



*RFC Richard Tanner
deploys the sonar device while
searching for a drowning victim as
Cpl. Scott Carroll (seated) and
Capt. Jeff Swift (standing) assist.*

Side Scan Sonar facilitates quicker recovery

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The public's participation in on-water recreation has continued to climb. Registered recreational boats in Georgia alone climbed by 10 percent from 2005 to 2010 to over 350,000. With the increase in recreational activity, there has also been an increase in boating incidents and drowning incidents. In 2010 there were 51 reported drowning victims on Georgia's waters, up from the prior year's 40. In many of the reported drowning incidents, the Georgia Department of Natural Resources utilized a highly technical device to aid in the recovery process – the Klein 3900 Side Scan Sonar.

The side scan sonar consists of a towable fish, processing unit and a laptop computer. The sides of the towable fish are lined with rows of ceramic discs that

vibrate when influenced by an electrical current. The vibration sends a sound pressure wave through the water that continues on its path until influenced by a solid object. Once the pressure wave comes in contact with a solid object, the wave is reflected and sent back to the towable fish. The incoming signal is then relayed to the processing unit via a cable. Upon receiving the signal, the processing unit sends the data to a laptop computer for data analysis. With the laptop computer, the operator is able to view the images in real time.

As with many searches conducted in an underwater environment, a high number of resources are utilized, taking up a considerable amount of time. Not only does this time affect the researchers, but it also places an emotional toll on the

family members. In 2007, a double fatality boating incident occurred on Lake Sinclair in Middle Georgia. Search and rescue personnel performed a labor-intensive search utilizing search dogs, small side scan sonar devices, helicopter, dive teams from multiple agencies, as well as manpower from several different law enforcement agencies of the area for 10 days before being able to locate the victim. With several instances similar to this case in the amount of time taken to locate the victims, the Georgia Department of Natural Resources began looking into another resource to aid in locating drowning victims in a more efficient manner.

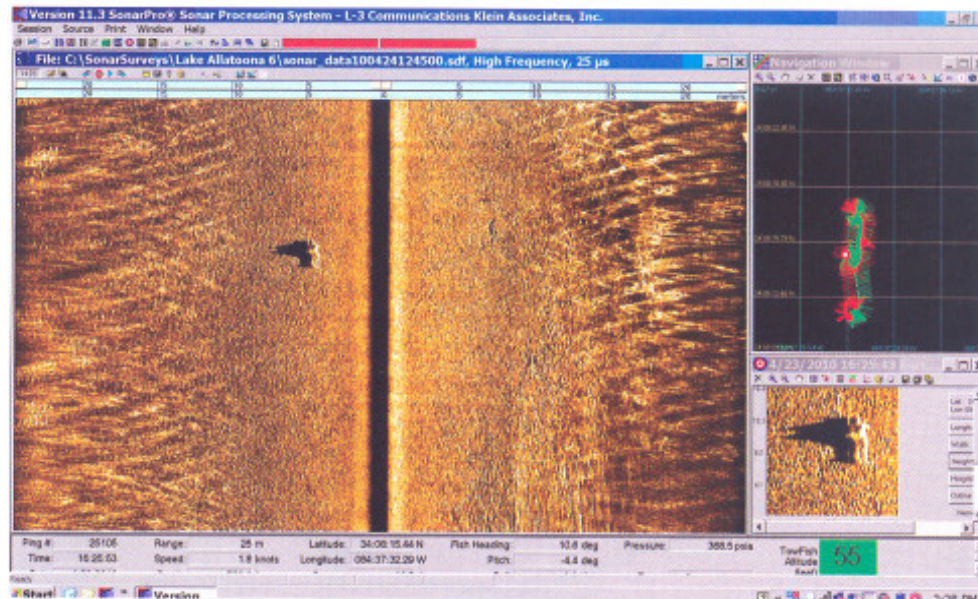
During the summer of 2009, the Georgia Emergency Management Agency/Office of Homeland Security awarded the

Georgia Department of Natural Resources Law Enforcement Section grant monies for search and rescue purposes. Of this money, \$50,000 was used to purchase a Klein 3900 Side Scan Sonar device. In October of 2009, the Georgia DNR sent one of its rangers to L-3 Klein Associates to attend a three-day training course on basic operation of the sonar device. During this training, participants were also able to use what they had learned by locating items on the bottom of the Atlantic Ocean off the coast of New Hampshire.

