

Title: The Hydrodynamic Design of the Queen Elizabeth Class Aircraft Carriers

Presenter: Andrew Harris MRINA CEng, BMT Design and Security Australia

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Time: 2000hrs AEST (UTC +10)

Venue: Zoom (virtual presentation)

Abstract:

The presentation focuses on the hydrodynamic development of the Queen Elizabeth Class Aircraft Carrier. The initial development of the ship design focussed on a podded propulsion hullform prior to the adoption of the twin shaft arrangement.

Suitable hullform parameters were obtained from a database of previous tank tests indexed by non-dimensionalised resistance, followed by station fitting and hull fairing. An extensive programme of work to achieve acceptable propulsive efficiency, propeller induced vibrations and cavitation performance was undertaken. Numerical tools, towing tanks and cavitation tunnels were used. The manoeuvring and seakeeping performance of the final design have also been examined in a series of seakeeping and manoeuvring tests undertaken in the Ocean Basin at Haslar

About the presenter:

Andrew Harris CEng MRINA is a Naval Architect originally from the UK but now living and working in Australia for BMT Design and Security Australia. He has an extensive background spanning across 24 years in naval ship design and in-service support, for both surface and subsea platforms.

Some of the highlights of Andrew's career to-date are:

- Studied Ship Science at the University of Southampton, graduated in 1995;
- 4 years of in-service support of nuclear submarines as a constructive naval architect;
- 18 months of surface warship naval architecture constancy, mainly stability and structures;
- 10 years contracted to the Queen Elizabeth Class aircraft carrier program as Hydrodynamics and Stability Lead, then Platform Architecture Manager (design management of all naval architecture except structures);
- 2 years seconded to UK MoD on concept mine countermeasures and hydrography capabilities;
- 2 years contracted to BAE Systems as Engineering Manager for stability on the Type 26 Global Combat Ship program;
- Ran BMT's UK defence naval architecture department for 3 years;

Spent a brief period working in the megayacht industry then emigrated to Adelaide and joined BMT Defence and Security Australia as a Principal Naval Architect in January 2019.