To investigate innovative and effective methods for the recruitment, training and management of volunteer marine rescue
Contents
INTRODUCTION .................................................................................................................. 4
EXECUTIVE SUMMARY ..................................................................................................... 5
Highlights ......................................................................................................................... 5
Major Lessons ................................................................................................................. 5
DISSEMINATION ................................................................................................................ 6
IMPLEMENTATION ............................................................................................................. 6
PROGRAMME ................................................................................................................... 7
Visits ................................................................................................................................. 7
Research methods ........................................................................................................... 7
OVERVIEW OF VOLUNTEER MARINE SAR ORGANISATIONS VISITED ......................... 8
United States Coast Guard Auxiliary ............................................................................. 8
Royal Canadian Marine Search and Rescue ................................................................. 8
Canadian Coast Guard Auxiliary – Hamilton Beach Rescue ........................................... 9
Smith Point Sea Rescue ................................................................................................... 9
Royal National Lifeboat Institute (RNLI) ........................................................................ 10
Maritime and Coast Guard Agency (MCA) – Coast Guard Rescue Officers ............... 10
Gosport and Fareham Inshore Rescue Service (GAFIRS) ............................................. 11
Sauveteurs En Mar (SNSM) ............................................................................................ 11
RESEARCH FINDINGS ...................................................................................................... 13
Recruitment .................................................................................................................... 13
Seamanship courses ....................................................................................................... 13
Promotional videos ......................................................................................................... 13
Static displays ................................................................................................................ 13
Recruitment of younger members ................................................................................. 13
Social Media ................................................................................................................... 14
Notice Boards ................................................................................................................ 14
Unit Business Cards ....................................................................................................... 14
Retention ........................................................................................................................ 14
Engagement ..................................................................................................................... 14
Involvement .................................................................................................................... 15
Organisational Structure and Practices ....................................................................... 15
Search and rescue training ............................................................................................. 16
Competency Based Training (CBT) ............................................................................... 16
Training based on operational tasking’s ......................................................................... 16
Frequency ....................................................................................................................... 17
Simulation ....................................................................................................................... 18
Maximising opportunities for volunteers ......................................................... 21
Voluntary Vessel Inspections ...................................................................... 21
Radio room operations .................................................................................. 22
Auxiliary Aviation Pilots .............................................................................. 22
Training .......................................................................................................... 22
Intelligence gathering .................................................................................... 22
Aids to navigation ......................................................................................... 23
Interpreters ..................................................................................................... 23
Administration and other additional roles ................................................... 23
Fostering of harmonious relationships between volunteers and SAR authorities ................................. 24
Engagement ................................................................................................... 24
Operational Tasking ...................................................................................... 25
Communication .............................................................................................. 25
Acknowledgment and Information sharing ............................................... 26
The Australian Perspective ........................................................................... 26
Management of volunteers in SAR taskings ............................................... 27
Operational Safety ......................................................................................... 27
Transfer of SAR coordinates ....................................................................... 28
INFORMATION SHARING........................................................................... 29
SAR Plotting Tool ......................................................................................... 29
SAR Smart Phone App ................................................................................ 29
Additional information of relevance to Marine SAR .................................. 31
Small Vessel Identification .......................................................................... 31
Flood Control Training ................................................................................ 31
Rescue 21 System, U.S.C.G. ........................................................................ 32
Canadian Coast Guard #16 Phone Number for Marine Emergencies ............... 32
U.S. Coast Guard Time Frame for Survival Model ....................................... 32
CONCLUSIONS ............................................................................................ 34
RECOMMENDATIONS ............................................................................... 34
Training .......................................................................................................... 34
Simulation ...................................................................................................... 34
Engagement of volunteers by SAR Authorities .......................................... 34
Information Sharing ..................................................................................... 35
ACKNOWLEDGEMENTS ......................................................................... 36
REFERENCES .............................................................................................. 37
INTRODUCTION

State and Territory Police Services throughout Australia are the legislated authority for providing a Marine Search and Rescue (SAR) response for persons and vessels in distress at sea within State waters. Volunteers play a critical part in this role.

As a member of the South Australia Police Water Operations Unit, I have been directly involved in Marine SAR for 20 years. During this time I have become increasingly aware of the vital role volunteers play in Marine SAR. In my role as a vessel operator I have conducted searches in poor conditions aided by ten or more volunteer vessels operating side by side with the police vessel, and as a Police Search Mission Controller (SMC) I have directed the efforts of volunteers to conduct SAR missions in remote locations, hundreds of kilometres distant from the Rescue Coordination Centre.

Having served as a State instructor for the Police National Search and Rescue School, I am aware that there is a similar reliance on marine volunteers throughout Australia. Because of the remoteness of our coastline, volunteers in many areas provide the first, and indeed, often the only, rescue craft available within the time that survivors might be expected to live. In areas where Police vessels are present, volunteers considerably increase capacity and redundancy.

All along the coastline of Australia, 24 hours a day, 365 days of the year, volunteers provide invaluable assistance to their communities through the provision of a marine SAR response under the direction of State and Territory Police. In many parts of Australia, survival times for persons in the water are measured in hours – a rapid and effective response is critical if lives are to be saved.

Search and Rescue training and effective management techniques during SAR Missions are a critical component of the National Search and Rescue Response. As well as saving lives, effective training and management works to ensure the safety of our volunteers.

The Churchill Trust has enabled me to travel internationally to study the provision of Volunteer Marine Rescue and gain insight from the collective experience of the tens of thousands of volunteers actively saving lives throughout the world.
EXECUTIVE SUMMARY

Sergeant David Bacchus (08) 82423466 South Australia Police
Police Search Mission Controller Water Operations Unit
Adv. Dip. Public Safety (Police SAR) 82 The Esplanade
Master 5 SEMAPHORE
E – davefrontus@gmail.com SA 5019
E – david.bacchus@police.sa.gov.au

The views and comments made within this paper are my own, representative of the information gained and opinions and interpretations I made during my Churchill Fellowship, together with my personal experience as a Police SAR Mission Controller, they in no way are intended to reflect the views and opinions of my employer SAPOL or any other organisation.

My fellowship was taken between the 22nd September and the 13th November 2014. I visited the United States, Canada, the United Kingdom and France as part of my planned itinerary. Although it was not part of my original scope, my fellowship opened doors for me as I progressed, and I was also able to visit with the International Marine Rescue Federation, several water police units and smaller independent rescue units, the existence of which, I wasn’t originally aware. My aim was to identify practices and procedures that may enhance the existing capability of Volunteer Marine Rescue Organisations operating throughout Australia so that more lives might be saved.

Highlights
Meeting the many dedicated volunteers in the countries I visited, who, just as in Australia, provide an invaluable service to their respective Marine Search and Rescue Authority. The world is indeed, a safer place through the provision of the service they freely provide.

Being openly and enthusiastically hosted and accepted by the wide range of Search and Rescue personnel I met, including the many volunteers, paid Coast Guard members, Military personnel, Police Officers and civilians. Countless individuals spoke openly and gave freely of their time – such it seems is the camaraderie that exists between Search and Rescue personnel all around the world.

A major highlight was being taken on vessel patrol by several of the organisations I visited and witnessing first-hand the professionalism and capability of the crew and the camaraderie that exists in these units.

It was also evident from my travels that the service our Australian marine volunteers provide given the remote and expansive shoreline we have is of a very high standard. From a Search Managers point of view, I also soon came to the realisation, that Australia is a world leader in terms of the vessel licensing and safety equipment requirements we enforce, to aid the provision of SAR.

Major Lessons
The many benefits of information sharing to improve SAR.
The benefits of simulation for the development of leadership skills.
The benefits of the promotion and support of internal training programs for volunteers.
The potential for the expansion of marine volunteer roles.
The critical importance of continual engagement with Marine SAR volunteers.
DISSEMINATION

Dissemination of this report and its findings will be achieved in a number of ways:

- The Australian Winston Churchill Trust Website;
- Direct dissemination to the State Representatives on the National Volunteer Marine SAR Committee;
- Direct dissemination to the Police National Search and Rescue School, State Representatives;
- Direct dissemination and personal presentation to Volunteer Marine Rescue Groups operating in South Australia; and
- By correspondence to the various international organisations who assisted me in my project and have requested a copy of this report.

IMPLEMENTATION

There is significant diversity in the Volunteer Marine Rescue organisations operating throughout Australia, and not all of the initiatives I have highlighted here will work for all groups and in some cases may already be in practice. Similarly, it is not for me to implement or suggest change for organisations from State programs in which I have no direct involvement or operational knowledge, I simply put these initiatives forward for information and consideration.

