TITLE: Port security: basics of defence against underwater intruders

DATES: 1-2 November 2010 (just before WSS2010 conference)
COST: 600 € (+100 € after October 4, 2010)
INSTRUCTORS: Vance Crowe[1], Mark Hallett[2], Ron Kessel[3], Tom Pastore[3]
[1]DRDC, Defence Research and Development Canada - Atlantic, Halifax, Canada
[2]DSTO, Defence Science and Technology Organisation, Sydney, Australia
[3]NURC, NATO Undersea Research Centre, La Spezia, Italy

ABSTRACT: Port authorities, police, and militaries are increasingly being asked to supply security on the waterside in ports, for the protection of visiting military ships, cruise liners, high-profile events, and hazardous goods during times of elevated threat. Security in the underwater domain is new and uses specialized technologies, both for surveillance and response. The course will be an introduction to technologies for security against underwater intruders and their use in practice.
Foremost will be the diver detection sonar, with a review of principles, practical matters of deployment, operation, and automation, performance strengths and weaknesses, and quality assurance. Hands-on experience with a commercially-available diver detection sonar with divers in the water will be included.
Practical treatment of underwater intruder imaging sonars, sea-surface surveillance sensors and their use together with the sonar underwater picture, underwater warning and response technologies, will also be included.

WHO SHOULD ATTEND?

- security providers,
- persons who specify, recommend and use underwater surveillance systems
- civilian and military
- security officers.

Knowledge of sonar is not a prerequisite.

DETAILED CONTENT

- Commercial diver detection sonar: Principles, deployment, automation, environmental issues, detection range, comparing systems for procurement, quality assurance
- Hands-on familiarization (1/2 day) with commercially-available diver detection sonar with divers in the water and towed targets
- High-resolution sonar imaging of the underwater scene

- Nets and barriers
- Other sensors (LIDAR, FLIR, radar...) and sensor mix
- Technologies for response: imaging sonar, vectored response, underwater warning, emerging non-lethal weapons.

INSTRUCTORS

Four experts from research institutes (NURC, and two DRDC and AUS) will give instruction from their experience. The course will be conducted with independence from manufacturers to permit unfettered, objective treatment.

Vance Crowe

Since graduation with honours Physics and MScEE, Vance has worked on underwater acoustics for DRDC Atlantic and NURC. For the last six years, he has been part of a Maritime Force Protection Project. This MFP project for the Canadian Navy covers topics ranging from underwater explosives to operational research. In that time, Vance led or took part in over 20 trials of diver detection and classification sonar in six different harbours around the world. Nearing completion, the MFP project has fielded an underwater protection system that is integrated with navy base operations in Halifax.

Mark Hallett

Mark Hallett completed his B.Sc. degree with Honours from University of New South Wales in 1998 majoring in Physics. He joined the Maritime Operations Division of DSTO in 1999 working in the Mine Warfare Group until 2006. His areas of work included: development and deployment of underwater multi-influence ranges, acoustic signal processing, analysis of ship acoustic, magnetic & electric signatures and techniques for emulation minesweeping. Since 2006, Mark has worked in the Maritime Security Group of MOD undertaking studies into force protection and security of naval ships in port and technologies for above water and underwater harbour security.

Ron Kessel

Ronald T. Kessel holds advanced Degrees in Electrical Engineering and Physics. He worked for the Canadian Government at Defence R&D Canada on topics in mine countermeasures, automated target recognition, and human factors in automated detection systems, which led to topics in long-range, multi-agency maritime security. For the last four years he has been programme manager of technology for harbour protection at the NATO Undersea Research Centre (NURC), working on military and civilian waterside security. He manages the port protection at NURC and conducts military experimentation for NATO.

Tom Pastore

Tom Pastore received degrees from the University of Colorado at Boulder, University of Hawai`i at Manoa, and Pennsylvania State University. Mr. Pastore joined the staff of NURC in May 2007 working on projects in port and harbour protection. The programme of work in 2007-10 involved classification sensors for subsurface threats (e.g divers) and the relevant system architecture to bring such sensors to bear. This led to experimentation with manned and unmanned surface vehicles (USVs), moving from remote control to autonomous behaviours, and expanding the applicability of USVs towards faster surface threats. Prior to his

employment at NURC, Mr. Pastore worked on port and littoral surveillance systems at SPAWAR Systems Center – Pacific in San Diego, California and previously Kaneohe Bay, Hawai`i. He has led the development and integration of several systems for fixed installations and expeditionary deployments integrating sonar, radar, visual and thermal cameras, magnetometers, and more. Furthermore, he has supported the initial customer use of such systems in exotic locations across the globe.

COST DETAILS

Details include course material, sea experiment, coffee breaks, lunches and dinners for the whole course duration (no separate billing possible).
For students, the lodging cost is also included. Students MUST provide student ID.
Student lodging is achieved in dorm type accommodations.

For further information please contact corall@nurc.nato.int