

Side Scan Sonar



by Dan Berg

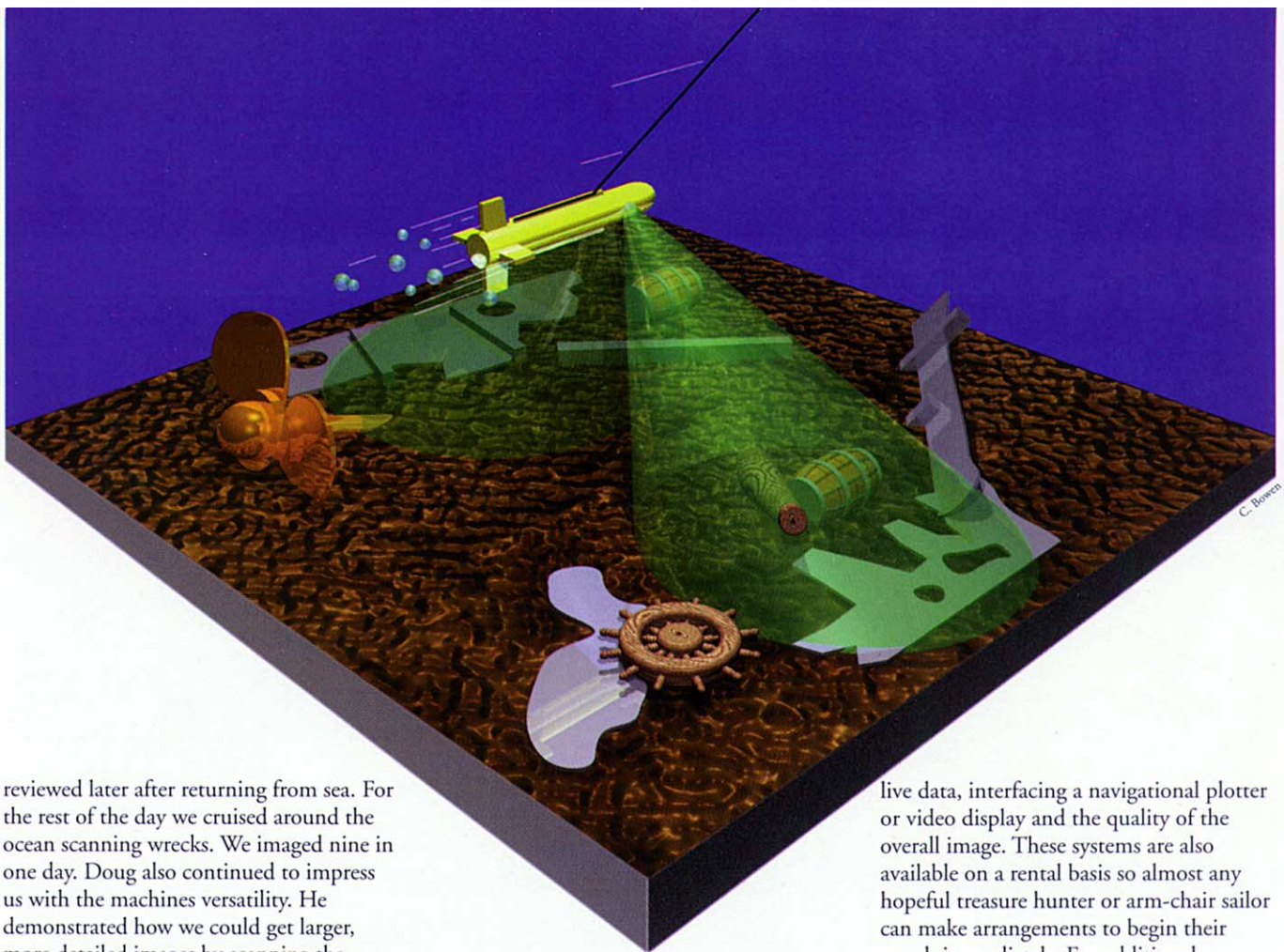
Searching for shipwrecks has always been a difficult and sometimes costly endeavor. There are of course several ways to search. In many cases divers would go out to check out hang numbers from a local fishing boat. The spot which caught the fisherman's rig could be anything from a single pipe to a virgin wreck. Others, have invested time and money in machines like proton magnetometers which register anomalies when passed over any metallic object. Magnetometers are especially useful when looking for objects buried beneath the sand. Targets produced would then be investigated by divers who again could find anything metallic, many times only a 55 gallon drum. Some sophisticated wreck hunters even utilize side scan sonars which use sound waves to scan the ocean floor. Side Scan Sonars are used in the military and scientific communities and are perfect for visually searching for shipwrecks. The units actually sees, with sound waves. Side Scan Sonars have the ability to look or scan out from both sides of the tow vessel and register any objects that have relief off the bottom.

In the spring of 1995 I had the opportunity to work with a Side Scan Sonar. Doug Blaha and Pete Wilcox of Marine Sonic came to New York to demonstrate Marine Sonics' new Sea Scan PC Side Scan Sonar. Doug first explained that the best way to "see" underwater is with sound. Underwater, light is quickly diffused and very ineffective. Even the brightest lights yield only a few feet of visibility. A good analogy is a room filled with thick smoke. Bright lights are nearly

useless, but sound travels well through the room. Fisherman have employed fish finding sonars for years with good success. Fish finding sonars look down through the water and display objects appearing above the bottom. Side scan sonar is engineered to look sideways through the water. Doug explained that the Sea Scan PC Side Scan Sonar was unique in at least three significant areas: cost, performance and operability. He claimed that the Sea Scan PC was an affordable, high-tech system featuring performance unequaled by systems costing three times as much or more. It is portable, easy and contains features only made possible with a high performance personal computer.