I can and will however, wherever possible, implement changes that enhance my role as a Police Search Manager in South Australia, in the provision of Search and Rescue specific training and operational support to volunteers during the Search and Rescue Missions, in which I task them.

I will also seek to improve my engagement with Volunteer Marine Rescue Personnel wherever possible and strongly encourage other persons performing in the role of SAR authority to take any opportunity they can to meaningfully engage with volunteers operating in their area. Having now been privileged to travel internationally, and having spent a considerable amount of time directly engaged with marine volunteers, it has cemented my opinion of the importance of building and maintaining a strong relationship of mutual trust and respect with marine rescue volunteers, to achieve an effective SAR response.
PROGRAMME

Visits

During my fellowship I visited with the following organisations (in order):

- United States Coast Guard Auxiliary, Division Chief, Pacific Area, Los Angeles
- Orange County Sheriff’s Department, Marine Unit
- United States Coast Guard Base, Newport Beach, California
- United States Coast Guard Auxiliary, Oxnard, California
- United States Coast Guard, Station Long Beach, California
- United States Coast Guard Auxiliary, Branch Chief, San Francisco
- San Francisco Water Police
- United States Coast Guard, Station Golden Gate, San Francisco
- Canadian Coast Guard, Victoria
- Royal Canadian Marine Search and Rescue, Sooke, Victoria
- Canadian Joint Rescue Co-ordination Centre, Victoria
- Royal Canadian Marine Search and Rescue, Vancouver
- Canadian Coast Guard Auxiliary, Hamilton Beach, Toronto
- United States Coast Guard Auxiliary, Milwaukee
- United States Coast Guard, Station Milwaukee
- United States Coast Guard, Sector Command, Lake Michigan, Milwaukee
- Milwaukee Police Harbor Patrol
- United States Coast Guard Auxiliary, Director - International Affairs, Kilmarnock, Virginia
- United States Coast Guard, Station Milford Haven, Virginia
- Smith Point Sea Rescue Reedville, Virginia U.S.
- United States Coast Guard, National Training School, Yorktown
- United States Coast Guard Auxiliary, New York
- United States Coast Guard, Sector Command, Staten Island, New York
- Royal National Lifeboat Institute, Tower Life Boat Station, London
- Maritime and Coast Guard Agency, Christchurch, U.K.
- Royal National Lifeboat Institute College, Poole, U.K.
- International Marine Rescue Federation, Meeting with Chairman, Poole, U.K.
- Royal National Lifeboat Institute, Life Boat Station, Poole, Dorset
- Gosport and Fareham Inshore Rescue Service, Portsmouth U.K.
- Sauveteurs En Mar (SNSM) French Lifeboat Society National Training Centre, St. Nazaire

Research methods

In conducting my research I conducted interviews, observed various operations and training procedures, participated in vessel patrols observing practical skills first hand as applied operationally, consulted and reviewed organisation training manuals and documentation as provided, toured training college’s and facilities and met with both the individuals performing in volunteer roles and the paid staff who plan and conduct Search and Rescue with the aid of volunteers.

Much of the information I have gained is anecdotal as the volume, diversity and formality of the interviews I conducted were insufficient to make qualified statements, much of which I refer to therefore, is a consensus of opinions, representative of the recurring themes in the interactions I had.
OVERVIEW OF VOLUNTEER MARINE SAR ORGANISATIONS VISITED

United States Coast Guard Auxiliary

The United States Coast Guard Auxiliary is a voluntary component of the United States Coast Guard. It has approximately 30,000 members (US Dept of Homeland Security, 2014) performing a wide variety of roles for the U.S.C.G. These roles include but are not limited to search and rescue, safety initiatives, harbour patrols and environmental monitoring. With very few exceptions the U.S.C.G. Auxiliary is almost the only volunteer marine rescue unit operating in the United States.

The vast majority of vessels operated by the Auxiliary are owner operated and operators are paid an hourly allowance for the use of their vessels. Typically when the Auxiliary conducts its missions it operates ‘Under Orders’ from the U.S. Coast Guard.

Auxiliary members conduct a wide range of roles with or on behalf of the U.S.C.G. and regularly supplement paid officers in roles such as marine radio monitoring and operation. In SAR missions they are tasked and coordinated by the United States Coast Guard.

Royal Canadian Marine Search and Rescue

The Royal Canadian Marine Search and Rescue (RCMSAR) volunteers operate on the Western side of Canada. They have approximately 1000 volunteers operating over 42 rescue stations (Royal Canadian Marine Search and Rescue, 2014).

RCMSAR was until 2012, known as the Canadian Coast Guard Auxiliary - Pacific Area, and has a long history of serving a SAR role on the west coast of Canada. RCMSAR changed its name to reflect its individual identity and to avoid confusion of its vessels being attached to the Canadian Coast Guard.
RCMSAR is a registered charity, operating over 60 dedicated rescue vessels and a dedicated training centre with a vessel training simulator, and is supported by five paid staff. They are funded by a mix of government support, Lottery Commission grants, and corporate and individual donations.

In SAR missions they are tasked and coordinated by the Joint Rescue Coordination Centre which is managed by the Canadian Coast Guard and the Canadian Defence Force. The RCMSAR aims to launch a vessel for response within 15 to 20 minutes of a call.

**Canadian Coast Guard Auxiliary – Hamilton Beach Rescue**

The Canadian Coast Guard Auxiliary is a not for profit organisation and is a registered charity. In operation since 1978, it has approximately 4,000 members and operates approximately 1,130 registered response vessels (Canadian Coast Guard Auxiliary - Central and Arctic, 2015)

The vessels are a combination of privately owned vessels, local community funded vessels and vessels which are under loan from the Canadian Coast Guard.

The Hamilton Beach Rescue Unit with which I visited performed a wide range of tasks including ice rescue. In SAR missions they are tasked and coordinated by one of the Joint Rescue Coordination Centres which are managed by the Canadian Coast Guard and the Canadian Defence Force.

**Smith Point Sea Rescue**

Smith Point Rescue is one of the very few independent volunteer rescue organisations operating in the U.S. Smith Point Rescue has been in operation for 31 years and operates a large moored vessel from a dedicated boat house on one of the many inlets of the Chesapeake Bay.
They have a membership of approximately forty people and operate from a dedicated boathouse. The organisation is entirely self-funded, operating on donations and fundraising activities which includes such things as ‘Oyster Bakes’ utilising one of the main local fishing industries.

Donations are encouraged by a targeted distribution of approximately 6,000 flyers annually to vessel operators and local residents who may call upon their service. They conduct on average 60 rescue missions a year, tasked on occasion by the U.S. Coast Guard.

**Royal National Lifeboat Institute (RNLI)**

The RNLI is the primary provider of a Marine Rescue Response in the United Kingdom. They receive no government funding and operate solely as a charity. The RNLI maintains approximately 235 lifeboat stations utilising approximately 400 vessels, ranging in size dependant on local sea conditions. The majority of funding for new lifeboats is by donation by interested parties who gain the naming rights for the vessel. Typically there is a waiting list for this honour.

The RNLI operates a dedicated training college with a high-tech simulator and moorings for several vessels. Additionally it has a large swimming pool capable of generating waves up to 1 metre high, which has a gantry used to capsize lifeboats for emergency training and is also used to simulate helicopter rescue.

The RNLI also manage the training and provision of Lifeguards (in Australia, Surf Life Savers) within the U.K. providing seasonal coverage on approximately 200 beaches.

At the time of my visit the RNLI was building a dedicated centre on the adjoining property for the production and maintenance of its lifeboats.

The RNLI is tasked operationally by Her Majesty’s Coast Guard (HMCG) who conduct all SAR planning within the United Kingdom. HMCG does not operate its own SAR vessels. The RNLI has a response time of approximately 10 to 20 minutes for launch.

**Maritime and Coast Guard Agency (MCA) – Coast Guard Rescue Officers.**

Another volunteer organisation providing a marine response of sorts in the U.K. is the Coast Guard Rescue. I was able to visit with the MCA officer who oversees the training for CG Rescue.

The Coast Guard Rescue does not operate vessels but provides a rescue response along the shoreline conducting vertical rescue, mud rescue (including estuary and tidal flats) and maritime
observation. When a marine SAR incident occurs within a visual distance of the shore line, trained C.G. Rescue Officers can be deployed to the area to act as observers providing information direct to the Rescue Coordination Centre.

