

by Scott B. Williams

New Submersible VHF Radios

A handheld VHF marine radio transceiver has been on my checklist of essential safety gear since I began paddling more than 20 years ago. Even then, there were a variety of reliable offerings from different manufacturers at reasonable prices, but today's technology has vastly improved the handheld VHF. While modern technology has also introduced many new options for communication, including standard cell phones and more exotic satellite cell phones, these devices should be viewed as supplements, and not substitutes, for a marine-band VHF radio.

VHF radios allow direct communication with other vessels of all kinds, and provide dedicated and direct channels for contacting the U.S. Coast Guard and other search and rescue agencies. If you make a distress call with a cell phone, only the party you are calling can hear you and you will be hard to locate if you do not know your position. The transmission range of handheld radios is limited by an output power of 5 or 6 watts; on the open water this is sufficient for several miles. In most coastal areas sea kayakers frequent there will likely be other vessels close enough for communication.

Until recently, handheld VHF radios were somewhat delicate electronic devices that would not survive long in the wet environment of a sea kayak cockpit or PFD pocket without good protection from waterproof bags. In those days, I used purpose-made waterproof radio bags that allowed operation of the controls through the clear plastic. These were satisfactory, but on longer trips the bags usually failed or the radios eventually succumbed to moisture from condensation within the bag, even without a direct splash



The latest waterproof VHF radios are adding features like strobe lights and the ability to replay incoming transmissions. Some even float.

or inadvertent dunking. Radios in dry bags would survive longer if stuffed into a second layer of protection, like a deck bag or dry bag in the cockpit, but the added barrier from water comes at the expense of quick access, especially in rough conditions.

A new generation of fully waterproof handheld VHF radios has been available for a few years now. Many of these radios are ideal for sea kayaking. Not only are they submersible, but they also are designed to float if dropped overboard. I recently tested submersible handheld radios from six different manufacturers: Standard Horizon, Cobra Marine, West Marine, ICOM, Humminbird, and Uniden. I

compared special features, ease of use, power consumption and general quality and subjected them to a submersion test to see if they survived as advertised. All of the models tested are rated to at least a JIS7 standard—they are supposed to be waterproof for a period of 30 minutes at a depth of one meter. I dropped each radio into the water while it was turned on and receiving a NOAA weather channel station. Then, I put all of them into a deep drum of water. I weighted the floating models to keep them at the bottom. After 30 minutes, I retrieved the radios from the water and powered them up. After I dried the exterior, I opened the battery cases to check for leaks.

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Each of the radios was tested for clear reception of NOAA weather radio channels and for reception and transmission of VHF communication channels. All performed as expected of a handheld VHF for signal strength and sound quality.

Standard Horizon HX750S

The Standard Horizon HX750S has the most powerful transmitter in the group, rated at 6 watts on the highest setting—one watt higher than all the other units. A low power setting of 1 watt is standard on all VHF radios to minimize interference with other vessel communications farther away for use in a close-range situation where more power is not needed. The HX750S also offers intermediate settings of 2.5 watts and 5 watts.



A unique feature of the HX750S that I have not seen before in a handheld VHF radio is the SOS strobe that utilizes a high-intensity white LED on the front control panel as a visual distress beacon. When the strobe is enabled, the LED blinks the internationally recognized Morse Code "SOS" message (... --- ...) five times per minute. This could prove especially useful for kayakers after radio contact is made with rescuers, as it would greatly improve the chances of being seen at night.

Another unusual feature is a built-in water temperature sensor. With this thermometer enabled, the face of the radio can be placed in the water for several minutes and the temperature of

the water will be displayed on-screen.

This radio is buoyant as well as submersible. When dropped into the water, it floats on its side, still receiving clearly. After the one-meter submersion test, it still performed perfectly and an inspection of the battery case proved it remained dry inside.

The HX750S comes with a lithium-ion battery and a charger with both AC and 12-volt DC adapters. An alkaline battery case that fits in place of the rechargeable battery pack is available as an option. For kayakers on long expeditions in remote areas with no way to recharge the lithium-ion battery, the ability to use alkaline batteries for backups is essential.

