✓
Mountain Safety Council	✓	✓	✓	✓	✓	×	×	✓	✓
Department of Conservation	✓	✓	✓	✓	✓	✓	✓	✓	✓
Injury Prevention / Recreational Safety Generic									
NZ Search & Rescue (Adventure Smart)	×	✓	×	×	×	✓	✓	✓	✓
NZ Police	✓	×	×	✓	×	✓	✓	✓	✓
Tourism Industry Association	×	✓	×	×	×	✓	×	✓	×
New Zealand Met Service	✓	✓	×	×	×	×	×	✓	✓
Accident Compensation Corporation	×	✓	×	×	×	×	×	✓	✓
Sport New Zealand	×	✓	×	×	×	×	×	✓	✓
Territorial Local Authorities (TLA's)	✓	✓	×	✓	✓	✓	✓	✓	✓
NZ Recreation Association	×	×	×	×	×	×	×	✓	✓

Figure 5. Example of how the recreational safety sector can be mapped against the proposed recreational safety framework.

Discussion & Findings

Having engaged a range of NZSAR's stakeholders across a range of perspectives, including government agencies, non-government SAR agencies, organisations with a significant 'touch point' with recreational participants, territorial local authorities and funding organisations there is generally a significant level of consensus regarding the desired pathway for a recreational safety framework and the role NZSAR could play as a leader on behalf of this important sector.

There is a genuine gap in leadership and advocacy

Almost all of those stakeholders interviewed agreed that there is currently no cross-environment, evidence based framework to underpin how New Zealand manages recreational safety. The NZ Government does not have a 'Ministry of Recreational Safety' and thus the sector has never been unified under a single point of reference. There are a large number of stakeholder organisations working extremely hard to enhance recreational safety. Funding organisations invest significant funds into recreational safety. In recent years there have been increased efforts to at least align environment specific sectors, such as water safety, with the ACC led 'Drowning Prevention Strategy' established during the mid-2000's which has now been superseded by a Water Safety New Zealand led 'Water Safety Sector Strategy 2020'. While these types of strategies can play an important role in aligning the efforts in each environment, they don't address the challenge of cross-environment coordination of recreational safety. There are numerous reasons why cross-environment coordination can add value including:

1. Evidence from Distill Research (2015) shows end users participate in multiple recreational activities in multiple environments. An environmentally fragmented approach effectively creates an environment where multiple organisations are simultaneously trying to deliver preventative solutions in isolation of each other. This can create confusion, reduced impact/penetration of messaging and conflicting messages.
2. Having a single 'voice' for recreational safety via NZSAR can allow the sector to tell its story to government and funding organisations to ensure the sector is resourced effectively to implement risk reduction measures.
3. Cross-environment coordination can strengthen the overall capability of the sector through the sharing of best practices and provision of capability building initiatives required by the sector.
4. In order to stimulate genuine collaboration, the participants must have a clear and common objective. Providing a "New Zealand Inc" level framework with the clear objective and methodology of achieving "*Safer recreation and less SAR responses*" together with the frameworks cause and effect model, provides the clarity required to stimulate more effective sector collaboration.

The framework must build and sustain an evidence base to drive sector effort

The report "Outdoor Recreation Participation and Incidents in NZ" produced by Annie Dignan & Gordon Cessford (2009) has been previously referred to earlier in this report including the recommendations for enhancing the collection, analysis and use of recreational participation and incident data.

Having the proposed recreational safety framework in itself is useful in providing direction to recreational safety stakeholders at national, regional and community level. The notion of understanding what causes recreational safety incidents, completing a risk assessment relative to those causes to determine the most effective form of control measure is fundamentally productive and a positive step forward.

However, to realise the great opportunity for the recreational safety sector to take significant steps forward in the sophistication, efficiency and accuracy of its effort, it must make changes to how relevant data is collected, stored and analysed into meaningful intelligence. Intelligence informs the sector wide risk assessment of who is at risk and which controls can reduce the risk for those participants. Intelligence provides an objective assessment of prioritisation of resources and, over time, the effectiveness of the controls which have been implemented.

All stakeholders engaged supported a role for NZSAR to play a stronger, broader role in leading the sector in improvements in strengthening the evidence base. There are some examples of good practice, such as the work being done by the NZ Mountain Safety Council which has recently completed and is in the process of publishing a report entitled "There and Back". This report includes a very strong focus on 'big data' where insights have been formulated using a range of data sets including ACC, NZSAR and internally held data. It provides a breakdown of where the challenges lie and will be an excellent tool for that organisation and its stakeholders to provide evidence based initiatives. This has been a complex and costly journey for NZ Mountain Safety Council and thus, in consideration of a cross-environment approach to accessing and using 'big data' is seems sensible that NZSAR take a lead role on behalf of the recreational safety sector with the outputs of this used to provide guidance and prioritisation for the recreational safety effort in New Zealand.

In order to have a robust economic debate in order for the recreational safety sector to be resourced effectively it goes without saying an evidence base is needed comparative to the likes of road safety. If NZSAR is equipped with this evidence as a result of sector cooperation and data sharing, it can effectively advocate for recreational safety to government and non-government sources of investment. Equally, having engaged some of those sources of investment, there is a desire from funders for NZSAR to provide leadership and guidance to support the investment decision making process. While funders reinforced the importance of making their own independent investment decisions, all were overwhelmingly supportive of a national recreational safety framework, supported by a strong evidence base, which they could use as a point of reference as they consider their allocation of funds.

Equally, the evidence base can be used by each individual SAR stakeholder involved in providing recreational safety initiatives. As an example, Surf Life Saving New Zealand, being aligned to the ILS global drowning prevention framework, has demonstrated effectively how it can focus its efforts and national, regional and community level using a similar cause and effect framework.

As shown above, a single point of truth or source of insight using 'big data' can have multiple applications which may result in strong alignment of effort, increased sector collaboration, more effective investment decisions and prioritisation clarity leading to a more efficient sector.

Build sector capability to respond to the evidence based need

Throughout the interview process when asked "what role could or should NZSAR play in recreational safety (prevention)?" stakeholders raised the opportunity of investing in sector capability building initiatives in terms of its workforce. This project has demonstrated there are a large number of talented and committed people focussed on improving recreational safety. There are some key areas of effort where organisations are constantly challenged in achieving significant results including developing systematic risk management tools to prioritise organisational focus, influencing public behaviour and measuring the effectiveness of the control measures and initiatives being implemented.

Through the proposed recreational safety framework, as it becomes populated by a strong evidence base, NZSAR will be in a healthy position to have visibility and relationships with a large range of stakeholders. Undertaking annual people development 'surveys' or similar could be undertaken to understand which areas NZSAR's stakeholders need professional development. This training and development could be coordinated by NZSAR and bring participants together. In addition to increasing the individual capability of participants in their roles, this approach would also increase the connectivity, networking and resulting collaboration of participants.

What NZSAR's stakeholders said about the proposed recreational safety framework:

"if we could see a sector map it would assist with stronger agency collaboration"

"provides a useful thought provoking assessment of cause and effect"

"while framework based it allows agencies to quickly get into action… SAR people are action oriented people."

"It's a logical approach. Puts us in a good space. Can't argue with cause and effect based framework".

"provides a systematic approach for the sector to respond to the problem"

"national coordination by NZSAR would be useful. Carries more weight when applied locally"

"the framework highlights gaps in the prevention space"

Consider stakeholder concerns when commencing implementation

While there has been a general consensus of support for NZSAR extending its role to include leadership of recreational safety in the context outlined in this report, stakeholders did raise concerns and questions for NZSAR to consider at it progresses with implementation of the proposed recreational safety framework.

There is genuine concern of NZSAR stakeholders regarding the capability and capacity of the existing NZSAR secretariat to play the sort of role being proposed in this report. There are undeniable and significant costs, particularly in moving the evidence base into a modern, 'big data' model to place the recreational safety resource debate on a similar level to other public safety discussions, such as road safety. NZSAR would need to advocate for additional resources through its central government revenue stream to grow its capacity. There was a strong sense that while a stronger approach to prevention is warranted, this should not be at the expense of

sustaining NZSAR's more traditional role of ensuring the country has an appropriate response capability when called upon.

Another concern was the potential overlap between the recreational safety framework and other environment specific frameworks or strategies, particularly when organisations are competing for resources. This can be mitigated to a fair level through NZSAR remaining engaged with the organisations that lead sector strategies (perhaps Water Safety NZ, NZ Mountain Safety Council and Civil Aviation Authority) ensuring there is alignment as much as possible. In addition, NZSAR should take proactive steps in engaging with funding organisations to ensure there is awareness of the national recreational safety strategy relative to existing environment specific strategies (such as reciprocal endorsement between documents so they are not considered in isolation or competition with each other). As an example, the NZLGB Outdoor Safety Committee will determine the distribution of funds later in 2016 with the various organisations to receive funds having already applied for those funds prior to this report being completed. It would be problematic for the committee to have any confusion regarding their distribution of funds this financial year as this report becomes known. A key consideration when engaging funding organisations is that there are different levels of scope for the respective strategies at national and environmental specific levels. The national recreational framework is established at a macro level across all environments to ensure a coordinated approach is taken to recreational safety in this country. It is not proposed to drop into specific technical or operational detail at a community level in the manner that environmental specific strategies may.

A key challenge raised during stakeholder interviews was the limitations in play for volunteer membership based organisations. While NZ enjoys perhaps one of the most 'volunteer' societies on earth, as NZ's tourism and resident population has evolved, so too has their recreation patterns. NZ's volunteer membership based organisations constantly do their best to evolve their efforts to reflect these dynamics, however, the notion of volunteerism is somewhat aligned to the lifestyles and satisfaction drivers of those who volunteer, and thus this presents a pressure point for these organisations. For example, the Coromandel Peninsula was once an inaccessible area where it's coastline was accessed by far fewer people who were often repeat visitors to its camping grounds and holiday homes. In 2016 there is a two-lane sealed road stretching to the far northern aspect of the peninsula which is frequented by tourist bus companies, campervans and day visitors – often people with little or no knowledge of the coastline hazards. This has changed the demands placed on the likes of Surf Life Saving New Zealand where the traditional volunteer lifeguard model, despite being incredibly effective for over one hundred years, is not a sustainable solution in very low population areas. Unlike 're-tasking' police assets, SLSNZ is unable to 're-task' volunteers to meet these needs. There is a sense that with long term (15-20 years +) there will be an increased need for a more blended (professional, government funded and volunteer, community funded) model to meet NZ's recreational safety requirements. This is an issue which will affect many of NZSAR's stakeholders including Coastguard New Zealand, Surf Life Saving New Zealand and Land Search and Rescue. Over time, building an evidence based recreational safety framework, with NZSAR in a key leadership and advocacy role, will support a longer term consideration of how NZ evolves its historical approach to recreational safety relative to modern demands.

Modernise and build on Adventure Smart

While not a core focus of this project, the 'Adventure Smart' website was mentioned by various stakeholders with strong feedback that while having a single point of truth for outdoor safety information to be accessible is important, perhaps the medium of a website is no longer the most optimal platform for this valuable asset. There is a strong sentiment that the content in Adventure Smart should be re-packaged into a smartphone application and enhanced with modern technologies such as geo-related messaging (i.e. when a tourist approaches an area with known hazards, the application could push safety messages the participant in their language) and cross-promotion with major tourism applications (such as trip advisor or booking applications).

What are NZSAR stakeholder's concerns regarding the proposed recreational safety framework?

"Does NZSAR have the capability and capacity to lead?"

"How will this framework sit relative to the Water Safety Sector Strategy 2020?"

"Will this confuse funders…especially in the short term… NZLGB this year?"

"Is there sufficient maturity in the sector to take a NZ Inc approach?"

"There is insufficient data to provide the evidence base needed"

"If it means shifting the volunteer effort, this is incredibly challenging… while they are our members, we don't 'control' them"

"Will agencies willingly commit to pooling data – both government and NGO?"

Summary

In closing, this project has engaged NZSAR stakeholders and explored the notion "*That the SAR Council coordinate the development of a joint preventative strategy that will place greater emphasis on preparedness and reduce the demand for SAR services in the future."*

The proposed response to this investigation, outlined in the recommendations section, is a proposed redefining of NZSAR's role to include leadership and advocacy of recreational safety (prevention), the ongoing development and implementation of the recreational safety framework outlined in this report, to be underpinned by an enhanced 'big data' evidence base from multiple sources, with the sector workforce supported with ongoing professional development and connectivity which, overall, will result in greater alignment and increased sector effectiveness.