Training for C.G. Rescue is provided by the MCA, with paid regional officer’s providing the training. The training is competency based with results recorded locally and monitored nationally.

Coast Guard Rescue Officers are tasked operationally by HMCG.

**Gosport and Fareham Inshore Rescue Service (GAFIRS)**

Operating in the Portsmouth area, the GAFIRS is one of approximately 70 independent rescue services providing a SAR response within the U.K. They do on average 110 SAR tasking’s a year.

The GAFIRS operates several rescue vessels which are inspected annually by HMCG and has 96 members (46 operational) amongst which are paramedics, police, military and HMCG.

The GAFIRS are accredited providers of the Royal Yachting Association (RYA) Courses and as such can provide internal accredited training to their own members and also on occasion externally, providing another form of fundraising. The GAFIRS utilises a number of fundraising activities ranging from small collection tins and private donations to commercially run lottery schemes.

In SAR tasking’s the GAFIRS are tasked and coordinated by Her Majesty’s Coast Guard

**Sauveteurs En Mar (SNSM)**

The SNSM is a registered charity that was formed in France in 1967 from the merger of two separate rescue organisations in existence from as far back as 1865.

Comprised of approximately 6,000 volunteers, the SNSM conducts marine SAR for the French Marine Rescue Coordination Centres (MRCC) from 223 separate lifeboat stations. The SNSM also provides a lifeguard (Surf Life Saving) service on 237 patrolled beaches.
The SNSM maintains a national training school at Saint Nazaire on the west coast of France. The training centre houses a vessel simulator and they also uniquely, conduct training for ‘rescue divers’ who work on the SNSM rescue vessels and are trained to secure capsized vessels and rescue any persons who may be trapped in the vessel.

In SAR tasking the SNSM is tasked and coordinated by one of five government Marine Rescue Coordination Centre’s.
RESEARCH FINDINGS

Recruitment

A number of recruitment initiatives were identified during my visits that may work for Australian volunteer organisations to attract new members. These initiatives could be potentially adopted directly or with some modification to suit the individual unit.

Seamanship courses
Active recruitment of persons conducting basic seamanship courses through a volunteer organisation. This was identified as the most beneficial recruitment tool by one organisation and in some cases the cost of the course was waived by agreement by the participant to join as a volunteer (paying the associated fee which was less than the cost of the course). It might be surmised that a person undertaking such a course is relatively new to boating, and may be keener to engage with like-minded people.

Promotional videos
I was shown a couple of different promotional videos that had been placed on you tube – it provided a strong impact as a visual account of the duties and fellowship that might be encountered in marine volunteering. As is often said, a picture tells a thousand words, and social media provides an ideal platform to tell the story. In one example the platform also serves as a means by which to seek financial support.

These videos can be found at the following links:
https://www.youtube.com/watch?v=y-PeHempdpE
https://www.youtube.com/watch?v=V0r-gWWd180&t=243

Static displays
Static displays at public meetings such as boat shows and outdoor shows were also identified as an effective recruiting tool and I am aware that this practice exists in Australia. A well-presented video as identified above at such a display would provide an overall picture and perhaps serve to attract younger members.

Recruitment of younger members
The Royal Canadian Marine Search and Rescue unit models itself on the Canadian Coast Guard and operates a fleet of high capability SAR vessels. I was privileged to undertake two training runs with this unit and observed a very professional operation in both cases. What stood out was the presence of younger crew members (less than 40) who clearly enjoyed the roles they played. I can see how the use of high capability SAR vessels and equipment, together with a Para-military type method of operating, might be more attractive to younger members who might embrace such a culture.

The operations I observed during an operational tasking at a RNLI lifeboat station appeared to back this theory. I was lucky enough to be present at a lifeboat station when a tasking was received via Her Majesty’s Coast Guard on a pager system. I watched with some surprise from the window of the station where within two to three minutes I saw people running from nearby factories across a bridge toward the station. Within no more than ten minutes a lifeboat and a crew of 4, fully dressed in rescue clothing were underway. Within ten minutes there were another 8 people at the station ready to assist if required, I judged most of these people to be in the 30 to 50 year old range. The tasking turned out to be a 24ft vessel which had lost engine power within a large estuary, and was drifting toward a nearby island. No information was at hand at the time as to whether the vessel was
able to anchor but it certainly didn’t appear to be life threatening, none the less, the enthusiasm and seriousness with which the task was embraced was amazing.

In the United States, the Coast Guard runs an Auxiliary University Program which specifically targets university students. Service within the University Auxiliary teams provides students with a wide range of opportunities and experiences which can assist future employment opportunities. The website can be viewed via http://college.cgauxnet.us/wm.

The Gosport and Fareham Inshore Rescue Service run a Duke of Edinburgh Program which assists in encouraging the recruitment of younger members.

Social Media
The GAFIRS group that I met in the Portsmouth area in southern England utilised a Facebook account as a means of keeping contact with persons who had shown interest in the unit. All tasking’s and activities of interest were posted on the Facebook page in a short period after they had occurred, in doing so, followers of the group were constantly updated with the group’s activities, and thus interest was maintained.

Notice Boards
Another form of unit promotion I observed that may work to promote a volunteer service and therefore encourage new members, was the posting of information relating to recent tasking’s and activities on notice boards visible to the public. Much of the great work our marine volunteers do occurs without the knowledge of the community. I saw the use of notice boards at stations that were in prominent public areas (beach front/river side) and the notices served the purpose of creating public awareness of recent SAR activities that would otherwise remain unknown to the wider public. Such awareness would also no doubt help in gaining public support and funding.

Unit Business Cards
Several of the unit’s I visited had business cards that detailed and promoted their organisation. These would be utilised in particular for vessels or persons that had been assisted in some way. The business cards outlined the organisation, and their means of operation. The cards served two main purposes, they promoted awareness of the unit which may serve to encourage recruitment and also explained the fact that the unit was voluntary and thus encouraged financial donation and acknowledgement of the service to the community.

Retention
The most common factors highlighted across the organisations I visited in relation to retaining volunteers were the engagement and involvement of members within the organisation, and the organisational structure and practices that occurred within the organisation.

Engagement
It was the experience of some groups that new members needed to be immediately engaged, that is, they needed a meaningful role within the organisation soon after joining. In some groups new members would not be allowed to go out on a vessel for several months, such was the strictness and thoroughness with which the induction process for new members was approached. This would certainly not be suitable for all organisations but appeared to be effective in that particular case, in fact this particular organisation often had a waiting list of people wanting to join.
Involvement
Steps to include involvement of new members included rostering them on regular duties, commencing them in some sort of regular and meaningful induction process as early as possible and placing them on unit courses. Providing new members with uniforms and training manuals was also listed as an effective way of involving new members. Early explanation of the full range of opportunities within an organisation was also rated as important with new members often not having a complete understanding of the many and varied roles available within some organisations. This is particularly so in the U.S.C.G. where volunteers are able to assist in a very wide range of opportunities. (Refer Maximising opportunities for volunteers in this report)

Organisational Structure and Practices
Some of the organisations I visited had gone through significant change in recent years. A common concern was that in making the changes, that significant numbers of members would be lost. The opinion of the members that I spoke to was that the loss of members under such circumstances was minimal. They also highlighted the fact, that the changes had conversely resulted in a rise in recruitment of more active members, and that further, some of the members lost through changes to the organisation had been reasonably inactive or disadvantageous to the organisation.

Another factor that played a part in some groups in building the strength and effectiveness of the organisation was by using a selection process. The process appeared to have some merit, as one volunteer said to me, “Remember, I might have to spend 8 hours in a boat with this guy, you want it to be someone you can get along with.” One of the units I visited was managed by a board made up of experienced members who, through their own choice, were now non-operational members serving in a purely management role. In this unit, prospective members would be given basic induction and utilised for several weeks as shore crew before spending some limited time on the vessel. Through this process, the prospective member was given a sense of the organisation and the unit members were given the opportunity to work with the individual. Relevant feedback was then provided to the board that then made the ultimate decision on whether the person was offered membership or not. Justification for a selection process was stated as a means of maintaining a high reputation, and ensuring the ongoing cohesion and camaraderie of the unit.

Because of Australia’s smaller population base and density, a selection process will often be unfeasible, but where possible the method appears to have some merit.

