

# SONAR MASTERY

GET MORE FROM THE MOST USEFUL TOOL IN YOUR BOAT

by Ross Robertson



**W**e have come a long way from milk jugs and strings. The latest in electronics don't only mark areas, they literally show anglers what is beneath them. The detail and accuracy have gotten so good even veteran anglers like Bruce "Doc" Samson of Minnetrista, Minn., have all but quit using flashers for open-water fishing. And if you ask fishermen how important their electronics are to them, most would say they wouldn't fish without them.

Yes, electronics have advanced. But have the fishermen?

During his winter seminars on electronics, Samson found anglers are still reluctant to admit they don't know how to use their electronics. Even as a full-time fisherman myself, much like my brain, I'm lucky to use 10 percent of my graph's capabilities. However, Samson believes by understanding just a few everyday features about sonar and their electronics, anglers can become better overnight. Call these Samson's commandments to understanding your depth finder.

## 1. Fish Size

This is likely the most misunderstood topic I see with my guide clients, particularly in shallow water. Even Samson had to find this out the hard way.

"I've spent a lot more time in the past fishing perch that I believed to be walleyes than I'm willing to admit," he said.

A few tips will allow an angler to save the time Samson has spent. Sonar manufacturers determine fish size by the echo strength sent back to the unit. While a fish's bones, scales and flesh will provide a return, it is its air bladder that gives the best signal strength because it reflects the most sound.

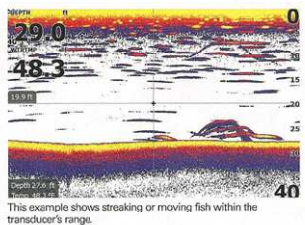
The thickness of the arch — from the top to the bottom of the center section — is the single most important factor in determining the size of the fish. Size determination is made much easier by color units. In Lowrance units, for example, yellow represents the strongest return and will be present for large fish. Blue fish marks, even ones that form arches, aren't what an angler should be chasing.

Another determining factor is the fish tail, or the long wisps of arches that may sometimes appear separate from the main arch. The longer the fish tail, the larger the fish. This is not to be confused with streaking fish tails, but that will be discussed later. For now, understand that a longer tail is created because the fish has enough return strength to be marked farther outside the cone. Smaller fish, on the other hand, don't have the return strength and won't be picked up as soon.

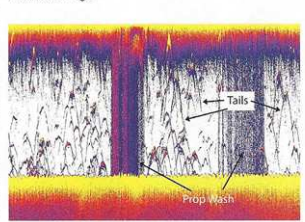
If an angler is still having trouble identifying fish size, catching a fish after marking it is by far the best method to know exactly the size of a fish compared to the arch on a depth finder screen. However, following these few tips should make size identification much easier.

## 2. Streaking Versus Tails

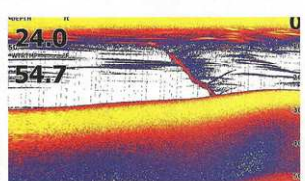
Streaking marks are usually caused by a fish moving up or down in the water column within the sonar cone. However, they are



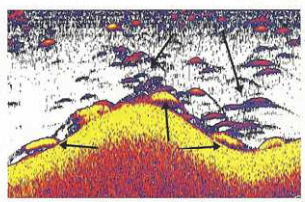
This example shows streaking or moving fish within the transducer's range.



This screen captures walleyes, with sonar tails.



Example of a 25-inch walleye thrown into the water near the transducer among streaking fish on the sonar.



In shallow water, fish marks may appear to be large walleyes but are in fact 2- to 3-pound walleyes with smaller suspended fish.

often confused with fish bow through the outside of the cone as tails. To test what a streak mark looks like, throw a fish overboard near the transducer. The walleye will usually dive straight to the bottom and allow a fish hand look at a "streak." At the same time, it will show how known-sized walleye marks the screen.

If you are still not sure about the difference between a streak mark and a tail, note these things that need to be present in order to see fish tails: a large suspended fish, sensitive sonar and deep water. Small fish don't have tails on the screen. Even a big fish present, a tail can show up unless the electronics are set to a high sensitivity level. Shallow water also suppresses tails, causing no visibility when they are close to the boat because they become hidden behind the bottom band. Fish swim high in the water column will not show up with tails because they are marked by the narrow part of the cone.

