

ROVs and Sonar for Universities

Many universities are now adding ROVs to their marine science programs. These remote-controlled camera systems can assist in a multitude of operations including underwater archaeology, monitoring the health of benthic habitats, behavioral studies of fish and other marine species, and performing specialized research. In addition to their high-resolution cameras and lighting, the ROV can carry a variety of other sensors including sonar to explore beyond the range of visual sensors, manipulator arms for sampling, and temperature and depth probes to measure and record environmental conditions.

One of the schools that recently acquired an ROV is King Abdullah University of Science and Technology (KAUST) in Saudi Arabia, a graduate-level research institution with a USD10 billion endowment that just opened in September. KAUST's laboratories, as well as the facility's supercomputer which is third fastest in the world, will help put researchers at the forefront of scientific breakthroughs. The university's marine services department is run by Capt. Ahmed F. Shaker who has degrees in a range of disciplines including oceanography, business management, and engineering.

Due to in part to the university's remote location, the marine services department is responsible for a variety of missions. In addition to providing vessels and equipment needed to conduct scientific research, the department has also been tasked with locating and mapping the area's many historic shipwrecks and other submerged cultural resources. They are also responsible for search and recovery operations should a person or vessel go missing. The diverse missions require a broad spectrum of equipment. The department has seventeen vessels of varying sizes from a 200-foot ship to a 70-foot Hatteras to several Boston Whalers under 30 feet. The university has also purchased several pieces of underwater search equipment from JW Fishers Mfg including an ROV, side-scan sonar, and diver-held metal detector. The ROV the university selected is the SeaLion-2. The side-scan sonar they chose is the SSS-100K/600K dual-frequency with five hundred feet of cable and a deep dive wing. The long cable and depressor wing will be extremely useful in surveying deep water sites. The sonar will produce detailed images of sunken ships, reef structures, and even drowning victims in search and recovery operations. Map coverage software will show the operator the complete area scanned so that no part of the search grid is missed. The metal detector of choice is the Pulse 8X, a commercial-grade unit typically used by police, military units, and commercial diving companies. One of the unique features is the line of interchangeable search coils available which give the detector tremendous versatility. It can be used on land, diving to depths of 200 feet, or deployed from a boat.

The University of Alaska has also bought a Fisher ROV with scanning sonar system. The school has a Coastal Marine Institute and is part of a national cooperative program that promotes research in the management of fish and wildlife. Terry Whittedge, one of the researchers responsible for their SeaOtter-2, reports the ROV will be used for two primary purposes. One is the inspection and recovery of current meter moorings, and the other is the exploration of shallow water marine sediments to study sediment features and biological organisms using the habitat. Terry went on to add that the ROV should also be an asset to the group deploying AUV gliders.