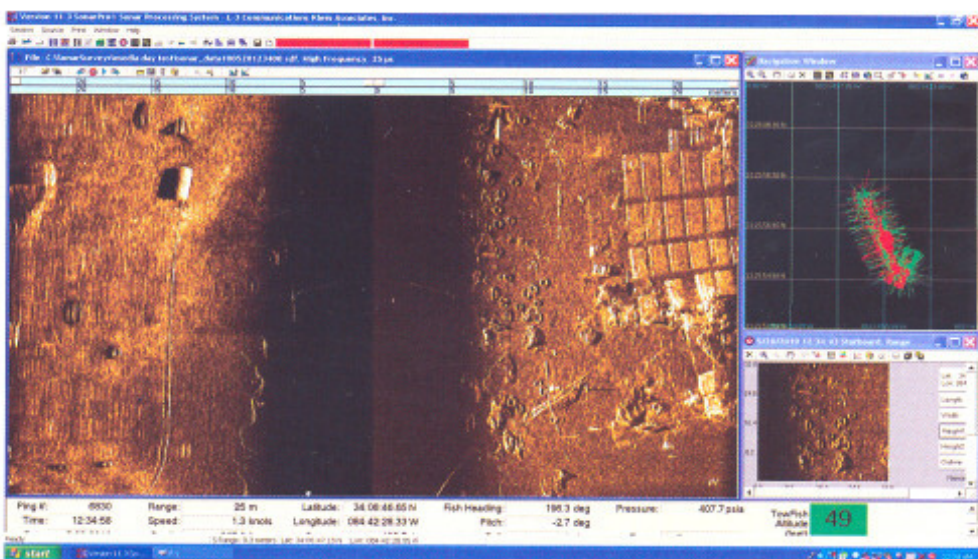
During its first year of service, the device was used to assist in the search of nine drowning victims as well as two sunken vessels. In April 2010, a boating incident occurred near Atlanta where a police officer was ejected from the vessel in which he was riding. The sonar was called in to assist with the search operations. Within a few hours, the sonar operator was able to effectively cover and eliminate a large search area as a possible location. As the search continued, a witness came forth and narrowed down the search area. Once the area was narrowed down, the sonar operator was able to locate the victim in approximately 20 feet of water. As many rescuers are aware, searches for drowning victims can at times take days if not weeks to locate the victim. In one search, the sonar operator was able to locate the victim four minutes after beginning the search.

Following the first year of service of the first sonar unit, Georgia DNR was awarded additional grant monies from the Georgia Port Authority that allowed the purchase of three additional side scan sonar devices during the summer of 2010. These additional sonar devices were spread throughout the state to allow for faster response times to critical incidents. Since the expansion of the sonar program in Georgia, the sonar operators have been asked to assist in the search for over a dozen drowning victims as well as sunken vessels.

The side scan sonar is not an ideal search and recovery tool in all cases. At times conditions are not favorable for searching with a towable device. Vegetation plays a



This sonar image shows a drowning victim located in approximately 20 feet of water.



Tires that had come loose from a breakwall are shown in this sonar image.

huge impact on how well the device works. In several searches where the victim was unable to be located using the sonar, the vegetation was so thick that the sonar could only be towed 10 feet before having to be pulled up to remove massive quantities of thick hydrilla. Also, since the device is towed under a vessel, any other submerged items such as timber and rocks can affect whether the unit can be used. There have been several instances where the tow fish either has struck or got tangled around rocks or flooded timber while performing a search.

Since its first deployment with the department, the side scan sonar has been called to assist in approximately 35

searches. The team now consists of four sonar units and eight trained operators with an additional two units and four to six trained operators scheduled to be activated by the end of 2011. With these available resources, DNR Rangers will be able to respond to drowning incidents across the state with an improved response time. While no one tool can be 100 percent effective for all underwater search and recovery operations, the Klein 3900 side scan sonar has proved to be an effective asset that will be providing assistance to searchers in the future to help bring closure to those families that are missing their loved ones. *