This report should not be interpreted as a final version of the recreational safety framework. Over time it is envisaged the proposed evidence base will drive evolution of the framework to ensure the sector remains focussed and aligned.

Project Recommendations

To achieve the desired objectives outlined in the proposed recreational safety framework, a three-pronged game plan is required, supported by appropriate resourcing.

A. In order to fill the governance, thought leadership and coordination gap that exists, the NZSAR secretariat should assume a "cross environment" coordination, alignment and advocacy role for the recreational safety (prevention) sector.

1. That NZSAR council redefine its strategic goals with regard to recreational safety from "reduce the need for SAR services" to "to reduce the risk of SAR incidents, or in the event of a SAR incident, to reduce the negative consequences of such incidents" (or similar). This statement has a stronger alignment to accepted risk management standards internationally such as ISO31000:2009 Risk Management Principles & Guidelines.
2. That NZSAR Council adopt the proposed Recreational Safety Framework (RSF) as the underpinning thought model that will drive its approach to systematically strengthening the recreational safety (prevention) sector
3. That NZSAR secretariat provide thought leadership on behalf of the sector, to government and non-government organisations that provide resources, in order to generate additional sector resources to fill identified gaps.

B. To focus effort, prioritise resources and respond to an evolving recreational risk profile, build the evidence base and translate it into sector workflows, NZSAR secretariat should:

4. Take a thought leadership role on behalf of the sector regarding more effective and coordinated collection, supply and synthesis of data (both participation (exposure) and incident data) on an ongoing basis.
5. Establish agreements with organisations that currently collect relevant data to inform a national risk profile of recreational safety exposure and incidents.
6. Provide an ongoing information, intelligence and risk assessment service to the sector to ensure the recreational safety framework is underpinned by a strong evidence base.
7. Subject to the proposed risk assessment process, seek resources and take steps to fill identified recreational safety gaps. As an example, the initial sector mapping against the proposed framework indicates a gap may exist in servicing the international tourist participant segment.
8. Consider publishing an annual 'recreational safety report' to capture and report on sector performance, highlight key risk areas which require focus, showcase best practices and generate public and media awareness of recreational safety issues.
9. Where there is an opportunity to source and distribute funds to NZSAR partners (for prevention initiatives), ensure the criteria used to determine resource allocation is aligned to the proposed recreational safety framework including the evidence base generated by the risk assessment process.

C. To build sector capability and connectivity to realise outcomes, NZSAR secretariat should:

10. Coordinate and convene recreational safety forums to focus sector thinking and foster stronger collaboration on recreational safety across environments. It is recommended forums should have structure and function relative to the proposed framework and work collaboratively to maintain and evolve the framework and its enabling components.
11. Support and enable activities that strengthen people capability across NZSAR's partners in critical areas (such as risk management, public messaging and behavioural change) in order to grow the capability and capacity of the recreational safety sector in the areas that will enable it to be more effective and cohesive. This may include a mix of professional training and sharing of industry best practice (domestically and internationally).
12. Invest in a re-development of 'Adventure Smart' to ensure it is optimised to meet the needs of, and reflects the behaviours of, modern recreational participants across all participation segments. Initial concepts raised for consideration include development of a smartphone application with linkage to local hazard and safety messaging via geo-tracking functionality. Consider opportunities for joint venture with mainstream tourism industry organisations (i.e. Trip Advisor App and/or similar).

Appendix

A. Schedule of stakeholder documents reviewed during online review

- Review of the NPBSF Recreational Boating Safety Strategy – Iain Matheson, May 2014
- Accident Compensation Corporation – Strategic Plan
- Adventure Smart Outdoor Safety Code
- Coastguard New Zealand – Strategic Plan
- Department of Conservation – Statement of Intent 2015-2019
- NZ Mountain Safety Council – 2020 Strategic Plan
- NZ Meteorological Service – Company Profile
- NZ Police – Visitor Guide (English verion)
- NZ Recreation Association - Strategic Plan 2015-2020
- Maritime NZ "Stay on top" publication
- Maritime NZ "Safer Boating – an essential guide" 2014
- Surf Life Saving New Zealand – Strategic Plan 2015-2017
- Sport New Zealand – Group Strategic Plan 2015 – 2020
- Tourism Industry Association – "Growing Value Together" – Tourism 2025
- Maritime NZ "Waka Ama Safety Rules"
- Ngä Waka Federation in association with Maritime Safety Authority – Kaupapa Waka, The Safety Report
- Land Search & Rescue New Zealand – Strategic Direction
- Water Safety New Zealand Sector Strategy 2020
- New Zealand Search & Rescue - Strategic Plan 2014-2016

B. Presentation to stakeholder group assembled by NZSAR 13 May 2016

The attached presentation document was delivered to a stakeholder group assembled by the NZSAR secretariat to consider the initial findings and thought model which emerged from the project.

HIGHT: STRATEGY & RISK

RECREATIONAL SAFETY FRAMEWORK

Building sector cohesion to strengthen recreational safety in NZ.

DRAFT INSIGHTS – 13 MAY 2016

Project Introduction

- Driven by 2015 NZ SAR governance review.
- The review noted that “too much emphasis on response may overlook opportunities for complementary activities that promote awareness of the risks and the value of personal preparedness.”
- NZSAR Council has a goal to reduce demand for SAR services. *“We seek an informed and responsible public. We will collaborate, inform, contribute to, and when required, coordinate or lead public-focused preventative strategies and actions for individuals, groups and organisations. We want to ensure the New Zealand public and guests to our country are appropriately informed and assist them to take personal responsibility for their activities in order to reduce the need for search and rescue services”.*
- The 2015 review recommended: “*That the SAR Council* ***co-ordinate the development of a joint preventative strategy*** *that will place greater emphasis on preparedness and reduce the demand for SAR services in the future”.*

Process

1. Establish the problem statement… *“How can NZSAR develop a whole of sector evidence based and measured framework to strengthen sector cohesion, support decision making and improved prioritisation of resources that result in a reduced need for SAR services in New Zealand?”*
2. Design analysis required to answer the question and address contingent issues (stakeholder identification, review of research, develop “day 1 solution”, stakeholder engagement, refinement).
3. Develop draft recreational safety framework
4. Develop DRAFT recommendations for NZ SAR consideration in relation to the framework.

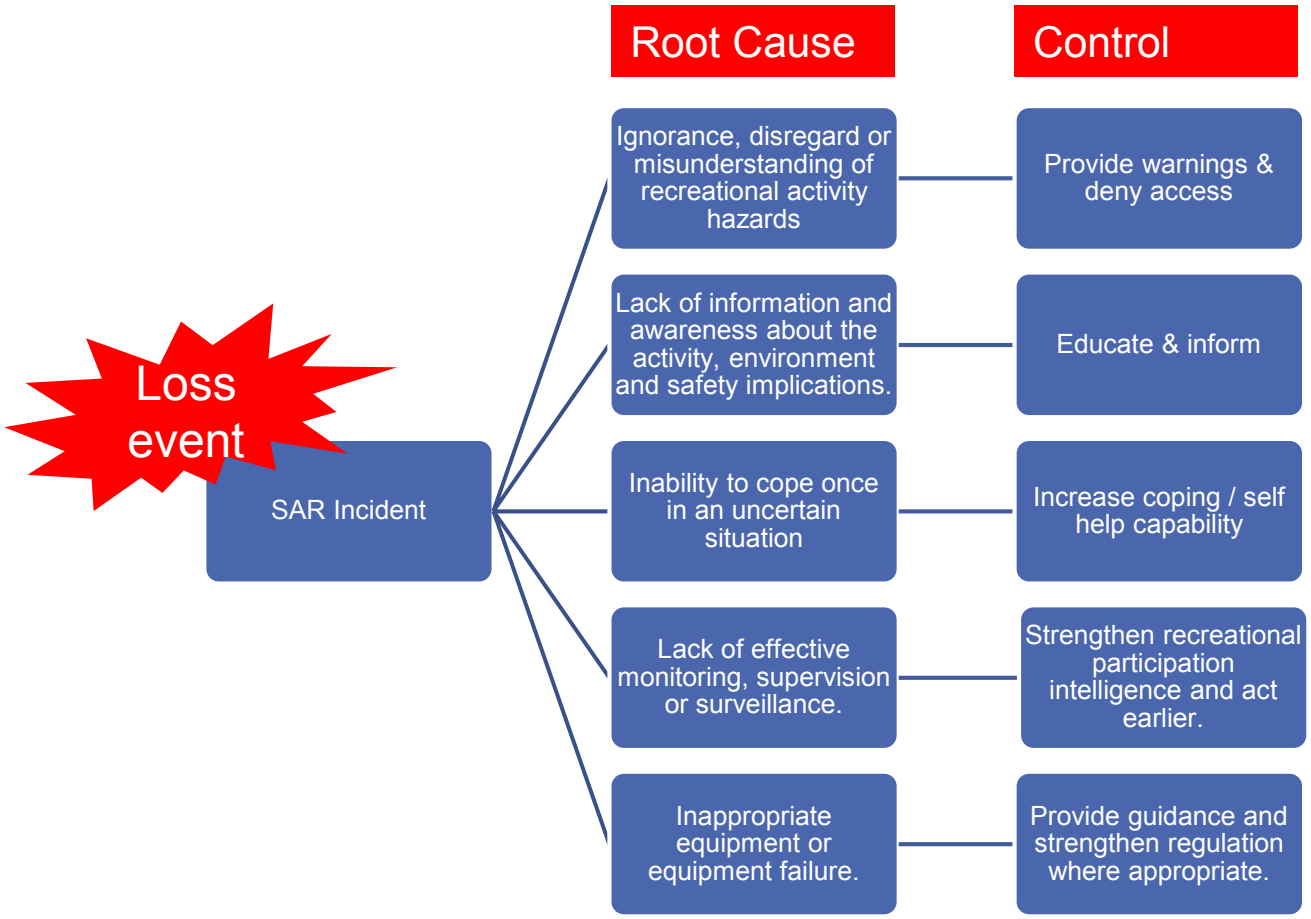
Establishing Context

- In Water
- On Water
- Land
- Air
- Non-commercial activities
- Non-’governed’ activities
- All users – international tourists, domestic tourists, locals, recent migrants
- Nothing “after the fact” (i.e. traditional SAR capabilities), prevention focus

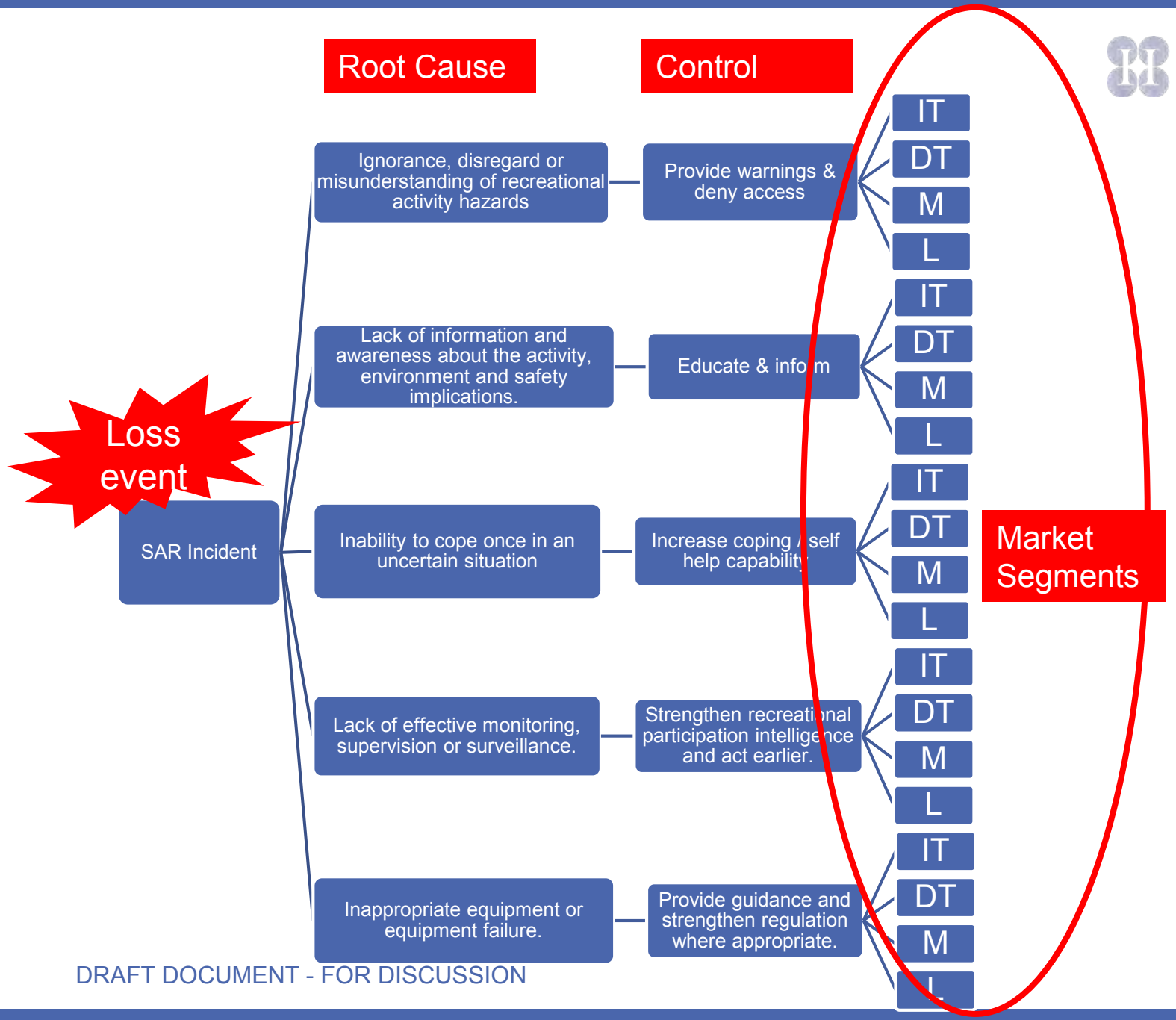
Who has been engaged thus far?