Operational tasking in SAR missions by a SAR authority was commonly mentioned as an important factor in the retention of volunteers. The majority of volunteers I spoke to, listed their motivation for joining as being the desire to be involved in search and rescue and in doing do, serve their community. Operational tasking by the relevant SAR authority was rated as being very important in providing this sense of service to the community. The tasking of vessels to assist as back up vessels to a primary SAR asset was a good example. It may be a situation where often the secondary vessel was unlikely to be needed, but they appreciated the opportunity to be involved none the less.

Similarly, interaction with local members of their particular SAR authority or police was clearly valued and no doubt played a part in the sense of service to their community, in this case the representative member of the SAR authority.
Search and rescue training

Most of the volunteer organisations I visited participated in SAR specific training in some form. The Search and Rescue exercises (SAREX) that were described to me were mostly very similar in format to those that I have witnessed in Australia. Also, as in Australia, they varied in their complexity with regard to the amount of SAR assets that were involved in the training. These ranged from basic exercises involving a single agency through to exercises involving multi agencies and utilising Coast Guard Cutters and C130 SAR aircraft.

Competency Based Training (CBT)
The majority of the organisations I visited utilised CBT training in some format. Many of the units I visited had an operations manual provided to them by their particular organisation that detailed how each skill was to be performed and linked directly to the CBT. The manual's ranged from information on basic seamanship and equipment through to drift modelling and conducting SAR operations. In some cases laminated cards linked key skill points to training areas for use in vessels, both as a reference guide for operators and as an assessment tool for those appointed as assessors.

The SNSM in France (Société Nationale de Sauvetage en Mer – National Society of Sea Rescue) provide their lifeboats with an excellent A4 size waterproof booklet specific to conducting SAR operations. The book has full page descriptions on how to conduct various search patterns and organise lookouts in day and night time conditions. The book also provides information on leeway tables, sweep width tables and basic drift modelling theory. It is detailed, but in an easy to understand terminology which is utilised as a training guide as well as a reference for actual SAR missions if required.

For person in the water (PIW) search training, the SNSM utilise mannequins fitted with small waterproof tracking devices. Multiple devices can be tracked remotely with a dedicated hand held GPS by a control vessel or station up to 3 nautical miles away. The use of such devices can greatly increase the realism of search exercises without the risk of losing expensive search targets. One of the search targets used by the French volunteers is dressed in a black wetsuit; such was the serious approach to the training.

These trackers could also have some potential for use in modelling live drift rates and directions within a search area in an actual SAR incident.

For more information on this product, refer web link: https://buy.garmin.com/en-AU/AU/shop-by-accsesories/dog/t-5-dog-device/prod160887.html

Training based on operational tasking's
It is well accepted that one of the best ways to learn is through operational tasking’s, but such training generally only benefits those crew who were operational at the time of the incident and this generally represents a small proportion of a units members. The nature and unpredictability of SAR will also often result in some members experiencing a high number of SAR tasking’s whilst others experience few.

The Canadian Coast Guard Auxiliary unit I visited at Hamilton Beach Rescue had a practice of conducting training directly linked to recent operational tasking’s. In doing so the training process also served as a debrief of the operation. This serves to reinforce to all members the lessons learned whilst highlighting both those actions and initiatives that worked well and also the actual problems and issues that were experienced. It also provides opportunity for brainstorming on how it could have been done better. Many of these issues can be hard to replicate in Search and Rescue exercises where outcomes are sometimes unrealistic.
Frequency
As with many forms of training, skill fade was most often discussed as one of the key factors that affected the way operators were able to effectively conduct an on water emergency response. This was all the more so for areas where there were typically less call outs and the opportunity for on the job training.

Several of the groups I spoke with had formal schedules for the assessment of critical skills where every operational member was formally tested by an appointed training officer against a set criterion. Different groups that I spoke with had different schedules for such assessments, but typically, 12 months was used as the guideline. What varied significantly was the frequency of which refresher training was conducted. In some volunteer units I visited, training was conducted on a weekly basis with a set day/evening allocated for training.

Whilst I was on an evening vessel training exercise with the Canadian Coast Guard Auxiliary, the Unit Captain and I were on the back deck discussing training when he decided to demonstrate by running an unplanned man overboard drill. The response from the crew was quick and effective and clearly one that was highly practised. This particular unit (Hamilton Beach, Canada) train once a week and the benefits were clear.

Whilst not all organisations I spoke with were able to or wanted to achieve such a high frequency of training from their members, everyone I spoke with was in agreement that frequent and effective training was key to competent SAR skills.

In some organisations training frequencies were monitored at unit level and also by external management by the use of online data bases. The benefits of electronic skills monitoring included the ability of the system to provide alerts when members training expiration was almost due. The Canadian Coast Guard Auxiliary utilises a tablet on which the unit training manager updates training as it occurs. Upon connection to the internet the training is then linked to a central Coast Guard data base for recording and monitoring.

Continual refresher training requires significant time and commitment. One of the issues faced by volunteer organisations is a willingness of members to participate in ongoing training regimes. The U.S. Coast Guard actively encourages its volunteer members to participate in annual SAR training and has created the ‘E for excellence’ program for this purpose. The program sets out a number of critical skills that a vessel crew must complete to receive Coast Guard recognition of their high level of training status above the normal training requirements. This status is recognised by the issue of a sticker which is endorsed with the year it was achieved and is then displayed on the crew vessel. The various competencies are overseen and graded by a regular coast guard member to ensure the integrity of the endorsement.

I was privileged to witness an auxiliary crew doing a dewatering (fire pump) drill as part of their annual ‘excellence’ accreditation at Station Milford Haven. The U.S.C.G. utilises standard fire fighting/dewatering pumps across the country that can be deployed rapidly for a vessel taking on water. The pumps are stored in a sealed drum and need to be removed and assembled before being primed and started.
Overseen by a U.S.C.G. Officer, Auxiliary Flotilla 33 members perform a dewatering drill as part of the ‘Excellence’ program at Station Milford Haven.

The excellence program specifies minimum times for assembly and starting of a pump with the time stopping when the pump is effectively pumping water. What stood out was the enthusiasm of all persons involved to participate in the drill and the camaraderie that was evident when an excellent time was subsequently achieved.

This was just one component of the excellence award, the other components included:
- Search and Rescue Planning,
- Search and Rescue Execution,
- Communications, and
- Complete Currency Maintenance Tasks and crew briefings.

**Simulation**

I was able to operate a vessel simulator for the first time with the Royal Canadian Marine Search and Rescue Group and was amazed by the realism. I also witnessed the use of simulators by the Royal National Lifeboat Institute in the U.K and by the SNSM in France. The simulators I observed were manufactured by TRANSAS and can be viewed on this webpage: [http://www.transas.com/Simulation/Marine](http://www.transas.com/Simulation/Marine).

The simulator is controlled by an instructor who sits externally in front of an array of monitors. The instructor can introduce a wide range of weather and light conditions. Additionally, the instructor can talk to the participants on marine radios, can play pre-recorded tracks simulating distress situations, and can monitor and record everything the crew and the vessel does for subsequent review, including vision of their faces. The simulator can introduce pre-programmed vessels from an extensive list of designs to transit through the scene either as it suits or on pre-programmed tracks. The instructor can introduce ship fires, oil spills, life rafts, helicopters and people in the water. All of these things I experienced in the space of ten minutes.
The simulator itself consisted of an actual lifeboat cabin surrounded on 3 sides by projector screens. All of the instrumentation inside including, engine information, marine radios, plotters, depth sounders and radar appeared as they would in a real vessel. The instruments reacted as they would to an actual voyage where heading lines move and coordinates change in a realistic way. The radar depicted targets in a shape consistent with what was being observed visually on the screen.

Realism also extended to basic vessel operation, you were not able to start the vessel until the throttles were in neutral. The vessel appeared to turn in a manner that a real vessel would turn, in that turning was aided by independent use of the dual engines and throttles, one forward and one astern, just as it would be in an operational twin engine vessel.

The vision was realistic to the area of training, so in this case, leaving Victoria Harbour on Vancouver Island, in the simulator, was as it would be in an actual transit. This extended to the buildings and the channel widths and depths. The navigation beacons were all faithfully represented and located as they are in Victoria Harbour.

Waves could also be simulated, and on conducting a quick turn you would observe the wake of your vessel astern. If you drove around an object on the screen it moved and changed consistently with the movement of the vessel, thus if you drove around another vessel, you would see it from every angle.

The Royal National Lifeboat Institute in the United Kingdom also utilise a vessel simulator and I was part of a tour of 8 people standing around the helm of the vessel during a simulation in large waves. Nearly everyone felt the need to hold onto something during the simulation and one person even left with a feeling of motion sickness after a short time, such is the realism of the simulator.