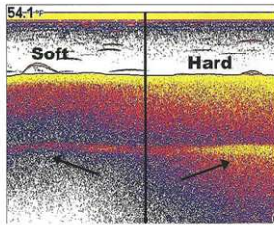
## 3. Shallow-Water Giants

The misunderstood part of this situation, where fish appear larger than they really are because they are in shallow water, is touched upon earlier. However, bears further explanation.

When an angler ventures into shallow water, less depth is shown on the screen, which magnifies cover, structure and fish. Compare this to viewing a goldfish in a bowl versus the same goldfish in a swimming pool. Think about how a 5-foot depth change in 10 feet of water looks so dramatic, versus a 5-foot depth change in 50 feet of water. The less water being scanned, larger the object appears. A simple way to overcome this is slightly reduce the sensitivity when in shallow water.

## 4. Determining Bottom Type

One trick used by most pros to set the depth finder to show much larger depth range is referred to. This creates what is called as a "double echo"



The double echo is a good way to determine bottom makeup. Note how the double echo image on the right is stronger and yellow, signifying a hard bottom.

with two horizontal bands visible on the screen. An example is to use a bottom depth range of 20 feet when fishing in 10 feet of water. This will not only cause the fish to be represented more closely to "real" size, but the angler will be able to more clearly see transitions in bottom content.

"By using a larger depth range you can quickly see where the transitions are present," Samson said. "This tip will allow you to see the small 'soft' or 'hard' spots on the spot, which are often the best spots."

Another way to determine bottom type is color. Lowrance uses yellow as the strongest return strength and blue as the weakest. Using this method, it is very easy to see changes on mud flats when the boat goes from passing above hard, compacted mud to loose, "wet" mud. This is represented with a yellow-orange mix to possibly blue, if the mud is soft enough.

The last and easiest way to quickly see bottom type is band width. The thicker the band width, the stronger the return echo. However, compacted mud is sometimes confused as a hard, rocky bottom, which is a situation where using more than one of the methods described here will help decipher the actual bottom content.

## 5. Sensitivity

Today's units are very sensitive due to the advancements in both the processors and power the units are pushing. Eighty percent sensitivity on a unit from 10 years ago is not the same relative percentage on a unit available today. Samson has an easy tip for adjusting sensitivity: Turn it up until you see clutter. This will ensure you aren't "missing"

anything. Also, sensitivity should be adjusted regularly.

If you fish a spot and return the next day only to find the spot has muddied up, you will likely have to turn down the sensitivity because mud particles may cloud the screen. This is how sensitive today's units are — they mark mud particles. Because of this, fishing with too high a sensitivity can also trick an amateur's eyes into believing he is finding larger fish than are actually present. With as much power as these units have, they can literally make a perch look like a

6-pound walleye with improper settings.

Another time sensitivity comes into play for many pros is when trying to mark on the run. In order to do this, crank everything to the max — the ping speed, chart speed, and, most importantly, the sensitivity. This allows an angler to interpret return signals instantly at speeds up to 20 mph. The only thing that needs to be adjusted is screen color to make it easier to quickly interpret the markings.

## 6. Screen Color

Many units have several color-palette options — the new Lowrance HD5 units have 14 options. One of the most popular screen colors, however, is white. Under normal conditions it allows for the best contrast and easiest viewing.

Switching to a blue background, however, allows an angler to decipher the strongest return, as the yellow mark of a fish will still show through on even the most cluttered screen. This makes a blue background perfect for marking while running, because the yellow will show up at speeds of nearly 20 mph. I use this simple tip daily when trying to find schools or pods of open-water fish. This tactic will save time, as well as mark fish higher in the water column that would often spook at slower speeds.

## 7. Forget Fish Identification Symbols

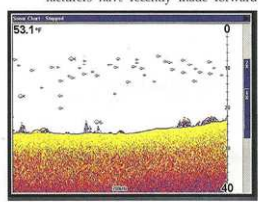
Although some people argue the effectiveness of depth finder

settings that identify "fish" with fish symbols, the ID mode essentially puts handcuffs on a perfectly good unit. It would be like getting a new Porsche 911 and only driving it in first gear. Various fish identification modes basically interpret returns as small, medium or large. A sinking pop can mark as a small or medium fish, simply because the processor tells the unit a return was sent. The same thing happens when a small broken cluster of a return is represented as weeds, even if it is simply loose-cut weeds.

