

We've all heard the expression, "ignorance is bliss," and sometimes it is. However, that's never the case on the water, where "knowledge is power."

Radar is shorthand for "radio detection and ranging" and it's something we've grown up hearing about (and being subject to when driving on the highway). We know that radar acts like eyes that can penetrate fog, rain, snow, and night, but understanding the concept and using radar effectively are two different things.

In a radar unit, electromagnetic energy is shot out of the "transceiver" at the speed of light and, if it hits something of sufficient density, returns at the speed of light. This enables the unit to determine the distance of the object from you in an instant. The transceiver rotates three to four times per minute, constantly scanning for all comers and all objects. Radar needs a certain amount of density that will return a signal, so it won't spot everything in its path. For instance, the sails of a sailboat won't be picked up, nor will her wooden mast, and unless she has a kicker engine on her stern, her low-lying hull might not be noted by the radar unit.

Because of its limitations, using radar is as much of an art as it is a science, so boaters need both understanding and experience to use radar effectively. Even the sea itself

can hinder radar's effectiveness. Think of it like a gun shooting out electronic bullets in a straight line. As the seas build, and your bow rises and falls as it makes way over those building seas, the gun is shooting up into outer space or down into the water, reducing its effectiveness when you may need it the most. Being aware of that limitation allows for effective interpretation of what you are seeing (or might not be seeing) ahead.

A tugboat and a towboat might look like one very large vessel on the radar screen, or two boats abeam of each other could appear as a single, larger boat. Weather can impede radar; while it can see through light rain and light snow, as the precipitation gets heavier, the signals flood the system and the screen "whites out." Back in the day, the radar observer would "fiddle" with various

dials to try to find the right mix of tuning to reduce the return signals from the weather while still being able to see something important, such as another boat. Now, you can inform the unit that it is snowing or raining and its built-in computer does most of the work for you.

A couple of summers ago, I was part of a U.S. Coast Guard Auxiliary night patrol in Narrow Bay on a moonless and cloudy night. Radar picked up a good-sized object lying 1,000 feet directly in the fairway, dead ahead and underway slowly. I was at the helm and couldn't see a thing—no lights, no glow from a wake, so we throttled back and turned on the forward-looking infrared system (FLIR, like a kind of radar that detects tiny temperature differences at great distances), figuring the engine of whatever was ahead of us had to be warmer than the boat and the water. There, in full majesty, was a herd of swans, paddling along in serene closeness! There were so many, and they were so close together, that they showed up as a single, solid object on the radar.

Even with these caveats, I would recommend that boaters equip their vessels with radar. There are several great systems on the market and prices have come down dramatically while functionality has gone up even more dramatically. Today's models "paint" the radar picture directly onto

the screen and onto an integrated GPS screen simultaneously, calculate how close a "bogey" (an unknown object that appears on the screen) will get to you and when it will get there for up to 10 objects simultaneously, and set off a pre-set alarm when any object comes within an uncomfortable distance of your boat.

I use the Raymarine E80 model, and I don't turn on the engine unless I also turn on my "eye ayes!" Whatever radar system you choose, be sure to understand what it can and can't do, and continue to stay aware of your surroundings. ⚓

Understanding & Using Radar Effectively



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