



POSITION DESCRIPTION

Position Title:	Undersea Warfare Sonar Systems Modeller
Position Reference Number:	MDR&I002
Division	Maritime
Position Classification:	S&T 3
Position Location:	Edinburgh, SA
Security Level:	Negative Vetting 1 (SECRET)
Minimum Academic Qualification:	Honours
Enquiries:	Dr. Robert O'Dowd robert.odowd@dst.defence.gov.au (08) 7389 6546

Academic Disciplines

<input type="checkbox"/>	Aerospace/ Aeronautical Engineering, Naval Architecture	<input type="checkbox"/>	Chemical, Radiological, Biological, Food sciences	<input type="checkbox"/>	Materials Science
<input type="checkbox"/>	Computer Sciences, IT, Software Engineering, Telecommunications	<input checked="" type="checkbox"/>	Mathematics and physics	<input type="checkbox"/>	Psychology and Social Sciences
<input checked="" type="checkbox"/>	Mechanical and Mechatronic Engineering (including robotics)	<input type="checkbox"/>	Electronic/ Electrical Engineering	<input checked="" type="checkbox"/>	Other (Meteorology or Oceanography)

Position Overview

Defence is making a multi-billion dollar investment in undersea warfare capability over coming decades by acquiring ships, submarines and aircraft that use sonar to search for enemy submarines. Sonar provides the greatest ability to detect submarines, but is strongly affected by undersea environmental conditions. Maritime Division is seeking a candidate to join a small team of scientists to build expertise in understanding and exploiting changing environmental conditions to maximise the performance of sonar systems for tactical advantage. This expertise will underpin quantitative advice to Defence concerning options to optimise both Australian submarine capability and Australia's capability to counter enemy submarines.

You will contribute to a research program conducting modelling and analysis of current and future Undersea Warfare Sonar Systems. The work will include developing and using physics-based models to assess the performance of both conventional and advanced sonar technologies and processing systems. A key component of the work is modelling the undersea environmental acoustic effects that impact sonar performance.

Position Duties

Under guidance and as part of a small team the Undersea Warfare Sonar Systems Modeller will:

1. Conduct modelling and analysis to understand and assess the performance of conventional and advanced undersea warfare sonar technologies and processing systems;
2. Develop expertise in physics-based models of sonar systems and undersea environmental effects that impact sonar system performance;
3. Contribute to research and development to increase undersea warfare capability through an improved understanding of sonar systems and undersea environmental effects that impact sonar system performance;
4. Engage with the military community to understand, develop, and deliver analysis to meet client needs;
5. Engage with the Australian and international scientific communities to further advance understanding and application of physics of the undersea environment that relates to sonar system performance;
6. Communicate, document and report on technical outcomes to DST, Defence clients and other stakeholders.

Other Requirements

There will be opportunities to participate in field trials on commercial and Royal Australian Navy vessels to collect data for use in sonar system modelling.