

**New SAR Initiatives (NIF) Fund  
Final Summary Report  
FY 02/03**

**PROJECT TITLE:** GMDSS COMMUNICATIONS REQUIREMENTS

**PROJECT NUMBER/NIFID:** DFO 9/02 2002054

<b>FINANCIAL SUMMARY:</b>	Quarter 1	Quarter 2	Quarter 3	Quarter 4
FY 02/03				
Forecast:	0	0	0	\$ 9,020
Actual:	0	0	0	\$ 9,128

**PROJECT DESCRIPTION:** As part of an initiative to improve maritime SAR, the Marine Institute is offering a prototype On-Scene Co-ordination training program in March of 2003. The intent of the prototype course is to fine tune the training requirements for ship's officers and volunteers to fulfil the function of On-Scene Co-ordinator (OSC) during the initial stages of a large SAR incident.

The delivery of the prototype course represents a unique opportunity to also evaluate the need for Sea Area A1 communications in OSC simulations. At the present time, GMDSS training is separate from bridge training. In many training situations, the simplification of ship board communications to a simple handset is appropriate and does not appreciably impact the learning outcomes. For the task of OSC, however, the workload associated with communications is a critical element, and a frequent source of failure in situational awareness.

The purpose of this funding request is to acquire Sea Area A1 equipment to install on the Marine Institute's full mission bridge simulator for use during the prototype course. Both the instructors delivering the course, as well as the student participants will be asked to evaluate the need for the GMDSS equipment in the OSC simulations..

**PROPOSAL OBJECTIVES:** The overall objective of delivering the prototype training program was to assess the effectiveness of the simulation scripts in inducing realistic workloads on OSCs.

The objective of the NIF supported project was to assess the impact of A1 Sea Area GMDSS equipment on OSC simulation training.

The specific course objectives were as follows:

1. To develop students' awareness of the role, authorities and responsibilities as an OSC for a SAR incident;
2. To develop students' awareness of the guidance available to OSC in the IAMSAR Manual Volume III; and,
3. To help students learn and test strategies to effectively deal with the workload of being an OSC.

**IMPACT/BENEFITS:**

Comments Recorded by the Project Leader During the Final Debrief

Prerequisites: Course was seen to be fairly advanced for the minimum prerequisite (Fishing Master IV).

Composition: Mix of students from various backgrounds seen to be of benefit to the course. It allowed for the comparison of various points of view regarding the OSC duties.

Course facilities: The setup whereby the students in OS 2 and OS 3 were able to view the simulation from a broader viewpoint was seen to be a very positive feature of the course. If the students had been in traditional ownership cubicles, they would not have had the chance to gain an appreciation of the context in which the OSC operates.

GMDSS Equipment: The students felt that the main focus of the course was the communications aspect. Since the focus was on communications, they believed that it was important to have the same type of equipment that is used in real-life to conduct the communications. It was noted that many fishing vessels are not yet fitted with DSC units, nor are many fishers trained in the use of DSC. Over time this situation will change and the importance of having DSC radios in the simulation will increase. On the other hand, there was general agreement that NAVTEX capabilities was essential for the students in order to reduce the workload associated with copying routine, yet important, broadcasts (e.g. weather). The instructors noted that it was difficult to use the full functionality of DSC radios within the context of the two-day course. Since DSC radio user interfaces are not standardized, it was difficult to have the students navigate through the menu systems under the time compressions in the simulations without inducing an overwhelming workload. The instructors felt, however, that a pre-course introduction/familiarization with the specific unit located on the bridge would have enabled more use of the DSC functions during the simulations. The instructors noted that the NAVTEX function was also a key method of providing hard-copy information to the OSC, and simulating the function of a NAVTEX was extremely important. The NAVTEX capability as provided through the NMS 90 user interface was deemed inadequate to send realistic NAVTEX messages. The NMS 90 only permits 4 lines of text to be broadcast, whereas modern NAVTEX messages are transmitted in much longer formats. The PC based NAVTEX unit was seen to be a better solution and was recommended to be utilized instead of the NMS 90 NAVTEX feature.

General: A two person bridge had a very difficult time in coping with the OSC duties while a 3 person bridge was much more effective. It was further noted that the class felt that they had much more control over the situation during the last simulation than during the first simulation. The instructors noted a significant reduction in workload associated with navigation when the search pattern features were utilized on the electronic chart (vice the use of paper plots). Pre-course familiarization on the SAR features in the electronic chart was seen to be a desirable enhancement to the course.

**EVALUATION:**

As a result of delivering this program, the following general conclusions can be made:

1. The training program was a success in achieving its goal of preparing students to perform key functions associated with the duties of an OSC.
2. The simulations were an effective means of training OSCs to manage high workloads. The last two simulations, however, need to be reviewed to make them more challenging by increasing the OSCs workload.
3. An additional day of training is required to ensure that students get the

most out of the training exercises. The training could be based upon the existing SAR system briefing delivered to the Oil and Gas sector by JRCC Halifax and MRSC St. John's. The training would also need to include some means of familiarizing the students with the systems used in the simulation.

4. The addition of GMDSS equipment to the simulation appears to be a vital element in preparing OSCs to perform their duties in an A1 Sea Area. NAVTEX proved to be major labour saving device by providing hardcopy messages of important - yet routine - information (e.g.: weather forecasts). The importance of DSC radios will increase as more users become familiar with the system.

5. The demands of the OSC duties requires that all bridge equipment be used in an optimal manner. Placing SAR patterns on electronic charts resulted in significant improvements in the performance of the OSC.

6. Students and instructors noted that the guidance given in the IAMSAR Manual III is not formatted in an easily accessible manner. It was difficult to locate key information within the manual when required.

**COMMUNICATION ACTIVITIES:** Presentation of results at SAR in the Americas conference - Halifax - March 2003.

**BIBLIOGRAPHY REFERENCE:** GMDSS A1 Equipment for OSC Training Simulations by Fisheries & Marine Institute of Memorial University of Newfoundland, Centre For Marine Simulation, P.O. Box 4920, St. John's, Newfoundland & Labrador, A1C 5R3 .

**SUGGESTED FOLLOW-UP/  
ADDITIONAL ACTIVITIES:** - Modification of program as per student suggestions.  
- Submission to IMO/ICAD JWG - Lond 2003, as potential model course.

**FOR MORE INFORMATION CONTACT**

**Federal Coordination**

National Search and Rescue Secretariat  
275 Slater Street, 4<sup>th</sup> Floor  
Ottawa, ON K1A 0K2  
Tel.: (613) 996-2782  
Fax: (613) 996-3746  
Web Site: <http://www.nss.gc.ca>

**Sponsor/Project Manager**