INTERNATIONAL MARITIME ORGANIZATION

E

SUB-COMMITTEE ON
RADIOCOMMUNICATIONS AND SEARCH
AND RESCUE
15th session
Agenda item 3

COMSAR 15/INF.3
31 December 2010
ENGLISH ONLY

GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)

Scoping exercise to establish the need for a review of the elements and procedures of the GMDSS

Shipboard User Needs

Submitted by the Nautical Institute

SUMMARY

Executive summary: The Nautical Institute has consulted with its members by means of its SeaGoing Correspondence Group (SGCG), workshops and ship visits to assess the onboard user needs for GMDSS in the future.

The methodology used was to raise the questions identified in the COMSAR report of the Technical Working Group (COMSAR 14/WP.5/Add.1) and also allow for general comment from mariners concerning the use of GMDSS on board.

The user feedback was then analysed and put into a format similar to that used for the e-navigation user needs analysis (NAV 55/WP.5) where operational user needs were identified and justified. The defining of the user needs has been from an operational perspective and does not identify any specific technologies, leaving these to be addressed at a later stage. Specific technologies have however been addressed under "issues to consider".

Strategic direction: 5.2

High-level action: 5.2.5

Planned output: 5.2.5.10

Action to be taken: Paragraph 8

Related documents: None

General Feedback

1 In general, mariners were pleased with the GMDSS infrastructure and SAR response. However, onboard equipment was deemed to be overly complex, outdated, poorly supported and failed to take into account the benefits that could be achieved through integration with general communication and navigation systems.

2 Current GMDSS consoles differ widely making onboard familiarization difficult, and this is compounded by the fact that as GMDSS functions are rarely used, familiarization is not aided by usage either. Mariners almost universally suggested that there should be far more standardization of interface, and/or that GMDSS functions should be integrated into general bridge communications systems to improve familiarization through everyday use.

3 Mariners also identified MF/HF and DSC to be particularly difficult to use due to their complexity and suggested that perhaps these systems could be done away with or that modern technology could remove much of this complexity by using "smart" systems. Mariners also noted the difficulty testing MF/HF due to the lack of shore stations, or lack of incentive for shore stations to confirm the test.

4 Improvements were also thought to be achievable by making the GMDSS more focused on a vessel's navigational area. It was deemed that much of the GMDSS traffic (including false alarms) and in particular MSI are not pertinent to their areas of concern and therefore major distractions.

5 It was further noted that as many of the communication requirements including those within GMDSS were directly associated with navigation tasks with regards to collision avoidance, port operations and SAR operations. Thus integrating navigation and communication tasks could aid the effective planning, execution and reporting functions for a ship's voyage.

6 The use of voice for traffic management and SAR operations was considered essential, however if in the future it would be possible for a text version of the voice message to augment the voice that would be very beneficial.

7 VHF communication was deemed very useful, however improvements could be made by reducing the level of non essential chatter and by automatically detecting free/open working channels. For the purpose of this discussion it should be understood that the term VHF was used as a generic term to indicate short range (line of sight) voice communications regardless of the actual technology or frequencies.

Preliminary onboard GMDSS User Needs

User Needs	Justification	Issues to Consider
Clear identification of addressees both for Broadcast and Point to Point communication and for all forms of communication.	Currently mariners have a disparate and numerous sources of information pertaining to how to contact a recipient. Vessels might be identified by AIS or VTS advice, port operations or services are identified in sailing directions or port guides, and SAR operations require recognized industry publications. This often leads to wasted time and poor decisions.	Consideration should be given to the idea of linking AIS targets with direct calling (COMSAR 14/7). Ideally mariners would benefit from a single integrated system that provides contact information/methods relevant to their area or voyage. Mariners expressed a desire to be able to more easily identify which frequencies or methods of communication an addressee was monitoring.
For the system to establish the best means or route for communications (text and voice) to be established with minimal operator intervention.	With the current GMDSS system, vessels and shore stations can have a range of equipment and systems (i.e. VHF, MF/HF, Satellite, EPIRB) with which to communicate. This usually requires the mariner to make complex choices which can result in poor decisions or false alarms. Mariners particularly find the use of MF/HF and DSC difficult to use both for emergency and general radio communication. It has been identified that because GMDSS is a semi-automatic system, there is a case that SOLAS and non-SOLAS compliant vessels may not be alerted to each other's circumstance without direct human interaction.	It should be noted that mariners feel that voice communication is essential for traffic and SAR operations and back-up via text messaging would be beneficial. Mariners questioned the need for MF/HF and DSC. Consideration should be given to revising GMDSS to be VHF and Satellite modes of communication, reducing equipment and costs, the need for a comprehensive network of coastal stations, training and certification requirements. Mariners expressed a desire for VHF Ch 16 to be kept only for safety and emergency traffic, leaving general communication to other modes. Consideration should be given to integrating Ship Security Alarm System (SSAS) into GMDSS.

