

RESCUE RADIO



The promise of a high-tech radio system providing a nationwide safety net that would save mariners in trouble has long seemed like a pipedream. But don't tell that to the 32 people whose lives have already been saved because the Coast Guard's Rescue 21 VHF radio system was up and running in their waters.

As installations of Rescue 21 pick up speed to one per month through the rest of 2008, it is already paying dividends in bringing search-and-rescue cases to a happy ending. In fact, one rescue was possible because the \$550-million system was able to home in on mere radio static after the vessel lost voice communication.

"That's probably one of the saves we're most proud of," said Thomas McKenzie of the Rescue 21 office at U.S. Coast Guard Headquarters in Washington, DC. "The boaters didn't have enough radio power left but they 'keyed' the mic and we were able to direction-find just using the static of the transmission."

The four lost boaters were reported overdue and the Coast Guard's Atlantic City, NJ, station located and rescued them 30 miles offshore. Atlantic City was the first Rescue 21 sector to go "live" in 2005, along with Group Eastern Shore, VA.

The list of successful Rescue 21 cases reads like a typical weekend's mishaps in the world of Coast Guard SAR: two adults and a child lost in the fog, a hoax call emanating from a marina, a swamped vessel in an inlet with three people in the water, an offshore fishing vessel taking on water in deteriorating weather, an overturned vessel in freezing temperatures with three fishermen clinging

to the hull.

Each is dramatic in its own way but successful because the new system was able to locate them much faster via radio than if vessels and aircraft had to visually search hundreds of miles of ocean. The capabilities of the new technology were apparent within the first 90 minutes it went live in St. Petersburg, FL. The station there picked up seven radio calls from offshore in the Gulf; only one of them was heard by the old radio system.

"Rescue 21 is one of those things where the general public cannot touch and feel it but they'll get the direct benefits of vastly improved communications with the Coast Guard," said LCDR Brian Anderson, technical officer at Rescue 21 headquarters.

In addition to receiving distress calls with GPS coordinates, Anderson said the higher coastal radio towers can "pinpoint" the origin of a call with their advanced direction-finding capabilities. In a case where flares were reported 18 miles offshore from Mobile, AL, the Rescue 21 station got no fewer than eight fixes on a location by means of direction-finding which placed the "flares" at a marina. While the Rescue 21 specifications call for a coverage range of 20 miles at one watt of power at one meter above the surface of the water, calls have been received from as far as 66 miles out.

Doubling Coastal Coverage

As of presstime, Rescue 21 was operating over 12,787 miles of U.S. coastline based in 10 Coast Guard sectors, but by the end of this year that coverage should increase to 25,000 miles and at least eight new sectors. Vessel operators large and small will have a higher level of safety in: Miami, Key West, Baltimore, New Orleans, Houston/Galveston and Astoria, North Bend and Portland, OR, through the fall of this year. The Oregon sectors should complete coverage for the rugged Pacific Northwest coast.

Rescue 21 in Hampton Roads, VA, was scheduled to be up by presstime in late March. California is on the schedule for 2009-10 as well as New England. The Great Lakes follow in 2009-11.

"Educating our mariners is going to be key," said Anderson. "DSC radio has been around for awhile but is fairly new to a lot of people who haven't needed it. Over time it will be an invaluable tool for the Coast Guard finding people in distress."

What Boaters Need to Do

To benefit from Rescue 21, boaters can still use any VHF marine radio to call for help in a distress situation. However,

RECEIVES RAVES

the most valuable feature of Rescue 21 is its ability to receive a distress call with GPS coordinates automatically transmitted, but only if the boater is using a newer radio that contains the Digital Selective Calling (DSC) feature.

A DSC radio has an SOS button that will transmit automatically on Channel 70 (the VHF channel reserved for digital calls only) and also send the vessel's identification and GPS location — if the radio owner has interfaced the radio with his GPS or Loran receiver. An informal poll by BoatU.S. found that an alarming number of DSC radio owners had not yet connected their radio to a GPS; this would prevent them from getting fast help in a mayday situation.

