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Effective Maritime Search and Rescue+

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Abstract

Technical developments, particularly in communications, increase the potential for effective maritime search and rescue(SAR). The paper identifies some of the questions those seeking to proveid effective SAR service should ask, and outlines possible answers.

1. Introduction

The Global Maritime Distress and Safety system(GMDSS) was introduced in 1991, and will be fully implemented in 1999. The GMDSS convention provides communication equipment carriage requirements for merchant vessels ? = 300 gross registerde tons. these requirements mean that no distress signal should go unheard and merchant vessels anywhere in the world can be alerter to take part in SAR operations, GMDSS also sets out guidelines for national administrations having responsibility for maritime SAR, and objectives for co-operation in SAR between neighbouring states.

National SAR services vary widely in extent from comprehensive to redimentary. By example, the United States Coast Guard(USCG) is a large quasi-military orgarnization having among its responsibilites SAR both on land and sea. In the performance of these SAR responsibilites the USCG can call on a fleet of dedicated aircraft and vessels properly equipped for the task. USCG Rescue Co-ordination Centres

(RCCs) are manned by well qualified experienced personnel, having the support of advanced

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technology in search planning. The USCG also has a programme of on-going research into al aspects of the SAR task.

In the United Kingdom, Her Majesty's Coast Guard(HMCG) has safety of life at sea as its only task. Unlike the USCG, HMCG has no search units under command. Instead it depends on facilities provided by the military, by the lifeboat service, and by the merchant service, HMCG does, however, have RCCs manned and equipped in a similar manner to that of the USCG. Whereas the USCG has in the past only used merchant vessels for SAR taxks on an opportunity basis, in the United Kingdom merchant shipping is often used as the first resort

Elsewhere in the world there are maritime nations that have neither SAR craft nor co-ordination facilites. But wiht the global coverage of modern communication equupment, it is now possible for an RCC on one side of the world to co-ordinate a search on the other side, Increasingly such SAR operation will be undertaken by merchant vessels.

2. Merchant vessel Participation in SAR

If merchant vessels are to play a more major part in SAR, it is right to question how effective they may be.

Merchant vessels ahve low manning levels, often with mixed nationality crews, lacking the specific knowledge and experience that could be found on a dedicated SAR vessel. Despite this merchant vesssels have played part successfully in part SAR operations, and will continue to do so in the future, Success in SAR is time dependent. Both casualty and survivability and quality of search reduce rapidly with time. Merchant ship effectivess on search is unlikely to exceed 12 hours and may will be less. It is therefore better to use merchant vessels for short durations only so as to maintain quality of search.

Through satellite communication, digital selective calling, carrige of emergency position indication radio beacons(EPIRBs) and search and rescue transponders(SART) the technical potential of merchant vessels is improving Ships' crews do need to be better informed and trained. Of particular note is a perceived need to improve the guidance given in the Merchant Ship Search and Rescue Manual(MERSAR).

3. MERSAR

It is suggested that MERSAR sacrifices time for order in search planning. The validity and implications of this suggestion need to be examinde.

That MERSAR gives guidance to ships' masters facing SAR tasks is unquestioned. What is questioned is whether the advice could be improved. Certainly MERSAR pays little attention to the time dependent nature of successful SAR. This is most clearly apparent when dealing with matters of search planning. MERSAR has to provide simple guidance to those not often engaged in SAR operations, but simplicity has a cost. It is not making bset use of merchant vessels, taking part in a co-ordinated search, for them to be searching in formation at the fastest speed of the slowest ship. Formation keeping can detract from the already limited search ability of merchant ship crews. The search is unnecessarily slowed down, creating a further penalty and the miplicit requirement to search towards, instead of away form, datum in the initial tages also creates delay, It is known that even in countries where SAR awareness is sufficient to include simulator training for ships' officers, the exercise concludes when all participants are lined up, abreast at the

limits of the search area. The real objective has been lost.

There are many other examples that confirm the validity of the suggestion. The implications are reduced chances of successful SAR as the quality of search decays throuht delay.

4. GMDSS and Small Craft

GMDSS is an advanced system designed to provide a worldwide service for vessel > = 300 gross registered tons. But there are many vessels of less than 300 tons at sea, and these are often most at risk. The implications for such 'Smaller' craft need to be considered.

The benefits of GMDSS include that it neither involves the use of Morse code, nor the requirement to listen continuously on calling channels. These benefits will be of great value to smaller crarft, but by 1991 it is likely that voluntary users of radio will have to use GMDSS equipment to call other ships or the shore.

All GMDSS equipped vessels will hvae a nine digit number called a Mritime Mobile Service Identity(MMSI). The first threeedigits are the county code. That for South Korea is 440. the MMSI is used in conjunction with Digital Selective Calling(DSC). DSC applies to channel 70 on VHF and 2187.6khz on MF for distress and safety services. By linking DSC to navigation equipment, such as GPS, a distress call will identify both the craft in distress and give its position.

For the small craft operator the additional cost of fitting GMDSS equipment, by 1999, will be low and reducing. The benefits will be great in terms of safety and ease of operation

5. National SAR Serices

The principles for success in search and rescue should be identified and the national SAR system, and its operationm measured against those principles.

The principles of success in SAR include : (1) management, (2) competence, and (3) quality, Management needs to identify and avoid the causes of failure, This is perhaps best achieved by adopting the management techniques of success. It is suggested that these are :

* giving SAR the correct national priority.
* adopting appropriat affordable technology.
* invoving all appropriate agencies in the SAR concept.
* delegation of authority to operational level

Competence stems form sound management, but it needs to be re-inforced by extending training to all levels of SAR operation. Training should be regarded as necessity not a costly luxury. Through good management and quality training a professional attitude can be developed. Professionalism, and all it encom-passes, is the hallmark of success.

6. Conclusion

Maritime SAR will become more effective through the introduction of GMDSS. There has to be greater emphasis on the human resorce of SAR if the full benefits of technological advances are to be achieved.