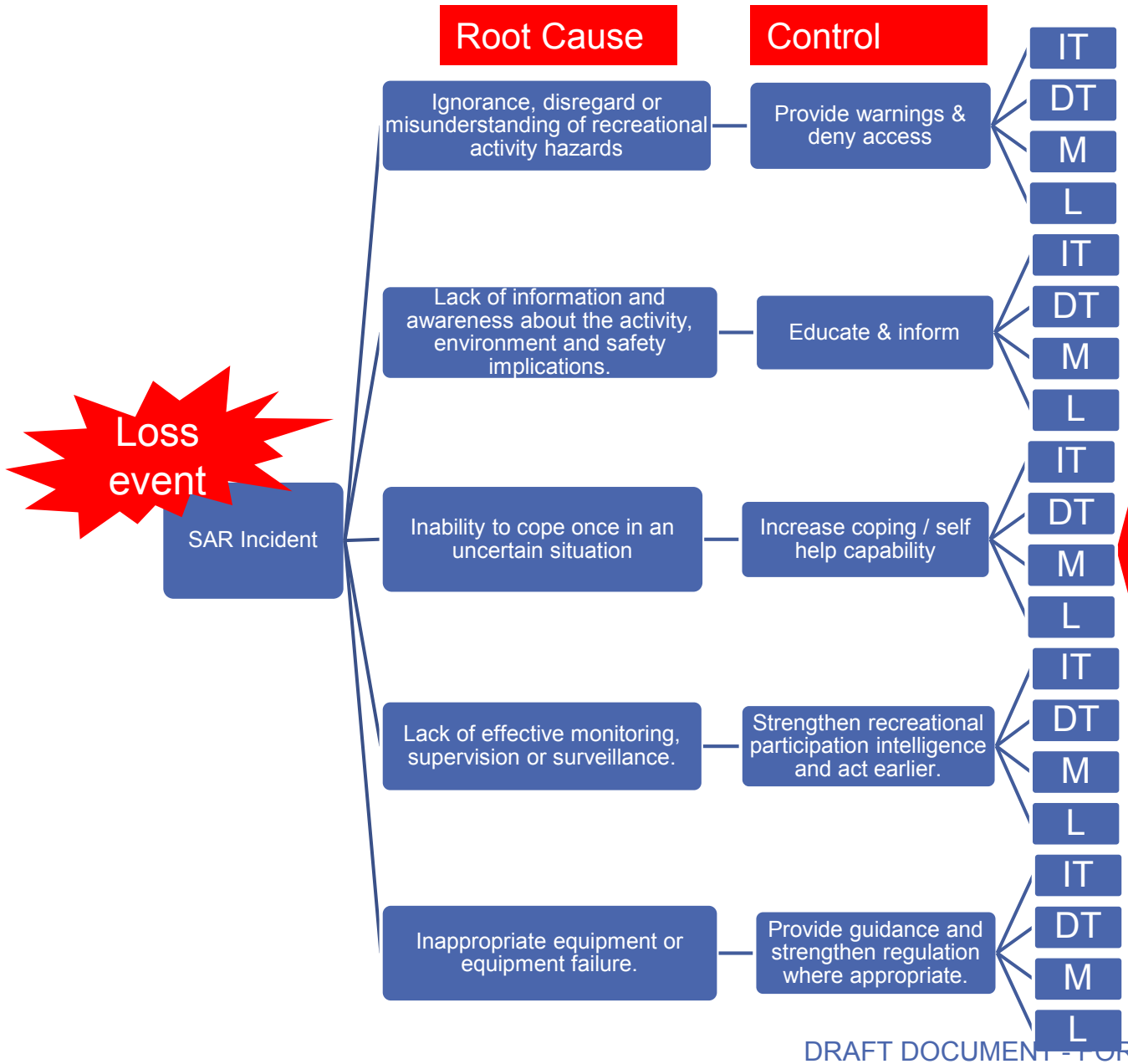
- Sport New Zealand
- Accident Compensation Corporation
- Department of Conservation
- Civil Aviation Authority
- RCCNZ / Maritime NZ
- NZ SAR secretariat
- Coastguard New Zealand
- Surf Life Saving New Zealand
- NZ Mountain Safety Council
- Water Safety New Zealand
- Swimming New Zealand
- Department of Internal Affairs
- Foundation North
- Auckland Regional Amenities Funding Board
- Waikato Regional Council
- NZ Meteorological Service
- NZ Tourism Industry Association
- NZ Police
- …and still engaging (NZRA, WAI, MNZ).

Unpacking the problem…

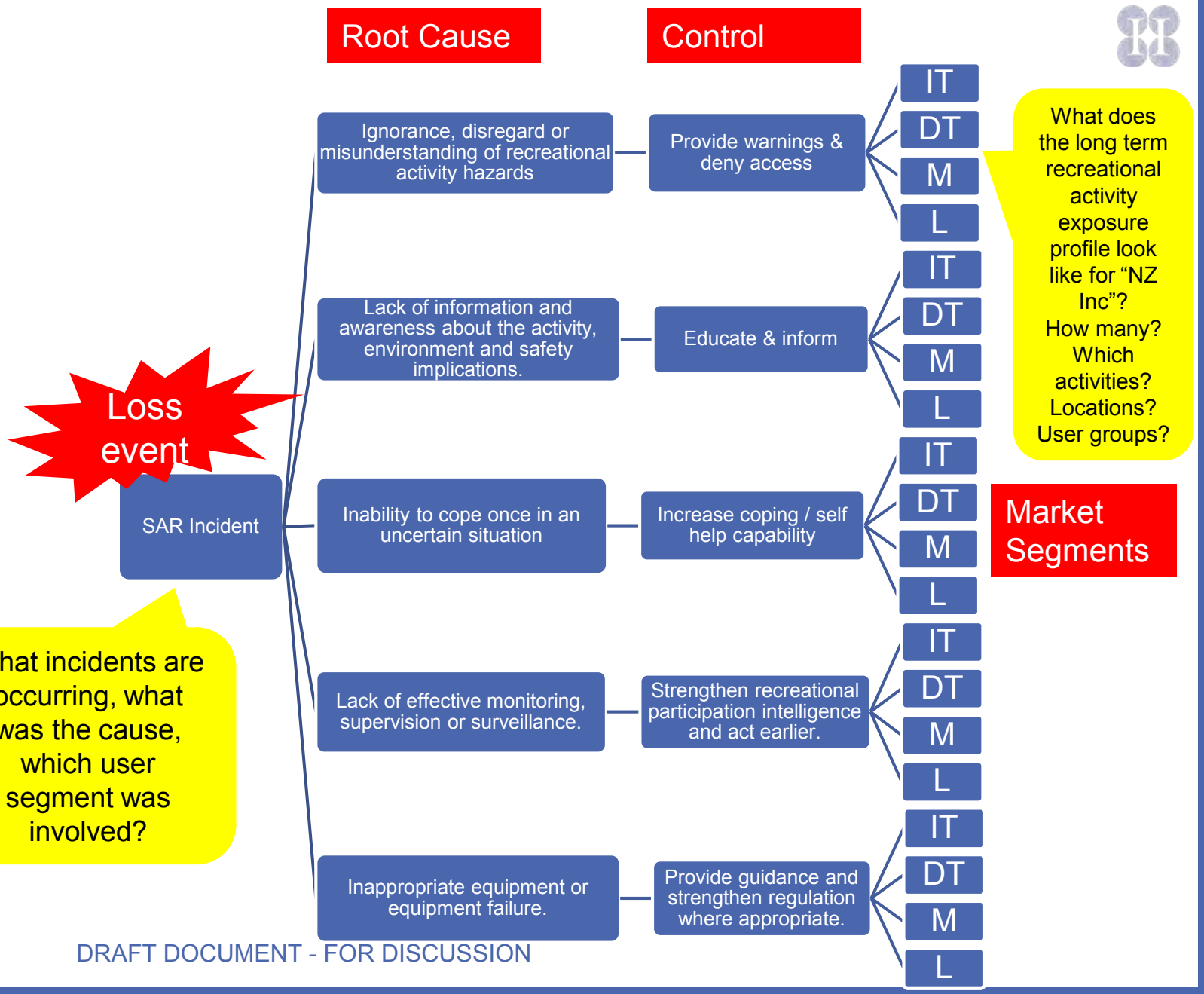


Its more complicated than that...





Data is needed to provide risk assessment insights... and focus sector effort.



Previous Work: *Outdoor Recreation Participation and Incidents in NZ.* Annie Dignan & Gordon Cessford (2009).

- Data Consistency – standardisation of any classifications or categories used for data recording, storage and reporting. This would include classifications' of activity type, incident type and other descriptive variables
- Data standards – ensure data is collected from the field, that it is collected accurately and consistently, and that it is entered into suitable databases
- Cross-sector collaboration – identify partner groups and develop statements of shared goals, interests and needs
- Joint projects – combine resources and resource seeking capacity by running more joint initiatives and research projects
- National Incident Database – investigate how this could be used to start collecting incident and participation data across the whole sector. This also allows incident severity measures to be included, which can significantly increase database value for targeted study
- User counts in the field – assist land managers set up, operate and apply visitor counting systems with trials and case studies
- Support research – look for ways to create beneficial research opportunities and collaborations, especially based on shared cross-sector needs.

Stakeholder feedback...What attributes does the proposed Recreational Safety Framework need?

- High level – not operational / program specific
- Ability to be supported by evidence
- Which environments?
- Which organisation(s) are involved in each environment?
- Which root causes are each organisation focussing on?
- Which market segments are each organisation targeting?
- Catalyst for sector cohesion and collaboration
- Must not duplicate other sector work – drowning prevention industry strategy etc.

A NZ Inc response.

1. Where is the exposure?
2. Who is the target?
3. What is their journey?
4. Which organisations can assist?
5. What are the primary controls needed?
6. Execute
7. How effective were the controls / reassess exposure?