The training benefits of simulation are obvious. There are no risks involved to either persons or vessels. There are no fuel or vessel maintenance costs. The ability to multi-task a full crew and record their every action for subsequent debriefing and reflection. The ability to quickly and easily increase or decrease the complexity of a SAR mission, commensurate with the experience and ability of the crew or individual.

Navigation and use of technology such as GPS and RADAR can be taught and learned to a high degree with the vessel simulation. Simulation has the benefit of being able to task load individuals in circumstances that would present significant risk if practiced in the marine environment.

Following simulation training, the Royal Canadian Marine Search and Rescue transfer the operatives to a real vessel which closely reflects the simulator and then the training is duplicated on the water to reinforce the lessons learnt.
When I described the simulator to another very experienced and senior volunteer from the U.S.C.G. who also happened to be an aircraft pilot, he responded, “Well, where would flight training be without simulation?”

One of the biggest benefits of simulation I see is for the development of leadership skills. I have been directly involved in numerous SAR missions and SAR training exercises, and in my experience, one of the most critical factors in determining the success of the response is leadership, both at a SAR management level and in the lead response vessel.

“The only safe ship in a storm is leadership.” Faye Wattleton (Brainy Quote, 2014)

There are countless theoretical courses available in leadership but from my experience in search and rescue, the best leadership training is provided by first-hand experience of search and rescue missions. Generally speaking the harder and more complex the task, the more leadership skills and experience are to be gained. In Search and Rescue missions, sound leadership decisions will ensure a rapid and effective response. Sound leadership will save lives, poor leadership will risk lives.

Search and rescue training in real environments will always be a balance of risk versus gain and this is where simulation has significant advantage. In a simulation environment, a dangerous incident can be readily replicated where the reactions of the crew can be tested without risk to crew or vessels.

Crews can be task loaded with use of multiple radios, weather and sea conditions, multiple casualties, multiple vessels and difficult navigational tasks. In this environment leadership can be tested in a controlled manner, decisions can be reviewed and lessons can be learnt. In the simulation training I observed in Canada, the roles of each person on the vessel were rotated and the less proficient could then learn from the observation of more capable leaders very effectively in this environment. To rotate a crew through a series of such incidents in a real environment would require significant risk and significant cost.

Such simulators are expensive, however as technology improves, the costs will continue to drop. I witnessed the use of the TRANSAS simulators in Canada, the U.K. and France, and the quoted set up price differed significantly depending on how long the system had been owned.

With the Single National Jurisdiction legislation currently under review in Australia, we have a bigger focus now, than perhaps ever before, on the safety of our marine volunteers. In recent years we have seen the move in Australian State SAR authorities to the use of computer drift modelling which is comparable with countries such as the U.S. and Canada. We may in time see a similar movement toward vessel simulators and the benefits that they can bring.

In the words of Winston Churchill, “It is a mistake to look too far ahead. Only one link of the chain of destiny can be handled at a time.”
Maximising opportunities for volunteers

Something that stood out fairly early during my fellowship time in the United States was the variety of tasks with which the experience and enthusiasm of volunteers was utilised by the United States Coast Guard. One volunteer I spoke to had been volunteering his services monitoring radios for the Coast Guard for 22 years.

‘Auxiliarists make it possible to more ably accomplish our missions – they are a true force multiplier’
(Admiral Papp, 2011)

Volunteers provide assistance to the U.S. Coast Guard in a number of ways.

Voluntary Vessel Inspections
The Coast Guard Auxiliary volunteers conduct safety inspections on vessels and safety equipment. Although they have no authority to compel boat owners to cooperate with a vessel inspection, the experience of the volunteers I spoke with, was that the majority of boaters embraced the inspections, particularly once the benefits were explained to them.

Benefits included:
- updating the boaters knowledge of the latest legislation pertaining to safety equipment and vessel condition;
- the knowledge that any breaches detected would not be reported to the Marine Authority or result in prosecution;
- the confidence of knowing that if they were inspected by a marine authority, their craft would meet the requirements; and
- the knowledge that having been inspected and found to comply they would be provided with a current sticker of compliance for display, which meant that it was less likely that they would be inspected by an inspection authority.

In some cases an annual inspection was a requirement of the boater’s insurance company or provided for insurance discounts.

From a safety aspect, the benefit of greatly extending the reach of the Coast Guard in conducting vessel inspections is obvious. The cost saving in staff costs is also obvious.

What is less measurable, is the number of lives that may have been saved by ensuring boaters have the latest safety information. Having the appropriate and up to date safety equipment, and the recent recollection of its exact location in their vessel, as well as knowing how to access it and use it in an emergency would have a significant impact on assisting the safety of vessel operators.

I have conducted hundreds of vessel safety equipment checks, and it is not uncommon for boaters to spend significant time searching their vessel to locate the required safety equipment tucked somewhere out of the way of fishing endeavours. I have also witnessed the tragic results of persons who had the safety equipment on their vessels but were unable to access it quickly and effectively in an emergency.

Attached to the lives that may have been saved through such inspections are the significant savings that are achieved in a quick and effective emergency response that can occur where the correct safety gear is properly utilised. Protracted searches can run into the tens of thousands of dollars very quickly.
Radio room operations
One of the common areas for volunteers to assist the United States Coast Guard is in the area of radio monitoring or watch standing.

The United States Coast Guard has a requirement to monitor marine emergency radio channels 24 hours a day. For safety purposes, all Coast Guard vessels, including those of the Coast Guard Auxiliary must report their position to a radio base every 30 minutes when operationally tasked.

All of the full time Coast Guard members I discussed this area with, spoke of the benefits this service provided.

- In small stations with small staff numbers, this allowed more members to go out on the vessels during SAR missions, thus maximising their capability.
- More radio and phone operators were available during emergency situations thus maximising the effectiveness of the radio room.
- Coast Guard regulars are rotated to different postings every 3 to 4 years, so Auxiliary members provided a stable source of local area knowledge.
- Allowing younger enthusiastic Coast Guard members more opportunity to go out on the vessels, and in particular SAR missions instead of monitoring radios.
- The cost savings of using volunteers to monitor radios.

Auxiliary Aviation Pilots
The Coast Guard auxiliary program also extends to the use of volunteer pilots and air observers which are utilised in a number of ways including SAR.
For more information refer this web link:  

Training
The U.S.C.G. utilises volunteers for the training of its staff in a number of ways. Volunteers operate as Instructors at the National Training School providing tuition to paid C.G. members and International SAR planners. Auxiliary members also assist in running SAR related courses in countries outside of the U.S. and assist at the National SAR School by acting as role players for training scenarios. The Auxiliary and its vessels are also utilised for the purpose of providing training in vessel towing, with the Auxiliary crews role playing as stricken vessels.

Intelligence gathering
Volunteers on the water are sometimes tasked in specific intelligence gathering in relation to certain vessels or ports and also coincidental intelligence gathering where they report on vessel movements and suspicious activity in port areas.

I was also shown an example of a spread sheet for a particular area which detailed all of the partially submerged or wrecked vessels in the area which had been compiled by volunteers. This spread sheet could be referred to by the Coast Guard in the event of a report being made by a concerned member of the public and thus prevent a false assumption being made that a distress situation was occurring at the time. In search and rescue this can prevent the need for time consuming enquiries or at worst, deployment of expensive search and rescue assets.

The use of volunteers in Australia to provide an extension of crime watch programs in marina areas and ports may be a consideration for some areas, particularly in light of increased threats of terrorism.
**Aids to navigation**
In the United States the Coast Guard is responsible for aids to navigation. Coast Guard Auxiliary members assist the Coast Guard by conducting inspections on Marine Aids to Navigation and reporting any issues that have arisen. This provides significant time saving for the Coast Guard and allows them to focus more time on other responsibilities. It also provides a more timely response to repair and maintenance of faulty aids saving money and increasing safety.

**Interpreters**
The United States Coast Guard also utilises the Coast Guard Auxiliary to act as interpreters in actual search and rescue missions, and where they are providing a teaching role to non-English speaking countries. Once a willing volunteer is tested as being proficient in a second language they are placed on a data base of interpreters and are called upon to assist where required.

As well as significant cost savings, this has the added benefit for the Coast Guard of utilising interpreters who are familiar with search and rescue, vessels and the maritime environment, radio operation and procedures, and coast guard specific terminology. Such knowledge would increase the effectiveness of an interpreter used in a SAR situation.

**Administration and other additional roles**
The relationship with the United States Coast Guard and its Auxiliary members is such that there are countless other roles than volunteers can assist with.

