

GMDSS for Recreational Boaters

GLOBAL MARITIME DISTRESS & SAFETY SYSTEM



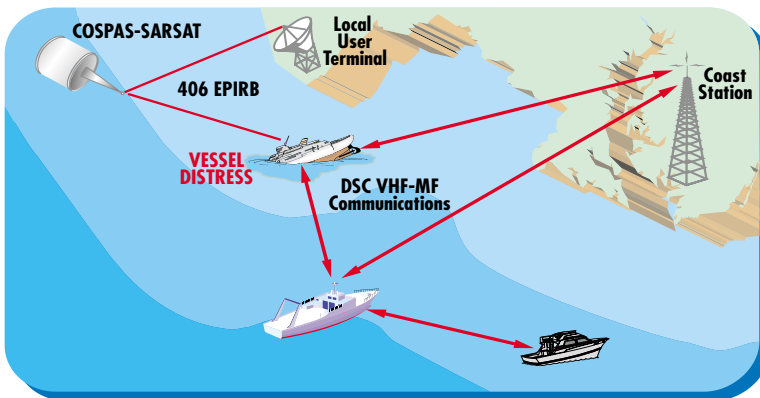
OVERVIEW

The Global Maritime Distress and Safety System (GMDSS) is an international system using advanced communications technology. Development of GMDSS was initiated by the International Maritime Organization (IMO) and the system represents a significant improvement in maritime communications. GMDSS is designed to enhance ship-to-shore communications and provide rapid, *automated* distress alerting, with positional information if available.

While compliance is mandatory for large cargo and passenger ships on international voyages or in the open sea, it is *voluntary* for recreational vessels. *GMDSS will however have an impact on recreational boaters, and it is recommended that recreational boaters become familiar with its features.*

To help with the transition to GMDSS, Coast Guard stations will continue to monitor VHF channel 16 and MF frequency 2182 kHz for the foreseeable future. The mandatory equipped vessels however, discontinued monitoring MF frequency 2182 kHz on February 1st, 1999, and are only obligated to monitor VHF channel 16 until February 1st, 2005. The GMDSS equipment on these vessels will instead be monitoring for digital data on VHF channel 70 and MF frequency 2187.5 kHz.

This may present problems for non-GMDSS equipped recreational vessels attempting voice communications with mandatory GMDSS equipped vessels.



GMDSS BASIC CONCEPT

SEA AREAS

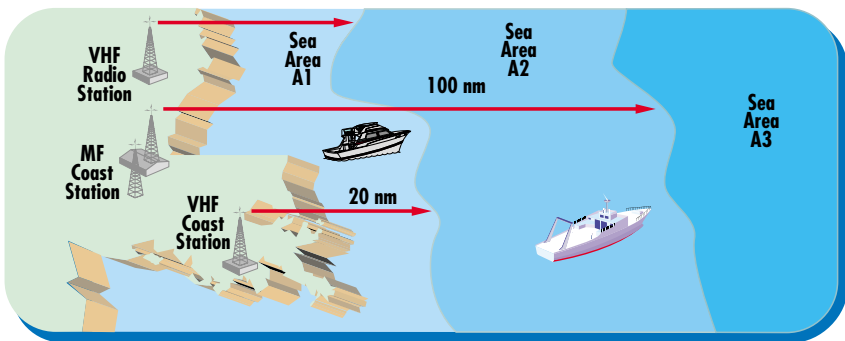
GMDSS divides the world's oceans into four "sea areas", designated A1 through A4. These areas dictate the GMDSS equipment carriage requirements of compulsory vessels.

Sea Area A1 – within range of a shore-based VHF-FM/DSC coast station (typically 20 NM from shore)

Sea Area A2 – within range of a shore-based MF/DSC coast station (typically 100 NM from shore, excluding Sea Area A1)

Sea Area A3 – within INMARSAT satellite coverage, between 70N and 70S, excluding Sea Areas A1 and A2

Sea Area A4 – the Polar Regions excluding Sea Areas A1, A2 and A3



While much of the world currently is still in either Sea Area A3 or Sea Area A4, ***most recreational vessels will be operating in Sea Areas A1 or A2.*** The designation of Sea Areas A1 and A2 is dependent on shore stations having the appropriate equipment, and being formally declared operational. Some of these installations are now in place, with completion of most North American coastal stations expected by 2006.

The mandatory equipped vessels have increasingly stringent equipment carriage requirements as they transit from Sea Areas A1 through A4. Most recreational vessels operating in Sea Areas A1 and A2, who wish to participate on a voluntary basis, will equip with a Digital Selective Calling (DSC) capable radio suitable to it's normal operating area, and/or a 406 MHz Emergency Position Indicating Radio Beacon (EPIRB). Ideally, navigational positioning equipment such as GPS or Loran is also highly desirable. *When interfaced with the DSC radio, GPS or Loran provides vessel position information automatically – an obvious valuable safety feature.*

THE DSC RADIO

The Digital Selective Calling (DSC) radio is a component of GMDSS that may be used by recreational boaters.

As of June 17, 1999, all **new** models of marine radios (other than hand-held) produced for sale in the U.S. were required to have DSC capability. Radio manufacturers may however, continue to produce non-DSC capable radios approved prior to this date.