	Root Cause Focus					Recreational User Segments Targeted			
Organisation / Recreational Environment	Provide warnings / deny access to hazard	Education and/or information	Provision of survival / self help programs	Supervision, surveillance and monitoring programs	Provision of equipment guidance and regulation.	International Tourist	Migrant	Domestic Tourist	Local
Air									
CAA	Y	Y	Y	Y	Y	N	N	Y	Y
On Water									
Coastguard NZ	N	Y	Y	Y	Y	N	N	Y	Y
RCCNZ	N	N	N	Y	N	N	N	Y	Y
Maritime NZ	N	Y	N	N	Y	N	N	Y	Y
In Water									
Surf Life Saving NZ	N	Y	Y	Y	Y	N	N	Y	Y
Water Safety NZ	N	N	Y	Y	N	N	N	Y	Y
Swimming NZ	N	N	Y	Y	N	N	N	N	Y
Watersafe Auckland	N	N	Y	Y	N	Y	Y	Y	Y
Land									
LandSAR	N	Y	N	Y	Y	N	N	Y	Y
Mountain Safety Council	N	Y	Y	Y	Y	N	N	Y	Y
Department of Conservation	Y	Y	Y	Y	Y	Y	Y	Y	Y
Injury Prevention / Safety Generic									
NZ Police	N	N	Y	N	Y	Y	Y	Y	Y
Tourism Industry Association	N	N	N	N	N	Y	Y	Y	N
Met Service	N	Y	N	N	Y	N	N	Y	Y
ACC	N	N	Y	N	N	N	N	Y	Y
Sport NZ	N	N	N	N	N	N	N	Y	Y
Territorial Local Authorities (TLA's)	Y	Y	N	N	N	N	N	Y	Y
NZ Recreation Association	N	N	N	Y	Y	N	N	Y	Y

Summary: Value

- “if we could see a sector map it would assist with stronger agency collaboration”
- “provides a useful thought provoking assessment of cause and effect”
- “while framework based it allows agencies to quickly get into action… SAR people are action oriented people.”
- “It’s a logical approach. Puts us in a good space. Can’t argue with cause and effect based framework”.
- “provides a systematic approach for the sector to respond to the problem”
- “national coordination by NZ SAR would be useful. Carries more weight when applied locally”
- “highlights gaps in the prevention space”

Summary: Risks / Concerns

- “Does NZ SAR have the capability and capacity to lead?”
- “How will this framework sit relative to the Water Safety Sector Strategy 2020?”
- “Will this confuse funders…especially in the short term… NZLBG this year?”
- “Is there sufficient maturity in the sector to take a NZ Inc approach?”
- “There is insufficient data to provide the evidence base needed”
- “If it means shifting the volunteer effort, this is incredibly challenging… while they are out members, we don’t ‘control’ them”
- “Will agencies willingly commit to pooling data – both government and NGO?”

Summary: A role for NZ SAR in prevention?

- Yes – widely supported, there is a genuine gap
- Convene forums to focus agency thinking on recreational safety across environments
- Leadership and advocacy on collection, supply and synthesis of data (both participation (exposure) and incident) on behalf of sector
- Support sector capability – professional development to support effective interventions for areas of exposure (across all environments)
- Modernisation of adventure smart (smart phone app, geo advice, attraction linked)
- Advocacy for additional sector resources to fill identified gaps

HIGHT: STRATEGY & RISK

WWW.HIGHT.CO.NZ

Safety, Risk & Strategy Solutions.

DRAFT DOCUMENT - FOR DISCUSSION

SEARCH AND RESCUE OPERATIONS

AVIATION ENGAGEMENT FRAMEWORK

INTERIM FINDINGS

SEPTEMBER 2016

CONTEXT

NZSAR Vision sets the scene:

"A cohesive community of capable people in sustainable organisations, finding and rescuing people in distress, and operating collaboratively within a robust SAR system"

- An effective aviation engagement framework will support achievement of this vision to ensure the safe delivery of effective SAR services

Renewed focus on health and safety:

- The recent Health & Safety at Work Act 2015 places a strong focus on health and safety risk management for those commissioning services and those delivering the service

CURRENT SITUATION

Key roles

- **NZSAR Council:** ‘guardian’ of the system ‘to improve common SAR practices and procedures to ensure safe delivery of effective SAR services’

- **Co-ordinating Authorities:** lead and manage land, sea and air operations; purchase services of providers

- **Aviation Providers:** deliver the services efficiently, effectively and safely

AVIATION ISSUES AND CHALLENGES

ISSUES AND CHALLENGES

Inconsistent approaches to SAROPS for:

- Tasking, management, information exchange, communications
- Differences in standards, and their use
- Variability in provider training
- Different approaches to charging
- Risks for duplication of effort, misunderstandings, inefficient delivery

Underlying issue

No common or consistent statements of expectations between parties

Little overarching guidelines to inform planning and behaviours

SAROPs are a small part of the aviation provider's work, and lack attention

ISSUES AND CHALLENGES

Gaps in assurance

- An array of different and changeable capabilities and arrangements, and challenges for maintaining currency
- SAR Coordinating Authorities have an uneven understanding of operator skill for different tasks
- Risk of a ‘drift into failure’ as there are no moderating checks and balances to flag issues early, and mitigate risks

Underlying issue

No robust mechanisms in place to provide assurance

Training is variable and left to the operators

Current ‘high trust’ model, informal relationships across a fragmented landscape of providers

ISSUES AND CHALLENGES

Ineffective relationships

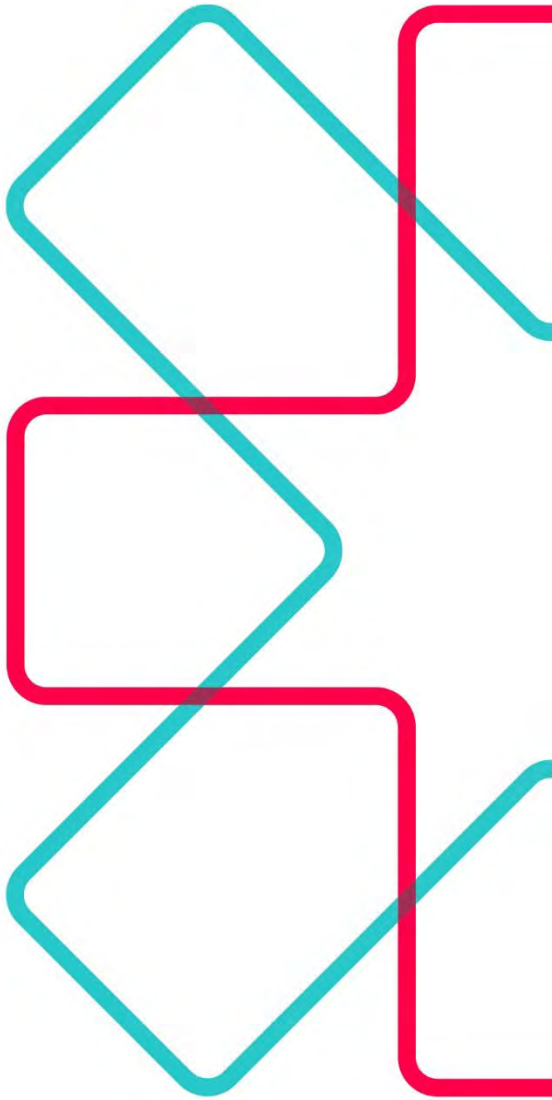
- Challenges for collective engagement and collaborative procurement amongst parties
- Room for closer relationships between NZSAR and coordinating authorities with funders/ employing agencies of aviation providers, and other agencies (CAA, Aviation NZ)

Underlying issue

No centrally monitored multilateral agreements to validate and support collaborative working

Informal relations play a significant role, which can lead to tensions and issues impacting on effective SAROPs

AVIATION ENGAGEMENT FRAMEWORK



AVIATION ENGAGEMENT FRAMEWORK

Key Elements Required

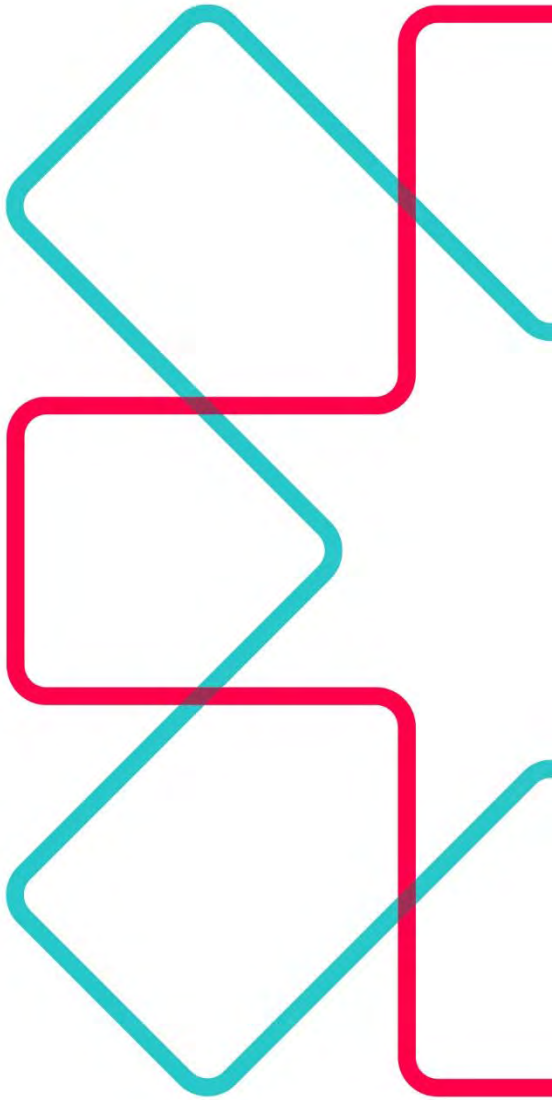
- Consistent guidelines for Coordinating Authorities on their roles, responsibilities and approaches e.g.
  - Collaboration, decision-making, procurement, relationship and contract management
  - Responsibilities under legislation e.g. HSWA 2015
- Consistent guidelines for aviation providers for ‘what good looks like’ for efficient, effective and safe operation
- Coordination and support from NZSAR for developing and implementing guidelines
- Competency framework for SAR aviation providers that outlines expected competencies, skills, qualifications for effective and safe SAR responses
- Training framework around this for ensuring competencies are developed and maintained

AVIATION ENGAGEMENT FRAMEWORK

Key Elements Required (cont.)

- Current database of SAR capability throughout NZ (NZSAR has a good database in place; currency needs to be maintained)
- Consistently applied agreements between all commissioning and provider organisations
- Enhanced procurement framework (e.g. pre-selected provider panels for coordinating authorities)
- Enhanced reporting from coordinating authorities to NZSAR on state of preparedness and activity
- Mechanisms for monitoring and evaluating the performance of coordinating authorities and aviation providers
- Collaborative working arrangements between all parties
- Coordination of focus and activity amongst NZSAR, WorkSafe NZ and CAA – all have an interest in health and safety

ROLES WITHIN THE FRAMEWORK



ROLES WITHIN THE FRAMEWORK

NZSAR

- Stewardship of the framework
  - Provide oversight, strategy and support
  - Define fundamental principles for safe, effective SAROPs
- Provide leadership to the coordinating authorities and other stakeholders
  - Maintain regular forum with coordinating authorities
  - Provide support to coordinating authorities (e.g. practices, procedures, risk management)
  - Develop relationships with other stakeholders (e.g. funding bodies; industry associations; other agencies with H&S interest)
- Provide high level guidance to coordinating authorities and providers
  - Develop guidance material collaboratively with parties
  - Set expectations for coordinating authorities for how they manage relationships; make decisions on tasking; keep track of aviation provider capability etc

ROLES WITHIN THE FRAMEWORK

NZSAR (cont.)

- Maintain a current understanding of the nature of the capability in the sector (across coordinating authorities and providers)
  - Maintain currency of the existing database
  - Communicate the database and its usefulness to the sector
- Provide coordination support for coordinating authorities and aviation providers
  - Coordinate regular proactive formal and informal contact for discussion and sharing of good practices
- Monitor and evaluate the effectiveness of guidance and support provided to assess usefulness
- NOTE: Explore the centralisation of coordination of Category 1 and 2 responses into one coordinating authority: one procurement process; one set of expectations.