In one case I was made aware of, the wife of one of my auxiliary hosts had wanted to provide a volunteer service to her country and be involved with the Coast Guard, but she was not overly keen to assist on vessels. As a retired lawyer, she was able to volunteer in the Coast Guard Auxiliary by providing legal assistance to the Coast Guard on a part time basis. Joanna assisted in preparing and mediating cases where the Coast Guard was pursuing costs against 3rd parties for damage to navigational aids. Clearly this provided a significant cost benefit for the Coast Guard.

With over 30,000 Coast Guard Auxiliary volunteers, it is clear that significant cost saving is achieved by embracing and supporting volunteers in this manner.
Fostering of harmonious relationships between volunteers and SAR authorities

One of the questions that I asked of the people with whom I met was, what positive experiences and advice they had for the building of effective relationships between volunteers and paid Search and Rescue personnel?

I spoke to both volunteers and paid SAR professionals, numbering in total well over 50 individuals from 11 distinctly different organisations.

Although the responses had some minor variation there was for the most part, several recurring themes, these included, Engagement, Operational Tasking and Communication and Acknowledgement. Most of this information is not new and would mirror similar conversations in Australia, it simply makes the point that similar situations occur in marine rescue volunteers around the world.

Engagement
Personal engagement was the most common recurring response.

Unit visits were highlighted as a very important part of building and maintaining relationships. In one case such visits were also used to do follow up SAR training with members who had experienced some difficulties in exercises involving groups from other areas, but were then able to train more effectively without the direct scrutiny of their peers.

One SAR professional relayed a story to me about conducting a personal visit to a volunteer unit working on a large inland lake environment. The organisation had another volunteer unit on the opposite side of the lake and in a distress incident occurring in the middle of the lake, it would be normal for both units to respond. During his visit the officer spent some time discussing the basics of search drift modelling and search patterns. As coincidence would have it, in the following weeks a distress incident occurred toward the centre of the lake and both units were tasked. The unit who had not received recent training moved out to the centre of the lake as tasked and having not located anything stopped and waited whilst further search plans were being developed. The unit recently trained, having also reached their designated area without finding anything, conducted some basic drift modelling in line with their recent training, selected an appropriate pattern, and proceeded whilst they awaited further instructions, they located the persons in distress a short time later. In debrief it was their recent and personal training that had given them the knowledge and the confidence to continue and locate the target.

One small volunteer group I visited enthusiastically relayed to me the story of when a regional commander had visited their unit some two or more years previous. What struck me were the details they went into including the conversations they had had, such was the obvious importance and impact of the visit from the SAR authority representative at their unit.

When I visited the United States Coast Guard Station in Milwaukee, my contact had arranged a meeting for me with a Coast Guard Officer, two auxiliary members, and two of the Milwaukee Police Harbour patrol officers. It was immediately evident from the conversation that transpired that a strong relationship existed between the three groups. The Coast Guard Officer explained to me that the Coast Guard Unit had as part of its induction program for new members, information specific to the building and maintenance of the relationship that existed between the SAR Authority and the volunteers in that area. It was clear from this initial meeting and a subsequent meeting with the
Deputy Sector Commander, that this particular unit had an excellent relationship with the volunteers and it was clearly something that was strongly encouraged by management.

The U.S. Coast Guard also performs joint training exercises with auxiliary crews such as vessel towing. Auxiliary patrols provide their vessels with crew to act as a disabled vessel for the training of Coast Guard members. Coast Guard vessels can in turn be used as disabled vessels by the Auxiliary patrols. As well as serving a training role, the interaction also serves to build the relationship between auxiliary and regular members.

The Gosport and Fareham Inshore Rescue Service hold a joint emergency services day annually which includes participation by the police, fire and local military. The day serves as an opportunity to fund raise and also provides education to the public with regard to the volunteers being a part of the emergency services. The interaction between the agencies contributes positively toward the relationships that exist between volunteers and paid emergency service personnel.

The U.S. Coast Guard have dedicated DIRAUX (Director of Auxiliary) teams comprised of Officers and enlisted personnel in each district. The DIRAUX teams are involved daily with Auxiliary activities.

Operational Tasking
Another common theme raised by volunteers was the importance of being utilised for the tasks in which they were trained. For many of the volunteers I spoke with, the main reason they had joined their respective organisation was to serve their community and participate in search and rescue missions. Operational tasking by a Search and Rescue authority was seen as one of the most important considerations in volunteers maintaining their interest and enthusiasm for their organisation.

During the course of my fellowship I spoke with a wide range of volunteers, some of which were utilised frequently for conducting SAR operations, some of which were used infrequently. In speaking with those units who were seldom utilised, what was apparent is the high levels of frustration they felt with the situation. One group explained how they liked to be tasked even when they knew they were only there as a back-up crew to a primary SAR asset. As volunteers they valued being involved and included even if not as a primary vessel.

Communication
Every organisation, whether it be paid or volunteer has members of varying skills, abilities and personalities, in some cases, poor ability and personality traits can damage relationships. Effective communication was a recurring issue that was raised as an important factor in working through the issues that arise.

One volunteer I spoke with, recounted a story about a poor relationship that had built up between their regional SAR authority and the volunteer base, the situation was evident in phone and radio conversations and the volunteers were rarely being tasked, as they had been previously. The volunteer sought a meeting with the person in charge of the area and it came to light that a confrontation had occurred between a paid crew and one of the volunteers after a poor display of seamanship. It turned out that the particular volunteer in question had since left the organisation, and so once the issues were discussed and differences were resolved, the relationship between the two groups was restored.

In one area I visited where a close relationship was evident it subsequently came out in conversation that it hadn’t always been that way. The relationship had been severely damaged by a member of management taking a party to task in a harsh way over an activity that had been accepted practise for some time. The effect had been immediate with a complete breakdown in the relationship and
cooperation that had existed for several years. The relationship had then taken several years to re-establish and rebuild, to again become one of trust, respect and cooperation. The story merely demonstrates the ideal situation that can be achieved, but also how one poor act of communication can undo years of good work, to the detriment of search and rescue operations.

In another example provided to me, a volunteer had criticised paid staff in social media, again causing significant damage to the relationship that took some time to repair.

**Acknowledgment and Information sharing**

One of the factors raised was the importance of feedback in relation to a SAR mission for which a group had been tasked or put on standby. Acknowledgement of the work that had been done, even just by means of a phone call was rated as highly important. This probably occurs most of the time in one form or another with most agencies, but the critical point is the impairment that can occur when acknowledgment does not occur.

This was also highlighted in the *Australian Government National Volunteering Strategy 2011* as a recognition strategy: ‘Personal, informal acknowledgement that shows their efforts are valued and that they are making a difference’. (Commonwealth of Australia, Department of the Prime Minister and Cabinet, 2011)

Another more formal acknowledgement highlighted was by the presentation of medals or similar as a means of formally recognising the community service provided by an individual.


**The Australian Perspective**

The challenges for SAR Authorities in Australia include the variation in arrangements between jurisdictions and the tyranny of distance. The level of volunteer marine rescue integration into government varies significantly from state to state, as does the manner in which state SAR Authorities exercise their obligations under the National SAR Plan. In some states the Police SAR mission controllers are based within specialist SAR units. In others they are distributed throughout regions, and often, significant distances from where marine volunteers are operating. This makes the job of building relationships and providing SAR specific and inter agency training that much more difficult.

In South Australia, the South Australian State Emergency Service coordinates a 2 day bi-annual Volunteer Marine Rescue Forum, bringing together representatives from all of the volunteer associations, police and other relevant government agencies to discuss topical SAR issues, advances in technology and other related matters. It also provides a significant opportunity for networking and social interaction, and has proven to be a very effective means for the development of relationships both between the various volunteer groups, and with stakeholders and government agencies.

A similar forum is conducted by the Department of Fire and Emergency Services in Western Australia.

*Difficulties mastered are opportunities won.* Winston Churchill (Churchill, 2013)
Management of volunteers in SAR taskings

With regards to operational management of volunteers, my research centred on how SAR authorities manage volunteers during SAR taskings. The primary points of reference for me being: how the search directions and coordinates are provided to volunteer vessels; and operational safety for volunteers conducting SAR missions for, or on behalf of, the SAR authority.

In the U.K. the point was made to me on several occasions by volunteers and professionals alike regarding the deployment of volunteers by Her Majesty’s Coast Guard, ‘They do not task, they ask.’