Controls on the HX750S are all push-button and the keys are large enough and spaced far enough apart to use with neoprene paddling gloves. I've grown accustomed to on/off, volume control and squelch knobs which I prefer for ease of operation, but if you've grown up in the digital age you may find push buttons easy to use. You just select the button for volume, squelch and band before using the up and down keys to make changes. The LCD display is large enough and the automatic backlight that comes on when any key is pressed makes it easy to see at night.

The HX750S includes a belt clip and a tether for additional security. All of the radios tested came with some sort of removable belt clip that will not be practical when paddling. Removing the clip might be the best option if the radio is to be carried in a PFD pocket. Without the clip, the HX750S radio case is slim and compact, especially for a floating unit, and will fit into a PFD pocket easily.

Standard Horizon HX750S

\$149.99

Standard Horizon

U.S. Headquarters

10900 Walker Street, Cypress, CA 90630

www.standardhorizon.com

Cobra Marine MR HH425LI VP

Cobra Marine hails its MR HH425LI VP as the first handheld radio to combine VHF and GRMS. GRMS, or General Mobile Radio Service, is a land-based mobile service available for short-distance, two-way radio communications in the U.S. With a license from the FCC, GRMS users can communicate while on land, something not permitted when using VHF marine frequen-

cies. This may be of interest to some kayakers if their plans involve hiking and other onshore activities, but would require at least two radios with the GRMS capability. GRMS is different from FRS (Family Radio Service) in that the GRMS transmitter can be used at 1 watt or 5 watts, while FRS-only radios are allowed 0.5-watt maximum power. The Cobra MR HH425LI VP does not operate on FRS-only channels. The transmitter power on this radio can be set to 1 watt, 3 watts or 5 watts for both VHF and GRMS channels.



It also features Cobra's "Rewind, Say Again" ability to replay missed calls. The rewind, playback feature could be useful in certain situations. In the owner's manual description of this feature, one suggested use is to replay messages involving GPS coordinates or vessel identification numbers that might have been missed in the live transmission.

The Cobra MR HH425LI VP is powered by a lithium-ion rechargeable battery and comes with both an AC charger and 12-volt DC charger. Included with the radio is a battery tray that holds 6 AA alkaline batteries and fits in the same holder as the rechargeable battery. The battery life estimates given in the manual are based on 90% standby mode, 5% transmit and 5% receive. Times given are 14 hours at 5 watts and 23.5 hours at 1 watt for the rechargeable battery. The alkaline battery life is estimated at 20 hours at 5 watts and 35 hours at 1 watt.

The on/off, volume and squelch controls are located on the top of the unit in the form of a dual manual knob. The band selector key and

other controls, however, are located in a tight cluster below the display and are fine for bare-handed use but too closely spaced and small for use with neoprene gloves. The volume up and down buttons, the scan button and the Channel 16 button are located on the sides of the display and are easier to access. The display itself is large and a backlight comes on with the activation of any key.

There is a tether and a secure attachment point for it on the top of the case, as well as a belt clip that can be attached to a swivel knob on the back.

The Cobra MR HH425LI VP is rated as submersible but does not float. When dropped into the drum of water while turned on and receiving, it continued to operate just fine. After 30 minutes on the bottom of a water-filled drum it powered up and operated fine. When the battery case was opened, a few drops of water were found inside, though they didn't affect the working of the radio.

Cobra Marine MR HH425LI VP
\$186.95

Cobra Electronics Corporation
6500 West Cortland Street
Chicago, IL 60707
www.cobra.com

Humminbird VHF 55S

The Humminbird VHF 55S is a no-frills version of a submersible marine VHF radio. It provides all the essential features of the other radios tested, with the exception of an included rechargeable battery pack. The radio operates on six AA alkaline batteries and, for kayakers who do multi-day trips, this is a better system than rechargeable batteries anyway. For those who do prefer rechargeable batteries, an optional Ni-MH battery pack with an AC and 12-volt DC charger is included in the VHF 55S Plus radio package but not in the basic VHF 55S package as tested.

Like the Cobra, this radio does not use all push-button controls and has knobs for on/off, volume and squelch. These are located on the top of the case like older VHF radios, and are easy to use with gloved hands since they are large and one is dedicated to squelch only. The other buttons for channel up and down, band selection, scan and watch functions are also large enough to operate using gloves and are located below the display. The display itself is adequately large and, like all the radios in this class, has an automatic



backlight that comes on when any key is pressed.