ROLES WITHIN THE FRAMEWORK

Coordinating Authority

- Coordinate (lead and manage) SAROPS in the NZ SAR region
- Allocate/ procure the most appropriate aviation provider to a SAR response: effective and safe SAROPs provision
  - Using a database; provider panel approach
  - Apply a consistent approach to decision-making
- Communicate the specific task details to the aviation provider
- Manage agreements for service with providers: set performance expectations
- Monitor and evaluate the performance of aviation providers against their agreement for service
  - Proactive assessment/ debriefing of each operation; follow up actions
- Fulfil health and safety risk management obligations under HSWA 2015
- Actively collaborate with NZSAR and other key stakeholders

ROLES WITHIN THE FRAMEWORK

Aviation Provider

- Provide a timely, effective and safe SAROPs response
- Maintain appropriate levels of response capability, equipment and knowledge
- Provide any changes to operations and capability to maintain currency of database
- Adhere to the agreement made with the coordinating authority for SAR responses
- Fulfil their health and safety obligations under the HSWA 2015
  - Workplace health and safety risk management (including ground crew)
  - Training and development obligations
- Fulfil obligations under Civil Aviation Rules
  - For aircraft technical and operations; equipment
  - For pending Safety Management System requirements

IMPLICATIONS FOR NZSAR

IMPLICATIONS FOR NZSAR

- More proactive role for leadership – moving beyond the setting of strategy to leading implementation of the strategy
- Resourcing implications for oversight, coordination and guiding
- Resourcing implications for developing guidance materials for supporting strategy implementation and the framework
- A phased and collaborative approach will be necessary to implementation of a framework
  - Prioritise for quick wins and longer term gains

Know Before You Go

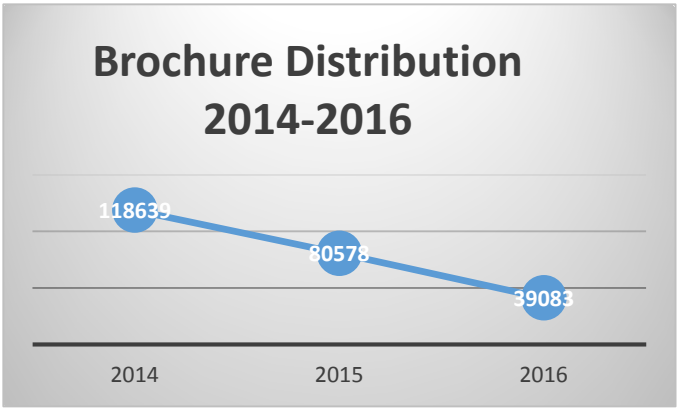
ADVENTURE smart

www.adventuresmart.org.nz

Summary Report 1 July 2015 – 1 July 2016

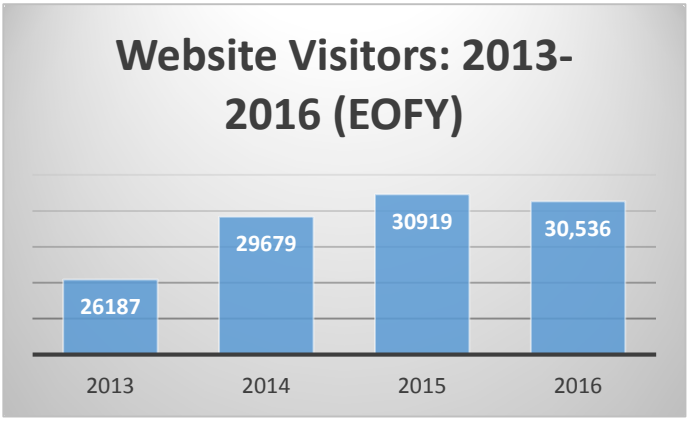
Brochure distribution:

1. Jasons has sponsored AdventureSmart again in the 2016 calendar year.
2. Between **July 2015 and July 2016** a total of 39,083 brochures were distributed by Jasons. (Compared to *2014*: 118,639 and *2015*: 80,578.)



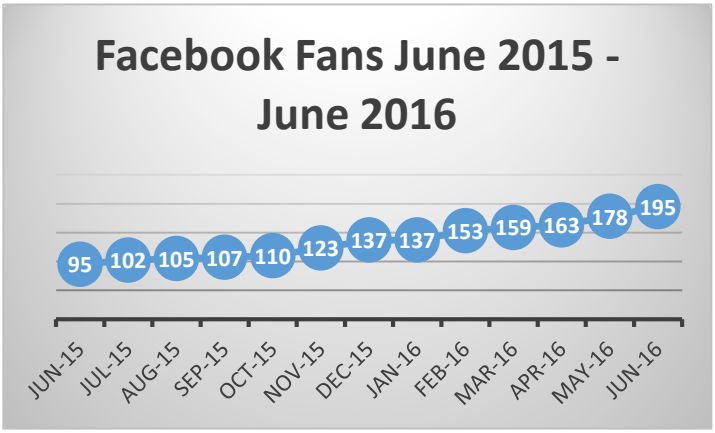
Website traffic:

1. Between 1 July and 1 July 2016 AdventureSmart saw an *estimated* total of 30,536 visitors (to both mobile and main sites). (Compared to June-June *2014*: 29,679 and *2015*: 30,919).
2. **Please note that we briefly lost our analytics and reporting during the switchover between websites and the actual annual visitor level should have been higher than last year's based on consistently higher quarterly trends, year on year.*
3. Top countries visiting AdventureSmart are NZ, Australia, UK USA, Germany, France, Switzerland, Canada, Brazil, Russia, India, China, Malaysia, Philippines, United Arab Emirates and visits from most of these countries are continuing to increase.
4. All Outdoor Intentions pages are the most popular followed by Land, Water and Boating homepages, and the Safety Codes page.



Key marketing actions:

- New website switched on in March 2016, replacing the two old main and mobile sites.
- Tourism Radio advertised AdventureSmart around the country.
- Duncan promoted AS at the TIA Adventure conference in 2015.
- Arrival app includes free AS advert.
- With the support of the Tauranga City Council, all three safety codes were translated into Portuguese in March 2016.
- Trademarking process undertaken.



In Confidence

Office of the Associate Minister of Health

Chair, Cabinet Social Policy Committee

Procurement of Air Ambulance Services

Proposal

1 I propose that Cabinet notes the procurement approach and indicative timeline for the purchase of air ambulance services.

Executive Summary

2 The Ministry of Health (the Ministry) and the Accident Compensation Corporation (ACC) jointly purchase air ambulance services for medical emergencies (including injury) from 12 providers throughout New Zealand.

3 Demand for clinically appropriate air ambulance services is increasing at a level that is unsustainable under current funding and provision arrangements.

4 The government funds approximately 50 percent of emergency air ambulance service costs. The remainder of the revenue required is raised by the community.

5 All emergency air ambulance services arrangements expire on 31 March 2018.

6 Officials have developed a procurement approach that seeks a collaborative model and uses co-design as a key part of the procurement process.

7 I have approved the approach to procure air ambulance services and the indicative timeline. The aim of the procurement is to deliver nationally consistent, sustainable and integrated services through collaborations, while retaining the support and engagement of local communities, who provide sponsorship and have a vested interest in the service.

8 The Ministry and ACC will endeavour to procure services within the current appropriations. Potential costs of the new arrangements will emerge in November 2017 after the Request for Proposal stage and be included in the detailed Better Business Case. The Better Business Case development will be underpinned by an Investment Logic Mapping (ILM) process.

9 The base scope of services to be purchased is rotary and fixed wing air ambulance services funded by the Ministry and ACC.

10 There is strong interest from some District Health Boards (DHBs) to include rotary and fixed wing inter-hospital transfers in the scope. A national tasking and coordination function is also being considered as part of this procurement activity.

11 Officials have also commenced cross government engagement with funders of other similar air services such as New Zealand Police, Search and Rescue and the New Zealand Fire Service, prior to commencing the first stage of the procurement process in February 2017. This is to determine their level of involvement in the co-design process and the likely impacts of the new service model on other similar services.

12 Officials will work with providers to extend the term of current arrangements to 30 June 2018, with new arrangements in place for 1 July 2018.

Background

13 Ambulance services are provided by road ambulances, helicopters and less frequently by fixed wing aircraft. These are jointly purchased by the Ministry and ACC through the National Ambulance Sector Office (NASO). NASO is a joint business unit governed by both agencies. Both agencies part fund air ambulance services. The community contributes approximately 50 percent of funding required for these services.

14 Air ambulance services use helicopters to provide rapid response to serious medical emergencies and accidents throughout New Zealand. DHBs use these same services for emergency transfers of patients between hospitals. New Zealand Police, Search and Rescue and the New Zealand Fire Service use some of the same resources for search and rescue missions and fighting vegetation fires.

15 The Ministry and ACC are the largest users of the helicopter services, accounting for more than 70 percent of all hours flown, with DHBs using about 22 percent and New Zealand Police and Search and Rescue around 8 percent. The Ministry and ACC currently contract with 12 providers, refer to Appendix One.

16 Air ambulance services provide clinical care at the scene and transport seriously ill patients (for whom air transport is expected to make a clinically significant difference to their outcome) from the community or lower level hospital to a place of definitive care. In addition air ambulance transport is needed in other circumstances such as:

- for safe transport and containment of highly infectious and potentially lethal disease cases (including suspected cases) such as Ebola and for care; or
- for transport of a patient where access by road is not suitable.

Air ambulance services are nationally inconsistent and could be better coordinated

17 The provision of services although generally of a good standard, is nationally inconsistent and uncoordinated. The fragmented nature is due to:

- multiple small providers with differing operating models and cost structures;
- overlapping network coverage;
- the range of different helicopter capabilities complicating dispatch;
- inconsistent dispatch practices that are not coordinated between funders; and
- air ambulance services not being well integrated with other areas of health.

Air ambulance services are not sustainable under the current service and funding model

18 The demand for clinically appropriate air ambulance services is increasing and is not nationally sustainable within current appropriations. The demand for rotary services has increased by 56 percent over the five years to 2015. Volumes are forecast to increase a further 44 percent by 2020.

19 The current Ministry and ACC funding model was implemented in 2013. It is a mixed funding model with a fixed fee component and a fee for each hour flown. The fixed fee does not increase with volume growth. The total revenue providers receive under the current funding model has grown less than would have been the case under the previous fee for service model. Providers have become more dependent on donations and sponsorships.

20 The fixed fee is a contribution towards fixed costs and was determined by the Ministry and ACC funding available in 2011. The fee per hour flown covered the actual variable costs of flying in 2012.

21 The Ministry and ACC do not want to commit to further funding for the existing service model and believe it is no longer ideal to purchase air ambulance services in a siloed approach. An integrated national system is required that maximises the effective use of resources.

Comment

Procurement of a nationally consistent, coordinated, sustainable air ambulance service

22 The need for change is driven by the limitations of the current service model and funding model.

23 Officials believe a procurement process using participative co-design provides an environment that enables funders to work collaboratively with the providers, stakeholders and independent experts. Developing a new service model through co-design encourages the market to develop innovative concepts, and ideas, rather than creating ideas in isolation.

24 The Ministry has successfully used the co-design approach in the procurement of the National Telehealth Service.

25 Co-design will enable:

- the development of an air ambulance service that is clinically appropriate, integrated, nationally consistent, coordinated and sustainable that will contribute to improved patient outcomes; and
- exploration of how greater efficiencies can be achieved to improve the sustainability of the service in the long term.

26 The outcomes of the procurement will be to provide:

- an efficient national network of air ambulance services covering all of New Zealand that is integrated with other emergency transport systems and services; and
- safe, high quality responses in dedicated air ambulance aircraft, with trained personnel available 24 hours per day, seven days per week, 365 days per year.

27 This will enable air resources to be used more efficiently and effectively, to meet the needs of an integrated health system for improved patient outcomes.

28 The services could be delivered by one or more providers, with the support of the relevant communities. This would be determined by the outcome of the procurement process.

29 The development of a fit-for-purpose funding model would need to preserve the role of community funding and support, and deliver financial sustainability for the providers in the long term e.g. the next ten years.

30 Table 1 below outlines the indicative timeline for the co-design process. Further clarity regarding the timeline will be provided in the Indicative Better Business Case.

Table 1. Co-design process

Activity	When
Issue Notice of Intent to procure on the Government Electronic Tenders Service (GETS)	September 2016
Conduct cross Government consultation	September to October 2016
Confirm participation of funders (DHBs)	October 2016
Market engagement	October to December 2016
Issue registration of interest (RoI)	February to March 2017
Evaluate RoI	April 2017
Co-design through structured dialogue	May to August 2017
Closed Request for Proposal (RFP)	September to October 2017
Evaluate proposals	November to December 2017
Due diligence, contract(s) negotiation , contract(s) signed	January to March 2018
Service transition and implementation	April to June 2018
New contract(s) commence	1 July 2018

Note: the current air ambulance service contracts expire at 31 March 2018 and will need a three month extension. This has already been signalled to current contract holders.

Proposed scope of the procurement approach

31 Rotary and fixed wing air ambulance services for medical emergencies including injury (funded by the Ministry and ACC) are the base scope of the procurement.

32 Consideration is being given to the inclusion of rotary and fixed wing inter-hospital transfers funded by DHBs.

33 A national tasking and coordination function, may be included in this procurement or identified as an opportunity to develop in the future.

34 The scope of the procurement will be refined through pre-market engagement and discussion with agencies that co-fund.

35 Although the scope has a health and injury focus, other funders and purchasers of air ambulance services may wish to be included at a later date. Officials are currently investigating the opportunity to incorporate a collective procurement approach so that any resulting arrangement will be available for use by health and emergency agencies, such as New Zealand Police, Search and Rescue and the New Zealand Fire Service.

Risks associated with this procurement

The risks associated with this procurement are outlined in Table 2.