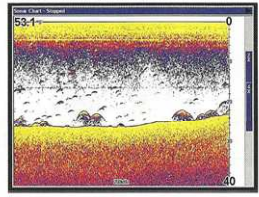
If you take anything from this article, it should be to forget about using fish identifying modes on any depth finder.

## 8. Side-Looking Sonar

When side-looking sonar first became available it was one of those things anglers didn't know how they would use, but they knew they wanted it. I was fortunate to have tried one of the first Humminbird 997 units, and I was very impressed with the technology. Until the advancement by Humminbird, this technology was incredibly bulky, only available to the government and cost more than \$10,000. Lowrance has since entered the game, and both manufacturers have recently made forward



The fish identification mode may clear up a screen (above), but it is not accurate enough to determine what is or isn't a large fish. This screen comparison shows misidentified fish close to the bottom.



strides with side-looking and similar down-looking sonar.

Aside from being really cool, side-looking sonar's biggest advantage is it allows an angler to be more efficient. Samson was impressed with its ability to determine bottom hardness quickly and efficiently. It also allows an angler to scan a flat at 2 to 4 mph and actually see and mark boulder piles, pockets in weeds, and other forms of structure and cover. Plus, the sonar doesn't only show what is below the boat, but also what is more than 50 feet on each side of the boat.



As a Great Lakes guide and tournament angler, I really like its ability to see baitfish extremely high in the water column, which traditional 2-D sonar misses. On a Humminbird 1197 unit, I keep the graph split between normal 2-D sonar and side-looking sonar. When the side-looking sonar marks baitfish and the 2-D sonar does not, I can assume they are in the top 6 feet of the column because 2-D sonar often misses objects at that depth due to too much clutter or the boat spooking the fish. For me, marking these high bait pods 50 to 75 feet to the side of the boat gives me the confidence to run lures extremely high in the water column. I have taken countless giant walleyes using this tactic.



### 9. Continuing Education

Long story short, learning and, more importantly, believing in Samson's tips will make you a much better fisherman. Taking the time to understand your depth finder is as important as knowing how to tie on a lure. While there is no

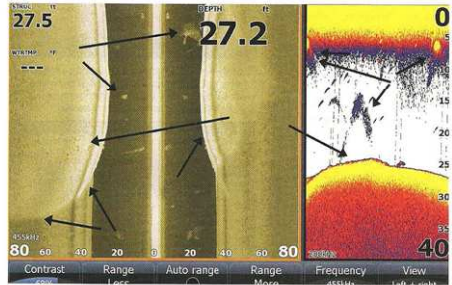
substitute for time on the water, a very close second comes from dedicating yourself to continuing education.

Samson is just the man to provide it. His extensive knowledge of depth finders is incredible. He also uses invaluable side-by-side comparisons of sonar screens and underwater images of the same structure or fish to help teach

anglers what their depth finders are really showing.

Free training in traditional sonar, GPS, mapping and fishing techniques are all offered on Samson's Web site at [hightechfishing.com](http://hightechfishing.com). He also specifically covers Lowrance HDS and StructureScan equipment. If you live in the upper Midwest, Samson also teaches seven one-hour classes from January through May. For \$100, you get time with the master. For the frugal bunch, check him out for free at boat and tackle show seminars. His schedule is on his Web site.

Finally, the Web site is also the place to purchase one of Samson's DVDs. He offers an instructional DVD for the Lowrance LCS and LMS units with focus on what he considers the most important tools the units offer. It retails for \$29.99. A DVD on the HDS units is in the works. He also created "Understanding Sonar and Interpreting the Display Part 1," a \$19.99 DVD that covers the basics of how sonar works. His "Understanding Sonar and Interpreting the Display Part 2 Advanced" is the next step in the series, with underwater footage matched to sonar. It retails for \$29.99 and covers identifying trees, fish, bait, bottom content, fish size and more. ◀◀



Understanding what is shown with new side- and down-looking sonar can complement traditional 2-D sonar.