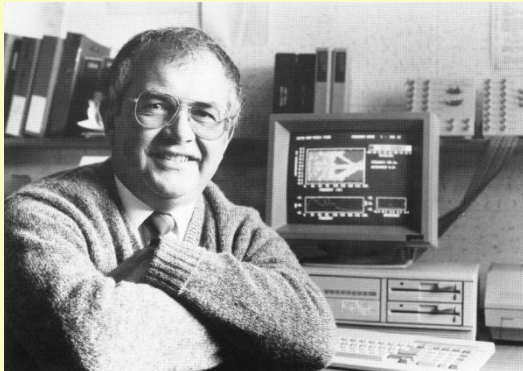


CONTRIBUTORS

Original DSTO Scientists and Engineers

Butement and d'Assumpcao laid the foundations of the directional sonobuoy system in 1964 but it had a very long way to go before it could become a reality. A large number of engineers and scientists worked in teams to solve many extremely challenging problems that were encountered in the sonobuoy project. A few who made major contributions are mentioned here.

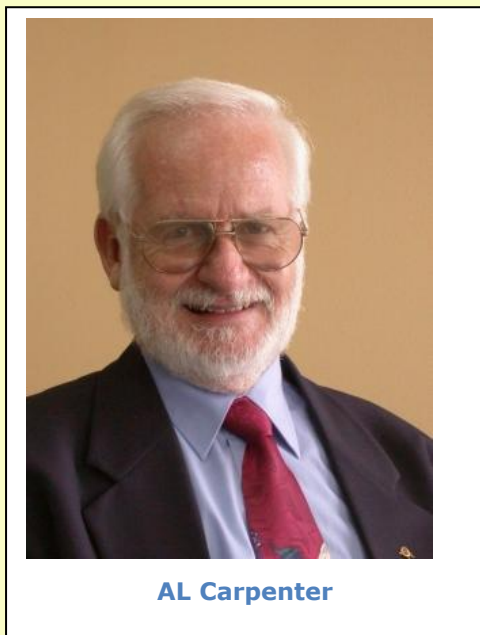


GC Mountford

Graham Mountford is a scientist, not an engineer, but personally made many engineering contributions to the development of Barra. He worked with and led teams of engineers studying signal processing and developing equipment and software; planned and directed trials of Barra and of towed arrays; and developed undergraduate and Master of Engineering courses in signal processing and systems engineering.

He started his career in DSTO, rising to Senior Principal Research Scientist before working in Australia Sonar System as Director Research and Development. He then worked for Thomson Marconi Sonar and Thales Underwater Systems as Advanced Products Manager.

He is a good example of successful linkages between DSTO and industry.



AL Carpenter

Allan Carpenter is a Mechanical Engineer who specialised in equipment development.

He began his career with the then Department of Supply as a Cadet Engineer in 1959, and after completing graduate and postgraduate studies joined DSTO, progressing from Scientific Officer to Senior Principal Research Scientist. He made contributions to the Barra developments both in system design and in development and acceptance trials, and subsequently in advanced sonobuoys and towed arrays ([Kariwara](#)), where he established a number of patents.

He left DSTO in 1989 to become a Director, Sonar Technology for Australia Sonar Systems (developing the [Narama](#) towed array); he then worked as a Senior Systems Engineer for Thomson Marconi Sonar/Thales, and finally as Chief Engineer for Pacific Noise and Vibration. He retired in 2008.

He is another example of successful linkages between DSTO and industry.

Many other engineers and scientists made valuable contributions, including Dennis H Brown to operations research, Frank H Cannon, Glenn M Jamieson, Paul S Williams and Ralph N Smith to mechanical design and AG Anderson to electronic design.

Some of the Thales Australia Engineers who have worked on the Barra Sonobuoy



Chris Jenkins is CEO and Managing Director of Thales Australia. Chris started his career in the defence industry as a mechanical engineer with Racal in 1981, Plessey Australia in 1983 and then GEC Marconi in 1990 where he headed up their Underwater Systems business in Australia.

Chris has held a number of senior roles within Thales both in Australia and internationally over a 12 year period.

From 2003 to 2005, he was the CEO of the East/West Consortium lead by Thales in the Netherlands, introducing the national Public Transport Smartcard Program, culminating with system launch in Rotterdam in December 2005.