Table 2: Risks

	Risk	Mitigation
1.	Existing air ambulance service providers oppose or do not participate in the procurement process.	Ensure processes are clear and transparent. Continue to maintain regular engagement as appropriate within the procurement process.
2.	Some DHBs may prefer to keep their existing inter-hospital transfer arrangements	Continued engagement with the DHBs. The procurement process will enable DHBs and other agencies to join in the future.
3.	The procurement process and/or its outcome are challenged.	A fair, transparent and robust process will be undertaken including external probity expertise. The process will align with the Government Rules of Sourcing.
4.	Community concern about change. Loss of community donations and support.	Community involvement in the service co-design through community trust representation and/or direct consumer involvement. On-going engagement and communication through the procurement process, as appropriate.
5.	Current providers may not have sufficient resource and skills to fully participate in the process.	Provision of support and guidance on what is involved in the procurement process, in particular the co-design phase.
6.	Available funding insufficient to deliver an effective sustainable service.	Engage independent expertise to develop funding model options.
7.	Providers not willing to agree to a contract term extension, leading to potential service gaps.	Early engagement with providers. Consideration of contingency funding.

Engagement with providers, other funders and stakeholders

36 An outline of the procurement approach, including the proposal to co-design a service model, has been shared with the current contracted air ambulance providers, through the Air Rescue Group. The approach was well received and generated good discussion.

37 Engagement has commenced with DHBs about including inter-hospital transfers in the scope of services to be procured. This engagement will continue in to September 2016.

38 Officials have commenced and will continue to engage and consult with New Zealand Police, Search and Rescue, New Zealand Fire Service, as emergency service partners, to understand

the impacts for them in terms of this procurement activity and to determine their involvement in the co-design process.

39 It is recognised that communities are key stakeholders, with the need for on-going engagement, as appropriate. Community involvement in the service co-design will be through community trust representation and/or direct consumer involvement.

40 Air ambulance services receive significant sponsorship and support from their communities. It is important this is retained. Communities will need assurance they will continue to receive a quality air ambulance service during the co-design process and in the future.

Consultation

41 The following agencies were consulted on this paper:

- ACC;
- Ministry of Business Innovation and Employment (MBIE);
- The Treasury;
- New Zealand Police, Search and Rescue and New Zealand Fire Service; and
- Maritime New Zealand.

42 ACC supports the Cabinet Paper and notes that the proposed procurement approach:

- provides a structured multi-phased process which enables funders to discuss at each stage with service providers, with the aim of achieving better strategic outcomes; and
- includes a flexible co-design process which will enable exploration of how greater efficiencies can be achieved to improve the sustainability of the service in the long-term.

43 The Corporate Centre support the approach to co-design the air ambulance service and will provide input and support through the Better Business Case process.

44 Search and Rescue and the New Zealand Fire Service will continue to be consulted and involved to determine their involvement in the co-design process and understand the potential impacts of the new service model on other emergency services.

45 The Department of the Prime Minister and Cabinet were informed.

Financial Implications

46 The government funds approximately 50 percent of costs of air ambulance services for medical emergencies (including injury) although the exact figure will vary slightly year on year. The remainder of the revenue required is raised by the community.

47 Officials expect the co-design of air ambulance services will enable a better coordinated, and integrated service to be delivered within the current appropriations. ACC is likely to consider whether to fully fund efficient air ambulance services for its clients, while the Ministry will continue to part fund.

48 An ILM process will be conducted and inform the Better Business Case process. The Indicative Better Business Case process will identify a list of options for a new air ambulance service delivery model, including potential high level financial implications. This will allow the ACC Board and the Ministry to consider and agree these options prior to presenting them to Cabinet. Cabinet will then consider these options, agree the preferred option and provide the parameters for the co-design process.

49 The Detailed Better Business Case will provide the financial implications as a result of the co-design and subsequent Request for Proposal stage of the procurement process.

50 If required, the Ministry and ACC (for the Non Earners Account) will seek funding in Budget 2018. Cost implications for ACC and any impacts on ACC levies and appropriations will be reported back to Cabinet.

51 During the Better Business Case process, officials will consult with the corporate centre and Ministers' offices to ensure that key gateway milestones align with Cabinet decision points.

52 Funding for emergency air ambulance services has increased year-on-year, with Ministry funding more than doubled over the five year period. ACC funding has increased at a slower rate. Table 3 provides a breakdown of the funding for air ambulance services from 2011 to 2015.

Table 3. Ministry of Health and ACC funding from 2011 to 2015

Funder	2011	2012	2013	2014	2015
ACC	$10.5m	$10.8m	$12.2m	$12.7m	$13.8m
Ministry	$2.3m	$2.6m	$4.7m	$7.3m	$8.6m
Total	**$12.8m**	**$13.4m**	**$16.9m**	**$20.0m**	**$22.4m**

Human Rights

53 The proposals in this paper are not inconsistent with the New Zealand Bill of Rights Act 1990 or the Human Rights Act 1993.

Legislative Implications

54 There are no legislative implications.

Regulatory Impact Analysis

55 A regulatory impact analysis is not required, at this stage.

Gender Implications

56 Communities will be involved in the co-design of the air ambulance services. There are no gender implications.

Disability Perspective

57 Ambulance services are no different from other health services in that people with disabilities are more likely to use their services.

58 There are no adverse impacts on the services provided to individuals with disabilities.

Publicity

59 There is strong public and community interest in the air ambulance service design and procurement.

60 A communications strategy and plan are being developed. A comprehensive stakeholder engagement strategy is in development. Questions from the media and key stakeholders are being managed by Service Commissioning, within the Ministry, in consultation with ACC.

61 Key messages, with supporting information and frequently asked questions have been drafted, and will be available for Ministers.

Recommendations

62 The Associate Minister of Health recommends that the Committee:

1. **note** that air ambulance services currently provided are of a good standard, but nationally inconsistent and not well coordinated;

2. **note** current air ambulance services arrangements expire on 31 March 2018 and a procurement process is being undertaken to ensure a safe, effective and efficient air ambulance service model in to the future;

3. **note** the procurement approach includes co-design of the air ambulance service model, with providers, stakeholders and independent experts;

4. **note** that an investment logic map will inform the Better Business Case process;

5. **note** that Cabinet will receive advice by 5 December 2016 on the air ambulance service model options and high level financial implications, prior to the commencement of the competitive procurement process;

note that Cabinet will receive advice by December 2017 on the proposed service model and the actual costs, at the completion of the Request for Proposal stage of the procurement process;

6. **note** that stakeholder engagement has commenced, including engagement with current providers and with other funders of air ambulance and air rescue services;

7. **note** that during cross government consultation officials will engage with New Zealand Police, New Zealand Fire Service and Search and Rescue to understand the potential impacts of the new service model on other emergency services, and determine the level of involvement in the co-design process;

8. **note** that communities are key stakeholders due to their significant support and contribution to air ambulance services and there is a need for on-going engagement with communities, including providing assurance to communities that they will continue to receive an air ambulance service.

9. **note** community involvement in the service co-design will be through community trust representation and/or direct consumer involvement; and

10. **note** that new contracts are expected to be in place by 1 July 2018**.**

Authorised for lodgement

Hon Peter Dunne

Associate Minister of Health

Appendix One –Air Ambulance Services

There are 12 contracted providers of air ambulance services. These providers are:

Auckland Rescue Helicopter (ARHT)	Otago Rescue Helicopter Ltd (ORHL)
Eastland Helicopter Rescue Trust (EHRT)	Philips Search & Rescue Trust (Philips)
Garden City Helicopters Ltd (GCH)	Taranaki Rescue Helicopter (TRHT)
Hawke's Bay Helicopter Rescue Trust (HBRHT)	The Life Flight Trust (Life Flight)
Lakes District Air Rescue Trust (LDART)	Skyline Aviation Ltd (SAL)[1]
Northland Emergency Services Trust (NEST)	Stewart Island Flights Limited (SIF)

Air ambulance services are provided under various business models, and while they deliver the same service overall, the different models make comparisons between Providers difficult.

The different business models applied by the providers are:

- Charitable Trusts that operate their own aircraft operations;
- Charitable Trusts that contract commercial operators to provide helicopter services;
- Charitable Trusts that fundraise for a commercial operator; and
- Commercial operations with helicopter and fixed wing operations.

Breakdown of funds from government and raised by community

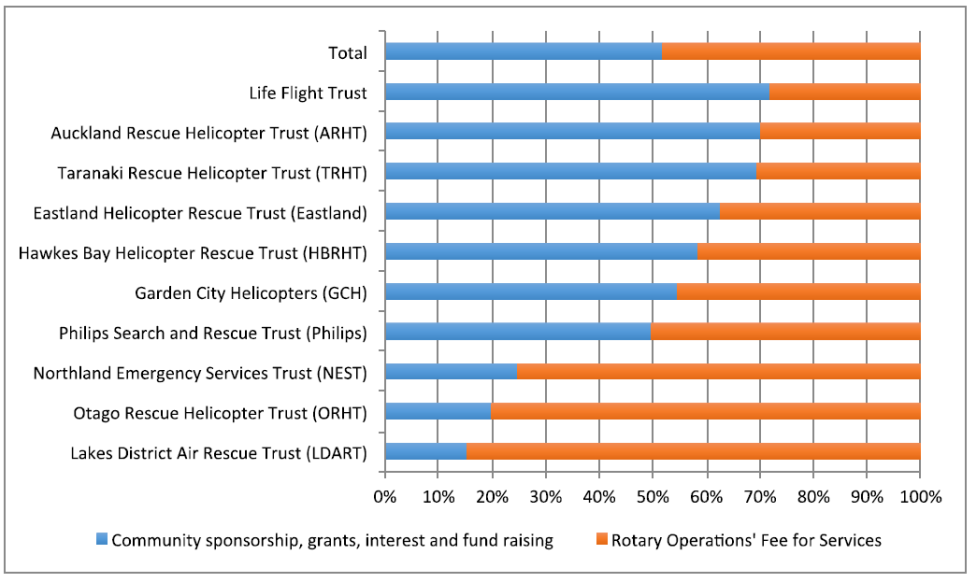


Figure 1 Percentage of funds raised from community sponsorship, grants and fundraising.

[1] Note Skyline Aviation operates rotary wing services on behalf of ERHT and HBRT but do not hold a rotary wing contract.

Financial issues to consider going forward

- Whether sustainable funding model should include provision for return on investment and depreciation;
- Government vs community funding split and should the community share be informed by the ability of the community to raise funds;
- Agencies relative funding responsibilities. Determining ACC's position whether to fully fund, the Ministry's contribution model and, if DHBs inter-hospital transfers are included in the scope, commensurate DHB funding;
- How funding could incentivise an integrated solution and national/regional fleet management approach to reduce escalating costs.

Breakdown of hours flown[2]

The breakdown below shows the relative provider size based on hours flown (funding is based on hours flown and hours are reflective of the number of missions flown, their complexity, and distance).

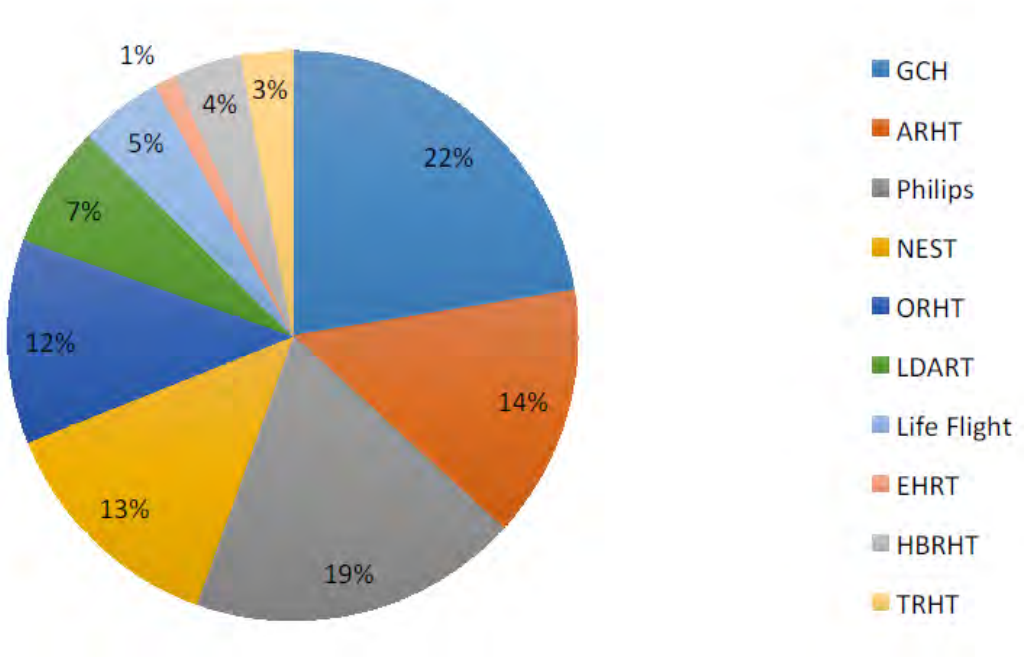


Figure 2 Breakdown of hours flown by provider

2 Source: "The development of an appropriate and efficient future network meeting New Zealand's needs for helicopter air ambulance and air rescue services" report by the Air Rescue Group February 2016

RAUORA
Exercise Series
Mass Rescue
Operations

Exercise RAUORA (series II)
Coordinating Instruction

NZSAR
New Zealand Search and Rescue

New Zealand POLICE
Nga Pirihimana O Aotearoa

Rescue COORDINATION CENTRE
MARITIME NEW ZEALAND

CONTENTS

Amendment Schedule

The following table describes amendments that have been made to this Exercise Coordinating Instruction since version 1.0 (13 September 2016).