Operational Safety

Position monitoring
In many of the organisations I visited, the use of AIS (Automatic Identification System) was reported as now being used as the standard monitoring system across the majority of the volunteer SAR assets. Two main benefits were identified. Firstly, the safety factor afforded by live monitoring of a vessels position, allowing quick deployment to the area in the event of a SAR vessel being compromised. Secondly, SAR coordinators being able to monitor the vessels position and track the progress and integrity of the tasked assignment.

Radio monitoring
In the U.S., every auxiliary patrol under tasking by the Coast Guard is required to provide sitreps (situation reports), including their current position every 30 minutes by marine radio. If a call is not answered, Coast Guard SAR assets are deployed to locate the vessel. The Coast Guard, Rescue 21 radio system, also provides the Coast Guard with accurate position information from the radio transmission. (see ‘Additional information of relevance to marine SAR’)

Risk Assessment
As would be expected, most of the organisations I visited utilised risk assessments in one form or another. Generally speaking an initial assessment was made by the SAR authority to task or not to task a particular asset and then a second and final determination was then made by the ‘Master’ or ‘Coxswain’ of the responding vessel.

In my experience, the situation that can sometimes occur, is that conditions on scene can be appreciably different from those perceived in the Rescue Coordination Centre via weather report information. An over eagerness to assist may then on occasion, result in SAR assets launching in conditions that may exceed the acceptable safety limits.

The U.S. Coast Guard utilises the ‘GAR Model’ (GAR = Green/Amber/Red) for conducting risk assessments. The GAR model is utilised by both full time and auxiliary Coast Guard operatives. Where the GAR system differs from other forms of risk assessment I have seen, is that it assigns a numerical score to the cumulative risk of six designated categories. The score will then dictate the colour:

- green – low risk - mission proceeds,
- orange – caution required - minimisation measures to be considered,
- red – high risk – risk must be reduced/controlled prior to launching/continuing.

Auxiliary and regular Coast Guard SAR assets, when commencing a tasking, as well as periodically throughout the tasking, must provide the Coast Guard Command with a GAR score. This provides the Command centre with a realistic and ongoing assessment of conditions on scene.
A GAR score is deduced by every crew member (starting with the most junior) providing a score of 0 (no risk) to 10 (maximum risk) for the following categories of risk:

- Supervision – qualifications/experience/communications
- Planning – details/clarity/vessel selection and condition
- Team selection – qualifications/experience
- Team Fitness – physical/mental state
- Environment – seas/visibility/wind/current/temperature
- Event/Evolution Complexity – details/tasks

Discussion then occurs between the crew regarding the risks and controls and a consensus on the GAR score is reached, and applied to each risk category. The scores are totalled and the overall score is applied to the GAR evaluation scale to provide a measurement of risk.

![GAR Evaluation Scale](image)

The Coast Guard emphasises that the discussion is more important than the score.

The requirement to provide the GAR score prior to launch and during missions ensures that risks are continually discussed, reviewed and considered.

**Transfer of SAR coordinates**
In all of the organisations I visited, SAR coordinates are relayed by VHF radio to the SAR assets. Whilst consideration has been given in some organisations to the electronic transfer of coordinates and SAR planning documentation, it has not as yet been implemented.
INFORMATION SHARING

Essentially, information sharing is central to my Churchill Fellowship, and certainly the people I have met during the fellowship have shared willingly, within the constraints of their organisation.

SAR Plotting Tool

In preparation for my fellowship I had been corresponding with a volunteer member of the U.S.C.G Auxiliary in preparation for my arrival and first meeting in Los Angeles. Before I had even left Australia I received via my host Oscar, a link to a XL based SAR plotting tool that had been developed by one of the Auxiliary members for use on a windows based PC.

Actual SAR planning must be conducted by a trained mission controller but this application could be potentially used by organisations who wish to conduct self-initiated searches for objects such as vessels adrift in non-life threatening circumstances or to add realism to internal SAR training. This application is available for download from: https://sites.google.com/site/U.S.C.G.auxops/Home/automated-sar-patterns.

SAR Smart Phone App

In Canada the RCMSAR have developed a SAR APP for use on smart phones. As well as providing a great range of safe boating information, it also has a template for quickly and efficiently calculating both expanding square and sector search patterns.

These templates provide a countdown timer for each leg of the search pattern and provide specific bearings for every search leg once the basic variables such as an initial heading and vessel speed have been inputted. It has the capability to be switched to a night mode to protect night vision.

The beauty of this format is the speed and simplicity with which a search can be planned and commenced. Although some vessel plotters have the ability to overlay search patterns on a screen to follow, applications such as this are of advantage when wanting to move with the drift line whilst searching.

During my fellowship and since my return, I have shown this app to a number of SAR practitioners, both paid and volunteer from at least 7 separate organisations. Without exception they appeared very impressed. As a result of the willingness of RCMSAR to provide the information, and my ability through the Churchill Fellowship to share it, I think it highly likely that the RCMSAR app will be used by a high number of individuals. This sharing of information may very likely contribute to the saving of lives.

- In Apple operating systems - search ‘RCMSAR’ to locate this SAR APP.
- In Android operating systems - search ‘SAR tools’
This information sharing occurred as a direct result of my Winston Churchill Fellowship and the exchanges that occurred because of it. It provides a graphic example of how this simple process has the potential to make real change.

As another example of information sharing, I was able to show a number of SAR personnel (both Police and Coast Guard) the ‘Motion X’ app technology that I have personally used in South Australia. This app has the ability to import a search pattern and coordinates directly from a drift modelling program to a search asset via a GPX file sent by email. Upon receipt of the email and utilising the ‘Motion X’ app, the SAR asset is able to quickly and effectively commence a search without the need for time consuming input of the search coordinates. The assets track over the search pattern is recorded as it progresses. The search pattern and vessel track can also be emailed back to search command to confirm what areas have been covered. Again, several persons I discussed this with showed particular interest in this capability and were planning to investigate this further for potential use in their respective organisation.

Just prior to leaving Australia, I was made aware of a marine search that had occurred interstate where a person aboard a large vessel had been reported overdue and un-contactable resulting in extensive enquiries to ascertain his safety. All of the usual efforts such as telephone and marine radio enquiries had been unsuccessful and a search was under consideration. An attempt was then made to contact this person via face book and successful contact was made, the person’s safety was confirmed and an expensive search was no longer required. It transpired that the individual had an internet booster on his vessel allowing internet access and he was frequently monitoring his Facebook account. Prior to this information, I had not as a police SAR manager considered Facebook as a means of contacting someone in a marine distress situation. I relayed this story to a wide range of volunteer and SAR professionals during my fellowship and likewise a number of them had also not previously considered this option. This account fortuitously came to me by chance and not through any formal information sharing arrangement. It further highlights the benefits of networking and information sharing.
Additional information of relevance to Marine SAR

During my various meetings I also identified some additional information worthy of mention which may be of interest to organisations engaged in Marine SAR.

Small Vessel Identification.
In recent years there has been a significant rise in the amount of people using canoes and kayaks in the sea environment. In my experience, many of these people have often had little experience in the sea environment and with minimal safety gear typically carried, this can be considered a high risk group.

A significant issue for SAR authorities is identifying ownership for such small craft found unattended at sea or on a shoreline. Identifying an owner is often critical to determine if a SAR incident is occurring, that is to say, the possibility that the owner/occupant has fallen out of the vessel and become separated and is now in a distress situation. Owner identification further allows for intelligence to be quickly gathered such as likely fishing locations, and the health and experience of a missing person. It has a secondary benefit of identifying ownership when a craft has been stolen.

The U.S. Coast Guard has developed a durable sticker with provision for marking personal details and these are provided to small craft owners for affixing to the vessel.

In Australia provision for a vehicle driver’s licence number would provide Police immediate personal information sufficient to commence enquiries.

Flood Control Training
The U.S.C.G. utilises a portable trailer for providing flood control training to its members and volunteers. The trailer is connected to a mains water outlet which supplies a large header tank to maintain pressure and volume. The water is then directed to various systems, controlled by a series of valves. The trailer is designed to replicate a number of leaks such as holes and tears in vessel hulls, splits in hosing and rigid piping and failure of through hull valves. Those being trained are taught to utilise a variety of materials and methods to control flooding.
Rescue 21 System, U.S.C.G.
The U.S.C.G. utilises the ‘Rescue 21’ VHF radio system, that links to a visual display providing a bearing line from the receiving VHF radio tower to the source of the radio transmission. Where a single tower is activated, a bearing line is provided, along which a search can be commenced.