Despite the easy-to-use controls, the overall feel of this radio is a bit bulky, even though I have large hands. The plastic case is slippery everywhere except for two built-in rubber grip strips on the sides, and it seemed like it would be the easiest one to drop accidentally. A wrist tether is included, and using it would help prevent this. The removable belt clip is the swivel type that pivots on a knob.

The Humminbird VHF 55S isn't built to float, but survived the dunking while turned on and receiving a weather channel, and came out of the 30-minute submersion test operating fine. When opened up afterward, however, more than a few drops of water were found inside the battery case. The leakage was significantly more than any of the other radios experienced, but did not cause any immediate failure or damage.

Humminbird VHF 55S

\$149.95

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678 Humminbird Lane
Eufaula, AL 36027
1-800-633-1468
www.humminbird.com

ICOM ICM-34

The ICOM ICM-34 is a slim, submersible, floating VHF radio that weighs only 10.7 ounces, making it the lightest weight radio of the test group, but just barely lighter than the 10.8-ounce Standard Horizon. Transmitter output power is 5 watts maximum, and there is, of course, the standard 1-watt low power option.

The ICOM ICM-34 comes with a lithium-ion rechargeable battery pack and an AC charger. The case for 5 AAA alkaline cells is not included but is available as an option. Although it would be nice to have both options in the basic package, I would rather have the alkaline pack than the rechargeable as basic equipment. Since most users of these radios are daytrippers or operators of power or sailing vessels with onboard recharging capability, VHF radio manufacturers likely assume the rechargeable battery packs are most desirable.

The ICOM radio has a single small button on the top of the case for powering on and off. This push button is small and difficult to activate with a gloved finger. All the other controls are large buttons with adequate spacing between them and are located in a grid at the bottom of the front of the case below the LCD display. The other radios tested all have speakers in this bottom section of the case and the display at the top, with controls in the middle section. The speaker in the ICOM is instead located in the top of the case and the display is in the middle. The only problem I see with putting the control keypad so low on the case is that it makes one-handed operation a bit difficult, as the thumb has to stretch more to reach the buttons.



Other than this variation in the speaker and keypad location, I like the ergonomics of the ICOM case. It has a slimmer midsection that fits naturally in the hand and will readily go into a pocket. On the back there is a sturdy, low-profile belt clip that can easily be removed. A tether fits through a

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purpose-made recess in the case above this clip.

When dropped into the water, the ICOM popped back to the surface in an inverted position, floating upside down with the receiver still working. After the 30-minute immersion, it still functioned fine, but there were a few droplets of water inside the battery case.

ICOM ICM-34

\$279.00

Icom Inc.

1-1-32 Kamiminami, Hirano-ku

Osaka 547-0003

Japan

www.icomamerica.com

Uniden MHS550

The first thing that distinguishes the Uniden MHS550 from most of the radios in the test group is its compact size and the general high quality of its all-aluminum case construction. It is rated to the higher JIS8/IPX8 Immersion Protection Standards (submersible in one-and-a-half meters of



water for 30 minutes). This radio looks and feels solid and the overall package is attractive. It is loaded with features and the package includes all the accessories that are optional with some of the other brands. The VHF transmitter power range is 1 watt, 2.5 watts and 5 watts.

There are more bands available on the Uniden MHS550 than on any of the other radios tested. In addition to operating on the standard VHF and NOAA weather channels, the radio also can receive and transmit on the FRS (Family Radio Service) channels and can receive AM and FM radio. The ability to receive music and news on AM and FM radio might be a plus to some kayakers who like to have news and music handy.

The lithium-ion rechargeable battery is rated at 12 hours of run time between charges. A charger for AC and 12-volt DC is supplied. Best of all, a battery case for 4 AAA alkaline batteries is also included in the box, so you have both power options without having to buy them separately. (Note that the batteries are AAA, not the larger and more commonly used AA alkalines.)

The smaller size of the Uniden MHS550 allows for more carrying options, as it will fit in smaller PFD pockets and other spaces. It has a removable belt clip as well as a tether that attaches to a watchband-style pin in a socket on the side of the case for additional security.

The top-mounted knob that I prefer over push buttons for on/off, volume and squelch is present on this radio, adding another plus for ease of operation. The other control keys are located

in the center between the display and the speaker and can be operated with gloved or bare fingers.