Document amendments

Date	Brief description of amendment

Glossary

EOC	Emergency Operations Centre
EXCON	Exercise Control
HICON	Higher Control
LOCON	Lower Control
MRO	Mass Rescue Operation
NEP	National Exercise Programme
NZSAR	New Zealand Search and Rescue
NZSRR	New Zealand Search and Rescue Region
PNHQ	Police National Headquarters
RCCNZ	Rescue Coordination Centre New Zealand
SAR	Search and Rescue

1 INTRODUCTION

1.1 Introduction

This Coordinating Instruction provides detailed guidance on participating in the second series of *Rauora* MRO (Mass Rescue Operation) exercises.

Audience: The audience for this document is the senior leadership of participating agencies for each exercise in the series, and all members of exercise white cells (page 9).

1.2 Mass Rescue Operations

A Mass Rescue Operation (MRO) is a low-probability, high-consequence event that will require a response to provide immediate assistance to a large number of people who are in distress, such that capabilities normally available to search and rescue authorities are inadequate.

The response to any MRO incident will always be unique, and will depend on the particular circumstances of the incident. For example, the type of vessel or craft involved; the number of people in distress, and their condition or possible injuries; the weather; the location; the type and availability of rescue assets; and several other factors.

However, there are also some factors that are common in any MRO incident, starting with the need to provide immediate assistance to large numbers of people who are in distress. Other common factors include coordinating an effective multi-agency response; balancing competing response priorities; the reconciliation of passenger and crew manifests; and several other factors.

1.3 Exercise Background and Need

An MRO incident is listed on the NZSAR Council's risk register, with high consequences that could include significant loss of life, or reputational damage to New Zealand. One of the significant aspects of this risk is the limited capacity New Zealand's SAR sector has in order to respond to an MRO incident.

As part of the risk treatment, the NZSAR Council has given direction for a series of exercises to ensure the MRO Operational Policy, and the National MRO Response Plan, are fit for purpose.

The first series of ten *Rauora* exercises was conducted between October 2014 and March 2016. These exercises were run as orientation exercises, and included a small discussion desktop exercise at the 'crawl' level. The key findings from this first series have been incorporated into the MRO Operational Policy and the National MRO Response Plan.

This series of independent exercises will build on the previous series, and will be run at a 'walk' level in each Police District with SAR responsibilities, and at RCCNZ, during the 2016/7-2018/19 financial years.

These exercises will help build capability and confirm arrangements for mass rescue operation response activities, which are scheduled to be fully exercised as part of the National Exercise Programme's 'run' activity for 2019.

Alongside mass rescue operations, this exercises series will include extensive searching and abnormal flight behaviour scenarios.

2 EXERCISE CONCEPT

2.1 Aim

To test arrangements for responding to mass rescue incidents within the New Zealand Search and Rescue Region (NZSRR).

2.2 Objectives and Key Performance Indicators (KPIs)

The exercise objectives are taken from NEP National Objectives (NO) 1, 5, 6, 9, modified to be relevant for mass rescue operations:

1. Lead a coordinated interagency response to a mass rescue incident
5. Effectively manage information horizontally and vertically
6. Deliver effective public information management
9. Further develop collaborative relationships, to enhance interagency knowledge and understanding; creating capability and resilience

A table of the exercise objectives, training objectives, and KPIs can be found at Appendix 1.

2.3 Scenario

All the scenarios used in this exercise series will require the need to provide immediate assistance to large numbers of persons in distress, such that capabilities normally available to search and rescue authorities are inadequate.

Typically the scenarios will be based around large passenger vessels (either a cruise ship or ferry) close to the New Zealand shore. The exercise will start with the ship in distress, with a decision made by the ship's Master to abandon the vessel.

Other scenarios used throughout this exercise series may include:

- A wide-bodied aircraft having a controlled crash landing
- A missing aircraft, or an aircraft exhibiting abnormal flight behaviours (cf. MH370)
- A cruise ship in distress in the northern part of the NZSRR
- A cruise ship in distress close to the Antarctic part of the NZSRR
- A large avalanche on a busy ski-field

2.4 Scope and Type

The exercises in this series will be table-top exercises. The exercise theme will be on the life saving aspects of a Mass Rescue Operation – involving the need to rescue a large number of people from a vessel or aircraft in distress.

Included as being in scope:

- The search and rescue phase of an MRO event (i.e. search, rescue, shore-side coordination, reconciliation, welfare arrangements etc.)
- Determining inter-agency coordination responsibilities

- Initial SAR coordination activities
- The escalation and notification processes for MRO events (i.e. notional activation of NSS)

Excluded as being out of scope:

- Activation of the National Security System, and associated strategic level arrangements
- Non search and rescue phases of MRO events (pollution response, mass fatalities, investigation, recovery etc.)

2.5 Assumptions

The following assumptions apply to exercise planning and play (unless otherwise superseded by the Exercise Instruction for a specific exercise in this exercise series):

- The exercises are learning activities designed to educate agencies on the assembly of appropriate management groups, the application and management of available information, the allocation of scarce resources, and decision making on response actions.
- Exercise participants will be familiar with the relevant plans for their roles within the exercised response.

2.6 Exercise Schedule

The exercise series will comprise of the following exercises for each of the ten Police Districts with SAR responsibilities:

- Northland 5 October 2016
- Bay of Plenty 28 October 2016
- Southern 14 or 15 February 2017 (*note this may change to avoid conflict with NEP5*)
- Tasman 15 or 22 March 2017
- Eastern TBC
- Canterbury TBC
- Wellington TBC
- Waikato TBC
- Central TBC
- Auckland (combined) TBC

PNHQ will be responsible for confirming dates of each Police District exercise with the Exercise Coordinator.

Additional exercises may be scheduled for the following scenarios:

- A missing aircraft, or an aircraft exhibiting abnormal flight behaviours (cf. MH370)
- A cruise ship in distress in the northern part of the NZSRR
- A cruise ship in distress close to the Antarctic part of the NZSRR

RCCNZ will be responsible for confirming dates of these exercises with the Exercise Coordinator.

2.7 Functions

The various functions of the life saving phase in the response to an MRO event will be exercised:

- Incident Management – at the Police EOC
- SAR Response – at RCCNZ (Avalon) and On Scene Coordination (as part of LOCON)
- Triage – at the notional Casualty Clearing Point
- Welfare – at the notional Civil Defence Centre

Other functions may be exercised as the series progresses.

2.8 Timelines

The exercise planning team will manage timelines for each exercise in the series.

Typically these will involve:

- Exercise Warning Order (two months prior)
- A pre-visit to the exercise location to confirm arrangements (one month prior)
- Exercise Instruction (two weeks prior)

2.9 Participation

Participating agencies will be confirmed for each exercise in the series, and may include:

- Ambulance (St John / WFA)
- Civil Defence & Emergency Management (Local and/or Group)
- District Health Boards
- Maritime NZ
- Ministry of Civil Defence & Emergency Management (Regional Advisor)
- NZSAR
- Police National Headquarters
- Police District
- RCCNZ
- SAR Providing Agencies (Coastguard, LandSAR, Surf Life Saving)
- Welfare representative (local CDEM Groups to advise)
- Others as required

2.10 Documentation

Exercise documentation shall be based on the templates provided by the National Exercise Programme, and shall include:

- Exercise Concept for the series (approved by NZSAR Council, 23 February 2016)
- Exercise Coordinating Instruction for the series (*this document*)
- Exercise Warning Order for each individual exercise in this series
- Exercise Instruction for each individual exercise in this series
- Post Exercise Report for each individual exercise in this series

2.11 Exercise Instruction

An Exercise Instruction for each exercise as part of this series will be provided to all exercise participants and white cell members (page 9) two weeks prior to the exercise.

The individual Exercise Instructions will include:

- The communications plan for each exercise.
- Any specific organisational responsibilities for each exercise.

2.12 Evaluation and Reporting

All the exercises in this series shall be evaluated against the KPIs contained in the table of objectives (Appendix 1).

Evaluators shall be appointed for the following functions of the exercises:

- PNHQ to appoint an evaluator for the EOC
- RCCNZ to appoint an evaluator for RCCNZ
- NZSAR to appoint an evaluator for the secondary training audience and EXCON

A hot debrief shall be held after each exercise. No cold debriefs shall be held (in order to keep costs reasonable), however participants will be invited to provide feedback after each exercise via an online survey.

The Exercise Facilitator will be responsible for producing the Post Exercise Report within 4 weeks of each exercise.

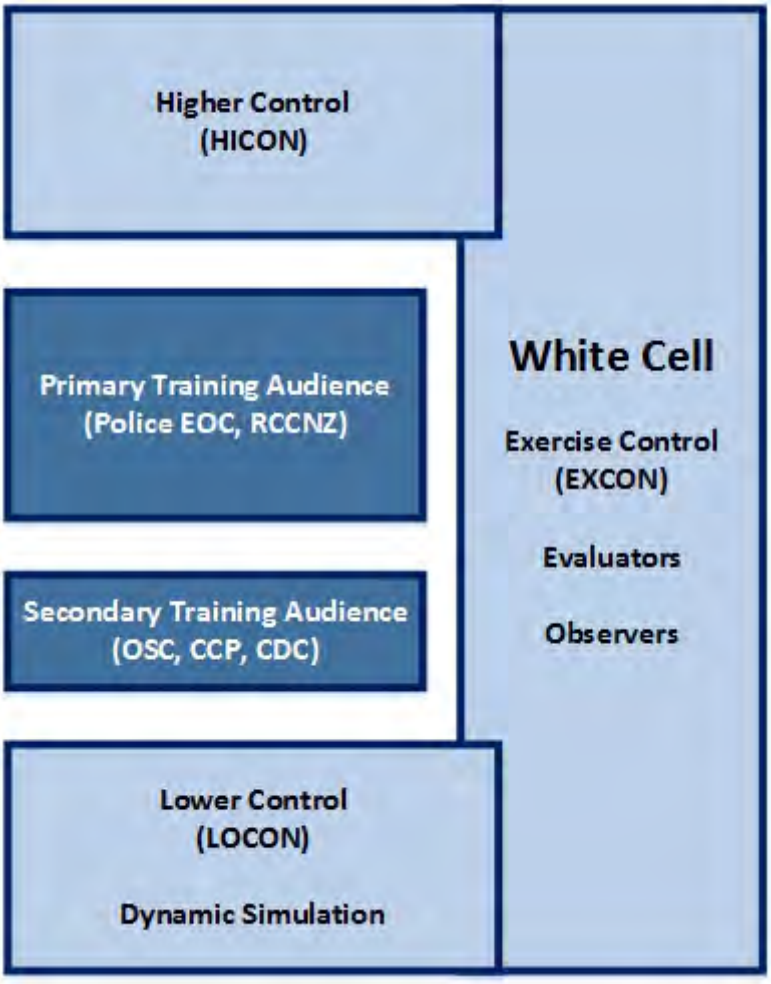
3 EXERCISE DELIVERY

3.1 Exercise Format

The exercises will be a table-top exercise delivered using a dynamic simulation to control the scenario.

3.2 Exercise Coordination and Control Arrangements

The exercise will be coordinated via an Exercise Control cell (EXCON) utilising a Higher Exercise Control (HICON) and a Lower Exercise Control (LOCON), as illustrated in the diagram below.



For each exercise there will be an identified Exercise Controller who shall be responsible for the overall conduct and control of the exercise.

The EXCON cell will be coordinated via SAR-NET.

An example of the exercise arrangements for participants, and control arrangements for the white cell members, can be found at Appendix 2.

