

## **VHF Basics By Don Casey From [boatus.com](http://boatus.com)**

The lowly VHF radio remains the most versatile communication device for a boat. It is the only communication device many pleasure boats are equipped with, and it is required by law before you can put any other marine radio aboard. Due in part to its universality, the VHF is arguably the most valuable piece of safety gear aboard, delivering any call for assistance to dozens or hundreds of nearby listening ears. Modern hand-held VHF radios are full featured and extremely convenient, and they have the significant advantage in an emergency of being independent of the boat's electrical system. Where maximum range and/or continuous use are more important, you will want a fixed-mount unit. If your budget allows, having both offers additional advantages, such as two-way communications with an excursion party (but transmissions from ashore are prohibited without a coast-station permit).

### **Not a telephone**

Cellular telephones work aboard as long as you are not out of range of a shoreside tower, but the cell phone is not a substitute for the VHF. Well away from shore a cell phone will not work at all, and even within cell coverage the quickest aid in a real emergency will come from another vessel nearby. Unless someone you know is aboard, you cannot get their attention with a cell phone.

Cell phones aboard are great for calling someone ashore--probably the only way you can place a telephone call since all U.S Marine Operators save one have ceased operation. Cell phones are also an excellent choice near shore for conversations with friends on other vessels, providing a private conversation and leaving the VHF airwaves free for other traffic. However, many boaters use the VHF much like a telephone, calling other boats to relay information, to set up a rendezvous, or often just to chat. Before you join in, however, you should recognize the differences between VHF radio and telephone communication: Radio conversations are not private. When you talk on the VHF, everyone within range tuned to that channel is listening.

Regulations require radio conversations to be for "operational" purposes, which is interpreted liberally by most pleasure boat operators. Sharing weather information, confirming a date, even obtaining a recipe for fish stew are defensible uses, but social chit-chat--say, talk about sports, movies, or shoreside activities is not. This regulation is widely ignored in many areas, but if someone calls you down about it, he or she is right.

A radio conversation ties up the channel you are using. No one else within a 25 to 30 mile radius can use it until you sign off. This is significant because only five channels are legitimately available for pleasure-boat-to-pleasure-boat communication. Think of this situation as an airport terminal with a single bank of

five pay phones. If callers are lined up three-deep while some blockhead drones on and on about the size of the mosquitoes in Maine, you can be sure he won't be the only unhappy camper. In high-traffic areas, keep VHF conversations short.

### **Radio etiquette**

Using a VHF radio is as easy as announcing yourself on an apartment intercom. Turn the power on, set the channel to 16, and listen for a few seconds. If Channel 16 isn't in use, key the microphone--meaning squeeze the transmit button on its side--and say the name of the boat you are calling twice, followed by the name of your boat, and then "over." Release the mike button. A typical call transmission would sound like this:

"Cowboy, Cowboy. Tambourine, over." You can say "this is Tambourine," but keeping calls as cryptic as possible is desirable. Since VHF licensing was eliminated (except for vessels traveling into foreign waters), you no longer need to announce your radio call sign. Cowboy will respond "Tambourine, (this is) Cowboy."

If Cowboy doesn't respond, wait two minutes and try again. You are permitted three tries two minutes apart, but common sense should tell you that if Cowboy has failed to respond twice, the third transmission is just airwave pollution. Wait at least 15 minutes before you make another attempt. Few things will give your on-the-water neighbors a worse opinion of you than listening to you call over and over and over. They're not there, already; give it a rest.

When Cowboy does respond, key your mike and say "Six eight?" Channel 16 is reserved exclusively for calling and distress. Once contact is established, you must switch immediately to a working channel. The five channels designated for non-commercial ship-to-ship communications are 68, 69, 71, 72, and 78A. Channel 9 used to be in this group, but has been redesignated as an alternate calling (but not distress) channel. Cowboy confirms your channel selection by repeating it. By either rotating a knob or pushing a button, you select channel 68 on your radio, key the mike, and say "Cowboy. Tambourine." When Cowboy responds, you have your conversation, ending each transmission with "over" so Cowboy will know when you are finished and it is time to respond. When your conversation is complete, your last transmission should be "Tambourine, out." Cowboy will likewise say "Cowboy, out." "Out" lets anyone waiting to use the channel know you are finished with it. Sometimes when you switch to a working channel, you find it occupied. In that case, check the other four to find an empty one, then go back to 16 and say, "Cowboy. Tambourine. Seven one." If you and Cowboy speak regularly, saying just "seven one" may be adequate. Either way, Cowboy will respond "seven one." You both switch to Channel 71 and have your conversation.