I really like the display on the Uniden MHS550. It has a feature I have not seen before that will be quite helpful to occasional mariners who do not have a working knowledge of the designated uses for each of the marine VHF channels. As you scroll up and down through the VHF channels, the name that designates permitted use of the channel is displayed right on the screen. This means that if you haven't memorized which channels are legal for ship-to-ship conversation with other members of your group, you can just look for the ones labeled "Non Commercial" and pick one. You can quickly find "Marine Operator" channels as well as special-use channels such as drawbridge operators and lockmasters. Most importantly, it keeps you from inadvertently using prohibited channels such as 23A, which is designated "Coast Guard Only."

As expected from the appearance of its rugged case and well-engineered door for the battery case, the Uniden MHS550 passed the submersion test with no problems. It is a sinker, rather than a floater. When it was retrieved from the bottom of the barrel after the test, no water was found inside.

Uniden MHS550

\$269.40

Uniden America Corporation

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Fort Worth, TX 76155


1-800-297-1023

www.uniden.com

West Marine VHF 150

Looking at the West Marine VHF 150 next to the Uniden MHS550, it is obvious that it is essentially the same radio in a different package—a somewhat plainer, rubber-armored, black aluminum case of the same compact size and weight. The layout of the controls is exactly the same, and the West Marine VHF 150 has most of the features of the Uniden with the exception of the extra FRS transceiver and AM/FM receiver bands. The transmitter power is the same, with 1-watt, 2.5-watt and 5-watt options.

Like the Uniden, the West Marine VHF 150 uses the top-mounted on/off, volume and squelch control and the same central keypad layout. The display shows the user names of the VHF channels in the same way as the Uniden, which is the best feature of

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the higher-priced unit.

The West Marine VHF 150 comes complete with a lithium-ion rechargeable battery, an AC and a 12-volt DC charger and battery tray to hold four AAA alkalines for optional power, so despite a lower price point, nothing is left out to have to buy later. Battery



life is estimated at 12 hours, same as the Uniden.

The belt clip on the back of the case is the same removable type used on the Uniden. The tether and attachment point for it is the same as the Uniden.

The West Marine VHF 150 is submersible, and like the Uniden is rated waterproof to JIS8/IPX standards. Testing proved it completely reliable and it came up from the bottom dry inside. It does not float, which is really the only feature I'd add to an otherwise great design.

All in all, the West Marine VHF 150 packs all the most useful features of the Uniden MHS 550 into slightly plainer packaging and offers it for a better price. Unless you are the kind of gadget enthusiast who needs all the bells and whistles, this is a great radio for the money.

West Marine VHF 150
169.99
West Marine
Watsonville, CA
1-800-BOATING
www.westmarine.com

Conclusion

The availability of reasonably priced, waterproof, handheld VHF marine radios is good news for sea kayakers. There is really no excuse to be without one when you venture into coastal wa-

ters, as mariners in distress are saved from disaster on a regular basis thanks to VHF radio communication.

Even though none of the three with slight leaks failed, any intrusion of water, especially saltwater, will eventually lead to corrosion of the battery contacts. A little maintenance will extend the life of the radio. At the end of the paddling day after any immersion, open the battery compartment and dry up any water that may have gotten in. Check the seals on the compartment lid and make sure they are clean. I would still take precautions to keep any handheld VHF out of the water whenever it's possible to do so.

I would happily take along any of these models on my next trip and consider all of them a vast improvement over the handheld VHF units I have used in the past.

If I could have the one perfect handheld VHF for kayaking, it would be packaged in the rugged case of the Uniden MHS550 or the West Marine VHF 150, and utilize their simple controls and handy station identification display. It would float like the ICOM ICM-34 and the Standard Horizon HX 750S and feature the SOS strobe light of the Standard Horizon. A battery case for alkaline batteries would be included equipment and it would be completely leak-proof like three out of the six units tested.

I may not get my perfect radio in the real world, but I would happily take along any of these models tested on my next kayak trip and consider all of them a vast improvement over the handheld VHF units I have used in the past. I think any of them would give good service with reasonable care. **SK**

Scott B. Williams has been kayaking since 1986 and has published numerous articles and books on paddling. He lives in Mississippi and enjoys sailing and building sea kayaks and other wooden boats. Scott can be reached via his website: www.scottbwilliams.com.

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