3.3 Injects

A master events list (MEL) will be produced for each exercise, however most of the exercise injects will be driven by the dynamic simulation, which will simulate an MRO scenario. The MEL will include a range of other injects that EXCON can utilise during the exercises in response to how the scenario is unfolding.

The exercise injects will be provided under the direction of the Exercise Controller, and will typically be provided as follows:

- Exercise Controller will provide major injects (i.e. start and stop EX)
- HICON will provide injects directly to the EOC
- LOCON will control the dynamic simulation of the scenario
- LOCON will respond to Requests for Information from exercise participants

3.4 Communications

A detailed communications plan will be included in the Exercise Instruction for each exercise.

All exercise communications must be preceded with “Exercise Rauora.”

Exercise participants will utilise their existing communications networks within the exercise.

EXCON will utilise its own communications network via SAR-NET.

Any real world communications, including cancellation of exercises, must be proceeded by “No Duff.”

4 RESPONSIBILITIES AND ADMINISTRATION

4.1 Governance

The NZSAR Council has directed that this exercise series take place as part of the NZSAR National SAR Support Programme (NSSP), and approved the exercise concept at its meeting of 23 February 2016.

The NZSAR Secretariat will be the lead agency in conducting this exercise series.

4.2 Exercise Management

Exercise Director: Duncan Ferner, NZSAR

Exercise Coordinator: Rhett Emery, NZSAR

Exercise Facilitator: Dave Greenberg, Emergency Preparedness Services

Governance Group – maintains oversight of the exercise series on behalf of the NZSAR Council:

- Duncan Ferner, Secretariat Manager, NZSAR
- Mike Hill, Manager RCCNZ & Safety Services, MNZ
- Inspector Garth den Heyer, PNHQ

Planning Team – responsible for planning the exercise series:

- Rhett Emery, NZSAR
- Dave Greenberg, Emergency Preparedness Services
- Carl van der Meulen, NZSAR
- Paul Craven, RCCNZ
- Jo Holden, PNHQ
- For exercises at Police Districts, the District Operations Manager or representative

Dynamic Simulation Team – responsible for conducting the exercise series:

- Dave Greenberg, Emergency Preparedness Services
- Carl van der Meulen, NZSAR
- Others as required for each exercise

4.3 Finance

NZSAR will fund:

- exercise venues (if required), morning & afternoon tea, and lunch
- costs for LOCON members and Evaluators (to be confirmed for each exercise)

Agencies are expected to meet all costs for their own personnel participating in the exercises.

Agencies are expected to meet all costs for any observers attending the exercises.

4.4 Contact Details

Enquiries about the exercise series can be directed to:

- Exercise Coordinator
  Rhett Emery, NZSAR
  r.emery@nzsar.govt.nz
  (04) 439 9077
  (027) 242 6374

- Exercise Facilitator
  Dave Greenberg, Emergency Preparedness Services
  dave@prepareme.co.nz
  (029) 233 8284

Appendix 1: Exercise Objectives and Key Performance Indicators

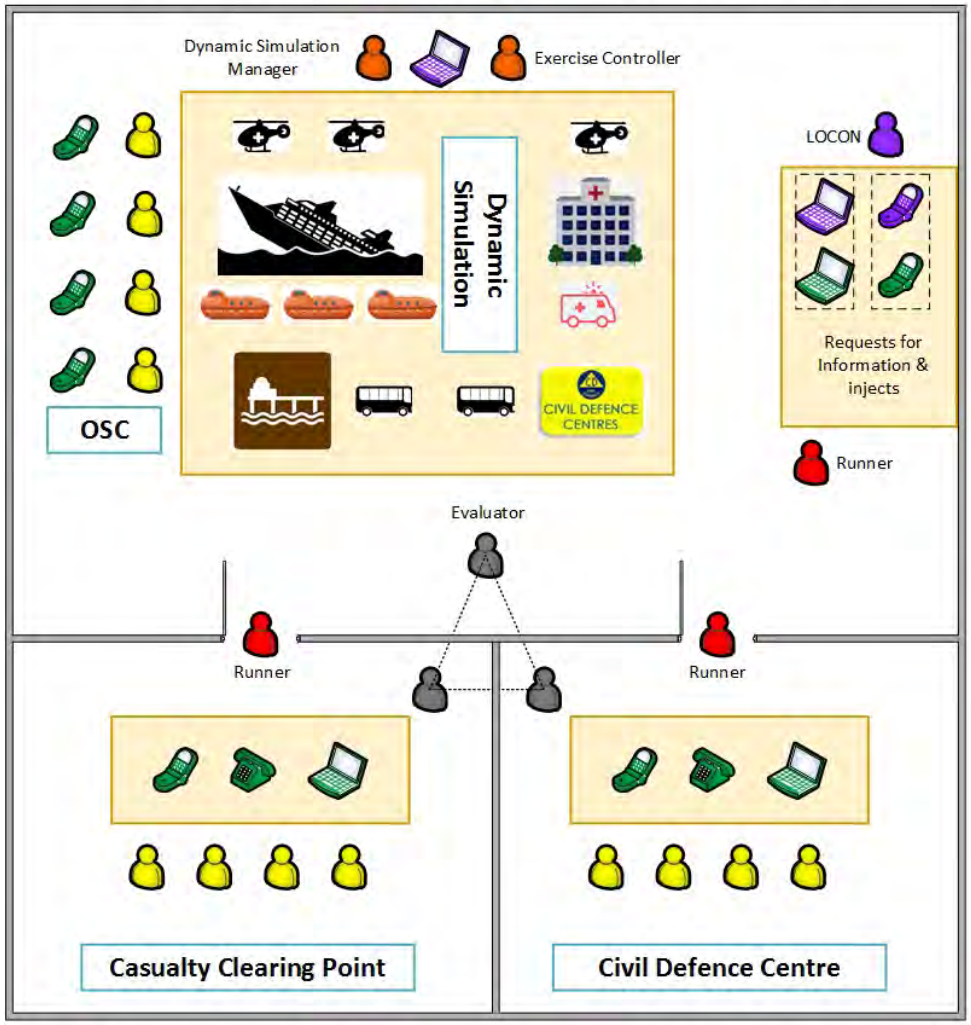
The exercise series objectives and KPIs are based on those developed for the interagency National Exercise Programme (NEP).

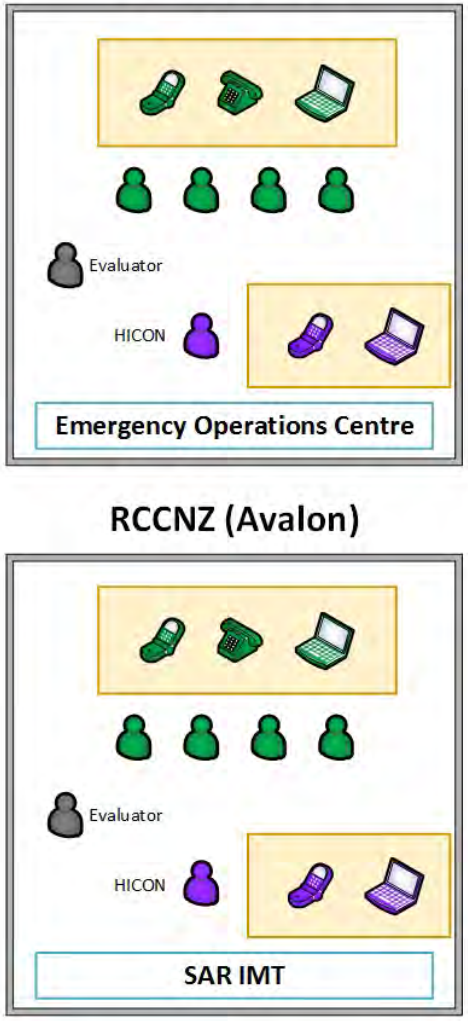
NEP Objective	Exercise Objectives	Training Objectives	Key Performance Indicators
NO #1	**1.0 Lead a coordinated interagency response to a mass rescue incident**	1.1 Identify threat of a mass rescue incident	1.1.1 Coordinating authorities identify incident as a mass rescue event and activate the 'Mass Rescue Operations Response Plan' 1.1.2 Coordinating authorities determine if the incident is a Category 1 or Category 2 SAR 1.1.3 The National Security System is activated (notionally)
		1.2 Recognise what coordination centres would require to be activated to respond to a mass rescue incident	1.2.1 The lead agency activates a coordination centre at the EOC level to take operational level lead of the mass rescue response 1.2.2 RCCNZ escalates to an MRO response as per SOPs 1.2.3 Casualty Clearing Point(s) (landing zones) are identified 1.2.4 Civil Defence Centre(s) is notionally established for welfare arrangements 1.2.5 Other coordination centres as required (e.g. DVI, Health) are identified by the EOC (and will be role played by EXCON once notionally activated)

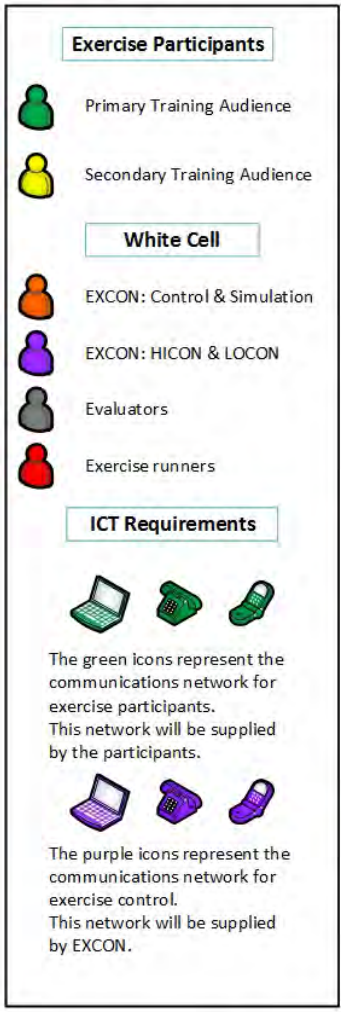
NEP Objective	Exercise Objectives	Training Objectives	Key Performance Indicators
		1.3 Develop an effective action plan	1.3.1 An operational level Incident Action Plan is developed by the EOC 1.3.2 Planning processes are followed by the lead agency as established in SOPs and the 'Mass Rescue Operations Response Plan' 1.3.3 Other coordinating centres develop Incident Action Plans as appropriate (RCCNZ, Welfare) 1.3.2 Threats and associated risks are embedded in the action plans
		1.4 Coordinate the response to a mass rescue incident in accordance with the MRO Response Plan and CIMS	1.4.1 The response is managed in accordance with the 'Mass Rescue Operations Response Plan' 1.4.2 Liaison arrangements are maintained as required and in accordance with the 'Mass Rescue Operations Response Plan' 1.4.3 The systems, processes, and resources are appropriate for implementing the action plan 1.4.4 Situational awareness is gained and maintained 1.4.5 Lead agency delegates tasks to support agencies in accordance with established plans (some support agencies will be role played by EXCON) 1.4.6 Agencies carry out delegated tasks in accordance with SOPs

NEP Objective	Exercise Objectives	Training Objectives	Key Performance Indicators
NO #5	**5.0 Effectively manage information horizontally and vertically**	5.1 Incident information is effectively managed and communicated by all agencies involved	5.1.1 A communications plan is developed and implemented 5.1.2 Provision of timely, accurate, and clear information to those who need it 5.1.2 Accurate information is communicated within and across agencies in a timely manner using established ICT arrangements
		5.2 Support requirements are effectively communicated	5.2.1 Requests for support are effectively managed
NO #6	**6.0 Deliver effective public information management**	6.1 Public communications reinforce confidence in the response and provide appropriate levels of public assurance	6.1.1 Public information / messaging is coordinated and consistent across agencies 6.1.1 Messages align with and support the operational response
NO #9	**9.0 Further develop collaborative relationships, to enhance interagency knowledge and understanding; creating capability and resilience**	9.1 Agencies share information to engender an all hazards approach to incident management	9.1.1 Insights from the MRO exercise are shared with all relevant agencies

Appendix 2: Exercise Arrangements







An example of how one of the Rauora II exercises may be arranged for a Police District, with Category 2 SAR coordination. Such a set up simulates the real world arrangements for responding to an MRO incident.
The primary training audience (Police EOC and RCCNZ) are removed from the incident as they would be in real life.
The only secondary training audience members who have visibility of the dynamic simulation is the On Scene Coordinator's (OSC) IMT.
The actual numbers of participants and White Cell personnel will likely vary from exercise to exercise.