User Needs	Justification	Issues to Consider
The need to display MSI (NAVTEX, SafetyNET, AIS) more effectively.	Currently the receipt and plotting of MSI from NAVTEX, SafetyNET, and AIS are uncoordinated. The assessment of risk and applicability of such information is done purely by human decision and subject to error. MSI received by ships is often not relevant to their area of navigation, thus causing distraction and fatigue.	Consideration should be given to displaying MSI graphically to improve decision making but in a coordinated way so as to avoid information overload and distraction. It was agreed that Narrow Band Direct Printing (NBDP) was not needed. In the near term, caution needs to be given for the use of safety messages via AIS as many ships have poor MDK displays or display AIS on Radar alone and not on ECDIS. If AIS is to be used for safety messages clear procedures and prioritization needs to be addressed.
Establish a standard interface for operations.	Currently most manufactures and models of GMDSS onboard consoles differ with regard to user interface. This increases the need for familiarization training and reduces the effectiveness of generic training. Because GMDSS equipment is seldom used for general traffic, mariners do not usually get familiar with the use of it through repetitive operations. This issue is thought to be a major contributor to false alarms. Shore authorities investigate all false alerts; therefore, costly in both time and money and also detracts them from real emergencies.	If onboard GMDSS consoles are to remain a stand-alone piece of equipment, consideration has to be given to creating a standard operational interface. Mariners however expressed a desire for GMDSS functions to be integrated into a general bridge communications console so that those functions would become more familiar through regular use. Improper use of equipment by untrained personnel, skill fade by lack of practical use, equipment complicated and non-user friendly.

User Needs	Justification	Issues to Consider
Integrate Navigation and Communication operations/ functions were appropriate.	Currently navigation functions and communication functions are only integrated by human interaction. Examples are the calling of vessels for traffic coordination; notification of shore authorities and VTS operations; port and commercial operations.	Consideration should be given to coordinating GMDSS and e-navigation. Consideration should be given to developing bridge information management system. Passage plans often contain communication requirements and an integrated nav/comms approach would improve effectiveness.
Robust and assured system reliability.	Currently GMDSS systems can suffer from antiquated hardware and software. System reliability may be questioned by operators who are unfamiliar with the system.	Consideration should be given to establishing performance standards that take into account system reliability, hardware and software upgrades, and system capacity in terms of bandwidth, memory and processing power. Systems should be developed to self-test and display results to users.
Robust and assured information reliability.	In order for mariners to make best use of information from a GMDSS, they need to have confidence in the quality of such information or to understand the limitations. Mariners expressed a desire to be able to play back 5-10 minutes of voice messages transmitted via GMDSS. Mariners expressed a desire to have text accompaniment to voice messages perhaps by shore authorities, voice recognition or the translation of SMCP.	GMDSS information must be sorted or filtered to ensure relevance to the ship's navigational area. Consideration should be given to getting message acknowledgement where appropriate. Consideration should be given to establishing a means to filter out false alarms.

User Needs	Justification	Issues to Consider
Clear Operational Guidance.	Currently GMDSS literature is IMO led technical, guidance and regulatory focused. They also revolve around system and certification handbooks/ manuals in numerous forms relating to the various radio systems. This documentation is often unclear to the users.	Clear operational guidance (in plain maritime English) should be developed for the industry to help users better understand procedures, equipment capabilities and limitations, training requirements and certification issues. Establish clear guidance for users regarding any changes or upgrades to the system.
Effective Response to Piracy Attacks.	Piracy attacks are a major concern to mariners and effective response to the SSAS piracy alert needs to be effective.	Consideration should be given to the effectiveness of the alert, the information transmitted and to the response.
Effective positioning and communication equipment for lifeboats and rafts.	Currently lifeboats and rafts have no fixed means of location or communication equipment, relying only on portable EPIRBs, SARTs and hand held VHF for short range communications only.	Long-range communication equipment would allow those in a lifeboat to participate more fully in SAR operations and to access medical advice.

Action requested of the Sub-Committee

8 The Sub-Committee is invited to note the information.