DSC radios are readily identifiable by the distinctive, dedicated red button marked “DISTRESS”, many with a protective lid or cover.

So while voice communications on the traditional channels/frequencies will continue, DSC radios provide a number of very important and desirable additional features. These features range from the basic and inexpensive SC-101 type, to multi-featured and more expensive units.

All DSC radios can automatically send a DISTRESS alert and message to coast stations and other DSC equipped vessels in

the immediate area, at the press of a button! To further enhance safety, interfacing a GPS or Loran with the DSC radio is highly recommended. The automated Distress message usually provides information as to the identity of the vessel, nature of the distress, location of the vessel, and sounds an alarm at other DSC equipped stations. Ship stations should not acknowledge a DSC Distress Alert via DSC unless requested to do so by a Coast Station or an RCC. The acknowledgement is normally expected to be made by the Coast Station. Boaters should attempt contact on channel 16, relay the distress if necessary, and make sure the shore station is made aware of the distress. Follow-up voice communications on VHF channel 16 are carried out as in the past.

DSC capabilities are not limited to emergencies. "ALL SHIPS" Urgency and Safety Alerts may also be received and sent to or from coast stations and all DSC equipped vessels in the immediate area. The actual Urgency and Safety messages are carried out by normal voice communications on the channels/frequencies indicated in the DSC Alert.

IMPORTANT - DSC equipped vessels and shore stations, are assigned a unique identity number, known as a Maritime Mobile Service Identity (MMSI) number. The MMSI consists of nine digits, the first three identifying the country of origin – for example the continental United States numbers are either 303, 338, 366, 367, 368 or 369, while Canadian vessels are assigned 316. "Fleet" vessels have one 0, and Coast Stations have two 0's preceding the country identifier. *It is essential that all vessels with DSC radios obtain an MMSI number, and have it programmed into the radio.* Recreational boaters that purchase DSC radios are required to do this before using the DSC functions of these radios. MMSI numbers are currently available from Boat U.S. (BoatUS.com), West Marine, and other boating organizations for U.S. recreational boaters at no cost. In Canada boaters may obtain their MMSI from Industry Canada (apollo.ic.gc.ca/english/mmsi) at no cost.

Routine contacts may also be made between individual DSC equipped vessels. By entering the unique MMSI number, a digital message is sent, sounding an alert on the vessel being called. A message is displayed advising the vessel of the specific channel/frequency on which voice communications are to be carried

out. Upon acknowledgement (digitally), both vessels change to the specified channel/frequency for voice communications.

With appropriate DSC equipment there is then no longer a need to establish routine contact with another vessel on the usually very busy calling/distress voice channel such as VHF channel 16, or MF frequency 2182kHz. Such DSC equipped vessels will contribute significantly in reducing the present congestion on these channels.

Summarizing, the DSC radio enables vessels to rapidly transmit a DISTRESS alert and message, digitally alert other vessels that an URGENCY or SAFETY message is about to be sent, and establish contact with other vessels and coast stations directly without having to use the voice calling/distress channels. The DSC radio automatically, and silently, maintains a listening watch on the appropriate DSC channel or frequency (VHF Ch70 or 2187.5 kHz).

It should be noted that the U.S. Coast Guard infrastructure to respond to DSC calls - including distress alerts - will not be fully completed until at least 2006. Boaters that choose to equip with DSC radios should therefore continue to use channel 16 or 2182 kHz for distress alerting purposes until the appropriate Sea Areas are declared operational.

406 MHz EPIRBs

Another very useful piece of GMDSS equipment, particularly for vessels operating some distance from shore, is the 406 MHz Emergency Position Indicating Radio Beacon, or EPIRB.

The EPIRB is small, buoyant, and may be designed to float free from a sinking vessel. These beacons operate on the international distress frequency 406 MHz, and when activated automatically transmit a distress message digitally to orbiting satellites.

EPIRB's must be registered in a data base maintained by the National Oceanographic and Atmospheric Administration (NOAA).



EDUCATION

Recreational boaters are encouraged to learn more about GMDSS before installing this equipment on their vessels.

A major concern is the high number of “false alerts” already being experienced with this system. A large percentage is attributable to inadequate familiarity with the equipment, and lack of operator proficiency.

GMDSS is a relatively new system and as such, all mariners - including recreational boaters, - should obtain some training in the proper use of this equipment. Boater education organizations such as Power Squadrons, Coast Guard Auxiliary, and others can assist with the required training.

GLOSSARY

DSC - Digital Selective Calling

EPIRB - Emergency Position Indicating Radio Beacon

GMDSS - Global Maritime Distress and Safety System

IMO - International Maritime Organization

INMARSAT - International Maritime Satellite Organization

kHz - kilohertz (1000 Hertz)

MF - Medium Frequency (300 – 3000 kHz)

MHz - Megahertz (1000 kHz)

MMSI - Maritime Mobile Service Identity

NM - Nautical Mile

RCC - Rescue Co-ordination Center

SC 101 - A North American specification standard for DSC

VHF - Very High Frequency (30 – 300 MHz)

For more information on GMDSS contact:

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For details on Canadian boating classes call:

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USBI MEMBER ORGANIZATIONS:

American Red Cross

Coast Guard Auxiliary Association, Inc.

United States Power Squadrons

United States' Sailing Association

Canadian Power and Sail Squadrons



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