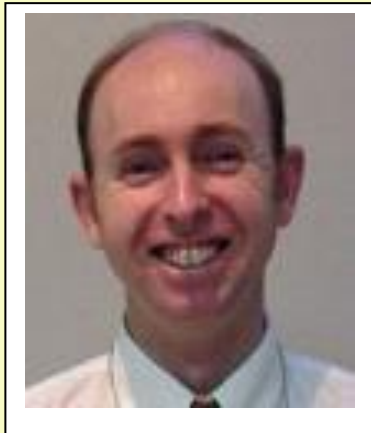
Prior to this Chris was the Managing Director (MD) of Thales Underwater Systems (TUS) from 1999 to 2003 and was a key player in the formulation of TUS as a joint venture for Thales/GEC in 1996. During his time at TUS he was also the director of projects for two years, and marketing and sales director for two years prior to his appointment as MD, TUS.

Chris is Chairman of the Board of Directors for the International Centre for Complex Project Management, and is Chairman of the Advisory Board to the Defence Industry Innovation Centre.



Anthony (Tony) Richard is Technical Manager of ASW Systems for Thales Australia Underwater Systems and is a graduate from Monash University with a Bachelor of Electrical Engineering (Hon). Tony's engineering career began as a design engineer working on radar fuzing system in the Systems and Weapons Division of Thorn-EMI in the UK. He returned to Australia, and worked as a Systems Engineer for Hawker DeHavilland (now Boeing). He later joined Plessey Australia as a Group Leader for FM Systems in their Electronic Systems Division designing CALAID-FM Assisted .Listening Systems for the Hard of Hearing. He then joined the Barra Engineering Group and was responsible for the Barra Hydrophone Amplifier and

Multiplexer as part of the design upgrade during the 5th Barra Contract. Tony has continued to be heavily responsible for the technical direction and design of all new sonobuoy programs undertaken by Thales Australia. He has represented Thales Australia in many international sonobuoy forums.



Paul Baker is the Mechanical Engineering Manager for Thales Australia Underwater Systems. He is a graduate engineer with a Bachelor of Technology (Mechanical Engineering) – Honours from Loughborough University of Technology, England

In 1989 Paul immigrated to Australia and joined GEC Marconi (now Thales Australia) as a Finite Element Analysis specialist. His job was to model mechanical aspects of various sonar systems including sonobuoys. In 1995 Paul joined the Mechanical Engineering Team working on the development of the new variant of the Barra Sonobuoy known as AN/SSQ-801B. The design objective was to simplify and reduce the number of parts

by utilising injection moulding technology and to reduce the cost of manufacture plus to gain performance improvements. By 1996 Paul became the mechanical team leader and has spent many hours at sea conducting successful sea trials on the new design. Since then Paul has been the lead mechanical engineer and designer on all developmental sonobuoys including a new monostatic variant of Barra, known as the [RASSPUTIN](#) Monostatic Sonobuoy (RMS). A design for this was successfully developed and trialled in 2008 including an innovative new deployment technique, which has since been patented.

Some recent graduate Engineers working on Barra Sonobuoy Systems



David Apps is a 23-year-old engineer who graduated BE (Mech) with 1st Class Honours from the University of Sydney.

As an undergraduate he undertook summer vacation work experience with Thales and in his final year of university he completed his thesis which assisted in the development and verification of an Advanced Sonobuoy concept, which combines the Barra Sonobuoy's receiving array with an active transmitter. His thesis involved the dynamic simulation of the sonobuoy using Finite Element Analysis (FEA) in an ocean environment, including the sea's swell

and current influences. This work aided in predicting the types of stresses and movements various components of the sonobuoy would experience in worst case sea conditions.



Jonathan Lau, aged 27, was educated in the University of Technology, Sydney, Bachelor of Engineering, Diploma of Engineering Practice (Mechanical). (BE Dip, Eng Prac (Mech)) – Honours

He joined Thales as an undergraduate student in January 2005 completing a six-month internship in the underwater systems business. In January 2006 he undertook his final year university thesis project with Thales working on the Barra Sonobuoy. The scope of work was to develop components for the Generic Surface Unit, specifically the inflation system and depth select system. This project required him to address all parts of the engineering design process.



Kathy Leak started work with DSTO in 1986 as an Apprentice in Radio Electronics. She worked in a variety of areas of sonar array design and test. Kathy then completed her Bachelor of Engineering (Electronic) 1st Class Honours from the University of South Australia in 2001. Since that time she has worked on Barra-related activities that include the design and testing of Barra acquisition systems and performance trials of multi-static active sonar systems.



Ben McDonald is a 25 year old engineer who graduated with BE (Electrical & Electronic) and BSc (Physics) with 1st Class Honours from the University of Adelaide. He has been with the Maritime Operations Division of DSTO since January 2008. During that time he has worked on the processing and evaluation of the data format for the new multi-bit Barra sonobuoy, and on laboratory electronic systems to help DSTO process sonobuoy data.