Non-electronic instrument measures water depth and temperature

Jon Titus - May 20, 2013

Years ago my mother had a Heathkit "Marine Depth Sounder" that also could (in theory) help locate fish. This fish finder used a rotating disk and a small neon light that indicated depth. Mom could determine the water's depth, or the presence of fish at a specific depth by watching the neon light flash at points around a fixed circular scale with a clear plastic window. The depth sounder quickly used up 6V lantern batteries. Today, anglers have sophisticated fish and depth finders with color LCDs that show a lake bottom and fish detected by an ultrasound sensor. I suppose some of these instruments also note coordinates derived from GPS information. (Sometimes Heathkit Dual Range Model MI-2901 fish finders show up on eBay.)

But not all instruments require such advanced operations. While going through Mom's tackle box, I found a small instrument—a Vexilar Deptherm (Model 104)—that measures water temperature at a specific depth. Because fish cannot regulate their temperature, they seek water at comfortable (to them) temperatures, so water-temperature measurements can play an important role in finding the depth at which to fish. For information about fish and ambient water temperatures, visit this page.

The Deptherm comprises a small plastic tube about 5 inches long and 0.75 inches in diameter (13 by 2 cm), a liquid thermometer inside the tube, and a temperature-and-depth scale. A small hole at the top of the tube lets water enter, and a tab at this end of the tube lets an angler attach a string or fishing line. Nothing high-tech or electronic about this device. Find more Deptherm information here.

Figure 1 A Deptherm sensor image that shows the temperature scale.
Drop the Deptherm into a lake and as it sinks (attached to a string!) water pressure increases and forces more and more water into the tube. The instructions recommend leaving the device at a depth for 30 seconds or longer so the water in the Deptherm can attain the same temperature as its surrounding water. When you retrieve the instrument, you can quickly note the temperature. A nonlinear scale on the reverse of the thermometer lets you determine the maximum depth your Deptherm reached. A spring-loaded brass valve at the bottom of the water chamber lets you quickly drain it so you can make another measurement. I have used the Deptherm in a Canadian lake where I take vacations and found its depth readings give "close enough for fishing" matches to those on a depth chart.

An electronic instrument might provide a faster way to measure depth with a pressure sensor, and a small temperature sensor would provide faster readings. But the electronic approach requires a read-out, batteries, and a long spool of wire. If such a combination sensor probe snags on a rock or sunken log, you must cut the wire and get a replacement sensor. A Deptherm costs $8.95, so if you lose it, no big deal. And with a Deptherm, you can send kids or grandkids out in a rowboat to record depth and temperature measurements in your favorite fishing spots while you go to town for bait. The kids will have fun and I bet you'll catch more fish. We don't need an electronic answer to every problem.

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