



Safety Thursday

VHF Radio and DSC

June 6, 2013

This article will cover two basic topics surrounding VHF radios - proper radio protocol and event 'types' in which to use these protocols, and Digital Selective Calling (DSC) and how it relates to the Race to Mackinac.

Radio Requirements and Procedure

VHF radio is still the best way to communicate on the Great Lakes. It is a proven technology and, unlike cell phones, communicates to all in range. This is of huge benefit when in distress, as any nearby mariner will become aware of the distress and come to your aid. With the implementation of Rescue 21 (<http://www.uscg.mil/acquisition/rescue21/dsc.asp>), this is also the best way for boaters to seek US Coast Guard Assistance.

The Mac Safety Regulations (MSRs) require all boats to carry a permanently installed VHF Radio, as well as a backup handheld. These radios are critical safety devices, allowing boats to call for help when needed. All crew members should know how to use these radios, as it is impossible to predict who will be called upon to use them.

The sailing instructions also require all competitors to monitor channel 16 (the hailing and distress signal) throughout the race. The SIs impose additional requirements on use of the radio as part of the finish and docking procedures.

Radio Protocol

There are three levels of communication 'urgency' that we want to discuss in this article:

- (a) Events that are of an emergency, possibly life threatening nature. These are MAYDAY events;
- (b) Events of an urgent or potential to be escalated to MAYDAY events...these are PANPAN events;
- (c) Events that are informational in nature...these are SECURITE events.

For each of these events, particularly for emergencies, following proper radio procedure is very important. Many boats have a cheat sheet posted next to their VHF. The USCG provides a distress form here that every boat should have on hand: <http://www.uscg.mil/pvs/docs/Brocures/MAYDAY.pdf>.

If you hear a distress message from a vessel and it is not answered, then you must answer. If you are reasonably sure that the distressed vessel is not in your vicinity, you should wait a short time for others to acknowledge. You are also required to write down all details of all distress calls heard in a radio log. See <http://www.navcen.uscg.gov/?pageName=mtWatch> for information on your obligations to keep a radio watch.

A false mayday call is a felony. MAYDAY should only be used in situations involving life-threatening emergencies on the boat you are on or an immediate risk of sinking. Examples of mayday situations would include fire onboard; sinking; a man overboard; sinking boat; or serious injury to a crew member requiring immediate aid.

For other, less serious events or events that may escalate to emergency status, or emergencies you observe on another boat, replace MAYDAY with PANPAN PANPAN PANPAN - the international code word for 'urgent' situations not currently risking the life of someone on your boat. This still communicates your potential need for assistance, just at a lower level of urgency. Examples of PANPAN situations would include a small fire that has already been extinguished; a man overboard recovery; an overdue vessel; an imminent collision alert; or a need for medical assistance for non-life threatening injuries. The Coast Guard still responds to PANPAN alerts, just at a lower level and will remain on standby in the event of escalation.

Finally, you will occasionally hear SECURITE SECURITE SECURITE - this is the lowest level of distress call, generally used for notifying nearby mariners of a hazard to navigation or weather or other safety-related issues.

For more information on VHF radio use, see:

http://www.uscg.mil/d1/prevention/NavInfo/navinfo/documents/A-Emergency_Procedures.PDF

<http://www.boatus.com/boattech/casey/vhf-basics.asp>

<http://www.boatus.com/foundation/dsc/player.html>

<http://www.navcen.uscg.gov/?pageName=mtBoater>

http://www.uscg.mil/hq/cg5/cg534/Contact_CG.asp

Digital Selective Calling (DSC) and Distress Call

All fixed-mount VHF radios sold after 1998 are required to have Digital Selective Calling (DSC) capability. As part of the Coast Guard's Rescue 21 system, properly installed and registered DSC-VHF radios allow a boat in distress to instantly transmit via a single button a "mayday" digital distress call to all VHF radios in range. This distress message can contain the identity of the ship in distress as well as its location, as long as the radio is properly installed and registered. All commercial shipping monitors these calls, in addition to the USCG. This is the best, fastest way to summon help in most circumstances.

In order to be most effective, a VHF radio with DSC must be connected to a GPS receiver. Some newer radios have an integral GPS, but most require wiring to the boat's GPS or electronic system (chart plotter). This allows the unit to transmit via the emergency key the current location of the boat as well as a distress signal. A DSC radio that is not connected to the GPS unit will still transmit a distress signal, but without location, key time is lost while

rescuers search for you. Connecting the GPS to the radio is usually fairly straight-forward - consult your VHF manual or a marine electronics technician for help.

In addition to being properly installed, VHF-DSC radios need to be properly registered. To do this, you need to obtain an MMSI (Maritime Mobile Service Identity) identity number. This MMSI number is permanently associated with the boat and can be obtained for free for US-registered boats from BoatUS: <http://www.boatus.com/mmsi/>

If you have already obtained your MMSI number, take 5 minutes now to verify that the information listed is correct for your boat, such as contact information, boat name and description, and emergency contact person. The MMSI number acts like a phone number for your boat. It identifies your boat when a distress signal is activated. Additionally, it allows you to have an individual radio conversations with specific boats via dialing their MMSI number.

Once you obtain your MMSI number for free, you need to program it into the radio. Follow the instructions in your manual.

The Mac Committee is requesting that all boats with DSC-capable radios obtain an MMSI number and then provide it to the Committee. Skippers - please update your record to add your MMSI number via the "competitor login" on the Mac web site. This would enable us to contact an individual boat if required via VHF-DSC and also serves as a database for the USCG in the event of a distress.

Please take the time this boating season to make sure your VHF-DSC radio is properly connected to a functioning GPS. Make sure you have obtained an MMSI number and programmed it into your radio.

Special thanks to Christopher Faris of the boat Alize for his help in preparing this article.

Note: The purpose of this article is to highlight some of the Mac Safety Regulations and how your crew can race the Mac as safely as possible. As always, ultimate responsibility for the safety of the crew and the decision whether to race or to stop racing is that of the skipper (RRS4, MSR2). This email is meant as a courtesy only and you should always refer to the Race Documents section of the website for the Notice of Race, Sailing Instructions and Mac Safety Regulations, which govern the race.