On most of the occasions where I was able to witness the operation of this system, more than one tower was activated and thus a cross bearing was provided which then gives an accurate position. Bearing lines are recorded and can be readily recalled.

This system is an excellent SAR tool and greatly improves the speed of response to vessels in distress, where their position might otherwise be uncertain. Another major benefit of this system is the ability to identify hoax calls. Transmissions from shore can be readily discounted, and in some situations the exact location of the transmission may also lead to detection and prosecution of hoax callers. With hoax calls often resulting in the deployment of SAR assets and the resultant risk to volunteers and professional personnel alike, this system has considerable merit and could potentially offset installation costs in a relatively short time frame.


Canadian Coast Guard #16 Phone Number for Marine Emergencies
In certain areas of Canada an arrangement between the Canadian Coast Guard and telecommunications companies provides for the use of mobiles to connect with a free call directly to a Marine Communications and Traffic Services Centre by dialling #16. Emergency assistance can then be quickly coordinated. Refer web link for further information: http://www.ccg-gcc.gc.ca/eng/MCTS/Cell .

U.S. Coast Guard Time Frame for Survival Model
Marine SAR managers must determine a time frame for survival (TFFS) to determine how best to utilise SAR assets, and also to determine an endpoint when a rescue then becomes a recovery.

The Australian SAR manual utilises a graph for this purpose with supporting information relative to expectations regarding certain circumstances such as fitness and body size. The U.S. Coast Guard
SAR technicians utilise a computer program that allows for input of known weather data including, water temperature, wind temperature, wind strength and humidity. Data is also entered on the individual including, height, weight and build. If known, data is also entered on depth in the water (neck, chest, waist or afloat) and clothing type. The program then provides a time-frame detailing both a period of useful activity and a time of expected death.

A program such as this, capable of providing accurate and qualified data without the need for individual interpretation would be beneficial to the SAR manager to improve SAR planning and to aid in the difficult decisions and justifications necessary in suspending SAR missions.
CONCLUSIONS

There are significant differences in the structures and roles of marine volunteer organisations around the world. A common theme though, is the desire to assist others and this extended in my case, to a willingness to share information.

I was privileged during my fellowship to share information with those operating at both entry level and senior management, within paid and volunteer SAR organisations. The information flowed both ways, there were few instances I recall where a complete awareness of the capabilities and SAR initiatives of external SAR organisations was evident. Regardless of the organisation there are always opportunities to learn from others.

No two SAR missions are identical. In SAR, a mission that starts as relatively low risk with simple aims can quickly change to one of high risk and significant complexity. Frequent and effective training is the key to enabling SAR personnel to manage the diversity of tasks that may arise during any SAR mission. Initiatives and support to promote and encourage internal training programs can improve the frequency of training occurring within volunteer organisations. Sound training equates to more lives saved, and less risk to SAR responders.

RECOMMENDATIONS

Training

The National Search and Rescue manual that guides the provision of Search and Rescue in Australia identifies the importance of training with statements like:

‘The importance of thorough training for all personnel employed on SAR missions cannot be over emphasised’

‘Quality of performance will match quality of training’,

This sentiment was echoed everywhere I went and cannot be over emphasised.

Effective and regular SAR specific training is the key factor to providing an effective SAR response. Whilst the SAR training that I have witnessed and discussed within Australia is for the most part effective, the frequency is often lacking. It is a worthwhile consideration for those persons conducting training with marine SAR volunteers to either provide additional SAR training where possible or promote and assist in internal training programs within the volunteer organisations.

The US Coast Guard ‘E’ for Excellence program is a good example of the promotion of internal training.

Simulation

The simulators I observed were an effective training tool and considerably more realistic than I anticipated. The training benefits were clear and every person I spoke with rated the many benefits of simulation very highly. Leadership skills in particular, can be effectively developed with simulation. As the cost of simulators continues to fall into the future, they will become an excellent consideration for the operational training of volunteers and paid marine SAR personnel alike within Australia.

Engagement of volunteers by SAR Authorities

Throughout my study, engagement was identified as the key issue to forming, building and maintaining effective and beneficial relationships between SAR authorities and volunteers. SAR authorities should continually seek opportunities to meaningfully engage with the volunteers that assist them to conduct Search and Rescue Missions.
Information Sharing

Information sharing is of great benefit in Search and Rescue, both within an organisation and across organisations. It has been my experience during my direct involvement in Marine Search and Rescue for the last 20 years that you never stop learning and information sharing provides a great opportunity to learn from the success and failures of others. SAR organisations should actively seek opportunities to share SAR related information where possible and appropriate.

With the words of Winston Churchill firmly in my mind, I end this report here:
‘This report, by its very length, defends itself against the risk of being read.’ (Churchill, 2013)

To the volunteers who go upon the water, who put themselves at risk, and give of their time, skill and dedication, without financial reward and often, without recognition, so that others might live, to those volunteers I say thank you.

Training with the RCMSAR, in Sooke, British Columbia
From left: Mathias Caspar, David Bacchus.

Patrol on Chesapeake Bay with the U.S.C.G. Auxiliary. From left: Patrick Hogan, David Bacchus, James E. Thomas, Brian McArdle
ACKNOWLEDGEMENTS

To thank all of the individuals and organisations that have assisted in any sort of detail would take many pages; so instead, in brief, I offer my deepest thanks and appreciation to:

The Dedicated Staff of the Winston Churchill Memorial Trust, at both State and National levels.

Bob McDonald (former Senior Sergeant in charge - SAPOL Water Operations Unit).

Darryl Wright – Manager Volunteer Marine Rescue S.A., and Mr Chris Beattie, Chief Officer, S.A. State Emergency Service.

All of the gracious hosts and organisations that supported my fellowship; they opened the doors of their organisations, provided me with a wide range of information, assistance and friendship, and in several cases, they even chauffeured me around, took me upon the water and opened the doors to their homes, in particular;

Oscar Gallo – USCG Auxiliary, Division Chief, Pacific Area, Los Angeles
Neil Nevesny – USCG Auxiliary, Branch Chief, San Francisco
Susan Pickrell – Canadian Coast Guard, Regional Supervisor Maritime SAR, Victoria, B.C.
Jenn Weisskenborn – Canadian Defence, Major, OIC - Joint Rescue Coordination Centre, Victoria B.C.
Rob Duffus – Royal Canadian Marine SAR, Director of Marketing, Sooke, British Columbia
Francois Michaud – Royal Canadian Marine SAR, Training Officer, Sooke, British Columbia
Jason van der Valk – Royal Canadian Marine SAR, Operations Assistant, Sooke, British Columbia
Randy Strandt – Royal Canadian Marine SAR, National Chairman CCG Auxiliary, Vancouver
Charlie Witherington – Canadian CG Auxiliary, Hamilton Beach Rescue Unit, Chief Officer, Ontario
Tim Hoffmann – USCG Auxiliary, Operations Staff Officer, Milwaukee
Dave Johnsen – USCG Auxiliary, District Captain, Milwaukee
Brian McArdle – USCG Auxiliary, Director International Affairs, Virginia
Walter Jachimski – Smith Point Sea Rescue, Captain, Reedville, Virginia
Jim Thomas – USCG Auxiliary, Captain, Flotilla 33, Kilmarnock, Virginia
Michael O’Connor – USCG Auxiliary, International Outreach, Deputy Director, New York
Keith Cima – Royal National Lifeboat Institute (RNLI), Station Officer, Tower Lifeboat Station, London
Kelly Sargeant – RNLI, International Development Coordinator, Poole, Dorset
Danny Light – Maritime and Coastguard Agency, Training Coordinator, Christchurch
Anne Millman – RNLI, Coxswain, Poole Lifeboat Station, Poole, Dorset
Michael Vlastro – International Marine Rescue Federation, Chairman, Poole, Dorset
Keith Thomas – Gosport and Fareham Inshore Rescue Service, Chairman, Portsmouth
Didier Moreau – SNSM, Director, St Nazaire, France

I hope to be able to one day return the favour in Australia to at least some of my hosts.

I also sincerely thank my wife Lynette, who accompanied me on my fellowship and assisted me with countless hours of research and travel support – I could not have done it without her.

I also wish to sincerely thank the many Australian marine SAR volunteers who I have met through my involvement in Search and Rescue. I have truly enjoyed working with them and alongside them. I constantly admire their dedication and commitment - to leave your home in the middle of the night and go to the sea to rescue others is to be admired, but to do so for no other reason than a sense of civic duty, is truly noble.
REFERENCES


