Very Helpful Feature - VHF radio

STORY AND PHOTOS BY JEFF MERRILL

With all of the savvy technology that exists on boats today, it is easy to overlook that the most reliable communication tool on your vessel is your VHF radio. VHF stands for Very High Frequency (not the title, very helpful feature). Marine VHF radios have been around for decades — Wikipedia reports twelve coastal stations in New England around 1920. They are simple and designed for easy operation. There aren't many other 100-year-old technologies still as important. The original magic that allows us to talk between boats miles apart using the airwaves — not connected by wires or cables — is still an unbelievable illusion to me. The fact that it works is pretty cool.

Radar and satcom, of course, but don't forget the communications workhorse: VHF.

If you were born before the 1960s (like the author), you may remember the old days of the party line telephone — no privacy, you picked up your home phone and if someone else was on the line you had to wait your turn so you didn't interrupt the call in progress. VHF has a similar social component and is truly one of the first commonly used mobile communication devices. Like the party line, however, everyone in range can listen in to your conversation when you are on the air. For the uninitiated, and until you are familiar with the basics, it can be a bit intimidating. Many novices get "stage fright" and don't want to click the mic. There is no mystery, this is truly a very simple and easy-to-use device.

The sound signal transmitted through the airwaves has a range based on the height of the antenna. In theory, you can be heard through any other VHF unit within that same line of sight range. Most boats that I'm on have a communication range of about 16 miles. This range is influenced by what type of equipment you are using, who you are connecting with, settings, antenna height, and local atmospheric conditions.

The protocol for operating a VHF radio is equally simple. When you are on board, especially underway, you are required to monitor VHF Channel 16. Channel 16 is primarily for emergency hailing (the on-water 911), but also serves as the starting point to initiate non-emergency communications. Since VHF communication is unannounced (no ringing or alarms, just instant chatter), you should repeat yourself three times. This enables all listeners in your range to catch your broadcast and pay attention. For non-emergency comms, you connect with the person/boat you desire and

then agree to leave VHF 16 and switch to a different channel. The channels where it is appropriate to converse are called "working channels."

A brief summary of VHF radio channels commonly used by recreational boaters in the U.S. is: Channels 3 and 4 are for NOAA weather, Channel 9 as an alternative for ship to ship, Channel 13 for bridge openings, Channel 14 for VTS (Vessel Traffic Service), Channel 16 for emergency, and Channel 22A for Coast Guard public safety information broadcasts. Our working channels are usually 68, 69, 71 and 72. Channel 70 is for DSC (digital selective calling). There are about two dozen active channels in U.S. waters. Note the USCG can be contacted on Channel 16; they then normally ask you to switch to Channel 22 for conversation. You can download the VHF complete channel summary on the USCG.gov website.

As the captain/operator of your boat, you will be the primary user of the VHF radio. Be sure to take some time to demonstrate how your VHF works to crewmembers who will be on watch and skippering your vessel.

Left, labeling helps. Here are an SSB, a VHF and a satphone all labeled with info for easy operation. Below, a VHF with an emergency procedures checklist.

It's neither a "dumb phone" nor a "smartphone" and is quite different than calling on a cell phone or an old CB radio. Your VHF radio is one of the pieces of navigation electronics gear on your boat you actually get to dial in by twisting knobs or pushing buttons. You hold down the mic button to talk, and then release to listen. An "open mic" is when someone forgets to release and can tie up a channel, so be aware of this function.

Two built-in VHF units with distress frequency buttons and a label with distress frequency intro.

The ability to hail another vessel is a huge safety proposition (especially two boats conversing while on imminently intersecting courses), so you need to be comfortable hearing your voice on the air and know how the back-and-forth process works; talk, then release and listen, then key back in to respond.

Do you have a Ship Station License?

Most trawler owners I know have taken this step. Having a Federal

A VHF in the pilothouse with a dangling mic cord. This can be kept out of the way with a simple coat hook.

Communications Commission (FCC) Ship Station License onboard your vessel is another recommended ship document to obtain. These are distributed through the FCC and you receive a paper certificate that you can keep in your ship's papers binder. This will include your call sign and the Restricted Radiotelephone Operator Permit grants a specific person permission to communicate on the airwaves in foreign waters. You are not required to have a Ship Station License while in U.S. waters, but it is mandatory if you cross borders and travel internationally. The FCC.gov site has more details on requirements, but they reemphasize that the primary purpose for communications is safety, and secondarily for operational and navigational efficiency.

What is your call sign?

Vessel call signs are another legacy from the older days of boating. Back then, when boats were using VHF to chat, they would identify themselves by an alpha (three letters) numeric (four numbers), using the nautical alphabet, for example, Whiskey Tango Foxtrot 6678. Now it is more common to hail using vessel names and is made even easier with vessel identification on Automatic Identification System (AIS). Make a label with your call sign printed and posted near your VHF radio.

What about DSC?

Digital Selective Calling (DSC) combines a VHF radio with your MMSI (registered vessel information entered into the VHF memory) and GPS to send a distress signal with the push of a button. This will alert all vessels in the area that you are in trouble and provide your vessel details as well as your position via latitude and longitude. You can dial a friend directly through Channel 70 — it will ring in their boat, then switch to a working channel.

What is an MMSI number used for?

Another component in the background of your VHF radio registration is your MMSI number. MMSI stands for Maritime Mobile Service Identity and is nine digits long. Your MMSI number gives you a signature for your navigation and communication and lets other vessels know who you are. Think of it as your marine phone number. You can also make direct contact on Channel 70 by calling another vessel if you have their MMSI. This is an FCC provided number. BoatU.S. is authorized to register recreational boats. With an MMSI integrated into your DSC VHF, you can do digital calling ship to ship.

In reach, easier to hear and stay in touch

VHF radios are typically installed on the dash or in the overhead for easy reach. They are not yet set up with Bluetooth/Wi-Fi/hands-free, so there's typically a curly cord. The cords connect the VHF base to the handheld microphone, and the curly type allows for stretch if you need more length. Most overhead VHF radios dangle the cable in your line of sight, which can be a nuisance. I've seen some interesting and clever solutions to tuck away the cord so it does not obstruct your view. A simple hook to swing it out of your view is easy to install.

Maintenance?

There is not a lot of maintenance involved in VHF radios. The antenna is commonly made of fiberglass and the weather will deteriorate it. VHF antennas work better the taller they are (often one of the highest vertical points on the boat). Most are installed with a clamp bracket near the base that you can adjust when traveling on inland waters to tilt and lower the antenna to clear under a bridge. VHF antennas need to be replaced on average every 10 years. They get weathered being exposed to the elements, and deteriorated fiberglass whiskers can enter your skin. Make sure your guests know what they are and don't use

them as handholds when moving about. Your mic can get gunked up, as I've seen some trawler owners use the high-pressure air cans common for computer keyboards to clear out the sputter and splatter they accumulate.

Many flybridge trawlers have a removable hand mic and cord (to keep out of the weather when not in use). The attachment connections should be covered when not in use and I've seen some owners tuck the portable mic and cord into a closeable plastic bag with a silica gel pack to wick moisture. Use the plastic cover lids to minimize UV damage and preserve the clarity of display screens.

Recap

- Monitor Channel 16 — the international channel for hailing and distress.
- Apply for your Ship Station License (and get the Radio Operator Permit).
- Know your call sign and post it near your VHF.
- Know your MMSI number and post it near your VHF.

Dialing in your VHF radio is easy. This is the best communication device on your boat and something you should become familiar with and comfortable operating. ■

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