We boarded the *Wreck Valley* joined by Capt. Steve Bielenda, Capt. John Lachenmayer and Mike McMeekin and started to scan shipwrecks. Marine Sonics' fresh approach to side scan technology comes from the medical field. Using low power and extremely low noise electronics, the sonar emits very short, precision pulses in narrow focused beams to produce clean, crisp near photographic images. Pete demonstrated how easy it was to deploy and tow their transducer carrying towfish. Most side scan systems use a torpedo shaped towfish towed at a predetermined depth. The transducer is then closer to the ocean floor than a boat mounted unit, which means obtaining a more detailed image. Then they interfaced the computer with the *Wreck Valley's* loran and brought up a plotter display. We then input the coordinates (TDs) of a known shipwreck and were

able to not only see a visual reference (Marker) of the wreck on the plotter but also the position and the area we had already scanned. As the *Wreck Valley* slowly idled on a steady course, Doug showed how a simple key stroke changed the scanning distance or swath width. The unit is capable of scanning up to 500 meters to either side of the vessel but we would be looking for better resolution and therefore scanning at around 100 meters of ocean floor. Once we passed over the wreck, its image appeared on the computer screen. There was no interpolating the image or wondering what we were looking at. The image, in the case of the *Black Warrior*, was clear and we could easily recognize details like the wreck's boiler, mast and low-lying debris field. Unlike conventional side scan units which use a thermal paper to produce hard images, modern technology and a personal computer now make it possible to produce Live Images. These images can be stored on a disc or on the computer's hard drive. They can be enhanced, enlarged, measured and they contain all the navigational information of the computer's plotter, making it a perfect tool for wreck hunting. This system is also extremely user friendly. In fact almost anyone who has ever operated a personal computer could easily learn the basics. With yours truly behind the controls of the computer and Captain John at the helm we continued to produce quality images. Experience is of course very important, but new operators will quickly grasp the principles and recognize key features. Since data is stored on a hard disc in the computer, images can be

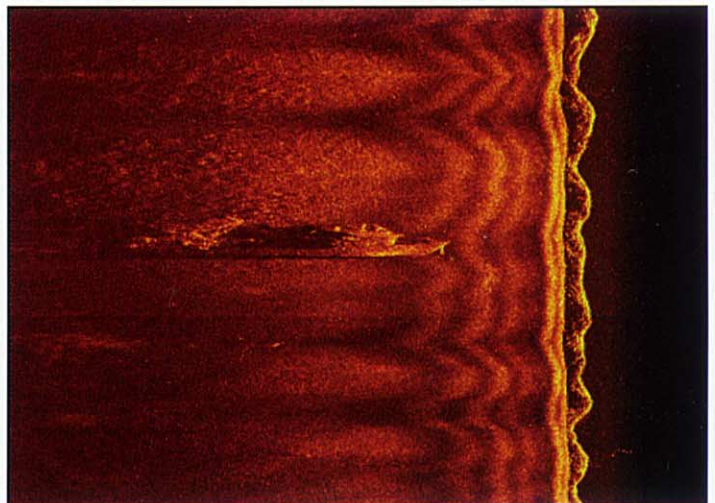
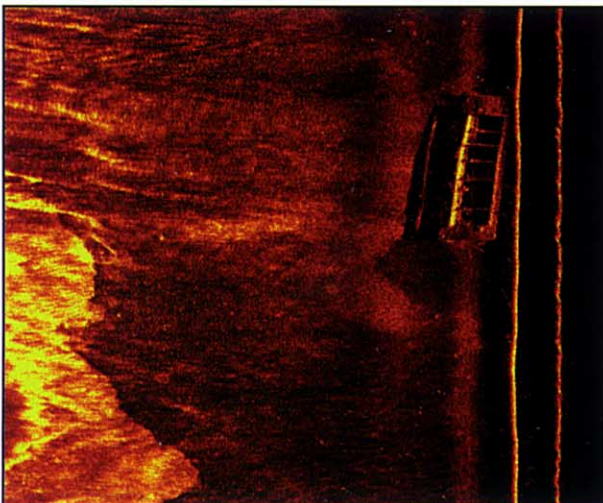


reviewed later after returning from sea. For the rest of the day we cruised around the ocean scanning wrecks. We imaged nine in one day. Doug also continued to impress us with the machines versatility. He demonstrated how we could get larger, more detailed images by scanning the same sight on a smaller scale or by only scanning off one side of the towfish. He showed how the Sea Scan PC could measure objects on the bottom and how it could triangulate to calculate the relief of the target. To say the very least, everyone on the boat was very excited. We had learned more about the actual layout and surrounding area of these nine wrecks in one day than the last ten years of diving. We even found several targets that we

want to go back and investigate on scuba.

Side scan sonar is definitely the technology of the future that will enable us not only to produce more accurate underwater wreck sketches of known wrecks but to search and identify new sights to dive. There are actually several systems on the market. Important key features for anyone considering a system include not only cost, and ease of operability, but capability of producing

live data, interfacing a navigational plotter or video display and the quality of the overall image. These systems are also available on a rental basis so almost any hopeful treasure hunter or arm-chair sailor can make arrangements to begin their search immediately. For additional information on the Sea Scan PC Side Scan Sonar contact Marine Sonic Technology, LTD 5580 George Washington Memorial Hwy, White Marsh VA 23183-0730 1-(800) 447-4804. I will also be running a hands on basic side scan course/expedition where we will be searching for an undiscovered shipwreck. For course details contact Aqua Explorers Inc, Dan Berg (516) 868-2658. 👍



*Top of Page: Artist 3D rendering of the Sea Scan PC Side Scan Sonar unit over a debris field.
Bottom Left: Side Scan of a barge. Bottom Right: Side scan of a ship.*