### **Use low power**

All fixed-mount VHF radios can transmit at either 25 watts or 1 watt. The maximum power from a handheld is typically 5 watts. With either type, if your radio contact is nearby, set the power setting to low (1 watt) to reduce the distance the signal carries beyond your target. Also watch your language; not only is profanity over the air against the law, it will be particularly offensive to other boaters with children aboard.

### **Digital Selective Calling**

The DSC operating mode that is a feature of all fixed-mount marine radios built since 1999 can, with the push of a single button, send out an automatic distress call to the Coast Guard's Rescue 21 system as well as to all DSC-equipped radios on vessels within your transmission range. That transmission can include your exact position, provided you have connected the radio to your onboard GPS. Unfortunately, as of 2011 the Coast Guard estimates that 90 percent of boats have not made this connection. The message here is that if you have a DSC radio and a GPS on board and they are not connected to each other, making that essential connection should be your highest priority. You also need a Marine Mobile Service Identity (MMSI) number, which you can obtain through BoatUS.

Once you have an MMSI number programmed into your VHF, the DSC feature has other uses some boaters find convenient. The most common is to hail your friends without announcing on Channel 16. Instead you essentially dial their MMSI number and your call is announced only on their radio, along with a notice of which channel on which you wish to communicate. Any voice exchange that follows will still be transmitted to all radios monitoring the designated channel, but at least you have not announced to all listeners on Channel 16 your intention to have that conversation. Using selective calling is easier on some radios than on others.

### **Emergencies**

If you have a life-threatening emergency and you have a DSC radio aboard, activating the Distress button is where to start. However, as there is no requirement for nearby vessels to have DSC capability, your DSC distress may go unanswered, in which case you will need to broadcast your distress on Channel 16. There is a "procedure" for sending out a distress call, but all you really need to know is to turn your VHF to Channel 16 and to high power, key the mike, and say "Mayday, Mayday, Mayday. This is the Tambourine. Our position is 24°33' north and 74°56' west and we are sinking." Try to speak slowly and clearly, and repeat this information three times. The essential information is Mayday, your position, and your emergency. If you have time, describe your boat and how many are aboard: "We are a 23' Mako, green hull, white decks, with two adults and two children aboard." If someone is injured, mention that.

If you don't get an immediate response keep periodically sending out a Mayday broadcast as long as the radio will function, taking care to give your position with every transmission. If time permits, scan through the other channels and interrupt any radio traffic you hear with your Mayday broadcast. If you don't hear traffic, try transmitting on Coast Guard Channel 22A.

If your emergency isn't immediately life threatening, activating the DSC distress button may not be appropriate. Try raising the Coast Guard and/or other vessels in the vicinity on Channel 16, saying Pan-Pan instead of Mayday. This is the urgency call--Pan-Pan, Pan-Pan, Pan-Pan (pronounced pahn-pahn). Make this call just like a distress call, except state exactly what assistance you want. For example, maybe you have a controllable leak, and you just want help standing by in case it gets worse.

### **Navigation and safety**

Channel 13 is for navigational use between vessels. It is on this channel that large vessels in close proximity announce their intentions to one another. This is also the primary channel used at bridges and locks. Use this channel to announce your arrival to a bridge or lock tender or to communicate with a nearby ship or other large vessel. You do not need to call on Channel 16 first; Channel 13 serves both as a calling and a working channel. Transmission power on this channel is restricted to 1 watt, so be sure to switch your radio to low power.

Channels 6 and 22A are also important to pleasure boaters. Channel 6 is reserved for intership safety use, primarily during search and rescue operations. Channel 22A is reserved for communications with the Coast Guard. By the way, it is illegal to contact the Coast Guard for a radio check. Call another boat instead.

**Don Casey** has been one of the most consulted experts on boat care and upgrades for 30 years, and is one of the *BoatUS Magazine's* panel of experts. He and his wife cruise aboard their 30-footer part of the year in the eastern Caribbean. His books include Don Casey's *Complete Illustrated Sailboat Maintenance Manual*, and the recently updated *This Old Boat*, the bible for do-it-yourself boaters.