As the Coast Guard points out, you also don't have to be boating in a Rescue 21 sector to benefit from using a DSC radio. Large commercial ships are required to monitor Channel 70 and BoatU.S. is also equipping all of its TowBoatU.S. operators with DSC radios to enhance their own capabilities and services to boaters.

The other critical element to using DSC is getting a radio identification number and programming it into the radio. That's the only way the mayday function will work properly and the only way anyone picking up your call will be able to identify your vessel as well as send a digital hail specifically to you. Similar to a cell phone number, the MMSI (Mobile Maritime Safety Identification) is a unique nine-digit number that contains valuable information needed in a distress situation. Under an international mayday system, the numbers follow a sequence so boaters simply cannot "make one up."

Once a boater registers for an MMSI number, their key information is kept in the Coast Guard's national search and rescue database. In the event of an emergency, Rescue 21 watchstanders can access the database, using the MMSI that is transmitted with the call, not only to identify the vessel in distress, but also to eliminate false alerts as well as hoax distress calls. It's essentially a "caller ID" for the seas.

For boaters who remain solely in U.S. waters, BoatU.S. provides free MMSI numbers under an agreement with the Coast Guard and Federal Communications Commission. For operators who travel abroad, their radios are still required to be licensed with the FCC and the FCC-issued ship station license can come with an MMSI

from the FCC, if one is requested when applying for a license.

New Radios, New Testing Feature

Since DSC radios have been around for most of this decade, they are readily available from all major VHF radio manufacturers and prices have dropped steadily. Back in the 1990s, the FCC required manufacturers coming out with a revised model radio to include DSC as a feature; however handhelds were exempted.

Nevertheless, one DSC handheld came out which has been since discontinued

ties in to the Coast Guard's recently unveiled automatic testing protocol so that boaters can see if their DSC radios are working without issuing a false mayday or tying up the Coast Guard on Channel 16. (Radio check calls to the Coast Guard on Channel 16 are prohibited.)

The newest model marine VHF radios may have the testing function. It's not a button but a selection from the various functions contained in the radio's screen. Once issued, the caller will receive back an automated reply from the nearest Coast Guard station to let them know their transmission was received.

Boaters may also call another DSC radio



Photos courtesy of U.S. Coast Guard

A watchstander at the St. Petersburg, FL, Coast Guard station with the Rescue 21 console reviews transmissions.

(Uniden Mystic), but Standard Horizon has a new waterproof handheld model, the HX 850, that includes a built-in GPS, for \$250.

The preferable DSC models are Class D radios. They allow for watchstanding on two channels — one that continually monitors digital Ch. 70 and the other channel available for voice use. Class D DSC radios also contain a number of other useful features such as enough memory to store other vessels' MMSI numbers. There are Class D fixed-mount DSC radios for well under \$200.

The lesser model is referred to as SC-101. It was an early standard to allow inexpensive DSC radios to reach the market but they limit watchstanding on only one channel at a time. Conceivably, a skipper could miss a DSC distress call if the radio is tuned to another channel, and not Ch. 70. The SC-101 radio sells for as little as \$99.

An important new DSC radio feature

for a test or their local TowBoatU.S. or Vessel Assist captain. The Coast Guard has also offered to put together a list of the MMSIs for all of their stations. When received, BoatU.S. will post it at BoatUS.com. ■

— By Elaine Dickinson

Get Set Now

Resources:

DSC Radio Tutorial: Can You Hear Me?

Visit BoatUS.com/foundation/dsc/player.html to watch the 35 minute presentation. CDs of the tutorial also available in limited quantities for BoatU.S. Cooperating groups and nonprofit organizations that teach boating courses.

Free DSC Radio Registration Numbers

Register to get an MMSI online or via fax at BoatUS.com/mmsi or call 800-563-1536.

See What's New at the official Coast Guard site: www.uscg.mil/rescue21/