



KONGSBERG

# ROV Use in Search & Recovery

## Minimize Risk and Maximize Success

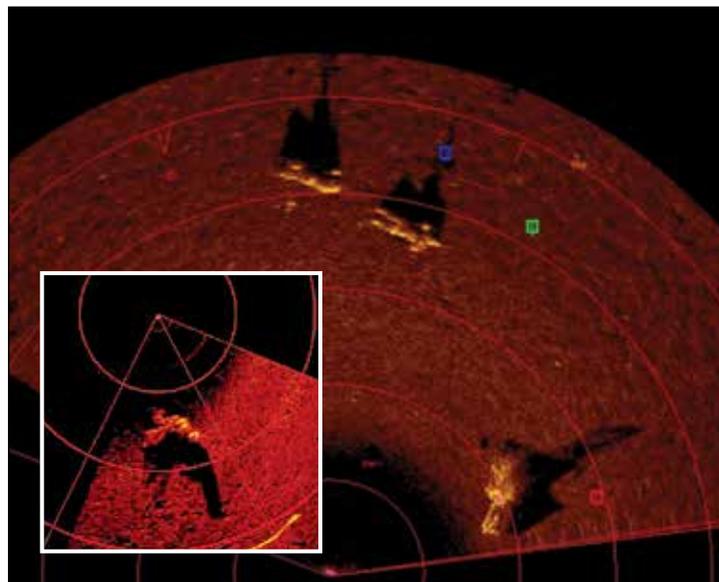
Kongsberg's Underwater Search & Recovery (SAR) system is routinely used world-wide by first responders, military and law enforcement agencies when searching for victims of drowning, submerged evidence and vehicles, as well as downed aircraft.

- Saves time
- Increases diver safety
- Provides digital records of search and any findings

The high-resolution sonar head is frequently mounted on a tripod but another highly effective platform is a remotely operated vehicle (ROV). ROVs provide an additional rapid response tool in SAR operations. The ROV delivers a mobile platform to allow divers to perform recovery operations quickly and safely. ROVs equipped with sonar can direct divers to targets while avoiding underwater hazards and in limited visibility.

### ROV Use in SAR

- Increased diver safety
- Portability and rapid deployment
- Ability to search a larger area quickly
- Minimum training time required; minimum operating personnel required
- Ability to safely perform extractions (e.g. explosive recovery or other forms of suspected live ammunition)
- Ability to be used in contaminated water and with hazardous materials
- Ability to be deployed deeper than a diver and on longer searches
- Relatively inexpensive



Top: Under ice body search and recovery—snowmobile and two victims.  
Image courtesy **Hennepin County Dive Team**

Top inset: Homicide victim

Bottom: Mini sonar head mounted on lightweight ROV.  
Photo courtesy **SeaBotix**



### Kongsberg Imaging Sonar

High-resolution imaging sonar is a very effective tool when used on ROVs for searching in limited visibility, target detection and identification, object positioning and avoidance. Kongsberg manufactures two types of high-resolution sonar heads that are used successfully on ROVs, multi-frequency mechanical scanning mini sonars and 2D multibeam sonars.

Far left: The 1171 Series 650m multi-frequency scanning mini sonar head. Left: The Kongsberg M3 sonar head.



## 650m Multi-Frequency Sonar

The 650m multi-frequency mechanical scanning mini sonar head is designed for operations where size and weight are critical performance criteria and is ideally suited for use on observation and light work class ROVs. Advanced electronics produce the best quality and highest resolution images.

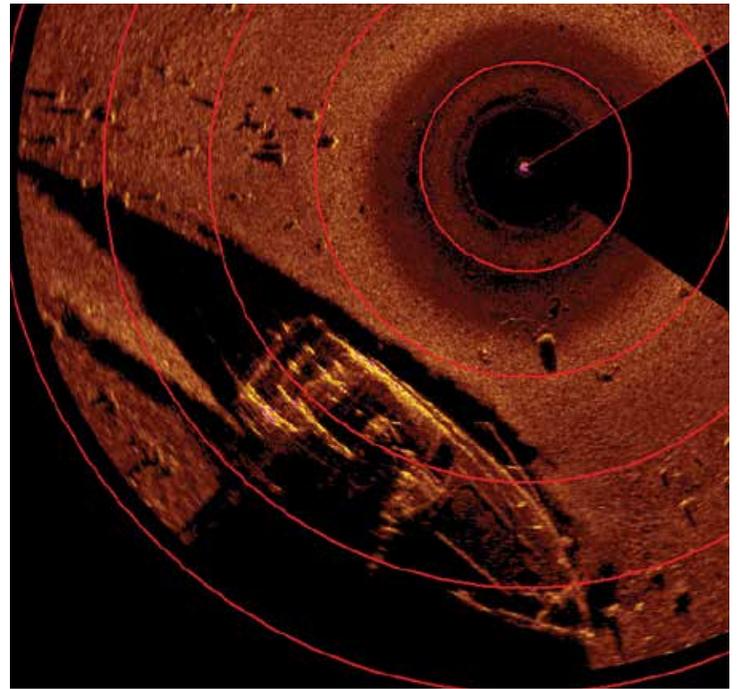
### The 650m Multi-Frequency Sonar offers:

- Multi-frequency capability provides navigation, search and target confirmation in a single compact unit
- Increased search efficiency which can result in shorter search time
- Increased range performance delivering high resolution images
- Operation in zero visibility
- Great resolution and discrimination of closely spaced targets at long ranges
- Low power consumption



## M3 Multibeam Sonar

The M3 Sonar System provides high resolution and easy to interpret images by combining the rapid refresh rate of a conventional multibeam sonar with image quality comparable to a single-beam sonar. Compact



*Sunken 12m cabin cruiser located in the Baltic Sea using scanning sonar.  
Image courtesy TUUKRITÖÖDE OÜ, Estonia*

and lightweight, the M3 Sonar can be used on a wide range of ROVs.

### The M3 Sonar offers:

- Significant time savings during operations
- Real-time imaging
- Enhanced image quality and high refresh rate modes
- Operation in zero visibility
- Superior image quality on a moving platform
- Assistance with navigation

## Support

### Technical Training

Kongsberg provides comprehensive training delivered on site for groups of up to 24 people. Larger groups can be accommodated upon request. Kongsberg also offers sonar application and data interpretation support.

### Repair and Upgrade Services

Equipment repairs are available at Kongsberg Mesotech Ltd.'s manufacturing facility and strategically located

affiliates. Upgrades and major rebuilds are completed at the manufacturing facility. Please call toll-free +1.888.464.1598 or email [km.sales.vancouver@kongsberg.com](mailto:km.sales.vancouver@kongsberg.com) for more information. Software updates can be downloaded directly from the Kongsberg Mesotech Ltd. FTP site at [ftp.kongsberg-mesotech.com](ftp://kongsberg-mesotech.com).

### Telephone Support

Please call toll-free +1.888.464.1598 for support Monday to Friday, 8:00am - 4:00pm PST.

Copyright © 2013, Kongsberg Mesotech Ltd.



### Kongsberg Mesotech Ltd.

1598 Kebet Way,  
Port Coquitlam, BC  
V3C 5M5  
Canada

Telephone: +1.604.464.8144 / +1.888.464.1598  
Telefax: +1.604.941.5423  
[www.kongsberg-mesotech.com](http://www.kongsberg-mesotech.com)  
[km.sales.vancouver@kongsberg.com](mailto:km.sales.vancouver@kongsberg.com)



KONGSBERG